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Consulting Engineers
and Scientists

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July 21, 2009
PBW Project No. 1358

Mr. Mark Arthur
MC-127
Environmental Cleanup Section I, Team 3, Remediation Division
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Re: APAR Addendum and Response to Comments
Union Pacific Railroad Houston Wood Preserving Works Facility
4910 Liberty Road Facility, Houston, Texas
Post-Closure Care Permit No. HW-50343; Industrial SWR No. 31547

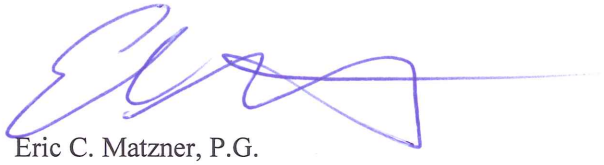
Dear Mr. Arthur:

Pastor, Behling & Wheeler, LLC (PBW), on behalf of Union Pacific Railroad Company, is providing with this letter the Affected Property Assessment Report (APAR) Addendum for the UPRR Houston Wood Preserving Works Facility (the Site). In addition to the APAR Addendum, written responses to comments provided by the Texas Commission on Environmental Quality (TCEQ) on the Revised APAR dated June 10, 2004 that are pertinent to this addendum are provided in Attachment A of this letter. The TCEQ issued a series of comment letters dated October 8, 2004, April 15, 2005, and August 1, 2005, with UPRR responses issued on November 19, 2004, June 9, 2005, and September 6, 2005. To aid in the review of the responses, the TCEQ comments and associated responses are consolidated.

If you have any questions or need additional information, please feel free to call me at (512) 671-3434 or Mr. Geoffrey Reeder of UPRR at (281) 350-7197.

Sincerely,

PASTOR, BEHLING & WHEELER, LLC



Eric C. Matzner, P.G.
Senior Hydrogeologist

cc: Waste Program Manager, TCEQ Region 12, Houston
Mr. Geoffrey Reeder, P.G., UPRR – Spring, TX

ATTACHMENT A

CONSOLIDATED RESPONSES TO TCEQ COMMENTS
UPRR HWPW REVISED APAR

1. Revise *Section 2.2.2 Water-Well Survey* (page 6) to summarize the findings of additional efforts completed to identify neighborhood water-well locations and use.

RESPONSE:

An updated water well survey was completed, as well as investigating the location of a suspected water well in the neighborhood northwest of the Site. Details of the water well inventory are provided in Section 2.0 of the APAR Addendum.

2. The following information is needed for the Tier 1 Ecological Exclusion Criteria Checklist: a) complete the assessments of the drainage ditches (SWMU 2) and inactive wastewater lagoon (AOC6); b) further evaluate the ecological habitat in the area of the drainage ditches (if affected property exists offsite along the ditch(es)) and inactive wastewater lagoon (AOC 6); and, c) use the information from 2.a and 2.b to determine if these areas meet the exclusion criteria in Part II of the checklist.

TCEQ Comment on Response to Comment (RTC) 2 – A Tier 2/3 Ecological Risk Assessment (ERA) of the southern drainage ditch will not be necessary if: a) the chemicals of concern (COCs) concentrations in soil/sediment (0-6 inches) along the southern drainage ditch are at or below background levels; or, b) the COCs concentration in soil/sediment along the southern drainage ditch are above background, but an expedited stream evaluation demonstrates that the ditch meets the qualifying criteria for an expedited stream evaluation and downstream affects are not apparent. Section 2.6.2 of the agency's 2001 Ecological Risk Assessment Guidance provides details regarding the criteria for determining if an expedited stream evaluation is appropriate, and details (sampling and analytical requirements, decision criteria) regarding the evaluation of potential downstream affects. If the ditch meets the qualifying conditions, the ditch will not need further evaluation (from an ecological standpoint) unless the downstream analyses reveal impacts. In this case the ditch would be evaluated as a secondary source of COCs.

For the inactive wastewater lagoon, we recommend that UPRR determine whether the area is predominantly wet or dry (see Section 3.9.2.6 of the agency's 2001 Ecological Risk Assessment Guidance). If UPRR determines that it is predominantly wet much like a marsh/wetland environment, then UPRR should perform a Tier 2 ERA using sediment samples collected in the former lagoon. If UPRR determines that the area is predominantly dry and the media is characterized as soil rather than sediment, we suggest that the area be evaluated to determine if the soil conditions meet the exclusion criteria of the Tier 1 Exclusion Criteria checklist. It is possible that the area could meet the disturbed ground or *de minimus* exclusion criteria at Subparts B and D (of Part II) of the checklist. If the exclusion criteria are not satisfied, UPRR would need to perform a Tier 2 ERA using soil samples collected in the former lagoon.

RESPONSE:

PBW conducted an Expedited Stream Evaluation (ESE) of the drainage ditch (SWMU 2) and the inactive wastewater lagoon (AOC 6). Details of the ESE are provided in Section 9.0. Photographic documentation of the areas is provided in Appendix 13 of the APAR Addendum.

3. Revise *Section 3.1 Identification of Source Areas* (page 8) to identify the basis for determining that an

RFI of AOCs 3, 4, 5, and 7 was not required. Please note that a survey is required for underground utilities at affected property to determine whether they are threatened or affected, or may be or are known preferential migration pathways for contamination.

RESPONSE:

Initial response to Comment No. 3 was provided by ERM in a letter dated November 19, 2004. PBW conducted an additional assessment of the underground utilities in and around the Site, as discussed in Section 3.0 of the APAR Addendum.

4. Revise *Section 3.2 Description of Source Areas* (pages 9-10) to describe how wastewater and sludge were generated and managed (conveyed, treated, and disposed) during the active life of the facility. Provide a site figure illustrating your response.

RESPONSE:

Little information on the generation and management of wastewater at the facility was found during the file review. Details from the RCRA Facility Assessment (RFA) conducted by PRC in 1993 are provided in Section 1.2 and a copy of the RFA is provided in Appendix 11 of the APAR Addendum.

5. Revise the *Section 3.4 Previous On-Site Remediation* (page 11) to provide a figure identifying the location of the two petroleum storage tank removals and the dimensions (horizontal and vertical) of previous soil removals at the drainage ditch (SWMU 2), inactive wastewater lagoon (AOC 6), and at any other SWMU/AOC. Revise the text to: a) summarize the previous soil removals and indicate how the excavated areas were restored; and, b) indicate how the southern drainage ditch became heavily contaminated.

RESPONSE:

Details of the previous remediation activities at the Site are provided in Section 1.2 and shown on Figure 1A-3 of the APAR Addendum.

6. Provide geologic cross-sections which show the information as instructed by *Attachment 2F Cross-Sections* of the APAR Form (page 9). The number of cross-sections should be adequate to illustrate the areas exceeding assessment levels (affected property) and PCLE zones for each media, and the extent of non-aqueous phase liquid (NAPL).

RESPONSE:

Revised geologic cross sections are provided in APAR Addendum Section 4.0 as Figures 4C-1 through 4C-4.

7. Complete an underground utility survey as instructed by the APAR Form. Conduct assessment, as necessary, to determine whether an underground utility is threatened, affected, or a preferential migration pathway for contamination.

RESPONSE:

The underground utility assessment is detailed in Section 3.0 of the APAR Addendum.

8. The soil assessments for the southern drainage ditch (SWMU 2) and AOC 6 are unacceptable. Therefore, propose how SWMU 2 and AOC 6 will be assessed to determine whether chemicals of concern (COCs) are present above assessment levels and critical PCLs, and if so, delineate the extent (horizontal and vertical) of the COCs to define the affected environmental media and PCLE zones.

TCEQ RTC 8 – UPRR will also assess the area along the southern drainage ditch that was excavated in 1995 and 1997. One soil/sediment sample will be collected from 0 to 6 inches every 200 feet, and another sample representative of native soil at the excavation limit will be collected every 100 feet. Regarding the excavated area at the inactive wastewater lagoon, the second sample from each proposed boring will be representative of native material (soil/sediment) at the excavation limit.

RESPONSE:

Additional soil samples were collected in 2006 to 2009 from SWMU No. 2 and AOC 6. Details of that assessment are provided in Section 4.0 of the APAR Addendum.

9. Source area soil assessment of the water treatment and boiler system (SWMU 6) components and the aboveground storage tanks (SWMU 8) is required. Therefore, propose how SWMUs 6 and 8 will be assessed to determine whether chemicals of concern (COCs) are present above assessment levels and critical PCLs, and if so, delineate the extent (horizontal and vertical) of the COCs to define the affected environmental media and PCLE zones.

RESPONSE:

Additional surface and subsurface soil samples were collected in the vicinity of SWMU No. 6 and 8, which are discussed in Section 4.0 of the APAR Addendum. Also, additional groundwater monitoring wells were installed in or around the SWMUs to evaluate COCs in groundwater in these potential source areas. Details of the groundwater investigation are provided in Section 5.0 of the APAR Addendum.

10. Identify where the cooling tower was located and propose source area assessment at this unit for chromium and any other potential COC.

RESPONSE:

The cooling tower for the boiler system was located within SWMU No. 8, as shown on Figure 3B in Section 3.0 of the APAR Addendum.

As detailed in the ERM response letter dated November 19, 2004, chromium is not a COC on the RCRA Permit, Compliance Plan or RFI Work Plan. UPRR does not propose adding chromium to the COC list because the current list of COCs are the primary indicators for wood treating facilities, as approved by TCEQ for the RFI, and no changes to site conditions or the level of understanding has occurred that warrants a change to the COCs list.

11. Specifically show where the wood treatment units and drip pads were located at the facility and demonstrate that the soil assessment especially targeted these units by the placement of borings within and immediately adjacent to these units. Propose additional soil assessment if the units and pads were not assessed as indicated above.

RESPONSE:

As shown of Figure 11A of the APAR Addendum, the Site surface soils have been well characterized with sufficient coverage to evaluate potential source areas at the Site. Details of the SWMUs and AOCs were provided in the RCRA Facility Assessment Report dated October 1993, which a copy is provided in Appendix 11 of the APAR Addendum.

12. Revise *Figure 6-2 Subsurface Soil PCLE Zone Map* to propose the following additional soil borings to delineate the extent of subsurface soil PCLE zones: a) one boring west, one boring north, and one

boring east of SB-03; b) one boring east of SB-07/SB-08; c) one boring west of MW-17 and MW-31A; d) one boring east of MW-30A; e) one boring west, one boring north, and one boring east of SB-04; and, f) one boring at SB-07/SB-08 to delineate the vertical extent of affected soils.

TCEQ RTC 12 – Responses to Comments 12.a through 12.e are accepted. Regarding Comment 12.f, UPRR will move proposed monitor well MW-55C to be at soil boring locations SB-07/SB-08. No soil samples are to be collected for assessment purposes during the drilling of MW-55C.

RESPONSE:

The subsurface soil assessment was re-evaluated for this APAR Addendum to include only soils between 5 feet and to the top of the A-TZ Unit on site, and from 15 feet to the top of the A-TZ off site. Therefore, a number of soil samples that had been collected below the water-bearing zones were not applicable for evaluating the Affected Property or PCLE Zones. Those data were used for evaluating the potential for dense non-aqueous phase liquids (DNAPL) migrating vertically. Details of the subsurface soil assessment are provided in Section 4.0 of the APAR Addendum.

13. Revise *Figure 6-2 Subsurface Soil PCLE Zone Map* to show the subsurface soil PCLE zone to be connected between onsite MW-17/MW-30A and offsite MW-32A.

RESPONSE:

Details of the subsurface PCLE zone are discussed in Section 11.0 of the APAR Addendum.

14. Revise *Figure 7-1 A-TZ Groundwater PCLE Zone Map* to propose the following additional monitor wells: a) one in between proposed MW-38A and CPT/DP-31A; b) one in between CPT-36A and CPT-37A; c) one east-northeast of MW-18A, just north of the railroad tracks, and west of Lockwood Street; d) one within the Recent Process Area (SWMU 4); e) two within the Original Process Area (SWMU 5); f) one within SWMU 6; and, g) two within SWMU 8. Also, revise *Figure 7-1* to move the locations of proposed monitor wells: a) MW-35A and MW-36A to the south; b) MW-49A to the northeast, south of the railroad tracks, and west of Lockwood Street; c) MW-50A to the north and just south of the railroad tracks; and, d) MW-51A to the north-northeast and just south of the railroad tracks.

TCEQ RTC 14 – Responses to Comments 14.a through 14.d and 14.f are accepted. Regarding Comments 14.e and 14.g, UPRR will complete one temporary monitor well at soil boring locations SB-07/SB-08 and one temporary monitor well near the center of the Aboveground Storage Tank Area to further access the groundwater quality of the A-Transmissive Zone for non-aqueous phase liquids (NAPL) and dissolved phase COCs.

RESPONSE:

Fourteen additional A-TZ monitoring wells and two small diameter piezometers (installed near SB-07/SB-08 (TPZ-01) and within SWMU no. 8 (TPZ-02)) were installed at the Site from August 2006 through January 2009. Groundwater data collected in January-February 2009 from the groundwater monitoring network indicate that COCs in the A-TZ have been delineated to TRRP Residential Assessment Levels (RALs). Details of the groundwater assessment are provided in Section 5.0 of the APAR Addendum.

15. Revise *Figure 7-3 C-TZ Groundwater PCLE Zone Map* to propose the following additional monitor wells: a) one east of MW-18C, south of MW-44C, and just north of the railroad tracks; b) one west of MW-18C within SWMU 8; and, c) one within SWMU 5. Also, revise *Figure 7-3* to move the locations of proposed monitor wells: a) MW-52C and MW-55C to the south; and, b) MW-47C to the

north-northwest and just south of the railroad tracks.

RESPONSE:

From August 2006 through January 2009, three additional C-TZ monitoring wells were installed, and in June 2008, hydropunch samples from the CPT/ROST investigation were collected. Based on this data, COCs in the C-TZ are delineated to RALs. Details of the assessment are provided in Section 12.0 of the APAR Addendum.

16. Pentachlorophenol (PCP) is a COC at the facility. Chlorinated dibenzodioxins and chlorinated dibenzofurans (collectively referred to as dioxins) exist as impurities in commercial grade PCP and are considered companion products (30 TAC 350.71(k)) to PCP. Therefore, propose additional assessment of the affected property for dioxins to determine whether they are present above assessment levels and critical PCLs at source areas, and if so, delineate the extent (horizontal and vertical) of the dioxins to define the affected environmental media and PCLE zones. A COC-specific approach for evaluating dioxins in soil is described in 30 TAC §350.76(e) and is also applicable to groundwater.

TCEQ RTC 16 - To determine whether dioxins are a COC, UPRR will also collect one soil sample at soil boring locations SB-07/SB-08 and one soil sample at SB–04. The soil samples will be collected from approximately 2-4 feet and analyzed for pentachlorophenol (PCP) and dioxins. The analytical methods used will be capable of quantifying PCP and dioxins to a concentration that is at or below the residential assessment level.

RESPONSE:

Surface soil samples were collected near SB-07/SB-08 (TW-01 (2-4')) and near SB-04 (MW-52A (2-4')) and were analyzed for dioxins (chlorinated dibenzodioxins and dibenzofurans). The results were less than RALs for surface soils. Details of the evaluation are provided in Section 4.0 of the APAR Addendum.

17. Revise the text and tables in *Appendix F Screening COCs from PCL Development* to identify the criteria used to screen COCs from PCL development as 30 Texas Administrative Code §350.71(k)(1), §350.71(k)(2)(A), §350.71(k)(2)(B) or (C), §350.71(k)(2)(D), §350.71(k)(2)(E), or §350.71(k)(3).

RESPONSE:

An updated COC screening evaluation is provided in Section 10.0 of the APAR Addendum to reflect the criteria used to screen COCs from PCL development per 30 Texas Administrative Code §350.71(k).

18. PCP PCLE Zones - UPRR will propose surface soil sample locations to confirm the PCP results of the 1997 soil data and to confirm the location and extent of the protective concentration level exceedance (PCLE) zones for PCP which were based in part on the 1997 soil data.

RESPONSE:

Details of the PCP resampling evaluation are provided in Section 4.0 of the APAR Addendum.

19. Analytical Data Reporting - UPRR will comply with §350.54(h) for reporting nondetected results. If the analytical data package from the laboratory includes nominal terms, UPRR will either request the laboratory to follow TRRP 13 and report the data in compliance with §350.54(h) or UPRR will convert the acronyms for nondetected results (e.g., "ND" or "BDL" for "not detected" or "below detection limit", respectively) to the sample quantitation limits (SQLs), for example, "<2.0 ug/L". UPRR will then revise the data summary tables and figures to report the nondetected results as less than the value of the SQL.

RESPONSE:

Figures and tables in the APAR Addendum report data in accordance with TRRP 13 Guidance document.

20. All Summary Data Tables - As done for the detected results, UPRR will revise Tables 6-3, 6-4, 7-3 and 7-4 to highlight the SQLs exceeding the critical protective concentration level (cPCL). Also, Table 6-3 will be revised to identify the sample depth interval for all the soil samples. Finally, the text associated with the tables will discuss the findings and conclusions drawn from the data in the tables.

RESPONSE:

Soil and groundwater summary tables provided in the APAR Addendum highlight SQLs that exceed the cPCLs.

21. All PCLE Zone Figures - UPRR will revise all PCLE zone figures to present both the detected concentrations and the SQLs for the indicator COCs used to define the nature and extent of the PCLE zones in soil and groundwater. As done for the detected results, UPRR will highlight the SQLs exceeding the cPCL. Also, the legends for the figures will be revised to identify the cPCL for each indicator COC. Finally, the text associated with the figures will describe the logic used to derive the indicator COCs.

RESPONSE:

Soil and groundwater figures provided in the APAR Addendum show the SQLs that exceed the cPCLs.

22. Total Petroleum Hydrocarbons (TPH) Assessment - The limited soil sampling for TPH shows that TPH is a COC in surface and subsurface soil. UPRR needs to re-evaluate the soil cPCL for TPH which is currently 30 mg/Kg and then verify the PCLE zones for TPH have been adequately defined to the cPCL.

RESPONSE:

Through discussions with the TCEQ, we have argued that the site-specific COCs (i.e., benzo(a)pyrene, naphthalene, etc.) are better indicators of impacts to media at the Site than TPH concentrations, in which the TCEQ agreed in a meeting. The rationale is that evaluating the Site using site-specific COCs will be a more conservative assessment of the Site compared to a TPH PCL (i.e. following TRRP-27 Guidance). Therefore, the Affected Property Assessment focused on the site-specific COCs, not including TPH.

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Program ID No. (primary): SWR 31547 Report date: July 13, 2009
TCEQ Region No.: 12 MSD Certificate No.: NA
Additional Program ID Numbers.: SWR/Facility ID No.: SWR 31547 PST Facility ID No.: NA
DCRP ID No.: NA VCP ID No.: NA LPST ID No.: NA
MSW Tracking No.: NA HW Permit/CP No.: 50343 Enforcement ID No.: NA
Other ID Nos.: EPA ID No. TXD000820266

Reason for submittal (check all that apply):
☐ Initial submittal
☐ Revision
☒ Notice of Deficiency Letter
☐ Permit/Compliance Plan
☐ Voluntary response
☐ Enforcement/Agreed order
☐ Directive/NOV letter
☒ Other: Addendum

On-Site Property Information

On-Site Property (Facility) Name: Union Pacific Railroad Houston Wood Preserving Works Site
Street no. 4910 Pre dir: ____ Street name: Liberty Street type: Rd Post dir: ____
City: Houston County: Harris County Code ____ Zip 77007
Nearest street intersection and location description: Site is located south of Liberty Rd. between Kashmere St. and Lockwood St., north of Lee St.

Latitude: Decimal Degrees (indicate one) North 29.787413 N
Longitude: Decimal Degrees (indicate one) West 95.321062 W

Contact Person for On-Site Property Information and Acknowledgment

Company Name or Person: Union Pacific Railroad
Contact Name: Mr. Geoffrey Reeder Title: Site Remediation Manager
Mailing Address: 24125 Aldine Westfield Road
City: Spring State: TX Zip: 77373 Phone: 281-350-7197
Email: GBREEDER@UP.COM Fax: (402) 233-2351
Person is: ☒ property owner ☐ property manager ☐ potential purchaser ☐ tenant ☐ operator ☐
other ____

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of administrative, civil, or criminal penalties.

Signature of Person: Geoffrey Reeder Name(print): GEOFFREY REEDER Date: 071409

Consultant Contact Person

Consultant Company Name: Pastor, Behling & Wheeler, LLC
Contact Person: Eric C. Matzner, P.G. Title: Senior Hydrogeologist
Mailing Address: 2201 Double Creek Drive, Suite 4004
City: Round Rock State: TX Zip: 78664
Phone: 512-671-3434 Fax: 512-671-3446 E-mail address eric.matzner@pbwllc.com

Professional Signatures and Seals

Professional Geoscientist

Eric C. Matzner, P.G.	0795	08/31/09
Professional Geoscientist	Geoscientist License number	Expiration date
Signature	07/13/09 Date	
512-671-3434	512-671-3446	eric.matzner@pbwllc.com
Telephone number	FAX number	E-mail

Professional Engineer

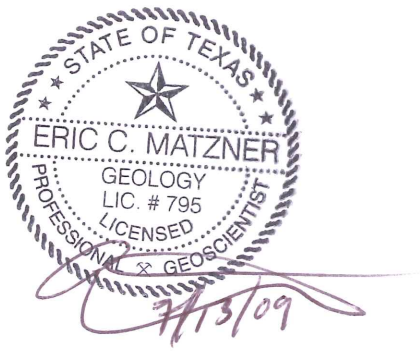
Professional Engineer	P.E. License number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Registered Corrective Action Specialists (RCASs) and Corrective Action Project Managers (CAPMs)

For LPST sites only.

Registered Corrective Action Specialist	RCAS Registration number	Expiration date
Signature	Date	
Corrective Action Project Manager	CAPM Registration number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Seals, as applicable:



Executive Summary

Environmental Media	Actual or Probable Exposures On-Site?		Actual or Probable Exposures Off-Site?		Have notifications for actual or probable exposures been completed? (§350.55(e))		
	Yes	No	Yes	No	Yes	No	N/A
Soil	☒	☐	☒	☐	☒	☐	☐
Groundwater	☐	☒	☐	☒	☒	☐	☒
Sediment	☐	☒	☐	☒	☐	☐	☒
Surface Water	☐	☒	☐	☒	☐	☐	☒

Is there, or has there been, an affected or potentially affected water well? ☐ Yes ☒ No

If yes, what is the well used for? _____

Actual land use: On-site: ☐ Res ☒ C/I Off-site affected property: ☒ Res ☐ C/I ☐ N/A

Land use for critical PCL determination: On-site: ☐ Res ☒ C/I Off-site affected property: ☒ Res ☐ C/I ☐ N/A

Did the affected property pass the Tier 1 ecological exclusion criteria checklist? ☒ Yes ☐ No

Affected groundwater-bearing unit(s) (in order from depth below ground surface), or uppermost groundwater-bearing unit if none affected

Unit No.	Name	Depth below ground surface (ft)	Resource Classification (1, 2, or 3)
1	ATZ	~4 ft to ~15 ft	Class 2
2	BTZ	~30ft to 40 ft	Class 2
3	CTZ	~60ft to 85 ft	Class 2
4	DTZ	~100ft to 125ft	Class 2

Assessment

Environmental Media		Assessment Levels Exceeded?						Affected property defined to RAL?			Is COC extent stable or expanding?	General classes of COCs (VOCs SVOCs, metals, etc.)
		On-Site?			Off-Site?							
		Yes	No	Not sampled	Yes	No	Not sampled	Yes	No	N/A		
Soil	Surface	☒	☐	☐	☒	☐	☐	☐	☒	☐	stable	PAHs/SVOCs
	Subsurface	☒	☐	☐	☐	☒	☐	☒	☐	☐	stable	PAHS/SVOCs
Groundwater		☒	☐	☐	☒	☐	☐	☒	☐	☐	stable	BTEX/SVOCs
Sediment		☐	☐	☒	☐	☐	☒	☐	☐	☒	Not Applicable	
Surface Water		☐	☐	☒	☐	☐	☒	☐	☐	☒	Not Applicable	

NAPL Occurrence Matrix

		NAPL Occurrence	***Description***
NAPL in vadose zone	☐	No NAPL in vadose zone	There is no direct or indirect evidence of NAPL in the vadose zone
	☒	NAPL in/on soil	NAPL detected in or on unsaturated, unconsolidated clay-, silt-, sand-, and/or gravel-dominated soils
	☐	NAPL in fractured clay	NAPL detected in fractures of unsaturated fine-grained soils
	☐	NAPL in fractured or porous rock	NAPL detected in unsaturated lithologic material
	☐	NAPL in karst	NAPL detected in karst environment
NAPL at capillary fringe	☐	No NAPL at capillary fringe	There is no direct or indirect evidence of NAPL at the capillary fringe
	☒	NAPL at capillary fringe	NAPL detected at vadose-saturated zone transition, capillary fringe (in contact with water table)
NAPL in saturated zone	☐	No NAPL in saturated zone	There is no direct or indirect evidence of NAPL in the saturated zone
	☒	NAPL in soil	NAPL detected in saturated unconsolidated clay-, silt-, sand-, and/or gravel-dominated soils
	☒	NAPL in fractured clay	NAPL detected in fractures of saturated fine-grained soil or other double-porosity sediments
	☐	NAPL in saturated fractured or porous rock	NAPL detected in saturated lithologic material
	☐	NAPL in saturated karst	NAPL detected in karst environment within the saturated zone
NAPL in surface water or sediment	☒	No NAPL in surface water or sediment	There is no direct or indirect evidence of NAPL in surface water or sediments
	☐	NAPL in surface water	NAPL detected in surface water at exceedance concentration levels or visual observation
	☐	NAPL in sediments	NAPL detected in sediments at exceedance concentration levels or visual observation via migration pathway or a direct release

Remedy Decision

Environmental Media		Critical PCL exceeded on-site?			Critical PCL exceeded off-site?			PCLE zones defined?			General class (VOCs, SVOCs, metals, etc.) of COCs requiring remedy
		Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	
Soil	Surface	☒	☐	☐	☒	☐	☐	☐	☒	☐	PAHs/SVOCs
	Subsurface	☒	☐	☐	☐	☒	☐	☒	☐	☐	PAHs/SVOCs
Groundwater		☒	☐	☐	☒	☒	☐	☒	☐	☐	BTEX/SVOCs
Sediment		☐	☐	☒	☐	☐	☒	☐	☐	☒	
Surface Water		☐	☐	☒	☐	☐	☒	☐	☐	☒	

NAPL Triggers[1]

NAPL Response Action Triggers		Description of Triggers
☐	No NAPL response action triggers	No NAPL triggers have been observed in any assessment zones (vadose, capillary fringe and saturated), nor in surface water or sediments
☐	NAPL vapor accumulation is explosive	NAPL vapors accumulate in buildings, utility and other conduits, other existing structures, or within anticipated construction areas at levels that are potentially explosive (≥ 25% LEL)
☐	NAPL zone expanding	NAPL zone is observed to be expanding using time-series data
☒	Mobile NAPL in vadose zone	NAPL zone is observably mobile, or is theoretically mobile based on COC concentrations and residual saturation
☐	NAPL creating an aesthetic impact or causing nuisance condition	NAPL is responsible for objectionable characteristics (e.g., taste, odor, color, etc.) resulting in making a natural resource or soil unfit for intended use
☐	NAPL in contact with Class 1 groundwater	NAPL has come in actual contact with saturated zone or capillary fringe of a Class 1 GWBU
☒	NAPL in contact with Class 2 or 3 groundwater	NAPL has come in actual contact with saturated zone or capillary fringe of a Class 2 or Class 3 GWBU
☐	NAPL in contact with surface water	Liquid containing COC concentrations that exceed the aqueous solubility in contact with surface water via various migration pathways or direct release to surface water
☐	NAPL in or on sediments	Liquid containing COC concentrations that exceed the aqueous solubility impact surface water sediments via migration pathway or a direct release

[1] NAPL evaluation based on well installations and gauging events during 2004 through 2009.

CONCLUSIONS AND RECOMMENDATIONS

Assessment Results

The following media have been evaluated for potential chemical of concern (COC) releases as part of investigations conducted at the Union Pacific Railroad (UPRR) Houston Wood Preserving Works Facility at 4910 Liberty Road, Houston, Texas, (the Site): surface soils, subsurface soils, and groundwater. Both the soil and groundwater exposure pathways were evaluated as part of the Site assessment and considered to be complete and/or anticipated to be complete.

The Site is located within unoccupied industrial land, and it is anticipated that the Site will remain commercial/industrial for the foreseeable future. The surrounding properties within a 500-foot radius of the Site consist of residential to the northwest, north, southeast, and south. The UPRR Englewood Yard, commercial/industrial property, is located to the east of the Site. An area of undeveloped land and abandoned houses are located west of the Site. The 500-foot radius field survey demonstrated no current potential groundwater receptors within the residential neighborhood. No water wells, water tanks, cisterns, or windmills, or surface water bodies were encountered. The nearest surface water body is Buffalo Bayou, located approximately 1.6 miles southwest of the Site. The potential for lateral migration of groundwater from the Site to the southwest approximately 8,500 feet to Buffalo Bayou is not likely.

Geological logs from soil/monitoring well borings and cone penetrometer testing (CPT) borings were reviewed to evaluate the subsurface geology at the Site. The lithology at the Site is consistent with the published descriptions of the Beaumont Formation. Site stratigraphy from the ground surface to a depth of approximately 135 feet is separated into the following units: Fill Material (0-3 ft bgs), A-Cohesive Zone (A-CZ) (8 to 15 feet thick); A-Transmissive Zone (A-TZ) (4 to 21 feet thick); B-Cohesive Zone (B-CZ) (6 to 19 feet thick); B-Transmissive Zone (B-TZ) (discontinuous, where present, 3 to 10 feet thick); C-Cohesive Zone (C-CZ) (8 to 20 feet thick); C-Transmissive Zone (C-TZ) (10 to 13 feet thick); D-Cohesive Zone (D-CZ); and D-Transmissive Zone (D-TZ).

A total of 88 groundwater monitoring wells and three temporary wells have been installed on and off-site in the various transmissive zones. Groundwater in A-TZ and B-TZ generally flows across the Site to the east; groundwater flow in the C-TZ flows from northeast to southwest, and groundwater flow in the D-TZ appears to flow to the northwest.

Baildown tests in the B-CZ wells conducted in March 2009 at monitoring wells MW-33B, MW-49B, and MW-63B show estimated yields representative of Class 3 groundwater (<150 gpd). Therefore, for establishing the PCL exceedance zone at the Site, Residential PCLs and $^{GW}GW_{Class3}$ groundwater PCLs were used to evaluate groundwater COCs in the B-CZ. Class 2 groundwater PCLs were used to evaluate groundwater in the transmissive zones (i.e., A-TZ, B-TZ, C-TZ and D-TZ).

Target COCs in soil and groundwater media were evaluated using the March 2009 TCEQ TRRP Residential PCLs to establish the Affected Property. Surface and subsurface soil data collected from 1997 through February 2009 were utilized to determine COC exceedances in soil. Groundwater data from the most recent sampling event (January/February 2009) were utilized to determine COC exceedances in groundwater.

Comparing the surface and subsurface soil analytical data to the Residential Assessment Levels (RALs) (lowest PCL between $^{Tot}Soil_{Comb}$ and $^{GW}Soil_{Ing}$ (Tier 1 and 2)), concentrations of the following COCs exceeded their respective RALs in the surface and subsurface soils:

Surface Soils
- 1,2-Diphenylhydrazine
- 2,4-Dinitrotoluene
- 2-Methylnaphthalene
- Benzene
- Benzo(a)anthracene
- Benzo(a)pyrene
- Dibenzofuran
- Fluoranthene
- Naphthalene
- Pentachlorophenol
- Phenanthrene

Subsurface Soils
- 2,4-Dimethylphenol
- 2-Methylnaphthalene
- Benzene
- Benzo(a)pyrene
- Dibenzofuran
- Naphthalene

Comparing the maximum groundwater concentrations from the January/February 2009 groundwater sampling event, 2008 CPT Hydropunch event, and temporary well (TW) sampling event in March 2007 to RALs, concentrations of 40 target COCs exceeded their respective RALs or had a Sample Detection Limit (SDL) greater than the RAL (>SDL):

VOCs
- 1,1,2,2-Tetrachloroethane (>SDL, A-TZ, TW only)
- 1,1,2-Trichloroethane (>SDL, A-TZ, TW only)

SVOCs
- 2,4-Dimethylphenol (A-TZ only)
- 2-Methylnaphthalene (A-TZ, B-TZ, C-TZ)

VOCs

- 1,1-Dichloroethene (>SDL, A-TZ, TW only)
- 1,2-Dichloroethane (>SDL, A-TZ, TW only)
- 1,2-Dichloroethene (total) (>SDL, A-TZ, TW only)
- 1,2-Dichloropropane (>SDL, A-TZ, TW only)
- Benzene (A-TZ, B-TZ, C-TZ)
- Bromodichloromethane (>SDL, A-TZ, TW only)
- Bromomethane (>SDL, A-TZ, TW only)
- Carbon Tetrachloride (>SDL, A-TZ, TW only)
- cis-1,3-Dichloropropene (>SDL, A-TZ, TW only)
- Dibromochloromethane (>SDL, A-TZ, TW only)
- Dichloromethane (B-TZ only)
- Ethylbenzene (A-TZ, TW only)
- Methylene Chloride (>SDL)
- Tetrachloroethene (>SDL, A-TZ, TW only)
- Toluene (A-TZ only)
- trans-1,3-Dichloropropene (>SDL, A-TZ, TW only)
- Trichloroethene (>SDL, A-TZ, TW only)
- Vinyl Chloride (>SDL, A-TZ, TW only)
- Xylenes (total) (A-TZ, TW only)

SVOCs

- Acenaphthene (C-TZ only)
- Benz(a)anthracene (A-TZ, B-TZ, C-TZ)
- Benzo(a)pyrene (A-TZ, B-TZ, C-TZ)
- Benzo(b)fluoranthene (A-TZ, TW only)
- Benzo(k)fluoranthene (A-TZ, TW only)
- Bis(2-ethylhexyl)phthalate
- Carbazole (A-TZ, TW only)
- Chrysene (C-TZ only)
- Dibenzo(a,h)anthracene (A-TZ, TW only)
- Dibenzofuran (A-TZ, B-TZ, C-TZ)
- Fluoranthene (C-TZ only)
- Fluorene (C-TZ only)
- Indeno(1,2,3-cd)pyrene (A-TZ, TW only)
- Naphthalene (A-TZ, B-TZ, C-TZ)
- n-Nitrosodi-n-propylamine (A-TZ, TW only)
- Phenanthrene (C-TZ only)
- Pyrene (C-TZ only)

Based on the original APAR (ERM, 2000) and Revised ARAR (ERM, 2004), the Site passed the TCEQ Tier 1 Ecological Exclusion Criteria Checklist. However, as stated in the TCEQ comment letters on the Revised APAR dated October 8, 2004 and April 15, 2005 (Comment No. 2 and RTC 2, respectfully), the TCEQ requested that the Inactive Wastewater Lagoon (AOC 6) and South Drainage Ditch southwest of AOC 6 be further investigated to assess if a Tier 2/3 Ecological Risk Assessment (ERA) was necessary to evaluate protectiveness for ecological receptors. Instead of conducting a Tier 2 Ecological ERA, an Expedited Stream Evaluation (ESE) was conducted on the man-man ditch southwest of AOC 6. The results of the ESE indicated that the drainage ditch was not a viable habitat for ecological communities and that a Tier 2 ERA was not necessary. The Inactive Wastewater Lagoon (AOC 6) was evaluated to determine if a response action to address human health would remove potential ecological exposures under the reasoned justification clause. Based on the COCs to be addressed, a response action for soils

would address the ecological pathway.

Critical soil PCLs were established for the Site by using the lower commercial/industrial PCLs for on-site soils and residential PCLs for off-site soils for the following pathways: $^{Tot}Soil_{Comb}$; $^{Air}Soil_{Inh\text{-}V}$ (Tier 1 or 2); and $^{GW}Soil_{Ing}$ (Tier 1 or 2). Comparing the maximum surface and subsurface soil analytical data to the critical commercial/industrial PCLs for on-site and residential PCLs for off-site, concentrations of the following COCs exceeded their respective critical PCLs:

On-Site

Surface Soils
- 1,2-Diphenylhydrazine
- 2,4-Dinitrotoluene
- 2-Methylnaphthalene
- Benzene
- Benzo(a)anthracene
- Benzo(a)pyrene
- Dibenzofuran
- Naphthalene
- Pentachlorophenol

Subsurface Soils
- 2-Methylnaphthalene
- Benzene
- Naphthalene

Off-Site

Surface Soils
- Benzo(a)anthracene
- Benzo(a)pyrene

Subsurface Soils
- None

Groundwater analytical data were compared to the TCEQ TRRP Residential Groundwater PCLs, dated March 2009, assuming the source area greater than 0.5 acre in size (30-acre source area). Critical PCLs were established as the lesser value between residential $^{GW}GW_{Ing}$ and $^{Air}GW_{Inh\text{-}V}$ PCLs. The January-February 2009 groundwater analytical data and CPT Hydropunch groundwater data collected in August 2008 were evaluated for establishing the groundwater PCLE zone. These analytical data are the most representative groundwater data for the Site. Of the site-specific COCs analyzed in groundwater, concentrations of 17 target COCs exceeded their respective critical PCLs (cPCLs):

VOCs
- Benzene
- Dichloromethane
- Toluene

SVOCs
- 2,4-Dimethylphenol
- 2-Methylnaphthalene
- Acenaphthene
- Benz(a)anthracene
- Benzo(a)pyrene
- Bis(2-ethylhexyl)phthalate
- Chrysene
- Dibenzofuran
- Fluoranthene
- Fluorene
- Naphthalene
- Pentachlorophenol
- Phenanthrene
- Pyrene

NAPL Discussion

Evidence of both light non-aqueous phase liquids (LNAPL) and dense non-aqueous phase liquids (DNAPL) has been observed in the vadose zone and in the GWBUs. Approximately 1.2 feet of LNAPL has been observed in the A-TZ at temporary well TW-02 within the AST Area (SWMU No. 8). DNAPL is present in A-TZ on the northern edge and off site to the north. Traces of DNAPL are present in monitoring wells MW-33A and MW-17C, and 6.2 feet of DNAPL has been observed at MW-32A. Monitoring wells MW-20A, MW-26A, MW-30A, MW-35A, MW-36A, and MW-57A installed in A-TZ show the lateral extent of the DNAPL is sufficiently delineated in this area.

DNAPL was detected in the B-TZ along the western boundary of the Site at MW-12B and MW-41B. The DNAPL present on the west side of the facility had a maximum thickness of 21.02 feet observed at MW-41B in February 2009. DNAPL was not detected in monitoring wells MW-38B, MW-39B, MW-40B and MW-P-11, which indicates sufficient horizontal delineation of the DNAPL. DNAPL was detected in one of the wells completed in the aquitard B-CZ located off site to the north of the Recent Process Area. Approximately 5.6 feet of DNAPL was observed at MW-33B in February 2009.

DNAPL is present in the C-TZ extending from the northeast side of the Site at MW-23C to approximately 900 feet off site to the northeast near MW-46C. DNAPL was observed in on-site monitoring well MW-23C, and off-site monitoring wells MW-25C, MW-34C, MW-44C, MW-45C, and MW-46C. Maximum

DNAPL thicknesses observed in the C-TZ during the February 2009 sampling event was 10.7 feet at MW-34C and 9.6 feet at MW-45C.

Data Gaps and Response Actions

Additional surface soil sampling is necessary to delineate COCs off-site north of the Site.

The future land use for the Site is assumed to be classified as commercial/industrial. The Site is covered with crushed gravel and concrete, but has the potential for human health exposure to COCs in the surface soils. UPRR will evaluate developing a response action to address the surface and subsurface soil PCLE zones at the Site in the Response Action Plan (RAP). To address the groundwater PCLE zone, a Plume Management Zone (PMZ) will likely be established with a demonstration of recoverability for the LNAPL and DNAPL that will be provided in the RAP.

UPRR is currently evaluating semi-annual groundwater monitoring for selected wells (i.e., off-site and downgradient perimeter wells) and annual groundwater monitoring to monitor geochemical trends and evaluate monitored natural attenuation of COCs in groundwater for establishing the PMZ.

CHRONOLOGY

Below is a summary of the site investigation and regulatory chronology at the UPRR Former Houston Wood Preserving Works facility (the Site).

Date	Description
May 13, 1991	RCRA Permit Application submitted by Southern Pacific Transportation Company (SPTCo)
October 1993	RCRA Facility Assessment completed on behalf of U.S. EPA by PRC Environmental Management, Inc.
June 20, 1994	Permit No. HW-50343-000 and Compliance Plan CP-50343-000 issued by Texas Natural Resources Conservation Commission (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	Extent of Contamination (EOC) Work Plan submitted on behalf of SPTCo
October 14, 1994	RCRA Facility Investigation (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 by Terranext
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 UPRR by ERM-Southwest, Inc. (ERM).
April 27, 1998	Interim Stabilization Measures Report – Southern Drainage Ditch, submitted to TNRCC on behalf of UPRR by ERM.
September 10, 1999	Phase 2-B RFI/EOC Investigation Report submitted to TNRCC on behalf of UPRR by ERM
February 20, 2000	Letter submitted to the TNRCC regarding proposed Phase 2-C investigation for further delineation of off-site areas
July 10, 2000	Affected Property Assessment Report for On-Site Property (On-Site APAR) submitted to TNRCC on behalf of UPRR by ERM.
November 6, 2000	TNRCC provides comments to On-Site APAR.
January 9, 2001	Initial response to November 6, 2000 TNRCC comments.

Date	Description
July 5, 2001	Follow-up response to November 6, 2000 TNRCC comment letter on the On-Site APAR submitted to TNRCC on behalf of UPRR.
November 7, 2001	TNRCC provides comments to July 5, 2001 response letter.
June 10, 2004	Revised APAR submitted to the TCEQ (Texas Commission on Environmental Quality) by ERM, Inc. on behalf of UPRR
October 8, 2004	TCEQ Comment Letter on Revised APAR
November 19, 2004	UPRR Response to October 8, 2004 TCEQ Letter
April 15, 2005	TCEQ Response to UPRR Response Letter dated November 19, 2004
June 9, 2005	UPRR Response to TCEQ Letter dated April 15, 2005
August 1, 2005	TCEQ Response to UPRR Response Letter dated June 9, 2005
September 6, 2005	UPRR Response to TCEQ Response Letter dated August 1, 2005
April and August 2006	ERM conducted additional soil and groundwater investigation
January 2007	Pastor, Behling & Wheeler, LLC (PBW) conducts additional soil and groundwater investigation
July 2008	PBW conducts additional CPT-ROST and groundwater investigation
January 2009	PBW conducts additional soil and groundwater investigation.

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

SECTION 1.0 PROPERTY INFORMATION

Section 1.1 Physical Location

Property Location and Land Use

Details of the property location, use, topography, and weather have been provided for the Union Pacific Railroad (UPRR) Houston Wood Preserving Works Facility (the Site) at 4910 Liberty Road, Houston, Texas, (the Site) in the following documents:

- Affected Property Assessment Report (APAR), dated June 10, 2000 (ERM, 2000); and
- Revised APAR dated June 10, 2004 (ERM, 2004).

Section 1.2 Affected Property and Sources of Release

History and Operations

Details of the history and previous operations at the Site have been discussed in length in the previously submitted APAR (ERM, 2000) and Revised APAR (ERM, 2004), as well as the RCRA Facility Assessment (RFA) Report (PRC, 1993), which a copy is provided in Appendix 11.

Information on how the facility managed wastewater and sludge material is relatively sparse. Based on the information provided in the RFA, the following solid waste management units (SWMUs) and areas of concern (AOCs) generated, managed, or treated wastewater (Figure 1A-1):

- Southern Drainage Ditch (SDD) (SWMU No. 2)
- Recent Process Area (SWMU No. 4)
- Water Treatment and Boiler System (SWMU No. 6)
- Tank Car Storage Area (SWMU No. 7)
- Aboveground Storage Tank (AST) Area (SWMU No. 8)
- Former Sap Water Treatment Tank (SWMU No. 10)
- Oil/Water Separators (SWMU No. 11)
- Inactive Wastewater Lagoon (AOC No. 6)

As stated in the RFA, sap wastewater from the retort area was discharged into the SDD (SWMU No. 2) and flowed along the SDD to the Inactive Wastewater Lagoon (AOC 6), located southwest of the SDD, until 1975. The facility then discharged sap water from 1975 through 1979 into the City of Houston sanitary sewer under a wet industrial permit, which was revoked by the city in 1979 because of elevated levels of phenols, pH, temperature, and oil and grease in the discharge water. From 1979 through 1984, SPTCo stored wastewater in the Sap Water Treatment Tank (SWMU No. 10) and then transferred to tank cars within the Tank Car Storage Area (SWMU No. 7) for off-site disposal. The tank cars were used to store sap waste water and tank bottoms.

The Water Treatment and Boiler System (SWMU No. 6) was used to generate steam to heat the wood-treatment retort cylinders (PRC, 1993). A cooling tower was also part of the water treatment process. Figure 1A-2 shows the layout of the wastewater system, water treatment system, and oil/water separators at the Site.

Project Overview

Affected Property

This APAR Addendum addresses the Affected Property based on the series of site investigations to satisfy the RCRA Facility Investigation (RFI) and Extent of Contamination (EOC) Investigation from 1995 through 2009. The investigation follows the rules and guidance for the TCEQ Texas Risk Reduction Program (TRRP).

Impacts identified within the Affected Property are attributed to historical releases associated with the Site activities that occurred between 1911 and 1984. Using soil data and most recent groundwater data collected from the Site, an updated Affected Property map for the impacted media was prepared (Figure 1B).

Previous On-Site Remediation

As detailed in the Revised APAR (ERM, 2004), the following remedial activities have been conducted at the Site:

- Inactive Wastewater Lagoon (AOC 6) excavation;
- RCRA Surface Impoundment Closure (SWMU No. 1);
- Underground Storage Tank (UST) Removal (SWMU No. 9, AOC 7, and 3,700-gal UST); and

- Ditch Remediation/Interim Stabilization Measures (SWMU No. 2)

Locations of these previously remediated areas are shown on Figure 1A-3. Details for the soil removal and how the excavated areas were restored are provided below.

RCRA Surface Impoundment Closure

The closed Surface Impoundment was constructed in 1979/1980 in cooperation with the Texas Department of Water Resources (TDWR) to respond to the presence of creosote-affected soils and debris located within the Inactive Wastewater Lagoon (AOC 6) that extended on off-site property directly adjacent to the southwestern border of the site. The Surface Impoundment was not constructed for the purpose of disposing of waste material from the facility; rather, it was a non-operating (i.e., one-time use) waste impoundment from the excavation activities at the Inactive Wastewater Lagoon (AOC 6). Its only purpose was for the on-site storage of off-site creosote-affected soil and debris. On October 17, 1980, SPTCo informed the TDWR of the inactive and closed status of the impoundment.

Subsequently, the impoundment was closed pursuant to the Texas Water Commission (TWC) approved closure plan in 1984. As part of the closure, 5,065 cubic yards of affected materials were removed when the surface impoundment was excavated to a depth of approximately seven feet. Based on existing records, no waste material was left in the impoundment after the 1984 closure activities. The impoundment was subsequently backfilled with clean fill material, vegetated and closed. The closure activities were documented in an April 1984 report by Rollins Environmental Services, Inc.

Underground Storage Tank Removal

Three USTs have been removed from the site:

1. A 2,000-gallon gasoline UST (UST No. 44-023-05, TCEQ LPST No. 97929, SWMU No. 9) and ancillary equipment was excavated and removed from service in June 1990 (SPES, 1990 and SPTC, 1993);
2. A 200-gallon gasoline UST (UST No. 44-023-21, AOC No. 7) was excavated and removed from service in June 1990 (SPES, 1990); and
3. A 3,700-gallon UST and ancillary equipment was removed from service in January 1998 in accordance with TNRCC Petroleum Storage Tank Division requirements (DCC, 1998). The tank was removed from service, excavated, and disposed.

These UST closures were documented in Tank Closure/Removal Reports (Southern Pacific Transportation Company (SPTC), 1993, SP Environmental Services (SPES), 1990 and Cornish & Co., 1998). Details of the excavation and backfilling are provided below.

As provided in the UST Removal Report (SPTC, 1993), the 2,000-gallon UST (approximately 12 feet long and 5.5 feet in diameter) was removed and soils were overexcavated approximately 20 feet long, 16 feet wide, and 11 feet deep. Approximately 100 cubic yards of soil was excavated. The excavation was backfilled with local sourced fill material (SPTC, 1993). Based on a letter from SPTC to the TWC District office, SPTC attempted to conduct further excavation of the tank hold in 1992, but ceased work when "discolored soils that did not appear to be related to a release or potential release from UST No. 44-023-05)" was encountered in the tank hold (SPTC, 1993).

The 200-gallon UST (approximately 4 feet long and 3 feet in diameter) was removed and soils were overexcavated to approximately 6 feet long, 5 feet wide, and 6 feet deep (SPES, 1990). Approximately 20 cubic yards of soil were removed and the excavation was filled with fill material from a local source. Descriptions of the contamination in the tank hold included "tar-like material, not from the tank." (SPES, 1990).

Based on the Release Determination Report (RDR) prepared by David Cornish & Company (DCC) dated January 1998, no additional soil excavation around the tank hold was performed during the closure of the 3,700-gallon UST. The tank hold was backfilled with the soil excavated to extract the UST, and also filled with select fill material (DCC, 1998).

Ditch Remediation/Interim Stabilization Measures (SWMU No. 2)

As detailed in the APAR and Revised APAR, SPTC initiated in 1995 remediation activities along a portion of the Southern Drainage Ditch (SWMU 2) beginning approximately 400 feet west of the Site and continuing approximately 290 feet further west was excavated. The remediation consisted of stabilizing with lime and excavating approximately 125 tons of affected ditch material that was transported for off-site incineration. No information was located on the material used to backfill the ditch.

A Interim Stabilization Measures (ISM) phase was conducted in 1997 of the SWMU No. 2 where visibly-affected soil was excavated from the ditch beginning at the east extend of the initial excavation and extending eastward to near the southwest corner of the Site. A total of 71 truck loads of material,

including approximately 850 cubic yards of soil and other materials (e.g., vegetation, municipal trash, sheet piling), were manifested and transported to the Waste Management, Inc. Atascocita Landfill for disposal. Approximately 750 cubic yards of clean clay fill was placed in the ditch, and was compacted by the placement equipment (i.e. dozer) used to place and grade the fill. The ditch was graded to conform approximately to the original ditch shape and grade (ERM, 1998).

These ditch remediation activities were documented in the ISM Report dated April 27, 1998 (ERM, 1998). The approximate extent of both ISM activities are shown on Figure 1A-3.

Section 1.3 Geology/Hydrogeology

Regional Geology and Hydrogeology

Details of the regional geology have been provided in the APAR (ERM, 2000) and Revised APAR (ERM, 2004).

Site-Specific Geology/Hydrogeology

The site-specific geology and hydrogeology has been described in detail in the previous APAR and Revised APAR. However, as part of the supplemental investigation activities, additional lithologic data were collected from a fourth water bearing zone, labeled D-Transmissive Zone (D-TZ). Geological logs from soil and monitoring well borings and cone penetrometer testing (CPT) borings conducted from 2004 through 2009 (Appendix 6) were used to supplement the existing subsurface geology information at the Site. Updated hydrogeologic cross sections are presented in Section 4.0 – Soil Assessment as Figures 4C-1 through 4C-4, with cross section location map presented on Figure 1B. Consistent with the previous reports for the Site (ERM, 2000 and 2004), the stratigraphy from the ground surface to a total depth of approximately 135 feet below ground surface is separated into the following units:

- Fill Material - Fill material is present from ground surface to a typical depth of approximately three ft 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 (A-CZ) - The A-CZ ranges in thickness from approximately 8 to 15 feet and was encountered in all of 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 (A-TZ) - The CPT soundings and boring logs indicate that the A-TZ is a continuous silty sand and sand layer beneath the Site. The A-TZ is thickest on the eastern portion of the property (approximately 21 feet thick), and gradually thins from east to west (to less than four 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 some natural organic debris and approximately 10 to 25 percent clay. The A-TZ is underlain by the B-CZ.

- B-Cohesive Zone (B-CZ) - The B-CZ is a layer of cohesive soils (mostly clays, silty clays, sandy clays, and clayey silts) ranging in thickness from approximately 6 to 19 feet. The B-CZ was encountered in all the CPT soundings. Based on the boring logs from the Point of Compliance (POC) well nests (i.e., MW-10A/MW-10B and MW-11A/MW-11B), the B-CZ in the area 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 thin seams of silty sand, thin carbonate clayey gravel and nodule seams (~0.1 feet thick), and slickensides, as seen in boring logs MW-33B and MW-63B. The B-CZ is underlain by the B-TZ or the C-CZ where the B-TZ is absent (i.e., toward the northeast portion of the Site). Where the B-TZ is absent, the clay zone is referred to as the B/C-CZ, and ranges in thickness from 34 to 39 feet.

- B-Transmissive Zone (B-TZ) - The B-TZ is a discontinuous sand 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. The B-TZ appears to pinch out between MW-35B and MW-33B. Where present, the B-TZ is approximately 3 to 10 feet thick and is present at approximately 25 to 35 ft bgs. 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 (C-CZ) - 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 to 20 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 top of the C-CZ occurs at depths ranging from 35 to 50 ft bgs and is underlain by the C-TZ.

- C-Transmissive Zone (C-TZ) - The C-TZ is a silt and silty sand layer 10 to 13 feet thick that underlies the C-CZ and is present at approximately 60 to 75 ft 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.

- D-Cohesive Zone (D-CZ) - The underlying clay below the C-TZ has been designated the D-CZ. The unit was fully described in four locations (GB-1, MW-59D, MW-665D, and MW-66D). The unit consists of clay and silty clay, red to yellowish-red in color, and very hard and stiff. The D-CZ ranges in thickness from 17 feet to 36 feet thick.

- D-Transmissive Zone (D-TZ) - The D-TZ is a series of silty sand layers with minor amounts of thin clay intervals underlying the D-CZ unit with the top of the unit present at approximately 85 to 104 ft bgs. The D-TZ consists of silty sand that is light yellowish brown to light brown, and very fine to fine grained. The zone also has interbedded reddish brown and gray silty clay intervals. The base of the unit was encountered in MW-59D at 116.8 feet bgs and at GB-1 at 120 feet bgs. The underlying clay is greenish-gray and hard.

Groundwater flow conditions have been detailed in the previously submitted APAR (ERM, 2000) and Revised APAR (ERM, 2004). This APAR Addendum includes groundwater elevation data collected from 2004 through 2009, and is discussed in Section 5.0.

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

1.0 Figures

EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- A-TZ Monitoring Well Location
- B-TZ Monitoring Well Location
- C-TZ Monitoring Well Location
- D-TZ Monitoring Well Location
- A-TZ Temporary Monitoring Well Location
- CPT with Rost Location
- CPT Location
- Hydropunch Sample Location
- Soil Boring Location

Note:
* Soil analytical data rejected by validator.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No, 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No, 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

N

Scale in Feet
0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 1A-1

ON-SITE PROPERTY MAP

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

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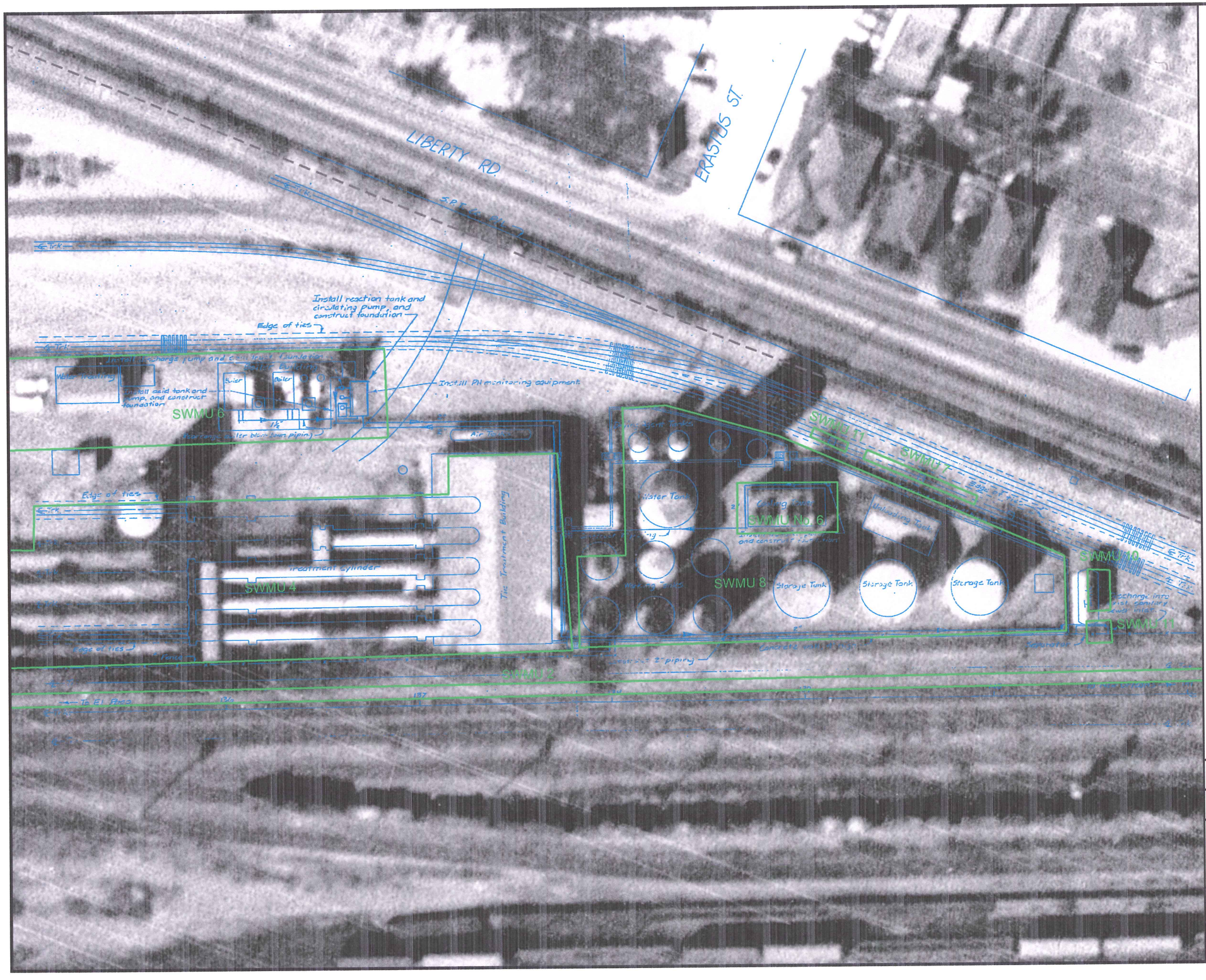

EXPLANATION

UPRR Property Boundary

SWMU/AOC AREAS

No.	Description
SWMU 2	Northern and Southern Drainage Ditches
SWMU 4	Recent Process Area
SWMU 6	Water Treatment and Boiler System
SWMU 7	Tank Car Storage Area
SWMU 8	Aboveground Storage Tank Area
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
AOC 5	City Storm Sewer (not shown)

Note: All locations are approximate.

Approx. Scale in Feet

0 25 50

Source:
Aerial Photograph - Adams Aerial Surveys, Inc., Flown 10/29/65.
Layout - SPTC General Engineering Office, "Treat Boiler Blow-down Water", CE Drawing No. 39240, June 3, 1981.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 1A-2

LAYOUT OF FORMER WATER TREATMENT/BOILER SYSTEM (SWMU NO. 6) & AST AREA (SWMU NO. 8)

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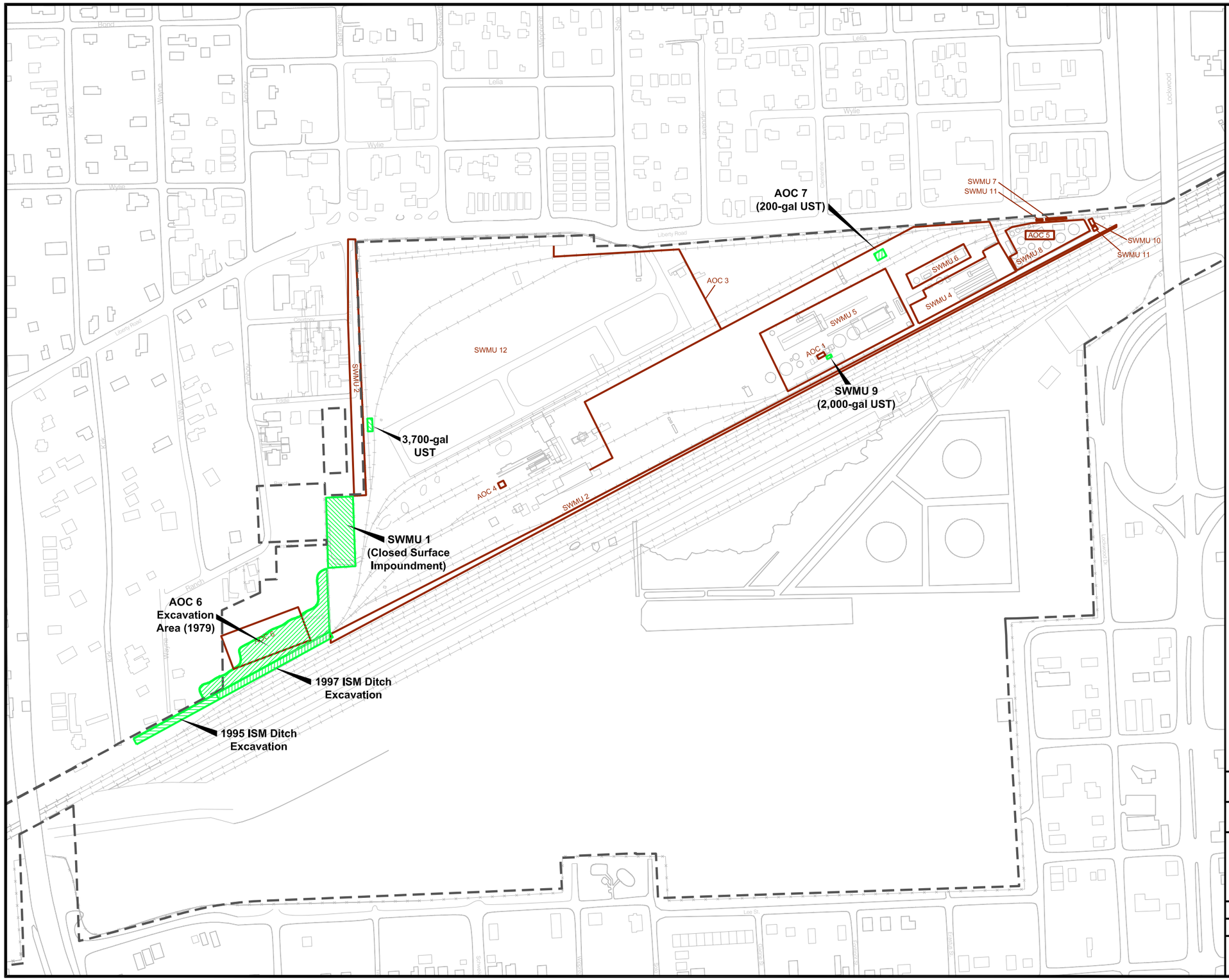

EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Approximate Area Previously Remediated

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

N

Approx. Scale in Feet

0 150 300

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

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HOUSTON WOOD PRESERVING WORKS

Figure 1A-3

PREVIOUS REMEDIATION AREAS

PROJECT: 1358	BY: ZGK	REVISIONS
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EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- A-TZ Monitoring Well Location
- B-TZ Monitoring Well Location
- C-TZ Monitoring Well Location
- D-TZ Monitoring Well Location
- A-TZ Temporary Monitoring Well Location
- CPT with Rost Location
- CPT Location
- Hydropunch Sample Location
- Soil Boring Location
- A A' Cross Section Location
- Soil Affected Property
- Groundwater Affected Property

Note:
* Soil analytical data rejected by validator.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
SWMU 2	Northern and Southern Drainage Ditches
SWMU 4	Recent Process Area
SWMU 5	Original Process Area
SWMU 6	Water Treatment and Boiler System
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SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

N

Scale in Feet
0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

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HOUSTON WOOD PRESERVING WORKS

Figure 1B

AFFECTED PROPERTY MAP

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

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SECTION 2.0 EXPOSURE PATHWAYS AND GROUNDWATER RESOURCE CLASSIFICATION

Section 2.1 Source(s) of Potable Water for On-Site Property and Affected Off-Site Properties

The former wood treatment facility (north of the main rail lines) is abandoned and has no current operating water facilities. Previously, the Site likely received potable water from the City of Houston Public Works Department (the City), as indicated on utility maps acquired from the City with water lines in the area (Figure 3A). The water main enters the Site on the north end near where Liberty Road and Erastus Road intersect. The intermodal yard to the south of the main rail lines received water from the City of Houston. Properties adjacent to the Site also receive water from the City. The source of water for the City of Houston is from a combination of public supply wells and surface water.

No public water supply or surface water bodies are within 0.5 miles of the Site. The Houston-Galveston Coastal Subsidence District requires notification and permits for the drilling of new groundwater supply wells, discouraging the use of private water supply wells in those areas adequately served by the City of Houston municipal water supply system.

Section 2.2 Field Receptor Survey

PBW conducted a field survey at the Site in August 2008. The surrounding properties within a 500-foot radius of the Site consist of residential to the northwest, north, southeast, and south. The UPRR Englewood Yard, commercial/industrial property, is located to the east of the Site. An area of undeveloped land and abandoned houses are located west of the Site.

Section 2.3 Records Survey

As part of the receptor survey, the available records for water wells and water usage in the area were reviewed and updated. A water-well survey was conducted by Banks Information Solutions (BIS) in 2008 to identify water wells within one-half 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 TCEQ.

Copies of the water well records are provided in Appendix 5.

Section 2.4 Receptor Survey Results

Currently, the 33-acre Site consists of a two main areas bisected by the mainline rails:

1. Former wood preserving works facility north of the rail lines that is now a vacant area used for staging railroad equipment and supplies. The ground surface is covered with packed gravel fill and dirt, with no appreciable topographic gradient; and
2. An active railroad intermodal facility south of the rail main lines covered with concrete and asphalt across a majority of the area, which also has no appreciable topographic gradient.

Several storm drains have been located on the former wood preserving works area; however, it appears that storm water runs off site via overland flow to the City of Houston storm water drains located in Liberty Rd. (north). There are storm water ditches along Wallisville Road on the northeast perimeter of the Site, and along Kashmere on the west side of the Site. In the center of the Site, storm water has a tendency to pond in low topographic areas. Storm water along the southwest perimeter and along the rail lines southwest of the Site drains into a storm water ditch that parallels the rail lines. This storm water ditch is the continuation of the former SDD (SWMU No. 2) that was remediated in 1995 and 1997 (Section 1.2). For the intermodal yard, there are a series of storm drains that convey storm water to the city storm water system.

Through a review of the available water well records within a one-half mile radius of the Site, five industrial water wells were identified within the search radius (Figure 2C). Details of the wells are summarized in Table 2A. One water well (Well ID 1) is located within the Site that is destroyed (plugged and abandoned), and three water wells are located east of the Site (associated with the UPRR Englewood Yard). None of the wells in the Englewood Yard are in use. One water well (Well ID 4) is located south of the Site, and is owned by Houston Power and Light. These industrial water wells are not in use.

The 500-foot radius field survey demonstrated no current potential receptors within the residential neighborhood. No water wells, water tanks, cisterns, or windmills, or surface water bodies were encountered. The nearest surface water body is Buffalo Bayou, located approximately 1.6 miles southwest of the Site. The potential for lateral migration of groundwater from the Site to the southwest

approximately 8,500 feet to Buffalo Bayou is not likely.

Section 2.5 Groundwater Resource Classification

Groundwater classification of the GWBUs at the Site was discussed in the Revised APAR (ERM, 2004). Based on hydraulic testing of zones A-TZ and B-TZ, the two zones were previously classified as Class 2 Groundwater Resources.

Current Use and General Hydrogeologic Context

The uppermost GWBU consists of zones A-TZ, B-TZ, C-TZ, and D-TZ, which are variable in thickness and the ability to produce useable water. As discussed in Section 2.4, five water wells were identified within one-half mile of the Site. However, the wells were completed in deeper zones (greater than 300 feet below ground surface). The City of Houston provides potable water to the site vicinity, and no public water supply wells are within 0.5 mile from the Site. With the implementation of the Harris-Galveston County Subsidence District restrictions on groundwater wells and pumping within the district (Area 2), groundwater use is restricted (HGCSD, 1999). Therefore, there are no potentially threatened groundwater users in this area.

Aquifer Testing

Details of aquifer testing in the A-TZ and B-TZ wells are provided in the Revised APAR (ERM, 2004). In February 2009, PBW conducted aquifer tests on four groundwater monitoring wells that are completed in the clay unit B-CZ to evaluate and determine the groundwater classification for that unit. The objective of the testing was to evaluate hydraulic conductivity of the unit since DNAPL was detected in the unit (i.e. MW-33B). At monitoring wells MW-33B, MW-35B, MW-49B, and MW-63B, baildown tests were conducted following the procedures outlined in the TCEQ TRRP Groundwater Classification Guidance Document TRRP-8 (TCEQ, 2003). The objective of the tests was to determine if the wells were capable of producing a yield of 150 gallons per day (gpd).

Each of the B-CZ wells that were tested is fully penetrating and constructed with 2-inch PVC casing and screen. The tests were conducted by bailing down the wells until each well became dry. Then, using a water level probe, the water level recovery was recorded until the well recovered to approximately 90 percent of the initial water level, or if recovery took longer than 24 hours, the test was stopped. Test data were graphed and analyzed using the TCEQ Well Yield by Cyclic Discharge (Method 2a) in accordance

with the TCEQ Groundwater Classification Guidance Document TRRP-8 (TCEQ, 2003). Details of the well yield tests and graphs showing the recovery over time for the wells are provided in Appendix 7. Of the four wells tested, only MW-35B recovered to 90 percent of the initial height of the static water level in the well within 24 hours. MW-35B was estimated to yield approximately 480 gallons per day, with the well recovering to 90 percent within approximately 15 minutes. Monitoring wells MW-33B, MW-49B, and MW-63B did not recover within 24 hours after being bailed dry. Well yield tests were not conducted three times in these wells since it took over 24 hours for the wells to recover to 90 percent. With the slow recharge based on these well yield tests, the B-CZ is characteristic of a Class 3 groundwater resource. Additional testing will be conducted to evaluate if the B-CZ where MW-33B, MW-49B, and MW-63B are installed is considered saturated soil.

With the exception of MW-35B, the tests indicated that the other three wells would not produce greater than 150 gpd using the well yield by cyclic discharge. Therefore, the eastern portion of the B-CZ has been classified as a Class 3 groundwater resource.

Natural Water Quality

As detailed in the Revised APAR (ERM, 2004), TDS values for the A-TZ, B-TZ, and C-TZ zones ranged from 294 mg/L to 1,566 mg/L.

Section 2.6 Exposure Pathways

There are no changes proposed in this APAR Addendum to the exposure pathways discussed in the Revised APAR (ERM, 2004). COCs have been detected in surface soil, subsurface soil, and groundwater at the Site, and based on the facility operations and analytical results from previous investigations, human health exposure pathways were the only pathways considered complete for the Site. The Site passed the Tier 1 Ecological Exclusion Checklists (APAR, 2000 and Revised APAR, 2004); however, an Expedited Stream Evaluation (ESE) was conducted for the drainage ditch southwest of SDD (SWMU No. 2). Details of the ESE and potential for ecological exposure are provided in Section 9.0.

Therefore, consistent with the Revised APAR the following exposure pathways were evaluated at the Site:

On Site (Commercial/Industrial Land Use)

- $^{Tot}Soil_{Comb}$
- $^{Air}Soil_{Inh\text{-}V}$
- $^{GW}Soil_{Ing}$
- $^{Air}GW_{Inh\text{-}V}$
- $^{GW}GW_{Ing}$

Off Site (Residential Land Use)

- $^{Tot}Soil_{Comb}$
- $^{Air}Soil_{Inh\text{-}V}$
- $^{GW}Soil_{Ing}$
- $^{Air}GW_{Inh\text{-}V}$
- $^{GW}GW_{Ing}$

Exposure pathways ^{SW}GW, ^{Sed}GW, and $^{SW}SW/^{Sed}Sed$ are not considered currently complete because there are no surface water bodies within 0.25-mile of the Site, and the potential for groundwater discharge from the Site to surface water is unlikely. The groundwater pathway $^{GW}GW_{Ing}$ is also not considered complete since exposure to groundwater is not likely with no groundwater wells in the area and the City of Houston providing potable water for the properties in the area. However, the groundwater pathway was evaluated to determine the extent of the Affected Property at the Site.

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

2.0 Tables

Table 2A Water Well Summary

Table 2D Summary of Well Yield by Cyclic Bail-Down/Recovery Testing

TABLE 2A
WATER WELL SUMMARY
Houston Wood Preserving Works

Well Map No.	TWBD Designation	Well Owner's Name of Record	Distance From Affected Property (ft.)	Screened Interval/Open Interval (ft)	Cemented Interval (ft)	Completion Type	Total Depth	Date Drilled	Producing Formation	Current Water Use	Current Status	Data Source
1	65-14-809	Southern Pacific	on-site	739-947	Unknown	Unknown	947	1925	Evangaline	none	Destroyed	Banks
2	65-14-801	Southern Pacific	850	Unknown	Unknown	Unknown	1206	Unkn.	Unknown	Unknown	Unknown	Banks
3	65-14-802	Southern Pacific	850	1070-1200	Unknown	Unknown	1201	1954	Evangaline	Industrial	Active	Banks
4	65-14-8A	Houston Lighting & Power	1,550	630-1550	0-730	Unknown	1550	1982	Unknown	Industrial	Active	Banks
5	65-14-814	Southern Pacific	1,750	561-898	Unknown	Unknown	919	1941	Evangaline	Industrial	Destroyed	Banks

Note: Well locations shown on Figure 2C.

TABLE 2D

SUMMARY OF WELL YIELD BY CYCLIC BAIL-DOWN/RECOVERY WELL TESTS
UNION PACIFIC RAILROAD HOUSTON WOOD PRESERVING WORKS - HOUSTON, TEXAS

Well	Height of Water Column in Well (ft)	Volume Bailed (gals) (V_1)	Time for Water Level Recovery (min) (t_1)	Volume Bailed (gals) (V_2)	Time for Water Level Recovery (min) (t_2)	Volume Bailed (gals) (V_3)	Time for Water Level Recovery (min) (t_3)	Est Q (gpd)[1]
MW-33B	32.8	4	approx 2,000	NA	NA	NA	NA	<4
MW-35B	37.2	5	8	5	8	5	11	800
MW-49B	20.9	4	> 2,000	NA	NA	NA	NA	<4
MW-63B	10.7	3	>10,000	NA	NA	NA	NA	<3

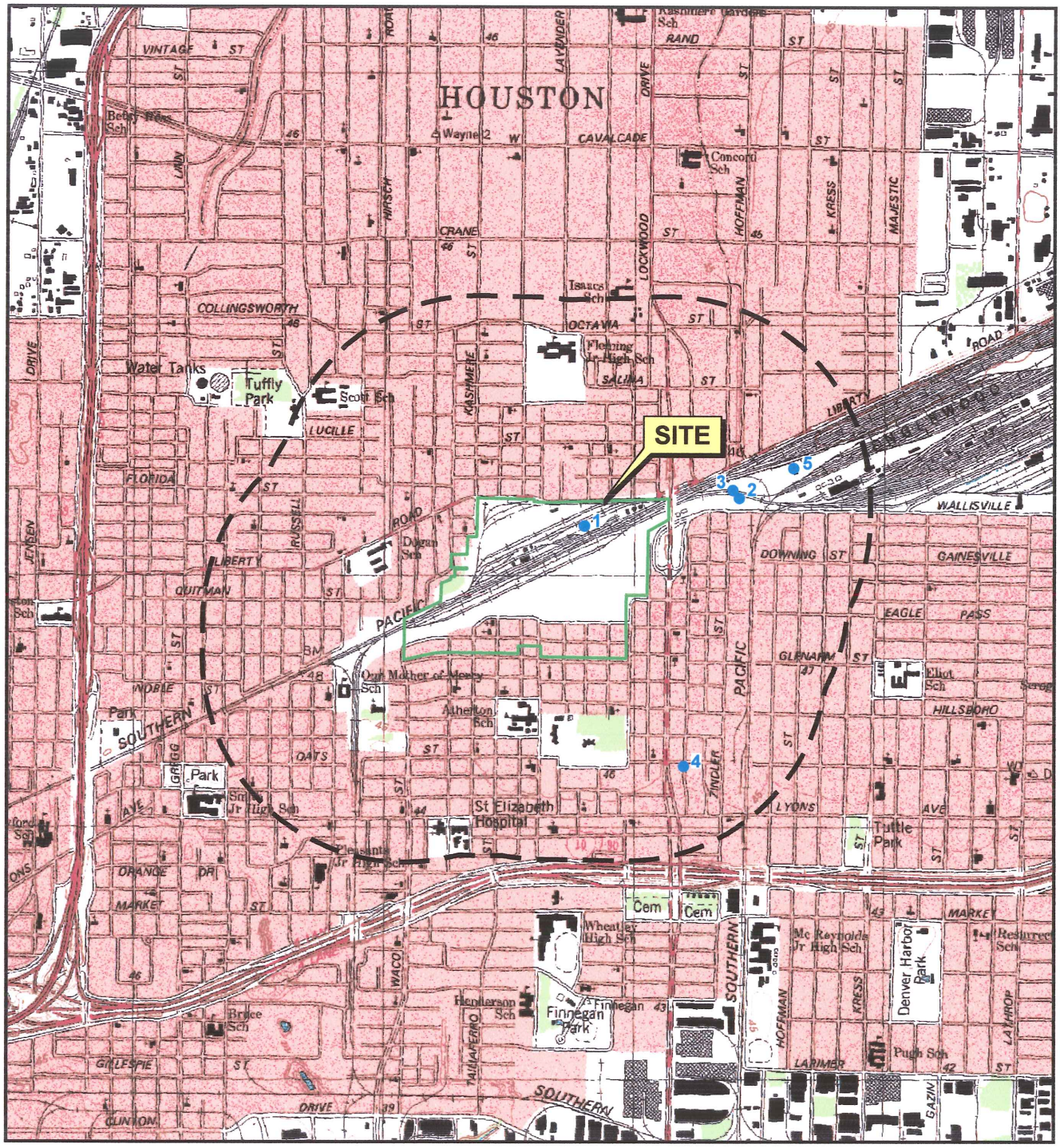
Notes:
1 - Estimated flow based on three attempts to baildown well within a 24-hour period.

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

2.0 Figures

Figure 2C Water Well Map

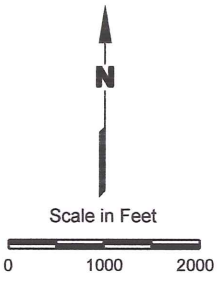


EXPLANATION

1● Water Well, ID Number (See Table 2A)

Note:
Water well inventory within 0.5 mile of Site (Banks, 2009).

QUADRANGLE LOCATION



Source:
U.S.G.S. 7.5 minute quadrangle, Settegast, Texas, 1982.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 2C

WATER WELL MAP

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

SECTION 3.0 ASSESSMENT STRATEGY

Section 3.1 General Assessment Issues

Environmental Media Assessed

The conceptual model developed for the Site assumes that the releases of COCs at the Site occurred through spills and discharges during the creosote-treating operations from 1911 to 1984. Based on these assumptions, the primary media identified for assessment included surface soils, subsurface soils, and groundwater. Since no surface water bodies are located in the vicinity of the Site, surface water was assumed to not be a potentially impacted media and therefore was not assessed.

This APAR Addendum focuses on data collected after submittal of the Revised APAR in 2004. Soil data collected prior to 2004 were incorporated into the assessment of environmental media. However, groundwater data from the July 2008 CPT/ROST and hydropunch investigation and February 2009 groundwater sampling event were the only data used for assessment of the Affected Property and determining the PCL Exceedance (PCLE) Zone for groundwater. Data collected from piezometers TW-01, TW-02, and TW-03 in 2007 were used in the evaluation of COCs for the Site.

Target COCs

Details of target COCs and development of the site-specific COCs were established in the RFI Work Plan (IC, 1994), as discussed in the Revised APAR (ERM, 2004). A summary of the site-specific COCs is provided on Table 3B. Soil and groundwater media collected from 2004 through 2009 were sampled for the site-specific COCs. In addition to the site-specific target COCs, groundwater samples collected from piezometers TW-01, TW-02, and TW-03 were analyzed for the target constituent list (TCL) for the following methods:

- Volatile Organic Compounds (VOCs) by EPA Method 8260; and
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270.

To address TCEQ comments dated October 8, 2004 on the Revised APAR, two soil samples were analyzed for chlorinated dibenzodioxons (CDDs) and chlorinated dibenzofurans (CDFs) to evaluate these impurities typically found in commercial-grade pentachlorophenol (PCP). Details of the CDD/CDF results are provided in Section 4.0.

Background

No background samples have been collected at this Site.

Section 3.2 Assessment Strategy

General Assessment Approach

The general assessment approach was to assess the surface soil, subsurface soil, and groundwater at the Site by evaluating and delineating COC concentrations in these media. This APAR Addendum includes data collected after submittal of the Revised APAR from 2004 through 2009. The objective of the subsequent investigations was to evaluate and delineate site-specific COCs in the affected media to TCEQ TRRP requirements. Details on the sampling approach are discussed in the following section.

Sampling Approach

Soil and groundwater samples were collected using various sampling techniques. Undisturbed soil samples were collected using direct-push, hollow-stem auger, hand-auger methods, and sonic drilling methods. Soil lithology was also described using CPT methods (tip resistance/sleeve friction ratio) with ROST testing.

Soil samples collected from each soil boring were generally screened in the field using an organic vapor meter (OVM). Generally, a soil sample was collected for laboratory testing from the surface soils (0 to 5 feet assuming commercial/industrial land use), and in some soil borings, a second sample was collected of the subsurface soils for laboratory testing between the surface soils (>5 feet) and the top of the saturated unit or uppermost GWBU. Soil samples were typically collected where elevated OVM headspace readings were noted in the surface soils and subsurface soils.

Recent groundwater samples were collected at the Site using micro-purge or low-flow sampling methods. Prior to sampling the monitoring wells, the depth to groundwater and non-aqueous phase liquids (NAPLs) were measured using an oil-water interface probe.

Utilities

There are two main areas of underground utilities located at the Site: on-site underground utilities (storm water drains, fiber-optic lines, and municipal utilities cutting across the Site), and off-site municipal

utilities that border the Site. The underground utilities encountered on site and in the vicinity of the Site are summarized on Table 3A and discussed below.

On-Site Utilities

Storm water leaves the Site via storm water ditches on the west and east side of the Site, and into the City of Houston storm water system to the north of the Site on Liberty Road. Water and gas lines enter the Site from Liberty Road. The water line is currently shut off at the valve near Liberty Road, and the gas line is capped off within the Site near Liberty Road. Two sets of fiber optic lines, Level 3 Communications and Qwest, run along the north side of the rail main lines across the entire length of the Site (Figure 3A). Based on conversations with both Level 3 Communications and Qwest representatives, the fiber lines run underneath SWMU Nos. 2, 5, 4, 8, and 10/11. The fiber lines run directly underneath the drainage ditch southwest of the Site and under the SDD about 3 to 5 feet bgs. The Level 3 Communications line reportedly was directionally bored to a depth of 40 to 45 feet bgs underneath the Original and Recent Process Areas (SWMU Nos. 5 and 4, respectively) and under the AST Area (SWMU No. 8). The Qwest fiber line reportedly runs 10 to 15 feet northwest of the main rail line, and is about 5 to 10 feet bgs through the Site. Just east of SWMU No. 8, the both fiber lines return to approximately 4 to 6 feet below grade an continue running northeast parallel to the rail main line.

In addition to the fiber lines, three City of Houston utilities cut across the Site oriented north-south just west of the Lockwood Road bridge: 1) 60-in wastewater line, 2) 84-in water line, and 3) a 42-in storm sewer line (Figure 3A). Through a review of the utility drawing files obtained from the City of Houston Public Works Survey Department, two of the underground utility lines appear to be at depths that potentially intersect the uppermost GWBU A-TZ. The estimated depths of the utilities based on the city drawings are shown on the Geologic Cross Sections A-A', B-B', and C-C' (Figure 4C-1). The estimated base depth of the 60-in wastewater line and the 84-in water line where Cross Section B-B' crosses the utility lines is approximately 23 feet bgs (approximate elevation of 26 feet HVD). It is highly unlikely that A-TZ groundwater is seeping into the 84-in water line, given the line is under pressure (flow is south to north), constructed with welded steel pipe, and is relatively new (constructed in 2000). However, there is a potential for groundwater from the A-TZ to be seeping into the 60-in wastewater line shown on Figure 3A.

Off-Site Utilities

Water, waste water, storm water, and gas utility lines are located underground in the City of Houston right-of-way (ROW) under Liberty Road along the north perimeter of the Site (Figure 3A). A water line runs underground under Kashmere Street northwest of the Site, and water, wastewater, and storm water utility lines cut across the east end of the Site, as detailed in the previous section. In February 2008, PBW conducted a survey of the storm water drains along Liberty Road using an organic vapor meter (OVM) and photo-ionization detector (PID) to evaluate organic vapors and lower explosive limit (LEL) readings from the drains. As shown on Figure 3A, there were no OVM or LEL readings above background readings in any of the storm drains tested.

Assessment Methods

This APAR Addendum addresses additional site investigations conducted since the Revised APAR was submitted to the TCEQ in 2004. These site investigations have included multiple soil and groundwater sampling events that were conducted in 2006 through 2009. The assessment methods used in the investigations are discussed below.

2006 Additional Site Investigation. To address TCEQ comments on the Revised ARAR, ERM conducted a soil and groundwater investigation from May through August 2006. The objective of the additional investigation was to delineate site-specific COCs in the environmental media to TCEQ TRRP Residential Assessment Levels (RALs). The list of site-specific COCs is provided on Table 3B. The following locations were drilled, sampled, or monitoring wells were installed (locations shown on Figure 1A):

- *Soil Sampling* – ERM collected surface soil samples from three soil borings on site (SB-56, SB-57, and SB-99), four soil borings north of the Site along Liberty Road (SB-59 through SB-62), six soil borings (SB-79 through SB-84) in and around the Former Inactive Wastewater Lagoon (AOC No. 6), fourteen soil borings (SB-86A through SB-96B) along the SDD (SWMU No. 2), and from eleven replacement soil borings to evaluate pentachlorophenol in surface soils (to address TCEQ Comment No. 18 from the April 15, 2005 TCEQ letter (TCEQ, 2005)). The soil borings drilled along the SDD were dug with hand augers to evaluate the extent of the former wood line ditch. Soil samples were collected from some of the soil borings. Subsurface soil samples were collected from two locations, SB-73 and SB-74. In addition, ERM collected soil samples from

the saturated A-TZ zone and from the aquitard B-CZ zone. Soil samples were collected using direct-push technology (DPT) drilling methods.

- *Monitoring Well Installation* – During the investigation, ERM installed two double-cased C-TZ wells MW-53C and MW-54C off site using mud-rotary drilling methods.

2007 Additional Soil and Groundwater Investigation. PBW continued the investigation activities initiated by ERM in 2006 by conducting a soil and groundwater investigation using hollow-stem auger (HSA) drilling methods, direct-push drilling methods, mud-rotary drilling methods, and hand-auger sampling methods to collect soil samples and install groundwater monitoring wells at the Site. The objective of the additional investigation was to delineate COCs in the environmental media to TCEQ RALs. The following locations were drilled, sampled, or monitoring wells were installed (locations shown on Figure 1A):

- *Soil Sampling* – Soil samples were collected from two locations to approximately four feet below ground surface at TW-01(2-4) (within the Original Process Area (SWMU No. 5)) and MW-52A(2-4) (within the Recent Process Area (SWMU No. 4)) to evaluate the source areas for impacts of chlorinated dibenzodioxins (CDDs) and chlorinated dibenzofurans (CDFs) per the TCEQ comment letter dated November 19, 2004. Soil borings SB-100 through SB-107 were conducted at locations within the storm water drainage ditch southwest of the South Drainage Ditch (SWMU No. 2) and around the Former Inactive Wastewater Lagoon (SWMU No. 6). Soil samples from these borings were collected at 0-0.5 and 1.5-2 feet bgs.

- *Monitoring Well Installation/Development* – During the investigation, eight A-TZ wells were installed (MW-35A, MW-36A, MW-38A, MW-44A, MW-49A, MW-50A, MW-51A, and MW-52A), two double-cased B-CZ wells were installed (MW-33B and MW-35B), and one triple-cased C-TZ well was installed (MW-47C). After each monitoring well was installed, the wells were developed to remove sediment from the wells.

- *Temporary Piezometers/Hydropunch GW Sampling* - Using DPT, three piezometers were installed in the A-TZ to evaluate potential light non-aqueous phase liquids (LNAPLs): TW-01 (within the Original Process Area (SWMU No. 5)), TW-02 (within the Aboveground Storage Area (SWMU No. 8)), and TW-03 (in the intermodal yard near the former waste water lagoon

south of the rail main lines). Soil samples and groundwater samples collected from piezometers TW-01, TW-02, and TW-03 were analyzed for the TCL for VOCs by EPA Method 8260 and SVOCs by EPA Method 8270C. The objective of the analyses was to evaluate if other COCs not included in the site-specific COC list were present in groundwater at the former source areas.

Soil samples were analyzed for site-specific COCs to evaluate the Affected Property, except for selected soil samples that were analyzed for a subset of specific COCs to evaluate the lateral extent of those COCs in soils.

Each soil sample was placed in a laboratory-supplied container, preserved as appropriate, immediately placed on ice and delivered to STL in Houston, Texas for analysis. The samples were analyzed in accordance with EPA protocol for the analytical methods requested. Chain-of-custody procedures were maintained from the field through the reporting of laboratory results. Field quality assurance/quality control (QA/QC) samples (i.e., field duplicates, equipment blanks) were also collected.

After each soil boring was drilled to the target depth, the boring was backfilled with granular bentonite or bentonite pellets. Each soil boring was surveyed in the field with the differential global positioning satellite (GPS) meter. Permanent monitoring wells were surveyed by a licensed, professional surveyor to Texas State Plane coordinates (NAD 27, Texas South Central, U.S. Feet).

DNAPL Recovery Testing and Underground Utility Assessment – February 2008. PBW conducted DNAPL recovery tests on selected wells (MW-12B, MW-16, MW-32A, MW-41B, MW-45C), collected DNAPL samples from wells MW-32A and MW-41B, and conducted an assessment of the underground utilities around the Site by collecting field measurements from storm sewer intakes in the City of Houston ROWs.

At each well tested for DNAPL recovery, the initial product thickness was measured and tubing was placed in the well to near the total depth. The well was then pumped with either a peristaltic or diaphragm pump until DNAPL was no longer measured in the well or the fluids removed were mostly water. The pump was then turned off and DNAPL thickness measurements were collected.

During the DNAPL removal at MW-32A and MW-42B, samples of the DNAPL were collected for Fluid Properties analysis by ASTM D1481, D445, and D971. Samples were delivered to Test America, Houston on February 22, 2008.

OVM and LEL readings were collected at eight storm sewer locations along Kashmere Street and Liberty Road. At each location a photo was taken then a length of tubing was placed into the utility a distance of approximately eight inches. PID and LEL meters were connected to the tubing and allowed time to stabilize before readings were recorded.

CPT/ROST-Hydropunch Investigation – July-August 2008. PBW conducted a CPT/ROST investigation to evaluate the lateral extent of DNAPL in the A-TZ and B-CZ on and off site, and to collect reconnaissance hydropunch groundwater samples from the A-TZ, B-TZ/B-CZ, and C-TZ zones to evaluate the horizontal extent of COCs in groundwater. Sixteen CPT/ROST borings (CPT-36R-08, CPT-40R-08 through CPT-46R-08, CPT-48R-08 through CPT-54R-08, and CPT-56R-08) were conducted, and reconnaissance groundwater (hydropunch) samples were collected from five of the locations (CPT-49R-08 (B-TZ), CPT-50R-08 (B-TZ), CPT-51R-08 (B-TZ), CPT-54R-08 (C-TZ), and CPT-56R-08 (A-TZ)). Groundwater samples were collected using small-diameter tubing and foot valve inside a hydropunch assembly and analyzed for site-specific COCs (VOCs by EPA Method 8260 and SVOCs by EPA Method 8270C).

Groundwater samples were placed in a laboratory-supplied container, preserved as appropriate, and immediately placed on ice. Groundwater samples were delivered to TestAmerica Laboratory in Houston, Texas for analysis. The samples were analyzed in accordance with EPA protocol for the analytical methods requested. Chain-of-custody procedures were maintained from the field through the reporting of laboratory results.

Each CPT/ROST boring was surveyed in the field with the differential GPS meter. Each CPT/ROST boring and Hydropunch location was plugged with granular bentonite or bentonite chips from the bottom of the hole to ground surface.

2009 Additional Soil and Groundwater Investigation. In January 2009, PBW conducted a supplemental soil and groundwater investigation at the Site to further evaluate the lateral and vertical extent of COCs above TRRP PCLs in groundwater, and to evaluate the lateral extent of COCs above TRRP PCLs in soils. The following locations were sampled or monitoring wells were installed (locations shown on Figure 1A):

- *Soil Sampling* – Soil samples were collected from soil borings SB-108 through SB-117 at locations within the storm water drainage ditch southwest of the SDD (SWMU No. 2) and around the Former Inactive Wastewater Lagoon (AOC No. 6) to evaluate COCs in surface soils. Soil samples from these borings were collected at 0-0.5 and 0.5-2 feet bgs. Soil borings were also conducted along the northern perimeter of the Site at borings SB-118 through SB-125 (including soil samples collected from installation of monitoring wells MW-57A and MW-58A), and along the east and southern perimeter of the intermodal yard at soil borings SB-126 through SB-137. Soil samples from the ten soil borings north of the former operations and the 12 soil borings around the east and south perimeter of the intermodal yard were collected to evaluate horizontal extent of site-specific COCs in surface soils. Soil samples were selected from each boring based on field screening OVM readings and/or visual observations.

- *Monitoring Well Installation/Development* – During the investigation, the following monitoring wells were installed:
    - Seven A-TZ wells were installed using a mini-sonic rig: MW-59A, MW-60A, MW-61A southeast (downgradient) of MW-49A and MW-18A; MW-57A and MW-58A in SWMU No. 8 to evaluate the lateral extent of LNAPLs towards Liberty Road; TW-56A to evaluate recoverability of the LNAPL in SWMU No. 8; MW-65A west of AOC 6; and replacement A-TZ well MW-24AR for MW-24A;
    - One BTZ well MW-63B was installed by sonic drilling techniques to evaluate dissolved COC concentrations near MW-35B; and a 4-inch B-TZ well, TW-41B, was installed near MW-41B to evaluate DNAPL recoverability; and
    - One pilot hole (GB-1) was drilled using sonic drilling techniques to the D-TZ (135 feet bgs) and the hole was continuously logged to evaluate the lithology and identify the D-TZ. After identifying the D-TZ zone, three monitoring wells, MW-59D, MW-65D, and MW-66D were installed in the D-TZ using sonic drilling techniques that included setting isolation casings across the A-TZ and C-TZ zones (B-TZ not present on east portion of the property).

After each monitoring well was installed, the wells were developed to remove sediment from the wells. Permanent monitoring wells were surveyed by a licensed, professional surveyor to Texas State Plane coordinates (NAD 27, Texas South Central, U.S. Feet).

Groundwater Monitoring Events – 2007 through 2009. Not including the semi-annual groundwater sampling conducted at the Closed Surface Impoundment (SWMU No. 1) as part of the RCRA Compliance Permit for the Site, site-wide groundwater monitoring events were conducted to evaluate COC trends in groundwater at the Site. Site-wide events were conducted in the following months (number of wells sampled):

- March 2007 (61 wells);
- January 2008 (60 wells);
- July 2008 (40 wells); and
- February 2009 (54 wells).

In March 2007, all of the monitoring wells installed at the Site except the SWMU No. 1 wells were sampled to evaluate the groundwater conditions across the Site. The subsequent site-wide events included selected wells (perimeter, off-site, and selected source area wells). Groundwater samples were collected using low-flow sampling techniques described in the EPA guidance document Low-Flow (Minimal Drawdown) Ground Water Sampling Procedures (EPA, 1995). Each sample was analyzed for the site-specific COC list (VOCs by EPA Method 8260 and SVOCs by EPA Method 8270C).

Prior to sampling, the depth to water and the thickness or presence of NAPL was measured using an oil-water interface probe. For wells with DNAPL, water samples were collected at least 5 to 10 feet above the top of the measured DNAPL. Purging was accomplished in such a way as to minimize disturbance of sediments at the bottom of the well, and therefore minimize turbidity of the water samples. This was accomplished by purging at a low flow rate with the pump intake near the base of the screened interval, unless DNAPL was present and then the pump intake was placed no closer than five feet to the DNAPL surface. A peristaltic pump with dedicated tubing was used during the purging and sampling of each well. Since dedicated tubing was used in each well, no equipment rinse sample was collected.

Well purging was accomplished by purging at low-flow rates while monitoring the following field parameters: specific conductance, pH, temperature, dissolved oxygen, oxidation/reduction potential (redox), and turbidity. Meters were calibrated before sampling each day, using the manufacturer's procedure. Odor and color of the purge water were also noted on the groundwater sampling record. Each monitoring well was purged until the following parameters had stabilized, or until the well purged dry.

After purging, groundwater samples were collected from the discharge of the pump following low-flow

sampling techniques. Sampling information (i.e., sample time, bottle sets, sampler name, use of filter, etc.) was recorded on the groundwater sampling forms (Appendix 3). Groundwater samples were placed in coolers and delivered to TestAmerica Laboratory in Houston, Texas (March 2007, January and July 2008) or ALS Laboratory Group in Houston, Texas (February 2009) for analysis. The samples were analyzed in accordance with EPA protocol for the analytical methods requested.

Data Quality

Based on the investigations from 2006 through 2009, samples collected from the Site were analyzed in accordance with the guidelines of *EPA SW-846, Test Methods for Evaluating Solid Waste-Physical/Chemical Methods*. The procedures for laboratory analysis, with any modifications, are further documented in the laboratory standard operating procedures, which are maintained at the laboratory, and are listed in the laboratory's quality assurance plan. Data obtained from field and laboratory measurements were reviewed for conformance to project requirements, ensuring the lowest method quantitation limit (MQL) was used in the evaluation.

Analytical data from the critical soil and groundwater samples collected since 2006 were reviewed for adherence to established QA/QC criteria, and a Data Usability Summaries (DUSs) were prepared to demonstrate the quality of the laboratory analytical data and present any deviations from the established QA/QC criteria. Details of the DUSs are provided in Appendix 10. For the data collected since 2006 (i.e., data presented in this APAR Addendum), the soil and groundwater data are considered usable for the purpose of evaluating COCs in the environmental media to assess the affected property based on the COCs and establish PCLE zones.

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

3.0 Tables

Table 3A Underground Utilities

Table 3B Site-Specific COCs

TABLE 3A
UNDERGROUND UTILITIES
UPRR Houston Wood Preserving Works

Utility Type	Construction Material	Backfill Material	Approx. Depth (ft)	Utility Company Name	Potential Migration Pathway?		Affected?	
					Yes	No	Yes	No
Utilities On-Site								
Fiber Optic	Fiber	NA	3-5	Level 3		X		X
Fiber Optic	Steel Cased Fiber	NA	40-45	Qwest	X			X
Storm Sewer	12”PVC	Unknown	12	UPRR		X		X
Storm Sewer	24”-60” MRC[1]/RCP[2]	Unknown	10	City of Houston		X		X
Water Supply	2”-8” Cast Iron	Unknown	8	City of Houston		X		X
Utilities North of the Site								
Gas Supply	6/8”Steel	Unknown	4	Centerpoint Energy		X		X
Water Supply	20” Cast Iron	Unknown	5	City of Houston		X		X
Storm Sewer	24” Concrete	Unknown	10	City of Houston		X		X
Sanitary Sewer	8” Concrete	Unknown	8	City of Houston		X		X
Utilities South of the Site								
Water Supply	1”-6” Concrete, Cast Iron, Galvanized	Unknown	5	City of Houston		X		X
Storm Sewer	24”-60” MRC[1]/RCP[2]	Unknown	10	City of Houston		X		X
Sanitary Sewer	8” Concrete	Unknown	8	City of Houston		X		X
Utilities East of the Site								
Gas Transmission	7” Cast Iron	Unknown	4	Centerpoint Energy		X		X
Water Supply	12”-20” Cast Iron	Unknown	5	City of Houston		X		X
Water Supply	84” Steel	Unknown	15-20	City of Houston		X		
Storm Sewer	24-54” Concrete/ MRC[1]	Unknown	10-15	City of Houston		X		X
Sanitary Sewer	60” MRC[1]	Unknown	18-22	City of Houston	X			Unknown
Utilities West of the Site								
Water Supply	2” Cast Iron	Unknown	5	City of Houston		X		X
Gas Supply	8” Cast Iron	Unknown	4	Centerpoint Energy		X		X

Notes:

1.MRC=Metal Reinforced Concrete

2. RCP=Reinforced Concrete Pipe

TABLE 3B
SITE-SPECIFIC COCS
UPRR HOUSTON WOOD PRESERVING WORKS, HOUSTON, TEXAS

Analytical Parameters	Analytical Method	Analyte	CAS
Site-Specific VOCs	**EPA SW-846 8260**	1,2-Dichloroethane	107-06-2
		Benzene	71-43-2
		Chlorobenzene	108-90-7
		Ethylbenzene	100-41-4
		Methylene Chloride	75-09-2
		Toluene	108-88-3
		Xylenes (total)	1330-20-7
Site-Specific SVOCs	**EPA SW-846 8270C**	1,2-Diphenylhydrazine	122-66-7
		2,4-Dimethylphenol	105-67-9
		2,4-Dinitrotoluene	121-14-2
		2,6-Dinitrotoluene	606-20-2
		2-Chloronaphthalene	91-58-7
		2-Methyl-4,6-dinitrophenol	534-52-1
		2-Methylnaphthalene	91-57-6
		4-Nitrophenol	100-02-7
		Acenaphthene	83-32-9
		Acenaphthylene	208-96-8
		Anthracene	120-12-7
		Benzo(a)anthracene	56-55-3
		Benzo(a)pyrene	50-32-8
		bis(2-chloroethoxy)methane	111-91-1
		bis(2-ethylhexyl)phthalate	117-81-7
		Chrysene	218-01-9
		Dibenzofuran	132-64-9
		Di-n-butyl Phthalate	84-74-2
		Fluoranthene	206-44-0
		Fluorene	86-73-7
		Naphthalene	91-20-3
		Nitrobenzene	98-95-3
		n-Nitrosodiphenylamine	86-30-6
		Pentachlorophenol	87-86-5
		Phenanthrene	85-01-8
		Phenol	108-95-2
		Pyrene	129-00-0

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

3.0 Figures

Figure 3A Underground Utilities

EXPLANATION

▬ ▬ ▬	UPRR Property Boundary
▭	Historic Structure and Feature
─	Road, Parking Lot, Sidewalk
─x─	Fence
┼┼┼	Railroad

UNDERGROUND UTILITIES
(Location Approximate)

🟦	Water Line
🟪	Wastewater Line
🟩	Stormwater Line
🟧	Fiber Optic Line

Utility source: City of Houston GIMS website, 2009.
Fiber Optic Source: based on utility locator, 2009.

UTILITY SURVEY MEASUREMENTS
(Collected in February 2008)

0.4 ppm	OVM Reading
0.0 %	LEL Reading

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

N

Approx. Scale in Feet
0 150 300

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 3A

UNDERGROUND UTILITIES

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

SECTION 4.0 SOIL ASSESSMENT

Section 4.1 Derivation of Assessment Levels

The surface soil and subsurface soil assessment levels were selected based on the current and future land use and potential receptors at the Site. Surface soils were evaluated in the top 5 feet and the subsurface soils were evaluated from 5 feet bgs to the top of the uppermost GWBU, A-TZ Unit. Soil samples that were collected across the five-foot interval (i.e., four to six feet below grade) were conservatively evaluated as surface soils. With the surrounding properties being residential land use, RALs were used to evaluate COCs and establish the Affected Property for both on site and off site.

Based on the evaluation of potentially complete exposure pathways (Table 2C), the following soil-related residential pathways were assessed at the Site:

- $^{Tot}Soil_{Comb}$ (surface soils);
- $^{Air}Soil_{Inh\text{-}V}$ (subsurface soils); and
- $^{GW}Soil_{Ing}$ (Tier 1 and Tier 2) (surface and subsurface soils).

The $^{Tot}Soil_{Comb}$ pathway was evaluated as potentially complete since the Site is partially covered with crushed gravel and soil, and in consideration of potential future construction activities at the Site. Based on the ESE, the ecological pathway was considered incomplete (discussed in Section 9.0).

RALs for potential COCs in the surface and subsurface soils were developed using TCEQ TRRP Tier 1 Residential Soil PCLs dated March 2009, assuming the source area is 30 acres in size, and Tier 2 PCLs were calculated using site-specific data. Details of the Tier 2 PCLs are discussed in Section 11, with calculations, equations, and supporting documentation for Tier 2 ^{GW}Soil PCLs in Appendix 9. RALs were established as the lesser value between $^{Tot}Soil_{Comb}$ and $^{GW}Soil_{Ing}$ (Tier 1 or 2) for surface soils (0 to 5 feet bgs on site and 0 to 15 feet bgs off-site) and the lesser value between $^{Air}Soil_{Inh\text{-}V}$ and $^{GW}Soil_{Ing}$ (Tiers 1 or 2) for subsurface soils (>5 feet bgs on site and >15 feet bgs off site). For the subsurface soil PCL evaluation, only soil samples collected below the surface soils (i.e. deeper than 5 feet or 15 feet bgs) and above the saturated uppermost GWBU (A-TZ) were used in accordance with the TRRP definition for subsurface soils (30 TAC §350.4(a)(86)). Soil samples collected from the saturated GWBUs or aquitards below those units were not used for evaluating the subsurface soil Affected Property or PCLE Zone.

Details of the nature and extent of the COCs in soil are discussed in the following sections.

Section 4.2 Nature and Extent of COCs and NAPL in Soil

This APAR Addendum incorporates the soil data collected since 2004 with data collected as part of the original APAR (ERM, 2000) and Revised APAR (ERM, 2004) into the assessment of the Affected Property. As discussed in Section 3.1, surface and subsurface soils collected at the Site from 1994 through 2009 were sampled and analyzed for the list of 34 site-specific COCs (Table 3B). However, in addition to the site-specific COCs, two soil samples (TW-01 (2-4) and MW-55A (2-4)) from the former process areas (SWMU Nos. 4 and 5) were also analyzed for CDDs and CDFs in response to the TCEQ Comment Letter dated October 8, 2004 (TCEQ, 2004). Soil samples collected during installation of piezometers TW-01, TW-02, and TW-03 were analyzed for the a comprehensive list of VOCs by EPA Method 8260 and SVOCs by EPA Method 8270 to evaluate if other COCs are present in the former process areas.

Of the site-specific COCs and other COCs evaluated, 39 COCs were detected in surface soils and 44 COCs were detected in subsurface soils at concentrations greater than the analytical reporting limits. The list of COCs detected in the surface soil samples are listed on Table 4A and the COCs detected in the subsurface soils are presented on Table 4C. A summary of soil analytical data are presented on the following tables:

Table	Description
4D-1	Summary of Surface Soil Sampling Results
4D-2	Summary of Surface Soil Sampling Results – Temporary Wells
4D-3	Summary of Subsurface Soil Sampling Results
4D-4	Summary of Subsurface Soil Sampling Results – Temporary Wells
4D-5	Summary of Soil Sampling Results – Below Uppermost GWBU
4D-6	Summary of Soil Sampling Results – CDDs and CDFs

Comparing the maximum concentrations detected in surface and subsurface soils to RALs (lowest PCL between $^{Tot}Soil_{Comb}$ and $^{GW}Soil_{Ing}$ (Tier 1 and 2)), concentrations of the following COCs that were not screened out (see Section 10.0 for details) exceeded their respective RALs in the surface and subsurface soils (with figure presenting spatial distribution of the COCs exceeding RALs for each COC):

Surface Soils
- 1,2-Diphenylhydrazine (Figure 4A-1)

Subsurface Soils
- 2,4-Dimethylphenol (Figure 4B-1)

Surface Soils

- 2,4-Dinitrotoluene (Figure 4A-2)
- 2-Methylnaphthalene (Figure 4A-3)
- Benzene (Figure 4A-4)
- Benzo(a)anthracene (Figure 4A-5)
- Benzo(a)pyrene (Figure 4A-6)
- Dibenzofuran (Figure 4A-7)
- Fluoranthene (Figure 4A-8)
- Naphthalene (Figure 4A-9)
- Pentachlorophenol (Figure 4A-10)
- Phenanthrene (Figure 4A-11)

Subsurface Soils

- 2-Methylnaphthalene (Figure 4B-2)
- Benzene (Figure 4B-3)
- Dibenzofuran (Figure 4B-5)
- Naphthalene (Figure 4B-6)
- Pentachlorophenol (Figure 4B-7)

Concentrations shown on the figures that are listed above are based on the highest concentration detected in the media (i.e., if multiple sample collected in the surface soils (0 to 5 feet bgs), the highest concentration was used for the RAL evaluation). Soil cross sections present both the lithology for the Site and the distribution of COC s in the surface and subsurface soils (Figure 11C-1 through 11C-3). Except for benzo(a)anthracene, benzo(a)pyrene, and pentachlorophenol, COCs in surface and subsurface soils were delineated on Site to the appropriate RALs. The extents of the COCs detected in surface and subsurface soils are discussed below.

Surface Soils

Surface soil data collected at the Site are summarized on Tables 4D-1 and 4D-2. The COCs detected above RALs, are detailed below.

1,2-Diphenylhydrazine was detected at concentrations greater than the RAL of 0.23 mg/Kg in 1 of the 148 surface soil samples analyzed (0.7 percent) at the Site. The one surface soil sample exceeding the RAL is located southwest of the SDD (SWMU No. 2) at SB-104(1-2) (1.84 mg/Kg) (Figure 4A-1). Of the 148 samples analyzed, 55 samples (37 percent) had results that were less than the SDL, but the SDL was greater than the RAL. 1,2-Diphenylhydrazine concentrations are laterally delineated to the appropriate RAL in surface soils.

2,4-Dinitrotoluene was detected at concentrations greater than the RAL of 0.022 mg/Kg in 1 of the 115 surface soil samples analyzed (0.9 percent) at the Site. The one surface soil sample exceeding the RAL is located on the east perimeter of the Former Waste Water Lagoon (AOC 6) at SB-82(0-0.5) (0.16 mg/Kg) (Figure 4A-2). Of the 115 samples analyzed, 55 samples (48 percent) had results that were less than the SDL, but the SDL was greater than the RAL. 2,4-Dinitrotoluene concentrations are laterally delineated to the appropriate RAL in surface soils.

2-Methylnaphthalene concentrations were detected in surface soils at concentrations that exceeded the RAL of 126 mg/Kg in 7 of 150 surface soil samples analyzed (5 percent). The seven surface soil samples that define the 2-methylnaphthalene Affected Property are found in the general area of the Original Process Area (SWMU No. 5) and Recent Process Area (SWMU No. 4) (Figure 4A-3). The 2-methylnaphthalene concentrations that exceed the RAL range from 139 mg/Kg at SB-56(4') to 1,300 mg/Kg at SB-07(2.5'). Surrounding surface soil samples indicate 2-methylnephthalene concentrations are delineated to the appropriate RAL (Figure 4A-3).

Benzene concentrations were detected in 6 of the 105 surface samples analyzed (5.7 percent), with only 1 of the 105 surface soil samples analyzed (0.95 percent) with concentrations greater than the RAL of 0.10 mg/Kg at the Site. The one surface soil sample exceeding the RAL is located at the northeast portion of the SDD (SWMU No. 2) at SB-93B(3.5-4) (0.21 mg/Kg) (Figure 4A-4). Benzene concentrations are laterally delineated to the appropriate RAL in surface soils.

Benzo(a)anthracene was detected at concentrations greater than the RAL of 5.6 mg/Kg in 27 of the 160 surface soil samples analyzed (17 percent). Most of the RAL exceedances are in the vicinity of the two former process areas (SWMU Nos. 4 and 5) where eight surface soil samples range from 8.2 mg/Kg at SB-06(4) to 220 mg/Kg at AOC-7(0) (Figure 4A-5). Three soil samples within and near the AST Area (SWMU No. 8) that had concentrations greater than the RAL ranged from 5.9 mg/Kg at SB-124(0.5-2.5) near the Site perimeter to 21.5 mg/Kg at AOC-5E(0). Five surface soil samples exceeding the RAL were located along the SDD (SWMU No. 2), which included samples SB-86A(2-2.5) at 17.6 mg/Kg and SB-104(1-2) at 401 mg/Kg (Figure 4A-5). Two soil samples west of AOC 6 had benzo(a)anthracene concentrations greater than the RAL at SB-84(0-0.5) at 21.6 mg/Kg and SB-108(0-2) at 15.3 mg/Kg. The highest concentration detected at the Site was in SB-104(1-2) at 401 mg/Kg. Benzo(a)anthracene concentrations are laterally delineated to the appropriate RAL in surface soils, with off-site impacts noted adjacent to AOC 6 and potential impacts in the City of Houston ROW for Liberty Road to the north of the Site (Figure 4A-5).

Benzo(a)pyrene was detected in 109 of the 162 surface soil samples analyzed (68 percent), with 79 of those surface soil samples (49 percent) at concentrations greater than the RAL of 0.56 mg/Kg. Most of the surface soil samples that exceeded the RAL are in and near the former process areas (SWMU Nos. 4 and 5), along the northeast portion of the north perimeter of the Site, and along the SDD (SWMU No. 2) and Former Waste Water Lagoon (AOC6) (Figure 4A-6). The distribution of benzo(a)pyrene

concentrations in surface soils suggests spills and releases around the former process areas, and impacts from wastewater discharge into the SDD and into the Former Waste Water Lagoon. The highest concentration detected in surface soil was at MW-31A(0-2) at 70.6 mg/Kg north of the Original Process Area (SWMU No. 5). Benzo(a)pyrene concentrations exceeded the RAL in two samples collected off site: SB-60(0-0.5) at 0.73 mg/Kg and SB-108(0-2) at 23.2 mg/Kg. Concentrations also exceeded the RAL at SB-131(1.5-3.5) at 4.7 mg/Kg located at the southeast corner of the intermodal yard. Benzo(a)pyrene concentrations are delineated to the appropriate RAL in surface soils except along the property boundary north of locations MW-57A, SB-122, SB-123, and near SB-60; and near SB-131 on the southeast corner of the Site (Figure 4A-6). The RAL exceedance at SB-60 may be from anthropogenic sources (i.e., truck emissions, asphalt pavement) with the long history of heavy industrial land use and asphalting of Liberty Road. Also, the benzo(a)pyrene concentration at SB-131 may be a result of sampling bias (i.e, asphalt pavement) since the railroad did not acquire the property until the mid 1980s and it was not incorporated into the intermodal yard until after 1991. No wood preserving activities took place in the vicinity of this location. Additional surface soil sampling in the localized area immediately north of the Site (north of SB-123 and SB-60) will be necessary to evaluate the potential for affected property off site.

Dibenzofuran concentrations were detected in 62 of the 148 surface soils analyzed (42 percent), of which 5 samples exceeded the RAL of 249 mg/Kg (3 percent). These five samples are generally found near the former process areas (SWMU Nos. 4 and 5) (Figure 4A-7), with the highest concentration detected at SB-07(2.5) at 1,100 mg/Kg. Dibenzofuran concentrations are delineated to the appropriate RAL in surface soils.

Fluoranthene concentrations were detected in 114 of the 149 surface soils analyzed (76 percent), of which 2 samples exceeded the RAL of 2,316 mg/Kg (1.3 percent). The two locations that exceed the RAL include SB-07(2.5) at 2,500 mg/Kg, and SB-104(1-2) at 2,990 mg/Kg (Figure 4A-8). Fluoranthene concentrations are delineated to the appropriate RAL in surface soils.

Naphthalene concentrations in surface soils exceeded the RAL of 124 mg/Kg in 11 of the 156 soil samples (7 percent) analyzed, with the total of 77 naphthalene detections (49 percent). The 11 surface soil samples that exceed the RAL are generally in and around the former process areas (SWMU Nos. 4 and 5) (Figure 4A-9). The highest concentration was detected in SB-07(2.5) at 3,900 mg/Kg. Naphthalene concentrations are delineated to the appropriate RAL in surface soils.

Pentachlorophenol was detected in 53 of the 175 samples analyzed (30 percent) with 14 of the samples with detected concentrations greater than the RAL of 0.12 mg/Kg (8 percent). Most of the RAL exceedances are in the vicinity of the two former process areas (SWMU Nos. 4 and 5), near the AST Area (SWMU No. 8), and along a portion of the SDD (SWMU No. 2) (Figure 4A-10). The highest concentration detected in the surface soils was at SB-89B(0-0.5) in the SDD (SWMU No. 2) at 3.13 mg/Kg. Concentrations exceeded the RAL along the north property boundary at SB-52, SB-54, and SB-124. The RAL exceedance at SB-124 in surface soil is laterally delineated to the north with the sample from SB-60(0-0.5) at 0.037 mg/Kg, and concentrations detected in SB-52 and SB-54 are delineated by SB-62, SB-119, and SB-120. Pentachlorophenol concentrations in surface soil appear to be delineated to the appropriate RAL.

Pentachlorophenol concentrations were less than the SDLs in 122 samples (i.e., "U" flagged); however, 64 of these samples had SDLs greater than the RAL. In response to the TCEQ comment letter dated June 9, 2005, UPRR agreed to resample a subset of these locations as specified in the response letter dated September 5, 2006 (ERM, 2006). Eleven locations were resampled (SSO-A02R(0-2'), SSO-AO4R (0-2'), AOC-4SER (0-2'), SS0-F08R(1.5-2'), SSO-B03R(0-2'), SSO-C03R(0-2'), SSO-A06R(0-2'), SSO-C05R(0-2'), SSO-C01R(0-2'), SS0-11R(0-4'), SSO-C06R(0-2')) in 2006 and their respective SDLs were less than the RAL. Of these eleven surface soil samples, four locations did not have pentachlorophenol concentrations detected above the SDL, five samples were detected above the SDL but below the RAL, and two samples had concentrations detected above the SDL and RAL (SSO-11(0-4) at 0.152 mg/Kg and SSO-C06(0-2) at 0.181 mg/Kg). The distribution of the resampled locations indicates that pentachlorophenol concentrations within the Railroad Tie Storage Area (SWMU No. 12) are less than the RAL (Figure 4A-10).

Phenanthrene concentrations were detected in 99 of the 149 surface soils analyzed (66 percent), of which 2 samples exceeded the RAL of 1,705 mg/Kg (1.3 percent). Similar to the fluoranthene RAL exceedance distribution, the two locations that exceed the RAL include SB-07(2.5) at 4,100 mg/Kg, and SB-104(1-2) at 3,340 mg/Kg (Figure 4A-11). Phenanthrene concentrations are delineated to the appropriate RAL in surface soils.

Subsurface Soils

As discussed previously, the subsurface soil RAL evaluation was limited to the soil data collected between the surface soils and the top of the GWBU. The list of subsurface soil samples and results are provided on Tables 4D-3 and 4D-4. Details of the subsurface soil COC evaluation are discussed below.

2,4-Dimethylphenol was sampled in 19 subsurface soil samples with only one sample (5 percent), SB-08(18) at 25 mg/Kg, had a detection above the RAL of 17.65 mg/Kg (Figure 4B-1). None of the other subsurface soil samples had concentrations above the SDL for 2,4-dimethylphenol.

2-Methylnaphthalene concentrations were detected 10 of the 21 subsurface samples analyzed, with 4 of those samples (19 percent) with concentrations exceeding the RAL of 126 mg/Kg. The four subsurface soil locations that exceeded the RAL consist of SB-74(14') at 213 mg/Kg, SB-08(14) at 360 mg/Kg, SB-08(18) at 400 mg/Kg, and SB-07(19) at 1,700 mg/Kg. These four locations are located within the Original Process Area (SWMU No. 5) (Figure 4B-2). Surrounding subsurface soil samples indicate 2-methylnephthalene concentrations are delineated to the appropriate RAL. To supplement the subsurface data, the Affected Property boundary for 2-methylnaphthalene in surface soil was used to define the Affect Property in subsurface soils. The boundaries used are based on the assumption that the COCs in subsurface soils do not extend a significant distance laterally beyond what was observed in the surface soils. Also, the subsurface soil data supports the data in the surface soil.

Benzene concentrations in subsurface soils exceeded the subsurface RAL of 0.105 mg/Kg in 2 of the 21 samples analyzed (10 percent). The two locations consisted of SB-07(19) at 0.23 mg/Kg and SB-08(18) at 1.1 mg/Kg (Figure 4B-3). Surrounding subsurface soil samples indicate benzene concentrations are delineated to the appropriate RAL.

Dibenzofuran was evaluated in 19 subsurface soil samples, where 10 of the samples had detections above the MDL (53 percent). Two subsurface soil samples, SB-07(19) and SB-08(18) had concentrations above the subsurface RAL of 249 mg/Kg at 360 mg/Kg and 270 mg/kg, respectively (Figure 4B-5). Surrounding subsurface soil samples indicate dibenzofuran concentrations are delineated to the appropriate RAL. However, with the surface soil and subsurface soil RAL for dibenzofuran the same (249 mg/Kg), the dibenzofuran Affected Property in the subsurface was conservatively extended out the same distance and area as the Affected Property for the surface soil except for areas where the data suggest concentrations are less than the RAL.

Naphthalene was detected above the SDL in 14 of the 21 samples analyzed. Of those samples, naphthalene concentrations in subsurface soils exceeded the RAL of 137 mg/Kg in four subsurface samples collected at the Site (19 percent), which included subsurface soil samples SB-07(19) at 7,600 mg/Kg, SB-8(14) at 4,600, SB-8(19) at 17,000 mg/Kg, and SB-74(14) at 2,530 mg/Kg (Figure 4B-6).

The distribution of subsurface soil samples exceeding the RAL is located near the Original Process Area (SWMU No. 5). Similar to the dibenzofuran evaluation, the subsurface soil naphthalene Affected Property was established using the available subsurface soil data, as well as the extent of the surface Affected Property, as shown on Figure 4B-6. Based on subsurface soil samples collected and extrapolating the surface soil data, naphthalene concentrations are delineated to the appropriate RAL in subsurface soils.

Pentachlorophenol was detected above the subsurface RAL in only one sample, SB-95B (5-5.5') at 0.25 mg/kg (Figure 4B-7). Of the 14 subsurface samples analyzed, 8 of the on-site subsurface soil samples had SDLs that were greater than the RAL. As with other COCs in subsurface soils, the surface soil Affected Property for the pentachlorophenol surface soils were extrapolated to subsurface soils. However, as noted in the groundwater section (Section 5.0) and shown on Figure 5B-1, none of the A-TZ wells had pentachlorophenol concentrations detected greater than the PCL. This indicates that even though surface and subsurface soils have pentachlorophenol concentrations greater than the $^{GW}Soil_{Ing}$ pathway, the concentrations are protective of groundwater given the length of time since the releases at the Site (prior to 1984 when the facility shut down) and that no concentrations were detected in groundwater above the PCL.

One of the main COCs detected in surface soils was benzo(a)pyrene. Of the 19 subsurface soil samples analyzed for benzo(a)pyrene, only 6 samples had detections greater than the SDL, and none of those were greater than the subsurface soil RAL of 57 mg/Kg (Figure 4B-4). One sample, SB-08(14), had an elevated MDL (330 mg/Kg) greater than the subsurface soil RAL, and the results were not detected above that SDL. Surrounding subsurface soil samples indicate benzo(a)pyrene concentrations are delineated to the appropriate RAL.

Since benzo(a)pyrene has a relatively high octanol-water partition coefficient (i.e., approximately 2 times that of naphthalene), this COC prefers to partition into the shallow soils rather than migrate vertically. With the occurrence of benzo(a)pyrene in the surface soils relatively wide spread across the Site, the results of the subsurface soil samples less than the RAL supports the predicted fate and transport of this COC in soils.

CDDs/CDFs

In response to the TCEQ comment letter dated October 8, 2004, two soil samples near the former process areas were collected and analyzed for CDDs and CDFs. 2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-

TCDD) is considered the most potent congener of the CDD and CDF families of compounds (Palmer, 1988). The TCEQ Residential PCL $^{Tot}Soil_{Comb}$ for 2,3,7,8-TCDD is 0.001 mg/Kg, and the Commercial/Industrial PCL is 0.005 mg/Kg.

The soil samples consisted of TW-01(2-4) collected within the Original Process Area (SWMU No. 5) and MW-52A(2-4) collected within the Recent Process Area (SWMU No. 4), which were analyzed for CDDs and CDFs by EPA Method 8280A. Results of the analysis are provided on Table 4D-6. No CDDs or CDFs were detected above the SDL in sample TW-01(2-4); however, the 2,3,7,8-TCDD SDL (1.2 ng/g (0.0012 mg/Kg)) was slightly greater than the residential PCL (0.001 mg/Kg), but less than the Commercial/Industrial PCL (0.005 mg/Kg). Two CDDs and two CDFs were detected above SDLs in the MW-52A(2-4) sample:

- CDDs: 1,2,3,4,6,7,8-Heptachlorodibenzodioxin (1,2,3,4,6,7,8-HpCDD) at 0.014 mg/Kg (Total HpCDD at 0.033 mg/Kg) and Octachlorodibenzodioxin (OCDD) at 0.280 mg/Kg.
- CDFs: Total Heptachlorodibenzofuran (HpCDF) at 12 ng/g and octachlorodibenzofuran (OCDF) at 0.016J mg/Kg.

No PCLs have been established for the other CDDs or CDFs. However, toxic equivalency factors (TEFs)[1] have been established by the EPA for CDDs and CDFs (EPA, 1987) relative to 2,3,7,8-TCDD. The TEF for 1,2,3,4,6,7,8-HpCDD is 0.01 and 1,2,3,4,7,8,9-HpCDF is 0.01. No TEFs were established by the EPA for OCDD or OCDF. The toxicity for the other CDDs and CDFs were then evaluated by multiplying the detected concentrations to the TEFs for each congener, summing the results, and comparing the result to the 2,3,7,8-TCDD PCLs. The summed result was 0.00014 mg/Kg, below the equivalent PCL of 0.001 mg/Kg. Therefore, the detected results do not present an unacceptable risk.

NAPL Evaluation

Since 1995, site investigations have included activities to evaluate surface and subsurface soils for the presence of NAPL. Specifically, CPT/ROST investigations were conducted in 1995, 2001, and 2008 at the Site using laser-induced fluorescence (LIF) as a tool to identify the presence of NAPL. A total of 75 CPT/ROST locations have been drilled at and around the Site (Figure 1A). Copies of the CPT/ROST logs since 2006 are provided in Appendix 2, and where CPT/ROST borings intersect the geologic cross section lines (Figures 4C-1 through 4C-4), the ROST profiles were posted on the cross sections.

[1] Van den Berg, M., and others. 2006.

ROST/LIF method is used as qualitative screening data only to evaluate the *in situ* distribution of petroleum hydrocarbon NAPL based on the fluorescence response induced in the PAH compounds, which are commonly found in creosote. ROST/LIF results do not conclusively indicate NAPL is present at the Site given the qualitative nature of the screening tool. However, NAPL has been detected soil borings drilled at the Site in areas where elevated ROST responses were observed, and also NAPL has been detected in monitoring wells completed in the A-TZ, B-TZ, B-CZ, and C-TZ zones. Most of the areas with elevated ROST/LIF readings have been in around the former process areas (SWMU Nos. 4 and 5), and around the AST Area (SWMU No. 8). A more detailed discussion of NAPL occurrence in the groundwater-bearing zone is provided in Section 5.2.

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

4.0 Tables

TABLE 4A

SURFACE SOIL RESIDENTIAL ASSESSMENT LEVELS WITH NO ECOLOGICAL COMPONENT
UPRR HOUSTON WOOD PRESERVING WORKS

COC	Source area size (acres)	$^{Tot}Soil_{comb}$ PCL[1] (mg/kg)	$^{GW}Soil_{Ing}$ PCL[2] (mg/kg)	Tier	Residential Assesment Level (mg/l)	exposure pathway	MQL (mg/kg)	Maximum Surface Soil Concentration Sample ID	Depth (feet bgs)	Sample Date	Concentration (mg/kg)	Notes
1,2-Dichloroethane	30	6.4053527	0.0307185	2	0.030718481	$^{GW}Soil_{Ing}$		HWPW-MW18-S00	1	2/26/1997	<0.62U	SQL is greater than RAL
1,2-Diphenylhydrazine	30	5.4315402	0.2270729	2	0.227072852	$^{GW}Soil_{Ing}$	0.00067	SB-104(1-2)	1-2	3/15/2007	1.84	
2,4-Dimethylphenol	30	879.83057	17.655204	2	17.65520382	$^{GW}Soil_{Ing}$		HWPW-AOC7-S00	5	3/3/1997	<165U	SQL is greater than RAL
2,4-Dinitrophenol	30	133.1307	0.0468447	1	0.046844691	$^{GW}Soil_{Ing}$	0.0333	TW-03(2-5)	2-5	3/14/2007	<0.0678U	SQL is greater than RAL
2,4-Dinitrotoluene	30	6.9094403	0.0218134	2	0.021813379	$^{GW}Soil_{Ing}$	0.00333	SB-82(0-0.5')	0-0.5	5/2/2006	0.162	
2,6-Dinitrotoluene	30	6.9094403	0.017949	2	0.017948985	$^{GW}Soil_{Ing}$		HWPW-AOC7-S00	5	3/3/1997	<165U	SQL is greater than RAL
2-Methylnaphthalene	30	252.10084	126.65316	2	126.6531597	$^{GW}Soil_{Ing}$		HWPW-SB07-S2.5	2.5	3/6/1997	1,300	
4,6-Dinitro-o-cresol	30	5.2220344	0.0023433	1	0.002343291	$^{GW}Soil_{Ing}$		HWPW-AOC7-S00	5	3/3/1997	<820U	SQL is greater than RAL
4-Nitrophenol	30	51.175641	0.0888831	2	0.088883132	$^{GW}Soil_{Ing}$		HWPW-AOC7-S00	5	3/3/1997	<820U	SQL is greater than RAL
Acenaphthene	30	2965.4732	1752.7795	2	1752.779457	$^{GW}Soil_{Ing}$		HWPW-SB07-S2.5	2.5	3/6/1997	1700	
Acetone	30	5417.4106	21.371097	1	21.37109655	$^{GW}Soil_{Ing}$	0.005	TW-03(2-5)	2-5	3/14/2007	0.0267	
Acetophenone	30	1804.9991	4.1179801	1	4.117980125	$^{GW}Soil_{Ing}$		SB38-00	0		0.053	
Aluminum	30	63709.335	86303.569	1	63709.33538	$^{Tot}Soil_{Comb}$		WPW-M-001-P	0	12/13/1995	10	
Anthracene	30	17744.113	3444.9203	1	3444.920295	$^{GW}Soil_{Ing}$	0.00667	SB-104(1-2)	1-2	3/15/2007	669	
Benzene	30	47.621265	0.1047494	2	0.104749449	$^{GW}Soil_{Ing}$	0.005	SB-93B (3.5-4')	4-4	8/25/2006	0.206	
Benzo(a)anthracene	30	5.6452507	133.05617	2	5.645250736	$^{Tot}Soil_{Comb}$	0.00667	SB-104(1-2)	1-2	3/15/2007	401	
Benzo(a)pyrene	30	0.5636503	57.299732	2	0.563650292	$^{Tot}Soil_{Comb}$		MW 31A (0-2')	2	12/8/2003	70.62	
Benzo(b)fluoranthene	30	5.7082085	30.057804	1	5.70820848	$^{Tot}Soil_{Comb}$		SB38-00	0		0.577	
Benzo(k)fluoranthene	30	57.210145	307.57928	1	57.21014468	$^{Tot}Soil_{Comb}$		SB38-00	0		0.718	
bis(2-Chloroethoxy)methane	30	2.4615133	0.0770422	2	0.077042234	$^{GW}Soil_{Ing}$		HWPW-AOC7-S00	5	3/3/1997	<165U	SQL is greater than RAL
bis(2-Chloroethyl)ether	30	1.382099	0.0045766	2	0.004576628	$^{GW}Soil_{Ing}$	0.00667	TW-03(2-5)	2-5	3/14/2007	<0.0144U	SQL is greater than RAL
bis(2-Ethylhexyl)phthalate	30	43.157712	1226.3314	2	43.15771175	$^{Tot}Soil_{Comb}$		HWPW-AOC7-S00	5	3/3/1997	<165U	SQL is greater than RAL
Chrysene	30	560.11647	11588.71	2	560.1164652	$^{Tot}Soil_{Comb}$	0.00667	SB-104(1-2)	1-2	3/15/2007	392	
Dibenzo(a,h)anthracene	30	0.5493763	7.6262169	1	0.549376293	$^{Tot}Soil_{Comb}$	0.00667	TW-03(2-5)	2-5	3/14/2007	0.113	
Dibenzofuran	30	266.2614	249.01652	2	249.0165189	$^{GW}Soil_{Ing}$		HWPW-SB07-S2.5	2.5	3/6/1997	1,100	
Di-n-Octylphthalate	30	1282.5228	813198.23	1	1282.52279	$^{Tot}Soil_{Comb}$		SB38-00	0		0.049400002	
Ethylbenzene	30	4019.9463	43.710396	2	43.71039571	$^{GW}Soil_{Ing}$		HWPW-SB07-S2.5	2.5	3/6/1997	6.3	
Fluoranthene	30	2316.4315	14366.24	2	2316.431543	$^{Tot}Soil_{Comb}$	0.00667	SB-104(1-2)	1-2	3/15/2007	2,990	
Fluorene	30	2262.9039	2225.7888	2	2225.788811	$^{GW}Soil_{Ing}$		HWPW-SB07-S2.5	2.5	3/6/1997	1600	
Methylene chloride	30	264.10974	0.0224908	2	0.022490804	$^{GW}Soil_{Ing}$		HWPW-MW18-S00	1	2/26/1997	<0.625U	SQL is greater than RAL
Naphthalene	30	124.09705	227.57301	2	124.0970454	$^{Tot}Soil_{Comb}$		HWPW-SB07-S2.5	2.5	3/6/1997	3,900	
Nitrobenzene	30	29.850981	0.4939505	2	0.49395052	$^{GW}Soil_{Ing}$		HWPW-AOC7-S00	5	3/3/1997	<165U	SQL is greater than RAL
n-Nitrosodi-n-propylamine	30	0.399781	0.0008847	2	0.000884726	$^{GW}Soil_{Ing}$	0.00667	TW-03(2-5)	2-5	3/14/2007	<0.0478U	SQL is greater than RAL
N-Nitrosodiphenylamine	30	571.11573	18.661395	2	18.66139495	$^{GW}Soil_{Ing}$		HWPW-AOC7-S00	5	3/3/1997	<165U	SQL is greater than RAL
Pentachlorophenol	30	2.4171887	0.1238696	2	0.123869593	$^{GW}Soil_{Ing}$		HWPW-AOC7-S00	5	3/3/1997	<820U	SQL is greater than RAL
Phenanthrene	30	1705.2028	3107.9101	2	1705.202797	$^{Tot}Soil_{Comb}$		HWPW-SB07-S2.5	2.5	3/6/1997	4,100	
Phenol	30	1586.1336	44.604112	2	44.60411164	$^{GW}Soil_{Ing}$		HWPW-AOC7-S00	5	3/3/1997	<165U	SQL is greater than RAL

TABLE 4A

SURFACE SOIL RESIDENTIAL ASSESSMENT LEVELS WITH NO ECOLOGICAL COMPONENT
UPRR HOUSTON WOOD PRESERVING WORKS

COC	Source area size (acres)	$^{Tot}Soil_{comb}$ PCL[(1)] (mg/kg)	$^{GW}Soil_{Ing}$ PCL[(2)] (mg/kg)	Tier	Residential Assesment Level (mg/l)	exposure pathway	MQL (mg/kg)	Maximum Surface Soil Concentration Sample ID	Depth (feet bgs)	Sample Date	Concentration (mg/kg)	Notes
Pyrene	30	1697.6145	8363.9546	2	1697.614513	$^{Tot}Soil_{Comb}$	0.00667	SB-104(1-2)	1-2	3/15/2007	1610	
Toluene	30	5619.3228	43.184584	2	43.18458418	$^{GW}Soil_{Ing}$		HWPW-MW18-S00	1	2/26/1997	1.4	
Xylenes (tot)	30	753.21563	732.0359	2	732.0358961	$^{GW}Soil_{Ing}$		HWPW-MW18-S00	1	2/26/1997	42	

Explanations

1) $^{Tot}Soil_{Comb}$ PCL = TRRP Tier 1 Protective Concentration Level for total soil combined pathway (30 acre source area).

2) $^{GW}Soil_{Ing}$ PCL = TRRP Tier 1 Protective Concentration Level for soil to Class 2 groundwater ingestion pathway (30 acre source area).

Notes

1) Residential land use assumed to provide most conservative TRRP PCLs.

2) Only COCs having at least one detection and/or a non-detection with a MQL greater than the RAL are included in this table.

3) U = not detected above SQL

4) bgs = below ground surface

TABLE 4C

SUBSURFACE SOIL RESIDENTIAL ASSESSMENT LEVELS WITH NO ECOLOGICAL COMPONENT
UPRR HOUSTON WOOD PRESERVING WORKS

COC	Source area size (acres)	$^{Air}Soil_{Inh-V}$ PCL[1] (mg/kg)	$^{GW}Soil_{Ing}$ PCL[2]		Residential Assesment Level		MQL (mg/kg)	Maximum Subsurface Soil Concentration				Notes
			(mg/kg)	Tier	(mg/l)	exposure pathway		Sample ID	Depth (feet bgs)	Sample Date	Concentration (mg/kg)	
1,2-Dichloroethane	30	7.085557	0.030718	2	0.03072	$^{GW}Soil_{Ing}$		HWPW-SB08-S18	18	3/6/1997	<0.62U	SQL is greater than RAL
1,2-Diphenylhydrazine	30	72.35434	0.227073	2	0.22707	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<330U	SQL is greater than RAL
2,4-Dimethylphenol	30	2595.251	17.6552	2	17.6552	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<330U	SQL is greater than RAL
2,4-Dinitrophenol	30	---	0.042654	2	0.04265	$^{GW}Soil_{Ing}$	0.0333	TW-03(11-15)	11-15	3/14/2007	<0.0666U	SQL is greater than RAL
2,4-Dinitrotoluene	30	14.95926	0.021813	2	0.02181	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<330U	SQL is greater than RAL
2,6-Dinitrotoluene	30	22.11065	0.017949	2	0.01795	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<330U	SQL is greater than RAL
2-Methylnaphthalene	30	---	126.6532	2	126.653	$^{GW}Soil_{Ing}$		HWPW-SB07-S19	19	3/6/1997	1700	
2-Methylphenol (o-Cresol)	30	1455.783	3.559535	1	3.55953	$^{GW}Soil_{Ing}$	0.00667	TW-02(10-12.5)	10-12.5	3/12/2007	0.153	
4,6-Dinitro-o-cresol	30	24.23582	0.002149	2	0.00215	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<1600U	SQL is greater than RAL
4-Methylphenol (p-Cresol)	30	1460.134	0.315765	1	0.31577	$^{GW}Soil_{Ing}$	0.00667	TW-02(10-12.5)	10-12.5	3/12/2007	0.161	
4-Nitrophenol	30	83.14541	0.088883	2	0.08888	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<1600U	SQL is greater than RAL
Acenaphthene	30	---	1752.779	2	1752.78	$^{GW}Soil_{Ing}$		HWPW-SB07-S19	19	3/6/1997	460	
Acetone	30	5847.272	21.3711	1	21.3711	$^{GW}Soil_{Ing}$	0.625	TW-02(10-12.5)	10-12.5	3/12/2007	0.711	
Anthracene	30	---	3444.92	1	3444.92	$^{GW}Soil_{Ing}$		HWPW-SB08-S21	21	3/6/1997	580	
Benzene	30	83.7384	0.104749	2	0.10475	$^{GW}Soil_{Ing}$		HWPW-SB08-S18	18	3/6/1997	1.1	
Benzo(a)anthracene	30	1927.133	133.0562	2	133.056	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<330U	SQL is greater than RAL
Benzo(a)pyrene	30	435.6416	57.29973	2	57.2997	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<330U	SQL is greater than RAL
Benzo(b)fluoranthene	30	3161.407	30.0578	1	30.0578	$^{GW}Soil_{Ing}$	0.00667	TW-03(11-15)	11-15	3/14/2007	3.18	
Benzo(ghi)perylene	30	---	23243.43	1	23243.4	$^{GW}Soil_{Ing}$	0.00667	TW-03(11-15)	11-15	3/14/2007	1.53	
Benzo(k)fluoranthene	30	78286.86	307.5793	1	307.579	$^{GW}Soil_{Ing}$	0.00667	TW-03(11-15)	11-15	3/14/2007	5.01	
bis(2-Chloroethoxy)methane	30	5.810425	0.077042	2	0.07704	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<330U	SQL is greater than RAL
bis(2-Chloroethyl)ether	30	1.843756	0.004577	2	0.00458	$^{GW}Soil_{Ing}$	0.00667	TW-03(11-15)	11-15	3/14/2007	<0.0142U	SQL is greater than RAL
Carbazole	30	---	33.63869	2	33.6387	$^{GW}Soil_{Ing}$	0.00667	TW-02(10-12.5)	10-12.5	3/12/2007	3.14	
Dibenzo(a,h)anthracene	30	1009.407	7.626217	1	7.62622	$^{GW}Soil_{Ing}$	0.00667	TW-03(11-15)	11-15	3/14/2007	0.593	
Dibenzofuran	30	---	249.0165	2	249.017	$^{GW}Soil_{Ing}$		HWPW-SB07-S19	19	3/6/1997	360	
Ethylbenzene	30	7895.335	43.7104	2	43.7104	$^{GW}Soil_{Ing}$		HWPW-SB08-S18	18	3/6/1997	19	
Fluoranthene	30	---	14366.24	2	14366.2	$^{GW}Soil_{Ing}$		HWPW-SB07-S19	19	3/6/1997	330	
Fluorene	30	---	2225.789	2	2225.79	$^{GW}Soil_{Ing}$		HWPW-SB07-S19	19	3/6/1997	430	
Indeno(1,2,3-cd)pyrene	30	12903.29	86.6854	1	86.6854	$^{GW}Soil_{Ing}$	0.00667	TW-03(11-15)	11-15	3/14/2007	1.86	
Methylene chloride	30	391.967	0.022491	2	0.02249	$^{GW}Soil_{Ing}$		HWPW-SB08-S18	18	3/6/1997	<0.62U	SQL is greater than RAL
Naphthalene	30	137.6613	227.573	2	137.661	$^{Air}Soil_{Inh-V}$		HWPW-SB08-S22	22	3/6/1997	22000	
Nitrobenzene	30	289.5469	0.493951	2	0.49395	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<330U	
n-Nitrosodi-n-propylamine	30	---	0.000885	2	0.00088	$^{GW}Soil_{Ing}$	0.00667	TW-03(11-15)	11-15	3/14/2007	<0.0468U	SQL is greater than RAL
N-Nitrosodiphenylamine	30	---	18.66139	2	18.6614	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<330U	SQL is greater than RAL
Pentachlorophenol	30	232.6409	0.12387	2	0.12387	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<1600U	SQL is greater than RAL
Phenanthrene	30	---	3107.91	2	3107.91	$^{GW}Soil_{Ing}$		HWPW-SB07-S19	19	3/6/1997	2600	

TABLE 4C

SUBSURFACE SOIL RESIDENTIAL ASSESSMENT LEVELS WITH NO ECOLOGICAL COMPONENT
UPRR HOUSTON WOOD PRESERVING WORKS

COC	Source area size (acres)	$^{Air}Soil_{Inh-V}$ PCL[1] (mg/kg)	$^{GW}Soil_{Ing}$ PCL[2] (mg/kg)	Tier	Residential Assesment Level (mg/l)	exposure pathway	MQL (mg/kg)	Maximum Subsurface Soil Concentration Sample ID	Depth (feet bgs)	Sample Date	Concentration (mg/kg)	Notes
Phenol	30	1723.3	44.60411	2	44.6041	$^{GW}Soil_{Ing}$		HWPW-SB08-S14	14	3/6/1997	<330U	SQL is greater than RAL
Styrene	30	12331.18	1.627339	1	1.62734	$^{GW}Soil_{Ing}$	0.005	TW-02(10-12.5)	10-12.5	3/12/2007	0.0373	
Toluene	30	39476.67	43.18458	2	43.1846	$^{GW}Soil_{Ing}$		HWPW-SB07-S21	21	3/6/1997	13	
Xylenes (tot)	30	789.5335	732.0359	2	732.036	$^{GW}Soil_{Ing}$		HWPW-SB08-S18	18	3/6/1997	55	

Explanations

1) $^{Air}Soil_{Inh-V}$ PCL = TRRP Tier 1 Protective Concentration Level for inhalation of constituents volatilized from soil pathway (30 acre source area).

2) $^{GW}Soil_{Class\ 3}$ PCL = TRRP Tier 1 Protective Concentration Level for soil to Class 3 groundwater ingestion pathway (30 acre source area).

Notes

1) Residential land use assumed to provide most conservative TRRP PCLs.

2) Only COCs having at least one detection and/or a non-detection with a SQL greater than the RAL are included in this table.

3) U = not detected above SQL

3) J = estimated value. Concentration is between sample quanititation limit and method quantitation limit.

7) bgs = below ground surface

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	AOC-3E	AOC-3W	AOC-4NE	AOC-4NW	AOC-4SE		AOC-4SW	AOC-5E	AOC-5W	AOC-7	MW-12A
							Sample Date:	3/4/1997	3/4/1997	3/3/1997	3/3/1997	3/3/1997	8/28/2006	3/3/1997	4/10/1997	3/4/1997	3/3/1997	2/27/1997
							Sample Interval:	5'	5'	5'	5'	5'	0-2'	5'	5'	5'	5'	1'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																		
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.005
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	0.02	0.007	<0.005
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	6.1	0.046	<0.005
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	0.085	0.011	<0.005
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	26	0.082	<0.005
Semivolatile Organic Compounds																		
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		**<0.33**	**<3.3**	**<0.33**	**<0.66**	**<0.66**	--	**<0.33**	**<10.3**	**<3.3**	**<165**	**<0.33**
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<0.33	<3.3	<0.33	<0.66	<0.66	--	<0.33	<10.3	<3.3	**<165**	<0.33
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		**<0.33**	**<3.3**	**<0.33**	**<0.66**	**<0.66**	--	**<0.33**	**<10.3**	**<3.3**	**<165**	**<0.33**
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		**<0.33**	**<3.3**	**<0.33**	**<0.66**	**<0.66**	--	**<0.33**	**<10.3**	**<3.3**	**<165**	**<0.33**
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.33	<3.3	<0.33	<0.66	<0.66	--	<0.33	<10.3	<3.3	<165	<0.33
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.33	5	<0.33	<0.66	<0.66	--	<0.33	<10.3	9.2	**<165**	<0.33
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<1.6**	**16**	**<1.6**	**<3.3**	**<3.3**	--	**<106**	**64**	**<16**	**<820**	**<106**
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<1.6**	**16**	**<1.6**	**<3.3**	**<3.3**	--	**<106**	**64**	**<16**	**<820**	**<106**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<0.33	8.8	<0.33	<0.66	<0.66	--	<0.33	<10.3	4.3	270	<0.33
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		<0.33	<3.3	<0.33	<0.66	<0.66	--	<0.33	<10.3	<3.3	<165	<0.33
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		<0.33	0.0086	<0.33	<0.66	<0.66	--	<0.33	<10.3	<3.3	460	<0.33
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		<0.33	3.6	<0.33	<0.66	<0.66	--	<0.33	**21.5**	<3.3	**220**	<0.33
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		<0.33	**<3.3**	<0.33	**<0.66**	**<0.66**	--	<0.33	**17.8**	**<3.3**	**<165**	<0.33
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		**<0.33**	**<3.3**	**<0.33**	**<0.66**	**<0.66**	--	**<0.33**	**<10.3**	**<3.3**	**<165**	**<0.33**
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		<0.33	3.3	<0.33	<0.66	<0.66	--	<0.33	<10.3	<3.3	<165	<0.33
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		<0.33	3.5	<0.33	<0.66	0.92	--	<0.33	34	<3.3	210	<0.33
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<0.33	6.7	<0.33	<0.66	<0.66	--	<0.33	<10.3	<3.3	190	<0.33
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<0.33	<3.3	<0.33	<0.66	<0.66	--	<0.33	<10.3	<3.3	<165	<0.33
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		<0.33	20	<0.33	<0.66	2.8	--	<0.33	50.9	5.3	<101	<0.33
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		<0.33	12	<0.33	<0.66	<0.66	--	<0.33	<10.3	4	330	<0.33
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		<0.33	<3.3	<0.33	<0.66	<0.66	--	<0.33	<10.3	11	**220**	<0.33
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		<0.33	**<3.3**	<0.33	**<0.66**	**<0.66**	--	<0.33	**<10.3**	**<3.3**	**<165**	<0.33
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.33	<3.3	<0.33	<0.66	<0.66	--	<0.33	<10.3	<3.3	**<165**	<0.33
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**<1.6**	**<16**	**<1.6**	**<3.3**	**<3.3**	<0.0215	**<106**	**64**	**<16**	**<820**	**<106**
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		<0.33	36	<0.33	<0.66	1.1	--	<0.33	<10.3	12	950	<0.33
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<0.33	<3.3	<0.33	<0.66	<0.66	--	<0.33	<10.3	<3.3	**<165**	<0.33
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		<0.33	13	<0.33	<0.66	3.6	--	<0.33	58.3	5.9	880	<0.33

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	MW-13	MW-15A	MW-16	MW-18A	MW-30A	MW-31A	MW-52A	MW-57A	MW-58A	SB-03	SB-04
							Sample Date:	2/25/1997	2/25/1997	2/26/1997	2/26/1997	12/8/2003	12/8/2003	2/27/2007	1/27/2009	1/27/2009	3/5/1997	3/5/1997
							Sample Interval:	1'	5'	1'	1'	1-3'	0-2'	2-4'	2-4'	0-2.5'	5'	2.5'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																		
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.005	<0.005	<0.005	**<0.62**	<0.005	<0.005	--	--	--	<0.025	<0.025
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.005	<0.005	<0.005	**<0.62**	<0.005	0.011	--	<0.005	<0.005	<0.025	<0.025
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		<0.005	<0.005	<0.005	<0.62	<0.005	<0.005	--	--	--	<0.025	<0.025
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		<0.005	<0.005	<0.005	4.2	<0.005	0.037	--	<0.005	<0.005	0.031	<0.025
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		<0.005	0.005	<0.005	**<0.625**	<0.005	<0.005	--	--	--	**<0.025**	**<0.025**
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		<0.005	<0.005	<0.005	1.4	<0.005	0.014	--	--	--	<0.025	<0.025
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		<0.005	<0.005	<0.005	42	<0.01	0.086	--	--	--	0.089	0.07
Semivolatile Organic Compounds																		
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		**<0.33**	**<0.33**	**<3.3**	**<3.3**	<0.0033	<0.0033	--	<0.0066	<0.0066	**<3.3**	**<25**
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<0.33	<0.33	<3.3	<3.3	0.01415 J	0.94	--	--	--	<3.3	**<25**
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		**<0.33**	**<0.33**	**<3.3**	**<3.3**	<0.0033	<0.0033	--	--	--	**<3.3**	**<25**
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		**<0.33**	**<0.33**	**<3.3**	**<3.3**	<0.0033	<0.0033	--	--	--	**<3.3**	**<25**
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.33	<0.33	<3.3	<3.3	<0.016	<0.016	--	--	--	<3.3	<25
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	**<0.05**	**<0.05**	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.33	<0.33	<3.3	6.9	0.33	**291.7**	--	0.2	0.26	78	**320**
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<106**	**<106**	**<16**	**<3.3**			--	--	--	**<16**	**<120**
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<106**	**<106**	**<16**	**<3.3**	**<0.05**	**<0.05**	--	--	--	**<16**	**<120**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<0.33	<0.33	<3.3	6.3	2.20	452.6	--	0.11	0.072	50	370
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		<0.33	<0.33	<3.3	<3.3	0.199	16.6	--	--	--	<3.3	<25
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		<0.33	<0.33	<3.3	9.2	3.51	294.2	--	--	--	24	250
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		<0.33	<0.33	<3.3	<3.3	2.93	**156.1**	**39.8**	2.4	1.3	**7.9**	**130**
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		<0.33	<0.33	**<3.3**	**<3.3**	**1.61**	**70.6**	**13.1**	**2.7**	**1.2**	**<3.3**	**44**
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		**<0.33**	**<0.33**	**<3.3**	**<3.3**	<0.003	<0.003	--	--	--	**<3.3**	**<25**
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		<0.33	<0.33	<3.3	<3.3	0.04	<0.016	--	--	--	<3.3	<25
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		<0.33	<0.33	<3.3	3.3	3.11	163.7	--	--	--	8.6	130
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<0.33	<0.33	<3.3	4	0.814	**291.5**	--	0.28	0.35	40	**300**
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<0.33	<0.33	<3.3	<3.3	<0.016	<0.016	--	--	--	<3.3	<25
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		0.4	<0.33	<3.3	16	21.87	1173.00	--	3.2	2.5	84	<25
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		<0.33	<0.33	<3.3	5.6	2.38	460.7	--	--	--	46	370
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		<0.33	<0.33	<3.3	46	0.58	**166.8**	25.8	0.57	0.65	**180**	**540**
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		<0.33	<0.33	**<3.3**	**<3.3**	<0.016	<0.016	--	--	--	**<3.3**	**<25**
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.33	<0.33	<3.3	<3.3	<0.016	<0.016	--	--	--	<3.3	**<25**
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**<106**	**<106**	**<16**	**<3.3**	0.0163	<0.016	<0.486	<0.0066	0.04	**<16**	**<120**
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		0.49	<0.33	<3.3	17	12.52	1185	--	1	0.88	160	1600
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<0.33	<0.33	<3.3	<3.3	<0.016	<0.016	--	--	--	<3.3	<25
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		<0.33	<0.33	<3.3	9.9	18.34	876.5	--	5.6	3.2	40	<25

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-06	SB-07	SB-08	SB-100		SB-101		SB-102	
							Sample Date:	3/4/1997	3/6/1997	3/6/1997	3/13/2007	3/13/2007	3/13/2007	3/13/2007	3/13/2007	3/13/2007
							Sample Interval:	4'	2.5'	4'	0	1-2'	0	1-2'	0	1-2'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.005	<0.025	<0.005	<0.00304	<0.00297	<0.00329	<0.00316	<0.00367	<0.00296
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.005	0.033	<0.005	<0.0021	<0.00205	<0.00227	<0.00219	<0.00254	<0.00205
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		<0.005	<0.025	<0.005	<0.002	<0.00195	<0.00216	<0.00208	<0.00242	<0.00195
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		0.055	6.3	0.024	<0.00175	<0.00171	<0.00189	<0.00182	<0.00212	<0.00171
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		<0.005	**<0.025**	<0.005	<0.004	<0.0039	<0.00433	<0.00417	<0.00484	<0.0039
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		0.005	0.36	<0.005	<0.00166	<0.00162	<0.0018	<0.00173	<0.00201	<0.00162
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		0.14	22	0.046	<0.00551	<0.00538	<0.00597	<0.00574	<0.00667	<0.00537
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		**<8.2**	**<25**	**<33**	<0.00001	<0.0000099	<0.000011	<0.000011	<0.00012	<0.0000099
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<8.2	**<25**	**<33**	<0.00251	<0.00245	<0.00272	<0.00262	<0.0304	<0.00245
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		**<8.2**	**<25**	**<33**	<0.00019	<0.000185	<0.000206	<0.000198	<0.0023	<0.000185
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		**<8.2**	**<25**	**<33**	<0.000259	<0.000253	<0.00028	<0.000269	<0.00313	<0.000252
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<8.2	<25	<33	<0.00194	<0.00189	<0.0021	<0.00202	<0.0235	<0.00189
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	**<0.0104**	**<0.0102**	**<0.0113**	**<0.0108**	**<0.126**	**<0.0101**
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		72	**1300**	**420**	<0.00191	<0.00187	<0.00207	<0.00199	<0.0232	<0.00186
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<41**	**<124**	**<160**	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<41**	**<124**	**<160**	<0.0047	<0.00459	<0.00509	<0.0049	**<0.213**	<0.00459
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		46	<701	450	<0.00222	<0.00217	0.0109	<0.00232	0.0291	<0.00217
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		<8.2	<25	<33	<0.00186	<0.00182	0.00776	<0.00194	0.108	0.00574 J
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		25	400	480	<0.00161	<0.00157	0.0286	<0.00168	0.163	0.0071
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		**8.2**	**130**	**160**	0.0103	0.00407 J	0.0466	<0.00204	0.338	0.00677
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		**<8.2**	**27**	**62**	0.0129	0.00576	0.101	0.00609	**0.982**	0.0108
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		**<8.2**	**<25**	**<33**	<0.00031	<0.000303	<0.000336	<0.000323	<0.00375	<0.000302
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		<8.2	<25	<33	<0.00416	<0.00406	<0.00451	<0.00433	0.194	0.259
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		9.9	130	180	0.0173	0.0103	0.079	<0.00289	0.887	0.0172
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		43	<101	**600**	<0.00206	<0.00201	0.00574 J	<0.00215	<0.025	<0.00201
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<8.2	<25	<33	<0.00244	<0.00238	<0.00264	<0.00254	<0.0295	0.00855
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		52	**2500**	430	0.0207	0.0187	0.154	0.0072	0.392	0.0538
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		41	1600	460	<0.00244	<0.00238	0.00974	<0.00254	<0.0295	<0.00238
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		**132**	**3900**	**970**	<0.00149	<0.00145	0.00809	<0.00155	<0.018	<0.00145
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		**<8.2**	**<25**	**<33**	<0.0032	<0.00312	<0.00346	<0.00333	<0.0387	<0.00312
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<8.2	**<25**	**<33**	<0.00221	<0.00216	<0.00239	<0.0023	0.02	<0.00216
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**<41**	**<124**	**<160**	<0.0104	0.0114	0.0862	<0.0108	**<0.126**	<0.0101
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		82	**4100**	930	<0.00171	<0.00167	0.0646	<0.00178	0.0619	0.00833
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<8.2	<25	<33	<0.00374	<0.00365	<0.00405	<0.00389	<0.0452	<0.00364
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		30	1500	<33	0.0218	0.0154	0.112	0.00627 J	0.471	0.0344

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-103		SB-104			SB-105		SB-106	
							Sample Date:	3/13/2007	3/13/2007	3/15/2007	3/15/2007	8/13/2008	3/13/2007	3/13/2007	3/13/2007	3/13/2007
							Sample Interval:	0	1-2'	0	1-2'	2-3'	0	1-2'	0	1-2'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.00387	<0.00314	<0.00309	<0.00295	--	<0.00337	<0.00305	<0.00307	<0.00287
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.00267	<0.00217	<0.00214	<0.00204	--	<0.00233	<0.00211	<0.00213	<0.00198
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		<0.00255	<0.00207	<0.00203	<0.00195	--	<0.00222	<0.00201	<0.00202	<0.00189
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		<0.00223	<0.00181	<0.00178	0.0408	--	<0.00194	<0.00176	<0.00177	<0.00165
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		<0.00509	<0.00414	<0.00407	<0.00389	--	<0.00444	<0.00402	<0.00405	<0.00377
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		<0.00212	<0.00172	<0.00169	<0.00162	--	<0.00184	<0.00167	<0.00168	<0.00157
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		<0.00702	<0.0057	<0.00561	0.0782	--	<0.00612	<0.00554	<0.00558	<0.0052
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.00026	<0.00001	<0.00021	**1.84**	--	<0.000011	<0.00001	<0.001	<0.000095
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<0.0639	<0.0026	<0.0511	<0.244	--	<0.00279	<0.00253	<0.255	<0.0237
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		<0.00483	<0.000197	<0.00386	<0.0185	--	<0.000211	<0.000191	<0.0192	<0.00179
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		<0.00658	<0.000268	<0.00526	**<0.0252**	--	<0.000287	<0.00026	**<0.0262**	<0.00244
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.0493	<0.00201	<0.0394	<0.188	--	<0.00215	<0.00195	<0.196	<0.0183
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<0.265**	**<0.0108**	**<0.212**	**<1.1**	--	**<0.0115**	**<0.0105**	**<1.05**	**<0.0982**
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.0487	<0.00198	<0.0389	13.2	--	<0.00212	<0.00192	<0.194	<0.018
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<0.12**	<0.00487	**<0.0957**	**<0.458**	--	<0.00522	<0.00474	**<0.477**	**<0.0444**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<0.0566	<0.0023	<0.0452	949	--	<0.00247	<0.00224	<0.225	<0.021
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		0.221	0.00536 J	<0.0379	19.8	--	<0.00206	<0.00187	2.27	0.2
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		0.269	0.00719	<0.0328	669	--	<0.00179	<0.00162	<0.163	<0.0152
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		0.708	0.0197	<0.0399	**401**	0.0185	0.0134	<0.00197	5.49	0.447
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		**1.77**	0.0652	0.147	**13.1**	0.0196	0.0149	0.0039	**10.6**	**1.17**
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		<0.00789	<0.000321	<0.0063	<0.0301	--	<0.000344	<0.000312	<0.0314	<0.00292
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		0.415	<0.00431	0 J	<0.405	--	<0.00461	<0.00419	<0.422	0.137
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		1.75	0.04	<0.0564	392	--	<0.00308	<0.00279	13.5	1.11
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<0.0525	<0.00213	<0.0419	**370**	--	<0.00229	<0.00208	<0.209	<0.0194
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<0.062	0.00548 J	<0.0496	<0.237	--	<0.0027	<0.00245	<0.247	<0.023
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		1.35	0.0393	0.151	**2990**	--	0.0563	0.00962	6.47	0.375
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		<0.062	<0.00252	<0.0496	1090	--	0.00467 J	<0.00245	<0.247	<0.023
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		<0.0379	<0.00154	<0.0302	1.33	--	<0.00165	<0.0015	<0.151	<0.014
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		<0.0814	<0.00331	<0.0651	<0.311	--	<0.00355	<0.00322	<0.324	<0.0302
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.0563	<0.00229	<0.045	<0.215	--	<0.00245	<0.00223	<0.224	<0.0209
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**<0.265**	<0.0108	**<0.212**	**<1.01**	<0.0103	0.0117	<0.0105	**<1.05**	<0.0982
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		0.127	<0.00177	<0.0348	**3340**	--	0.0413	0.00434 J	<0.173	0.0234
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<0.0951	<0.00387	<0.076	<0.363	--	<0.00414	<0.00376	<0.379	<0.0352
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		1.86	0.0449	0.114	1610	--	0.0457	0.00697	17.2	0.978

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-107	SB-108	SB-109	SB-110		SB-111		SB-112	
							Sample Date:	3/13/2007	8/13/2008	8/13/2008	8/13/2008	8/13/2008	8/13/2008	8/13/2008	2/3/2009	2/3/2009
							Sample Interval:	0	0-2'	0-2'	0	0-2'	0	0-2'	0	0-2'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.00343	<0.00304	--	--	--	--	--	--	--
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.00237	<0.0021	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		<0.00226	<0.002	--	--	--	--	--	--	--
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		<0.00198	<0.00175	--	--	--	--	--	--	--
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		<0.00452	<0.004	--	--	--	--	--	--	--
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		<0.00188	<0.00166	--	--	--	--	--	--	--
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		<0.00623	<0.00551	--	--	--	--	--	--	--
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.00011	<0.00025	--	--	--	--	--	<0.0066	<0.0066
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<0.0284	<0.0628	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		<0.00215	<0.00475	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		<0.00292	<0.00647	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.0219	<0.0485	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<0.118**	**<0.26**	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.0216	0.108	--	--	--	--	--	0.005 J	0.0075 J
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<0.0532**	**<0.0532**	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<0.0251	<0.0556	--	--	--	--	--	0.0061 J	0.0086 J
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		0.163	0.392	--	--	--	--	--	--	--
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		0.17	0.4	--	--	--	--	--	--	--
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		0.309	1.26	**15.3**	0.0585	4.3	2.17	2.43	0.0839	0.06	0.12
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		**0.92**	**3.6**	**23.2**	0.0716	**5.86**	**2.58**	**1.65**	0.0907	0.069	0.1
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		<0.0035	<0.00775	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		<0.047	<0.104	--	--	--	--	--	--	--
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		0.563	2.01	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<0.0233	0.128	--	--	--	--	--	0.0049 J	0.0092
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<0.0275	<0.061	--	--	--	--	--		
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		0.439	1.3	--	--	--	--	--	0.13	0.22
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		<0.0275	<0.061	--	--	--	--	--		
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		0.02	0.3	--	--	--	--	--	0.0051 J	0.0075 J
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		<0.0362	<0.08	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.025	<0.0553	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		<0.118	**<0.26**	<0.477	<0.00926	<0.0511	<0.053	<0.0943	<0.00962	0.022	0.023
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		0.0746	0.369	--	--	--	--	--	--	0.042	0.07
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<0.0422	<0.0935	--	--	--	--	--	--	--
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		0.542	1.85	--	--	--	--	--	0.12	0.21

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-113		SB-114		SB-115		SB-116		SB-117		SB-118
							Sample Date:	2/3/2009	2/3/2009	2/3/2009	2/3/2009	1/28/2009	1/28/2009	1/28/2009	1/28/2009	1/28/2009	1/28/2009	1/27/2009
							Sample Interval:	0	0-2'	0	0-2'	0	1.5-2'	0	1.5-2'	0	1.5-2'	0-2.5'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																		
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		--	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		--	--	--	--	--	--	--	--	--	--	<0.005
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		--	--	--	--	--	--	--	--	--	--	0.0016 J
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		--	--	--	--	--	--	--	--	--	--	--
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds																		
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		--	--	--	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.0066	0.03	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	0.018 J
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		--	--	--	--	--	--			--	--	--
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<0.0066	0.025	<0.0066	<0.0066	<0.0066	0.0061	<0.0066	<0.0066	<0.0066	<0.0066	0.029 J
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		--	--	--	--	--	--	--	--	--	--	--
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		0.07	0.26	0.015	0.036	0.0048 J	<0.0066	0.024	<0.0066	0.038	0.039	0.24
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		0.083	0.27	0.019	0.035	0.0056 J	<0.0066	0.028	<0.0066	0.061	0.045	0.31
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		--	--	--	--	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		--	--	--	--	--	--	--	--	--	--	--
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		0.0058 J	0.029	<0.0066	<0.0066	<0.0066	0.0065	<0.0066	<0.0066	<0.0066	<0.0066	0.026 J
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1				--	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		0.13	0.69	0.025	0.08	0.0072 J	0.0048	0.061	<0.0066	0.064	0.087	0.27
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2				--	--	--	--	--	--	--	--	--
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		0.0063 J	0.024	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	0.039
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		--	--	--	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		0.0046 J	0.0091	<0.0066	<0.0066	<0.0066	<0.0066	0.0086	<0.0066	0.016	0.012	0.078
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		0.037	0.48	0.01	0.015	<0.0066	0.011	0.013	<0.0066	0.018	0.012	0.097
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		--	--	--	--	--	--	--	--	--	--	--
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		0.15	0.61	0.028	0.066	0.0071 J	0.0047	0.057	<0.0066	0.082	0.092	0.43

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-119	SB-120	SB-121	SB-122	SB-123	SB-124	SB-125	SB-126	SB-127	SB-128	SB-129
							Sample Date:	1/27/2009	1/27/2009	1/27/2009	1/27/2009	1/27/2009	1/27/2009	1/27/2009	1/27/2009	1/28/2009	1/28/2009	1/28/2009
							Sample Interval:	0-2.5'	0-2.5'	2.5-5'	2-4'	0-2.5'	0-2.5'	0-2.5'	2-4'	3-4'	0-1.5'	3-4'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																		
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		--	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		<0.005	0.0026 J	<0.005	0.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		--	--	--	--	--	--	--	--	--	--	--
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds																		
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	0.012	<0.0066	<0.0066
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		--	--	--	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		0.034	0.096	0.047	77	0.19	0.32	0.18	0.0022 J	0.0076	0.0041	<0.0066
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		0.051	0.028 J	0.022	100	0.2	0.17	0.067	<0.0066	0.0099	<0.0066	<0.0066
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		--	--	--	--	--	--	--	--	--	--	--
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		0.18	0.36	0.085	31	1.4	5.9	0.2	<0.0066	0.031	0.024	<0.0066
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		0.28	0.35	0.14	**10**	**2.6**	**6**	0.23	<0.0066	0.035	0.026	<0.0066
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		--	--	--	--	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		--	--	--	--	--	--	--	--	--	--	--
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		0.051	0.1	0.054	93	0.21	0.35	0.048	<0.0066	0.0065	<0.0066	<0.0066
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		0.26	0.47	0.15	120	2.7	8.4	0.24	<0.0066	0.08	0.058	<0.0066
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		--	--	--	--	--	--	--	--	--	--	--
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		0.069	0.25	0.14	120	0.59	0.94	0.99	<0.0066	0.0071	<0.0066	<0.0066
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		--	--	--	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		<0.0066	<0.0066	<0.0066	<0.0066	0.066	0.32	0.014	<0.0066	<0.0066	0.0039	<0.0066
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		0.26	0.26	0.16	220	0.84	0.99	0.12	<0.0066	0.048	0.026	<0.0066
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		--	--	--	--	--	--	--	--	--	--	--
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		0.33	0.68	0.2	94	3.6	12	0.55	<0.0066	0.1	0.069	<0.0066

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-130	SB-131	SB-132	SB-133	SB-134	SB-135	SB-136	SB-137	SB-51	SB-52	SB-53
							Sample Date:	1/27/2009	1/27/2009	1/27/2009	1/27/2009	1/27/2009	1/28/2009	1/28/2009	1/28/2009	12/4/2003	12/4/2003	12/4/2003
							Sample Interval:	1-3'	1.5-3.5'	1-3'	0-2'	2.5-4.5'	2-3'	1-2.5'	1-2'	0	0	0
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																		
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		--	--	--	--	--	--	--	--	<0.005	<0.005	<0.005
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		--	--	--	--	--	--	--	--	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		--	--	--	--	--	--	--	--	<0.005	<0.005	<0.005
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		--	--	--	--	--	--	--	--	<0.005	<0.005	<0.005
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		--	--	--	--	--	--	--	--	<0.015	<0.015	<0.015
Semivolatile Organic Compounds																		
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0033	<0.0033	<0.0033
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		--	--	--	--	--	--	--	--	<0.0166	<0.0166	<0.0166
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		--	--	--	--	--	--	--	--	<0.0033	<0.0033	<0.0033
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		--	--	--	--	--	--	--	--	<0.0033	<0.0033	<0.0033
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		--	--	--	--	--	--	--	--	<0.0166	<0.0166	<0.0166
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	**<0.01**	**<0.01**	**<0.01**
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.0066	0.087	<0.0066	<0.0066	<0.0066	<0.0066	0.031	<0.0066	0.021 J	0.0386 J	0.1692
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		--	--	--	--	--	--	--	--	**<0.05**	**<0.05**	**<0.05**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<0.0066	0.15	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	0.046 J	0.204	1.315
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		--	--	--	--	--	--	--	--	0.3398	1.141	6.867
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		--	--	--	--	--	--	--	--	0.3847	2.499	14.06
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		0.007 J	4.5	0.0081	<0.0066	0.042	<0.0066	0.05	0.038	0.344	2.137	**17.09**
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		0.0067 J	**4.7**	0.011	<0.0066	0.074	<0.0066	0.049	0.044	0.273	**1.884**	**14.31**
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		--	--	--	--	--	--	--	--	<0.0033	<0.0033	<0.00332
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		--	--	--	--	--	--	--	--	<0.0166	0.2484	0.8855
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		--	--	--	--	--	--	--	--	0.417	2.885	22.32
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<0.0066	0.12	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	0.0234 J	0.1158	0.362
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		--	--	--	--	--	--	--	--	<0.0167	<0.0167	<0.0167
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		0.014	8.1	0.018	0.0049 J	0.062	<0.0066	0.082	0.07	0.6345	8.51	58.27
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		--	--	--	--	--	--	--	--	0.122	0.3036	1.18
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		<0.0066	0.11	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	0.0568 J	0.1366	0.196
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		--	--	--	--	--	--	--	--	<0.0167	<0.0167	<0.0167
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		--	--	--	--	--	--	--	--	<0.0167	<0.0167	<0.0167
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	**0.488**	**0.409**	**0.453**
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		0.0044 J	4	0.0079	<0.0066	0.033	<0.0066	0.056	0.033	0.2558	2.857	7.537
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		--	--	--	--	--	--	--	--	0.0359 J	0.1298	0.16
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		0.011	8	0.017	0.005 J	0.053	<0.0066	0.086	0.078	0.5936	7.565	50.4

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-54	SB-55	SB-56	SB-57	SB-59	SB-60		SB-61	SB-62
							Sample Date:	12/4/2003	12/4/2003	8/25/2006	4/28/2006	8/21/2006	8/21/2006	8/21/2006	8/22/2006	8/21/2006
							Sample Interval:	0	0	4'	0-1'	0	0	5'	0	0
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.005	<0.005	--	--	--	--	--	--	--
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.005	<0.005	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		<0.005	<0.005	--	--	--	--	--	--	--
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		<0.005	<0.005	--	<0.00506	--	--	--	--	--
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		<0.005	<0.005	--	--	--	--	--	--	--
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		<0.005	<0.005	--	--	--	--	--	--	--
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		<0.015	<0.015	--	--	--	--	--	--	--
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.0033	<0.0033	--	--	--	--	--	--	--
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<0.0166	<0.0166	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		<0.0033	<0.0033	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		<0.0033	<0.0033	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.0166	<0.0166	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<0.01**	**<0.01**	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.0166	0.01152 J	**139**	--	--	--	--	--	--
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<0.05**	**<0.05**	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		0.011 J	0.00761 J	--	--	--	--	--	--	--
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		0.1588	0.08347	--	--	--	--	--	--	--
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		0.3398	0.2056	--	--	--	--	--	--	--
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		0.1617	0.2289	--	--	--	--	0.00498 J	0.0217	--
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		0.214	0.1766	--	--	--	**0.733**	0.0194	0.0266	--
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		<0.00332	<0.00332	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		0.03415 J	0.0276	--	--	--	--	--	--	--
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		0.2326	0.2858	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<0.0167	0.0261	--	--	--	--	--	--	--
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<0.0167	<0.0167	--	--	--	--	--	--	--
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		0.2602	<0.4485	--	--	--	--	--	--	--
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		0.04914	0.02185	--	--	--	--	--	--	--
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		<0.0167	0.03988	**373**	--	--	--	--	--	--
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		<0.0167	<0.0167	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.0167	<0.0167	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		0.0253	0.0478	--	0.382	<0.01	0.0373		<0.0109	0.0299
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		0.03781 J	0.1721	--	--	--	--	--	--	--
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<0.0167	0.0081 J	--	--	--	--	--	--	--
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		0.278	0.348	--	--	--	--	--	--	--

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-79	SB-80		SB-81		SB-82		SB-83	
							Sample Date:	5/2/2006	5/2/2006	5/2/2006	5/2/2006	5/2/2006	5/2/2006	5/2/2006	5/2/2006	5/2/2006
							Sample Interval:	0	1.5-2'	0	1.5-2'	0	1.5-2'	0	1.5-2'	0	1.5-2'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																	
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.00249	<0.00241	<0.0026	<0.00244	<0.00245	<0.00234	<0.00264	<0.00253	<0.00271	<0.00246
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.0023	<0.00222	<0.0024	<0.00225	<0.00226	<0.00216	<0.00244	<0.00234	<0.0025	<0.00227
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		<0.00517	<0.00501	<0.0054	<0.00508	<0.00508	<0.00486	<0.00549	<0.00526	<0.00563	<0.00512
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		<0.00566	<0.00548	<0.0059	<0.00555	<0.00556	<0.00531	<0.006	<0.00575	<0.00616	<0.0056
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		<0.00605	<0.00585	<0.00631	<0.00593	<0.00594	<0.00567	<0.00641	<0.00615	<0.00658	<0.00598
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		<0.00343	<0.00332	<0.00358	<0.00337	<0.00337	<0.00322	<0.00364	<0.00349	<0.00374	<0.0034
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		<0.016	<0.0155	<0.0167	<0.0157	<0.0157	<0.015	<0.017	<0.0163	<0.0174	<0.0158
Semivolatile Organic Compounds																	
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.00224	<0.0108	<0.00234	<0.00219	<0.0022	<0.0021	<0.0119	<0.00455	<0.00243	<0.00221
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<0.00243	<0.0118	<0.00254	<0.00238	<0.00239	<0.00228	<0.0129	<0.00495	<0.00264	<0.0024
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		<0.000184	<0.00089	<0.000192	<0.00018	<0.000181	<0.000173	**0.162**	<0.000374	<0.0002	<0.000182
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		<0.00025	<0.00121	<0.000261	<0.000245	<0.000246	<0.000235	<0.00133	<0.00051	<0.000272	<0.000248
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.00187	<0.00908	<0.00196	<0.00184	<0.00184	<0.00176	<0.00994	<0.00382	<0.00204	<0.00185
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<0.00738**	**<0.0357**	**<0.0077**	**<0.00723**	**<0.00725**	**<0.00693**	**<0.0391**	**<0.015**	**<0.00802**	**<0.0073**
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.00185	0.0436	<0.00193	0.00785	<0.00182	<0.00174	<0.00982	<0.00377	<0.00201	<0.00183
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<0.017**	**<0.0825**	**<0.0178**	**<0.0167**	**<0.0167**	**<0.016**	**<0.0903**	**<0.0347**	**<0.0185**	**<0.0168**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<0.00215	0.0419	<0.00225	0.0175	0.00713	<0.00202	<0.0114	0.0317	<0.00234	0.00745
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		0.0525	1.16	0.00611 J	0.644	0.159	0.0324	1.16	1.02	0.0384	0.295
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		0.0927	1.29	0.0121	0.703	0.159	0.0343	0.804	0.577	0.0443	0.252
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		0.0487	1.15	0.0139	0.215	0.0774	0.0225	0.286	0.357	0.0379	0.389
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		0.151	**3.45**	0.0207	**1.5**	0.309	0.0906	**1.38**	**2.63**	0.0878	**0.823**
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		<0.00242	<0.0117	<0.00252	<0.00237	<0.00238	<0.00227	<0.0128	<0.00492	<0.00263	<0.00239
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		0.0115	<0.0195	0.0128	0.0183	0.0185	<0.00378	<0.0214	0.0433	0.0103	0.00912
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		0.0764	2.13	<0.0028	0.316	0.139	0.0383	0.465	0.878	0.0509	0.524
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<0.00199	0.0607	<0.00208	0.0132	0.00381 J	<0.00187	<0.0106	<0.00406	<0.00217	<0.00197
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		0.01	<0.0114	0.00514 J	0.00437 J	0.00481 J	0.00459 J	<0.0125	<0.0048	0.00506 J	0.00818
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		0.0267	1.4	0.0217	0.142	0.118	0.0188	0.395	0.158	0.0388	0.459
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		0.03	0.0941	<0.00246	0.0697	0.023	<0.00221	0.118	0.13	0.0112	0.0301
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		0.00879	0.119	0.00537 J	0.019	0.0052 J	0.015	0.0796	0.0216	<0.00157	0.01
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		<0.0031	<0.015	<0.00323	<0.00304	<0.00304	<0.00291	<0.0164	<0.0063	<0.00337	<0.00306
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.00214	<0.0104	<0.00223	<0.0021	<0.0021	<0.00201	<0.0114	<0.00436	<0.00233	<0.00212
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		<0.0108	<0.0523	<0.0113	<0.0106	<0.0106	<0.0101	0.0826	0.0492	<0.0117	<0.0107
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		0.00525 J	0.22	0.0119	0.0914	0.0265	0.00789	0.132	0.012	0.00854	0.0291
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<0.00362	0.0872	<0.00377	0.0452	0.0237	<0.0034	<0.0192	<0.00736	<0.00393	0.0179
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		0.0697	3.34	0.0205	0.216	0.159	0.0303	0.518	0.372	0.0584	0.672

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-84	SB-86A	SB-86A2	SB-86A9		SB-86B		SB-86C1	
							Sample Date:	5/2/2006	8/8/2006	8/8/2006	8/10/2006	8/10/2006	8/8/2006	8/8/2006	8/10/2006	8/10/2006
							Sample Interval:	0	2-2.5'	2-2.5'	1.5-2.5'	2.5-3'	0	1.5-2'	1.5-2'	2-2.5'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.00281	<0.00256	<0.00257	<0.00253	<0.00258	<0.00251	<0.00249	<0.00248	<0.00249	<0.00247
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.00259	<0.00236	<0.00237	<0.00233	<0.00238	<0.00232	<0.00229	<0.00229	<0.0023	<0.00228
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		<0.00583	<0.00532	<0.00535	<0.00526	<0.00535	<0.00522	<0.00516	<0.00516	<0.00518	<0.00513
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		<0.00638	<0.00582	0.00637	0.0263	<0.00585	<0.00571	<0.00565	<0.00564	<0.00567	<0.00561
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		0.01	<0.00622	<0.00624	<0.00614	<0.00625	<0.0061	<0.00603	<0.00603	<0.00605	<0.006
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		<0.00387	<0.00353	<0.00355	<0.00349	<0.00355	<0.00346	<0.00343	<0.00343	<0.00344	<0.00341
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		<0.0181	<0.0165	0.0215	0.107	<0.0166	<0.0162	<0.016	<0.016	<0.016	<0.0159
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.0126	<0.0046	<0.00462	<0.0114	<0.00463	<0.00225	<0.00223	<0.00223	<0.00224	<0.00222
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<0.0137	<0.005	0.0383	<0.0124	<0.00503	<0.00245	<0.00242	0.0126	<0.00243	<0.00241
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		<0.00104	<0.000378	<0.00038	<0.000934	<0.00038	<0.000185	<0.000183	<0.000183	<0.000184	<0.000182
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		<0.00141	<0.000515	<0.000517	<0.00127	<0.000518	<0.000252	<0.00025	<0.00025	<0.000251	<0.000248
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.0106	<0.00386	<0.00387	<0.00952	<0.00388	<0.00189	<0.00187	<0.00187	<0.00188	<0.00186
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<0.0416**	**<0.0152**	**<0.0152**	**<0.0375**	**<0.0153**	**<0.00743**	**<0.00736**	**<0.00736**	**<0.00739**	**<0.00731**
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.0104	<0.00381	6.68	20.8	0.0288	<0.00186	<0.00185	0.0674	0.0345	0.00515 J
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<0.096**	**<0.035**	**<0.0352**	**<0.0865**	**<0.0352**	**<0.0172**	**<0.017**	**<0.017**	**<0.017**	**<0.0169**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		0.223	0.0277	31.7	97.7	0.106	0.0169	0.0133	0.538	0.0871	0.0607
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		13.4	0.958	1.39	4.36	0.181	0.0215	0.123	0.172	0.0261	0.00601 J
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		18.1	1.26	12.7	44.5	0.984	0.0921	0.271	2.11	0.116	0.162
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		**21.6**	2.31	**17.6**	**40.8**	0.942	0.134	0.22	2.61	0.101	0.153
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		**31.8**	**3.19**	**4.96**	**14.6**	**0.886**	0.07	0.258	**1.61**	0.111	0.107
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		<0.0136	<0.00498	<0.005	<0.0123	<0.005	<0.00244	<0.00241	<0.00241	<0.00242	<0.0024
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		0.746	0.0862	<0.00832	<0.0205	<0.00833	0.0148	0.03	<0.00402	0.0084	0.0464
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		35.1	3.69	15.8	36.3	1.27	0.154	0.32	2.9	0.141	0.182
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		0.131	0.0131	7.43	29.7	0.0902	0.00659 J	0.00945	0.223	0.0367	0.015
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<0.0133	0.014	0.0335	0.0512	<0.00488	<0.00237	<0.00235	0.00521 J	<0.00236	<0.00234
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		23.6	1.77	109	<21.67	1.98	0.674	0.627	16.5	0.394	0.955
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		1.16	0.131	16.9	64.2	0.17	0.0201	0.031	0.72	0.0376	0.0567
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		0.138	0.0291	12	35.4	0.0795	<0.00145	0.0046 J	0.149	0.333	0.00933
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		<0.0175	<0.00637	<0.0064	<0.0157	<0.0064	<0.00312	<0.00309	<0.00309	<0.0031	<0.00307
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.0121	<0.00441	<0.00442	<0.0109	<0.00443	<0.00216	<0.00214	<0.00213	<0.00214	0.00485 J
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		0.122	<0.0222	0.0279	0.0671	0.0267	<0.0109	**0.13**	0.0451	<0.0108	0.0279
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		0.879	0.0706	39.7	176	1.46	0.154	0.177	3.29	0.0861	0.285
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		2.54	0.0759	0.0367	<0.0184	<0.00748	<0.00364	<0.00361	<0.00361	<0.00362	<0.00359
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		85.2	5.28	74.6	156	1.42	0.488	0.534	11.9	0.317	0.678

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-87B	SB-88B		SB-89B		SB-90B		SB-91B	
							Sample Date:	8/9/2006	8/9/2006	8/11/2006	8/11/2006	8/11/2006	8/11/2006	8/29/2006	8/29/2006	8/7/2006	8/7/2006
							Sample Interval:	0	1.5-2'	0	2.5-3'	0	2-2.5'	0	3-3.5'	0	1.5-3'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																	
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.00241	<0.00272	<0.00232	<0.00246	<0.00244	<0.00239	<0.00238	<0.00248	<0.00259	<0.00245
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.00222	<0.00251	<0.00214	<0.00227	<0.00225	<0.00221	<0.0022	<0.00229	<0.00238	<0.00226
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		<0.00501	<0.00566	<0.00482	<0.00511	<0.00507	<0.00497	<0.00495	<0.00515	<0.00537	<0.00509
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		<0.00547	<0.00619	<0.00527	<0.00559	<0.00555	0.0603	<0.00541	0.136	<0.00587	<0.00557
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		<0.00585	0.00838	<0.00563	0.00695	0.0167	0.00984	<0.00578	<0.00601	<0.00628	<0.00595
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		<0.00332	<0.00375	<0.0032	<0.00339	<0.00337	<0.0033	<0.00328	<0.00342	<0.00356	<0.00338
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		<0.0155	<0.0175	<0.0149	<0.0158	<0.0157	0.196	<0.0153	2.55	<0.0166	0.0216
Semivolatile Organic Compounds																	
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.00433	<0.00245	<0.00417	<0.00221	<0.0219	<0.00215	<0.0107	<0.00223	<0.00465	<0.0022
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		0.0107	<0.00266	<0.00453	<0.0024	<0.0238	0.0452	<0.0116	<0.00242	<0.00505	0.0141
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		<0.000355	<0.000201	<0.000343	<0.000181	<0.0018	<0.000177	<0.00176	<0.000183	<0.000382	<0.000181
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		<0.000484	<0.000274	<0.000467	<0.000247	<0.00245	<0.00024	<0.0024	<0.000249	<0.00052	<0.000246
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.00362	<0.00205	<0.00349	<0.00185	<0.0184	<0.0018	<0.00896	<0.00186	<0.00389	<0.00184
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<0.0143**	**<0.00806**	**<0.0138**	**<0.00728**	**<0.0723**	**<0.00708**	**<0.0353**	**<0.00734**	**<0.0153**	**<0.00725**
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		0.0178	0.0482	<0.00345	0.0559	0.385	0.432	<0.00885	2.71	0.148	4.38
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<0.0329**	**<0.0186**	**<0.0317**	**<0.0168**	**<0.167**	**<0.0164**	**<0.0814**	**<0.0169**	**<0.0354**	**<0.0167**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		0.11	0.122	0.0183	0.14	28.6	0.663	0.0588	4.03	0.0485	18.5
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		0.266	0.116	0.346	0.0418	6.5	0.293	2.1	0.0928	0.133	0.713
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		0.966	0.552	0.816	0.179	28.9	3.02	2.01	2.26	0.16	11.1
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		0.567	0.874	2.25	0.238	**77.1**	1.77	1.34	0.847	0.395	**8.91**
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		0.488	**1.12**	**1.11**	0.189	**31.2**	**0.925**	**2.43**	0.232	**0.586**	**3.41**
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		<0.00468	<0.00264	<0.00451	<0.00239	<0.0237	<0.00232	<0.0116	<0.00241	<0.00502	<0.00238
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		0.0488	0.023	0.0385	0.037	<0.0395	<0.00387	<0.0193	<0.00401	0.0475	<0.00396
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		0.792	1.28	3.53	0.328	85.9	2.43	2.83	0.733	0.379	7.72
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		0.0736	0.118	0.0188	0.0622	5.34	0.312	<0.00954	2.97	0.114	7.28
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<0.00456	<0.00258	<0.0044	<0.00233	<0.0231	<0.00226	<0.0113	<0.00235	<0.0049	0.0238
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		2.65	2.95	7.04	0.674	457	12	2.74	8.99	1.25	59.5
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		0.165	0.14	0.059	0.08	23.8	0.836	0.106	4.21	0.0613	13.5
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		0.0263	0.154	0.00966	0.207	0.173	3.21	0.0444	3.1	0.361	4.88
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		<0.00599	<0.00338	<0.00577	<0.00306	<0.0303	<0.00297	<0.0148	<0.00308	<0.00643	<0.00304
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.00414	<0.00234	<0.00399	<0.00211	<0.021	<0.00206	<0.0102	<0.00213	<0.00445	<0.0021
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**0.202**	<0.0118	**0.153**	<0.0107	**3.13**	0.0138	**2.13**	0.0133	0.0297	0.0348
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		1.34	2.17	0.357	0.167	230	4.53	0.25	16.5	0.253	51.4
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		0.013	<0.00395	<0.00674	<0.00357	0.185	0.0123	0.0954	<0.0036	<0.00751	0.0237
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		2.05	2.25	7.48	0.588	322	7.91	3.96	4.08	1.32	32.2

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SB-92B	SB-93B	SB-94B	SB-96B	SB-99	SSO-11		SSO-A01	SSO-A02	
							Sample Date:	8/29/2006	8/25/2006	8/24/2006	8/28/2006	4/27/2006	4/9/1997	5/1/2006	4/8/1997	4/8/1997	8/29/2006
							Sample Interval:	4.5-5'	3.5-4'	4.5-5'	4.7-5'	0-2'	2'	0-4'	2'	2'	0-2'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																	
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.00244	0.0108	<0.00241	<0.00241	--	--	--	--	--	--
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		<0.00225	**0.206**	<0.00222	0.00641	--	--	--	--	--	--
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		<0.00506	<0.00515	<0.005	<0.005	--	--	--	--	--	--
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		0.0609	0.0525	0.21	0.0838	--	--	--	--	--	--
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		<0.00591	<0.00602	<0.00584	<0.00585	--	--	--	--	--	--
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		0.00561	0.51	0.00951	0.0104	--	--	--	--	--	--
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		0.532	0.309	3.44	0.279	--	--	--	--	--	--
Semivolatile Organic Compounds																	
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.00219	<0.00223	<0.00216	<0.00217	--	**8.33**	--	**2.66**	**2.66**	--
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		0.0441	<0.0683	0.0161	<0.00235	--	<8.33	--	<2.66	<2.66	--
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		<0.00018	<0.000183	<0.000178	<0.00297	--	**<8.33**	--	**<2.66**	**<2.66**	--
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		<0.000245	<0.000249	<0.000242	<0.0036	--	**<8.33**	--	**<2.66**	**<2.66**	--
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.00183	<0.00187	<0.00181	<0.00181	--	<8.33	--	<2.66	<2.66	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<0.00722**	**<0.00735**	**<0.00714**	**<0.00714**	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		0.383	0.551	6.21	2.05	--	<8.33	--	<2.66	<2.66	--
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	**40**	--	**<12.8**	**<12.8**	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<0.0167**	**<0.017**	**<0.0165**	**<0.0165**	--	**40**	--	**<12.8**	**<12.8**	--
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		0.559	0.539	9.61	3.34	--	<8.33	--	<2.66	<2.66	--
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		0.0108	0.0125	0.128	0.07	--	<8.33	--	<2.66	<2.66	--
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		0.107	0.0361	7.35	2.12	--	13	--	<2.66	<2.66	--
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		0.0479	0.181	2.4	0.589	**55.9**	**10.8**	--	<2.66	<2.66	--
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		0.0141	0.0648	0.47	0.18	**33.8**	**<8.33**	**8.35**	**<2.66**	**<2.66**	**8.35**
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		<0.00237	<0.00241	<0.00234	<0.00234	--	**<8.33**	--	**<2.66**	**<2.66**	--
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		<0.00394	<0.00768	0.0169	0.0119	--	<8.33	--	<2.66	<2.66	--
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		0.0412	0.16	2.33	0.499	--	10.8	--	<2.66	<2.66	--
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		0.457	0.479	7.9	2.52	--	<8.33	--	<2.66	<2.66	--
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		0.0058 J	<0.00235	<0.00228	<0.00228	--	<8.33	--	<2.66	<2.66	--
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		0.255	1.31	20.4	4.14	--	57.8	--	<2.66	9.28	--
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		0.515	0.619	11.8	3.19	--	<8.33	--	<2.66	<2.66	--
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		0.971	1.41	10.4	4.7	33.5	<8.33	--	<2.66	<2.66	--
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		<0.00303	<0.00308	<0.003	<0.003	--	**<8.33**	--	**<2.66**	**<2.66**	--
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.0021	<0.00213	<0.00207	<0.00207	--	<8.33	--	<2.66	<2.66	--
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		<0.0106	**1.47**	<0.0104	<0.0104	0.357	**40**	0.152	**<12.8**	**<12.8**	<0.0103
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		0.712	2.35	43.1	10.8	--	60.2	--	<2.66	6.12	--
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<0.00354	0.0289	0.00882	<0.0035	--	<8.33	--	<2.66	<2.66	--
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		0.27	0.7	12.5	2.68	--	40	--	<2.66	8.16	--

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SSO-A03	SSO-A04		SSO-A05	SSO-A06		SSO-B01	SSO-B02	SSO-B03		SSO-B04
							Sample Date:	4/8/1997	4/8/1997	8/28/2006	4/8/1997	4/8/1997	8/30/2006	4/8/1997	4/8/1997	4/8/1997	8/30/2006	4/8/1997
							Sample Interval:	2'	2'	0-2'	2'	2'	0-2'	2'	2'	2'	0-2'	2'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																		
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		--	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		--	--	--	--	--	--	--	--	--	--	--
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds																		
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		**1.33**	**6.66**	--	**<0.333**	**1.33**	--	**<1.33**	--	**<0.333**	--	**<0.333**
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	--	<0.333	--	<0.333
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		**<1.33**	**<6.66**	--	**<0.333**	**<1.33**	--	**<1.33**	**<0.333**	**<0.333**	--	**<0.333**
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		**<1.33**	**<6.66**	--	**<0.333**	**<1.33**	--	**<1.33**	**<0.333**	**<0.333**	--	**<0.333**
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<6.4**	**<32**	--	**<106**	**<6.4**	--	**<6.4**	**<106**	**<106**	--	**<106**
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<6.4**	**<32**	--	**<106**	**<6.4**	--	**<6.4**	**<106**	**<106**	--	**<106**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		<1.33	**<6.66**	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		**<1.33**	**<6.66**	--	<0.333	**<1.33**	--	**<1.33**	<0.333	<0.333	--	<0.333
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		**<1.33**	**<6.66**	--	**<0.333**	**<1.33**	--	**<1.33**	**<0.333**	**<0.333**	--	**<0.333**
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		<1.33	<6.66	--	<0.333	<1.33	--	1.8	0.382	<0.333	--	<0.333
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		<1.33	<6.66	--	<0.333	<1.33	--	2.54	0.501	<0.333	--	0.671
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		**<1.33**	**<6.66**	--	<0.333	**<1.33**	--	**<1.33**	<0.333	<0.333	--	<0.333
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**<6.4**	**<32**	<0.0108	**<106**	**<6.4**	0.0763	**<6.4**	**<106**	**<106**	<0.0484	**<106**
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<1.33	<6.66	--	<0.333	<1.33	--	<1.33	<0.333	<0.333	--	<0.333
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		<1.33	<6.66	--	<0.333	<1.33	--	2.09	0.463	<0.333	--	0.622

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SSO-B05	SSO-B06	SSO-C01		SSO-C02	SSO-C03		SSO-C04	SSO-C05		
							Sample Date:	4/8/1997	4/8/1997	4/8/1997	8/29/2006	4/8/1997	4/8/1997	8/29/2006	4/8/1997	4/8/1997	8/31/2006	8/31/2006
							Sample Interval:	2'	2'	2'	0-2'	2'	2'	2'	2'	2'	4'	0-2'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																		
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		--	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		--	--	--	--	--	--	--	--	--	--	--
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds																		
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		**<1.33**	**<1.33**	**<2.66**	--	**<0.333**	**<6.66**	--	**<0.333**	**<0.333**	--	--
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		**<1.33**	**<1.33**	**<2.66**	--	**<0.333**	**<6.66**	--	**<0.333**	**<0.333**	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		**<1.33**	**<1.33**	**<2.66**	--	**<0.333**	**<6.66**	--	**<0.333**	**<0.333**	--	--
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	**282**	--
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<6.4**	**<6.4**	**<12.8**	--	**<106**	**<32**	--	**<106**	**<106**	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<6.4**	**<6.4**	**<12.8**	--	**<106**	**<32**	--	**<106**	**<106**	--	--
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		<1.33	<1.33	<2.66	--	<0.333	**<6.66**	--	<0.333	<0.333	--	--
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		**<1.33**	**<1.33**	**<2.66**	--	<0.333	**<6.66**	--	<0.333	<0.333	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		**<1.33**	**<1.33**	**<2.66**	--	**<0.333**	**<6.66**	--	**<0.333**	**<0.333**	--	--
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		<1.33	<1.33	<2.66	--	0.383	10.1	--	<0.333	<0.333	--	--
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		<1.33	1.37	<2.66	--	0.537	35.2	--	<0.333	<0.333	--	--
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	**711**	--
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		**<1.33**	**<1.33**	**<2.66**	--	<0.333	**<6.66**	--	<0.333	<0.333	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**<6.4**	**<6.4**	**<12.8**	0.0892	**<106**	**<32**	0.0733	**<106**	**<106**	--	0.0793
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		<1.33	<1.33	<2.66	--	<0.333	12.8	--	<0.333	<0.333	--	--
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<1.33	<1.33	<2.66	--	<0.333	<6.66	--	<0.333	<0.333	--	--
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		<1.33	1.34	<2.66	--	0.47	20.9	--	<0.333	<0.333	--	--

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SSO-C06	SSO-D01	SSO-D02	SSO-F07	SSO-F08		SSO-F09	SSO-F10	SSO-G07	SSO-G08
							Sample Date:	4/8/1997	4/8/1997	4/8/1997	4/9/1997	4/9/1997	4/27/2006	4/9/1997	4/9/1997	4/9/1997	4/9/1997
							Sample Interval:	2'	2'	2'	2'	2'	1.5-2'	2'	2'	2'	2'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																	
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		--	--	--	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		--	--	--	--	--	--	--	--	--	--
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		--	--	--	--	--	--	--	--	--	--
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		--	--	--	--	--	--	--	--	--	--
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds																	
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		**<1.33**	--	**<0.333**	**<0.333**	**<6.66**	**<1.33**	--	**<1.33**	**<33.3**	**<1.33**	**<1.67**
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	**<33.3**	<1.33	<1.67
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		**<1.33**	--	**<0.333**	**<0.333**	**<6.66**	**<1.33**	--	**<1.33**	**<33.3**	**<1.33**	**<1.67**
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		**<1.33**	--	**<0.333**	**<0.333**	**<6.66**	**<1.33**	--	**<1.33**	**<33.3**	**<1.33**	**<1.67**
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	<33.3	<1.33	<1.67
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	<33.3	<1.33	<1.67
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<6.4**	--	**<106**	**<106**	**<32**	**<6.4**	--	**<6.4**	**<160**	**<6.4**	**<8**
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<6.4**	--	**<106**	**<106**	**<32**	**<6.4**	--	**<6.4**	**<160**	**<6.4**	**<8**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	<33.3	<1.33	<1.67
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	<33.3	<1.33	<1.67
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		<1.33	--	0.456	<0.333	<6.66	<1.33	--	<1.33	<33.3	4.13	2.51
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		<1.33	--	0.385	<0.333	**<6.66**	<1.33	0.203	<1.33	**44.6**	<1.33	2.72
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		**<1.33**	--	<0.333	<0.333	**<6.66**	**<1.33**	0.237	**<1.33**	**<33.3**	**<1.33**	**1.69**
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		**<1.33**	--	**<0.333**	**<0.333**	**<6.66**	**<1.33**	--	**<1.33**	**<33.3**	**<1.33**	**<1.67**
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	<33.3	<1.33	<1.67
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		<1.33	--	0.586	<0.333	<6.66	<1.33	--	<1.33	57.1	<1.33	3.6
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	<33.3	<1.33	<1.67
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	<33.3	<1.33	<1.67
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		<1.33	--	1.06	<0.333	<6.66	1.46	--	<1.33	237	<1.33	11.1
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	<33.3	<1.33	<1.67
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		<1.33	0.131	<0.333	<0.333	<6.66	<1.33	0.0267	<1.33	<33.3	<1.33	<1.67
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		**<1.33**	--	<0.333	<0.333	**<6.66**	**<1.33**	--	**<1.33**	**<33.3**	**<1.33**	**<1.67**
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	**<33.3**	<1.33	<1.67
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**<6.4**	0.181	**<106**	**<106**	**<32**	**<6.4**	0.0353	**<6.4**	**<160**	**<6.4**	**<8**
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		<1.33	--	0.493	<0.333	<6.66	<1.33	--	<1.33	<33.3	<1.33	2.63
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<1.33	--	<0.333	<0.333	<6.66	<1.33	--	<1.33	<33.3	<1.33	<1.67
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		<1.33	--	0.832	<0.333	<6.66	<1.33	--	<1.33	204	<1.33	8.93

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-1
SUMMARY OF SURFACE SOIL SAMPLING RESULTS
UPRR Houston Wood Preserving Works

							Location ID:	SSO-G09	SSO-G10	SSO-G11	WPW-S-002P	WPW-S-003P	WPW-S-004P	WPW-S-007P	WPW-S-009P
							Sample Date:	4/9/1997	4/9/1997	4/9/1997	12/13/1995	12/13/1995	12/13/1995	12/13/1995	12/13/1995
							Sample Interval:	2'	2'	2'	0	0	0	0	0
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds															
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005
Xylenes (tot)	1330-20-7	8260	7.32E+02	2	7.32E+02	2		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		**<0.333**	**<0.333**	**<1.33**	**<0.33**	**<0.33**	**<0.66**	**<0.66**	**<0.66**
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		**<0.333**	**<0.333**	**<1.33**	**<0.33**	**<0.33**	**<0.66**	**<0.66**	**<0.66**
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		**<0.333**	**<0.333**	**<1.33**	**<0.33**	**<0.33**	**<0.66**	**<0.66**	**<0.66**
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<106**	**<106**	**<6.4**	**<106**	**<106**	**<3.3**	**<3.3**	**<3.3**
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<106**	**<106**	**<6.4**	**<106**	**<106**	**<3.3**	**<3.3**	**<3.3**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		<0.333	<0.333	<1.33	<0.33	<0.33	1.1	<0.66	<0.66
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		<0.333	<0.333	**<1.33**	<0.33	<0.33	0.36	**0.67**	**<0.66**
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		**<0.333**	**<0.333**	**<1.33**	**<0.33**	**<0.33**	**<0.66**	**<0.66**	**<0.66**
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		--	--	--	--	--	--	--	--
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1		<0.333	<0.333	<1.33	<0.33	<0.33	1.4	6.2	<0.66
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.33
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
Fluoranthene	206-44-0	8270	2.32E+03	1	2.48E+04	1		<0.333	<0.333	<1.33	<0.33	<0.33	2.6	22	<0.66
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	1.2	<0.66
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		<0.333	<0.333	**<1.33**	<0.33	<0.33	**<0.66**	**<0.66**	**<0.66**
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**<106**	**<106**	**<6.4**	**<106**	**<106**	**<3.3**	**<3.3**	**<3.3**
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	19	<0.66
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<0.333	<0.333	<1.33	<0.33	<0.33	<0.66	<0.66	<0.66
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1		<0.333	<0.333	1.51	<0.33	<0.33	2.8	15	<0.66

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-2
SUMMARY OF SURFACE SOIL SAMPLING RESULTS - TEMPORARY WELLS
UPRR Houston Wood Preserving Works

							Location ID:	TW-01	TW-03
							Sample Date:	2/28/2007	3/14/2007
							Sample Interval:	2-4'	2-5'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier	mg/Kg	mg/Kg	
Volatile Organic Compounds									
1,1,1-Trichloroethane	71-55-6	8260	8.10E-01	1	8.10E-01	1	--	<0.00167	
1,1,2,2-Tetrachloroethane	79-34-5	8260	1.15E-02	1	2.59E-02	1	--	<0.00417	
1,1,2-Trichloroethane	79-00-5	8260	1.00E-02	1	1.00E-02	1	--	<0.0029	
1,1-Dichloroethane	75-34-3	8260	9.25E+00	1	2.76E+01	1	--	<0.00204	
1,1-Dichloroethene	75-35-4	8260	2.50E-02	1	2.50E-02	1	--	<0.00335	
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2	--	<0.00292	
1,2-Dichloroethene (total)	540-59-0	8260	7.20E-02	1	1.20E-01	1	--	<0.00434	
1,2-Dichloropropane	78-87-5	8260	1.14E-02	1	1.14E-02	1	--	<0.00224	
2-Hexanone	591-78-6	8260	1.94E+00	1	5.78E+00	1	--	<0.00469	
4-Methyl-2-pentanone (MIBK)	108-10-1	8260	2.47E+00	1	7.39E+00	1	--	<0.0021	
Acetone	67-64-1	8260	2.14E+01	1	6.38E+01	1	--	0.0267	
Benzene	71-43-2	8260	1.05E-01	2	1.05E-01	2	--	<0.00202	
Bromodichloromethane	75-27-4	8260	3.27E-02	1	7.33E-02	1	--	<0.00175	
Bromoform	75-25-2	8260	3.16E-01	1	7.07E-01	1	--	<0.00232	
Bromomethane	74-83-9	8260	6.54E-02	1	1.95E-01	1	--	<0.00358	
Carbon Disulfide	75-15-0	8260	6.79E+00	1	2.03E+01	1	--	<0.00192	
Carbon Tetrachloride	56-23-5	8260	3.09E-02	1	3.09E-02	1	--	<0.00191	
Chlorobenzene	108-90-7	8260	6.52E+00	2	6.52E+00	2	--	<0.00192	
Chloroethane	75-00-3	8260	1.55E+01	1	4.61E+01	1	--	<0.00263	
Chloroform	67-66-3	8260	5.10E-01	1	1.52E+00	1	--	<0.00299	
Chloromethane	74-87-3	8260	2.03E-01	1	4.54E-01	1	--	<0.00524	
cis-1,2-Dichloroethene	156-59-2	8260	1.24E-01	1	1.24E-01	1	--	<0.00207	
cis-1,3-Dichloropropene	10061-01-5	8260	3.32E-03	1	7.44E-03	1	--	<0.00155	
Dibromochloromethane	124-48-1	8260	2.46E-02	1	5.50E-02	1	--	<0.00198	
Ethylbenzene	100-41-4	8260	4.37E+01	2	4.37E+01	2	--	<0.00168	
Methyl Ethyl Ketone (2-Butanone)	78-93-3	8260	1.46E+01	1	4.37E+01	1	--	<0.00566	
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2	--	<0.00385	
Styrene	100-42-5	8260	1.63E+00	1	1.63E+00	1	--	<0.00192	
Tetrachloroethene	127-18-4	8260	2.51E-02	1	2.51E-02	1	--	<0.00199	
Toluene	108-88-3	8260	4.32E+01	2	4.32E+01	2	--	<0.0016	
trans-1,2-Dichloroethene	156-60-5	8260	2.45E-01	1	2.45E-01	1	--	<0.00249	
trans-1,3-Dichloropropene	10061-02-6	8260	1.79E-02	1	4.02E-02	1	--	<0.00162	
Trichloroethene	79-01-6	8260	1.68E-02	1	1.68E-02	1	--	<0.00201	
Vinyl Chloride	75-01-4	8260	1.11E-02	1	1.11E-02	1	--	<0.00199	
Xylenes (total)	1330-20-7	8260	7.32E+02	2	7.32E+02	2	--	<0.0053	

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-2
SUMMARY OF SURFACE SOIL SAMPLING RESULTS - TEMPORARY WELLS
UPRR Houston Wood Preserving Works

							Location ID:	TW-01	TW-03
							Sample Date:	2/28/2007	3/14/2007
							Sample Interval:	2-4'	2-5'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg
Semivolatile Organic Compounds									
1,2,4-Trichlorobenzene	120-82-1	8270	2.40E+00	1	2.40E+00	1		--	<0.0338
1,2-Dichlorobenzene	95-50-1	8270	8.94E+00	1	8.94E+00	1		--	<0.0285
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		--	<0.000097
1,3-Dichlorobenzene	541-73-1	8270	3.37E+00	1	1.01E+01	1		--	<0.0278
1,4-Dichlorobenzene	106-46-7	8270	1.05E+00	1	1.05E+00	1		--	<0.0309
2,4,5-Trichlorophenol	95-95-4	8270	1.69E+01	1	5.05E+01	1		--	<0.0442
2,4,6-Trichlorophenol	88-06-2	8270	8.75E-02	1	2.61E-01	1		--	<0.0247
2,4-Dichlorophenol	120-83-2	8270	1.76E-01	1	5.25E-01	1		--	<0.0443
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		--	<0.0242
2,4-Dinitrophenol	51-28-5	8270	0.04684469 J	1	1.40E-01	1		--	**<0.0678**
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		--	<0.00183
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		--	<0.00249
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		--	<0.0186
2-Chlorophenol	95-57-8	8270	8.16E-01	1	2.44E+00	1		--	<0.032
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	**<0.1**
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		--	<0.0184
2-Methylphenol (o-Cresol)	95-48-7	8270	3.56E+00	1	1.06E+01	1		--	<0.0225
2-Nitroaniline	88-74-4	8270	6.56E-02	2	1.96E-01	2		--	<0.0411
2-Nitrophenol	88-75-5	8270	6.73E-02	1	2.01E-01	1		--	<0.0482
3,3'-Dichlorobenzidine	91-94-1	8270	4.42E-01	2	9.91E-01	2		--	<0.113
3-Nitroaniline	99-09-2	8270	9.31E-02	2	2.78E-01	2		--	<0.0461
4-Bromophenyl Phenyl Ether	101-55-3	8270	1.77E-01	1	3.96E-01	1		--	<0.034
4-Chloro-3-methylphenol	59-50-7	8270	2.26E+00	1	6.76E+00	1		--	<0.0332
4-Chloroaniline	106-47-8	8270	2.23E-01	1	6.66E-01	1		--	<0.012
4-Chlorophenyl Phenyl Ether	7005-72-3	8270	1.54E-01	1	5.36E-01	2		--	<0.0235
4-Methylphenol (p-Cresol)	106-44-5	8270	3.16E-01	1	9.43E-01	1		--	<0.0173
4-Nitroaniline	100-01-6	8270	1.02E-01	2	2.28E-01	2		--	<0.0391
4-Nitrophenol	100-02-7	8270	0.00831324 J	2	2.65E-01	2		--	**<0.169**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		--	<0.0214
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		--	<0.0179
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		--	<0.0155
Benzo(a)anthracene	56-55-3	8270	5.65E+00	1	2.36E+01	1		**179**	<0.0189
Benzo(a)pyrene	50-32-8	8270	5.64E-01	1	2.37E+00	1		**51.5**	0.0089
Benzo(b)fluoranthene	205-99-2	8270	5.71E+00	1	2.36E+01	1		--	<0.0267
Benzo(ghi)perylene	191-24-2	8270	1.78E+03	1	1.86E+04	1		--	<0.0198
Benzo(k)fluoranthene	207-08-9	8270	5.72E+01	1	2.37E+02	1		--	<0.0245
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		--	<0.00298

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-2
SUMMARY OF SURFACE SOIL SAMPLING RESULTS - TEMPORARY WELLS
UPRR Houston Wood Preserving Works

							Location ID:	TW-01	TW-03
							Sample Date:	2/28/2007	3/14/2007
							Sample Interval:	2-4'	2-5'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier	mg/Kg	mg/Kg	
Semivolatile Organic Compounds									
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2	--	**<0.0144**	
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1	--	<0.0148	
bis(2-ethylhexyl)phthalate	117-81-7	8270	4.32E+01	1	5.63E+02	1	--	<0.0401	
Butyl Benzyl Phthalate	85-68-7	8270	1.35E+03	1	4.03E+03	1	--	<0.0248	
Carbazole	86-74-8	8270	3.36E+01	2	7.54E+01	2	--	<0.0209	
Chrysene	218-01-9	8270	5.60E+02	1	2.36E+03	1	--	<0.0267	
Dibenzo(a,h)anthracene	53-70-3	8270	5.49E-01	1	2.37E+00	1	--	0.113	
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2	--	<0.0198	
Diethyl Phthalate	84-66-2	8270	7.79E+01	1	2.33E+02	1	--	<0.0242	
Dimethyl Phthalate	131-11-3	8270	3.11E+01	1	9.29E+01	1	--	<0.0159	
Di-n-butyl Phthalate	84-74-2	8270	4.40E+03	1	1.62E+04	1	--	<0.0235	
Di-n-octyl Phthalate	117-84-0	8270	1.28E+03	1	1.31E+04	1	--	<0.0243	
Indeno(1,2,3-cd)pyrene	193-39-5	8270	5.72E+00	1	2.37E+01	1	--	<0.0328	
Isophorone	78-59-1	8270	1.50E+00	1	3.36E+00	1	--	<0.0233	
Naphthalene	91-20-3	8270	1.24E+02	1	1.90E+02	1	**2480**	0.0842	
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2	--	<0.0308	
n-Nitrosodi-n-propylamine	621-64-7	8270	8.85E-04	2	1.98E-03	2	--	**<0.0478**	
n-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2	--	<0.0213	
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2	**<0.505**	<0.1	
Phenanthrene	85-01-8	8270	1.71E+03	1	9.28E+03	2	--	<0.0165	
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2	--	<0.036	
Pyrene	129-00-0	8270	1.70E+03	1	1.86E+04	1	--	<0.0144	

Notes:

1. Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.

Table 4D-3
Summary of Subsurface Soil Sampling Results
UPRR Houston Wood Preserving Works

							Location ID:	MW-10A	MW-11A	MW-13	MW-26A	MW-32A	MW-33A	SB-02	SB-03
							Sample Date:	9/13/1994	9/15/1994	2/25/1997	3/13/2000	12/29/2003	12/30/2003	3/3/1997	3/5/1997
							Sample Interval:	8-10'	6-8'	15'	9'	6-8'	11-13'	7'	19'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds															
Benzene	71-43-2	8020	1.05E-01	2	1.05E-01	2		<0.1	<0.1	<0.005	<0.006	<0.004	<0.004	<0.005	<0.005
Chlorobenzene	108-90-7	8020	6.52E+00	2	6.52E+00	2		<0.1	<0.1	<0.005	<0.006	<0.004	<0.004	<0.005	<0.005
Ethylbenzene	100-41-4	8020	4.37E+01	2	4.37E+01	2		<0.1	<0.1	<0.005	<0.006	<0.004	<0.004	<0.005	0.038
Toluene	108-88-3	8020	4.32E+01	2	4.32E+01	2		0.72	1.5	<0.005	<0.006	<0.004	<0.004	<0.005	<0.005
Xylenes (tot)	1330-20-7	8020	7.32E+02	2	7.32E+02	2		<0.1	<0.1	<0.005	<0.018	<0.0140066	<0.0140066	<0.005	0.099
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		--	--	<0.005	<0.006	<0.004	<0.004	<0.005	<0.005
Dichloromethane	75-09-2	8260	2.25E-02	2	2.25E-02	2		--	--	--	0.004	--	--	--	--
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		--	--	<0.005	--	<0.004	<0.004	<0.005	0.006
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		**<0.66**	**<0.66**	**<0.33**	<0.013	<0.00332	<0.00332	**<0.33**	**<1.6**
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<0.66	<0.66	<0.33	<0.03	<0.01665	<0.01665	<0.33	<1.6
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		**<0.66**	**<0.66**	**<0.33**	<0.002	<0.00332	<0.00332	**<0.33**	**<1.6**
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		**<0.66**	**<0.66**	**<0.33**	<0.002	<0.00332	<0.00332	**<0.33**	**<1.6**
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.66	<0.66	<0.33	<0.017	<0.01665	<0.01665	<0.33	<1.6
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	**<0.0099**	**<0.0099**	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		<0.66	<0.66	<0.33	<0.021	0.0046 J	0.00565 J	<0.33	11
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<3.3**	**<3.3**	**<1.6**	**<0.16**	--	--	**<1.6**	**<8.2**
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<3.3**	**<3.3**	**<1.6**	**<0.24**	**<0.05**	**<0.05**	**<1.6**	**<8.2**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		<0.66	<0.66	<0.33	<0.018	0.00473 J	0.00561 J	<0.33	6.1
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		<0.66	<0.66	<0.33	<0.013	<0.01665	<0.01665	<0.33	<1.6
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		<0.66	<0.66	<0.33	<0.01	0.01178 J	0.0113 J	<0.33	3.5
Benzo(a)anthracene	56-55-3	8270	1.33E+02	2	2.98E+02	2		<0.66	<0.66	<0.33	<0.01	0.0289	<0.01665	<0.33	<1.6
Benzo(a)pyrene	50-32-8	8270	5.73E+01	2	5.73E+01	2		<0.66	<0.66	<0.33	<0.009	0.00231 J	0.00309 J	<0.33	<1.6
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		**<0.66**	**<0.66**	**<0.33**	<0.03	<0.00332	<0.00332	**<0.33**	**<1.6**
bis(2-ethylhexyl)phthalate	117-81-7	8270	1.23E+03	2	1.23E+03	2		<0.66	<0.66	<0.33	0.009	<0.01665	0.0771	<0.33	<1.6
Chrysene	218-01-9	8270	1.16E+04	2	2.60E+04	2		<0.66	<0.66	<0.33	<0.01	0.02883	<0.01665	<0.33	<1.6
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		<0.66	<0.66	<0.33	<0.018	0.0062 J	0.00652 J	<0.33	6.4
Di-n-butyl phthalate	84-74-2	8270	1.53E+04	1	2.14E+04	1		<0.66	<0.66	<0.33	0.003	<0.01665	<0.01665	<0.33	<1.6
Fluoranthene	206-44-0	8270	1.44E+04	2	4.29E+04	2		<0.66	<0.66	<0.33	<0.018	0.06617	0.01851 J	<0.33	7.9
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		<0.66	<0.66	<0.33	<0.013	0.00608 J	0.00793 J	<0.33	5.6
Naphthalene	91-20-3	8270	1.38E+02	1	1.93E+02	1		<0.66	<0.66	<0.33	<0.015	0.02521	0.0093	<0.33	30
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		**<0.66**	**<0.66**	<0.33	<0.023	<0.01665	<0.01665	<0.33	**<1.6**
N-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<0.66	<0.66	<0.33	<0.011	<0.01665	<0.01665	<0.33	<1.6
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**<3.3**	**<3.3**	**<1.6**	<0.011	<0.0099	<0.0099	**<1.6**	**<8.2**
Phenanthrene	85-01-8	8270	3.11E+03	2	9.28E+03	2		<0.66	<0.66	<0.33	<0.012	0.03322	0.04072	<0.33	16
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<0.66	<0.66	<0.33	<0.023	<0.01665	<0.01665	<0.33	<1.6
Pyrene	129-00-0	8270	8.36E+03	2	2.50E+04	2		<0.66	<0.66	<0.33	<0.018	0.04961	0.01042 J	<0.33	4.3

Notes:
Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 4D-3
Summary of Subsurface Soil Sampling Results
UPRR Houston Wood Preserving Works

							Location ID:	SB-06	SB-07	SB-07	SB-08	SB-08	SB-08	SB-50	SB-73	SB-74
							Sample Date:	3/4/1997	3/6/1997	3/6/1997	3/6/1997	3/6/1997	3/6/1997	3/7/2000	8/30/2006	8/28/2006
							Sample Interval:	19'	19'	21'	14'	18'	21'	7'	14'	14'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																
Benzene	71-43-2	8020	1.05E-01	2	1.05E-01	2		<0.005	**0.23**	**0.67**	0.071	**1.1**	<0.005	<0.006	<0.0225	<0.0223
Chlorobenzene	108-90-7	8020	6.52E+00	2	6.52E+00	2		<0.005	<0.025	<0.025	<0.005	<0.62	<0.005	<0.006	--	--
Ethylbenzene	100-41-4	8020	4.37E+01	2	4.37E+01	2		0.044	12	12	3.4	19	0.074	<0.006	--	--
Toluene	108-88-3	8020	4.32E+01	2	4.32E+01	2		<0.005	12	13	2.6	13	0.036	<0.006	--	--
Xylenes (tot)	1330-20-7	8020	7.32E+02	2	7.32E+02	2		0.074	40	38	11	55	0.23	<0.019	--	--
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2		<0.005	<0.025	<0.025	<0.005	**<0.62**	<0.005	<0.006	--	--
Dichloromethane	75-09-2	8260	2.25E-02	2	2.25E-02	2		--	--	--	--	--	--	<0.006	--	--
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2		0.005	**<0.025**	**<0.025**	<0.005	**<0.62**	<0.005	--	--	--
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		**<6.6**	**<33**	**<3.3**	**<330**	**<25**	**<160**	<0.014	--	--
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<6.6	**<33**	<3.3	**<330**	**25**	**<160**	<0.031	--	--
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		**<6.6**	**<33**	**<3.3**	**<330**	**<25**	**<160**	<0.002	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		**<6.6**	**<33**	**<3.3**	**<330**	**<25**	**<160**	<0.002	--	--
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<6.6	<33	<3.3	<330	<25	<160	<0.018	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		28	**1700**	**260**	**360**	**400**	**350**	<0.022	42.3	**213**
4,6-Dinitro-o-cresol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<33**	**<160**	**<16**	**<1600**	**<124**	**<820**	**<0.18**	--	--
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		**<33**	**<160**	**<16**	**<1600**	**<124**	**<820**	**<0.25**	--	--
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		18	460	400	<330	320	200	<0.019	--	--
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		<6.6	<33	<3.3	<330	<25	<160	<0.014	--	--
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		15	280	220	<330	200	580	<0.01	--	--
Benzo(a)anthracene	56-55-3	8270	1.33E+02	2	2.98E+02	2		<6.6	59	17	**<330**	37	**<160**	<0.011	--	--
Benzo(a)pyrene	50-32-8	8270	5.73E+01	2	5.73E+01	2		<6.6	<33	5	**<330**	<25	**<160**	<0.009	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		**<6.6**	**<33**	**<3.3**	**<330**	**<25**	**<160**	<0.031	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	1.23E+03	2	1.23E+03	2		<6.6	<33	<3.3	<330	<25	<160	0.12	--	--
Chrysene	218-01-9	8270	1.16E+04	2	2.60E+04	2		<6.6	56	17	<330	37	<160	<0.01	--	--
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2		18	**360**	**300**	**<330**	**270**	230	<0.019	--	--
Di-n-butyl phthalate	84-74-2	8270	1.53E+04	1	2.14E+04	1		<6.6	<33	<3.3	<330	<25	<160	0.043	--	--
Fluoranthene	206-44-0	8270	1.44E+04	2	4.29E+04	2		20	330	240	<330	250	<160	0.002	--	--
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2		21	430	360	330	300	180	<0.014	--	--
Naphthalene	91-20-3	8270	1.38E+02	1	1.93E+02	1		61	**7600**	**1000**	**4600**	**17000**	**20000**	0.001	104	**2530**
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2		**<6.6**	**<33**	**<3.3**	**<330**	**<25**	**<160**	<0.024	--	--
N-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2		<6.6	**<33**	<3.3	**<330**	**<25**	**<160**	<0.011	--	--
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2		**<33**	**<160**	**<16**	**<1600**	**<120**	**<820**	<0.011	--	--
Phenanthrene	85-01-8	8270	3.11E+03	2	9.28E+03	2		44	2600	730	590	1400	610	0.004	--	--
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2		<6.6	<33	<3.3	**<330**	<25	**<160**	<0.024	--	--
Pyrene	129-00-0	8270	8.36E+03	2	2.50E+04	2		9.2	280	200	<330	160	<160	0.002 J	--	--

Notes:
Sampling locations shown on Figures 4A and 4B.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 4D-4
SUMMARY OF TEST WELL SUBSURFACE SOIL SAMPLING RESULTS - TEMPORARY TEST WELLS
UPRR Houston Wood Preserving Works

							Location ID:	TW-01	TW-02	TW-03
							Sample Date:	3/12/2007	3/12/2007	3/14/2007
							Sample Interval:	10-12'	10-12.5'	11-15'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier	mg/Kg	mg/Kg	mg/Kg	
Volatile Organic Compounds										
Benzene	71-43-2	8020	1.05E-01	2	1.05E-01	2	0.00247	0.03	<0.00198	
Chlorobenzene	108-90-7	8020	6.52E+00	2	6.52E+00	2	<0.00189	<0.0019	<0.00189	
Ethylbenzene	100-41-4	8020	4.37E+01	2	4.37E+01	2	0.0242	8.49	0.00258	
Toluene	108-88-3	8020	4.32E+01	2	4.32E+01	2	0.0103	9.02	<0.00157	
1,1,1-Trichloroethane	71-55-6	8260	8.10E-01	1	8.10E-01	1	<0.00164	<0.00165	<0.00164	
1,1,2,2-Tetrachloroethane	79-34-5	8260	1.15E-02	1	2.59E-02	1	<0.0041	<0.00412	<0.0041	
1,1,2-Trichloroethane	79-00-5	8260	1.00E-02	1	1.00E-02	1	<0.00285	<0.00286	<0.00285	
1,1-Dichloroethane	75-34-3	8260	9.25E+00	1	2.76E+01	1	<0.00201	<0.00202	<0.00201	
1,1-Dichloroethene	75-35-4	8260	2.50E-02	1	2.50E-02	1	<0.0033	<0.00331	<0.00329	
1,2-Dichloroethane	107-06-2	8260	3.07E-02	2	3.07E-02	2	<0.00287	0.0106	<0.00287	
1,2-Dichloroethene (total)	540-59-0	8260	7.20E-02	1	1.20E-01	1	<0.00427	<0.00429	<0.00426	
1,2-Dichloropropane	78-87-5	8260	1.14E-02	1	1.14E-02	1	<0.0022	<0.00221	<0.0022	
2-Hexanone	591-78-6	8260	1.94E+00	1	5.78E+00	1	<0.00461	<0.00463	<0.0046	
4-Methyl-2-pentanone (MIBK)	108-10-1	8260	2.47E+00	1	7.39E+00	1	<0.00207	<0.00208	<0.00207	
Acetone	67-64-1	8260	2.14E+01	1	6.38E+01	1	0.0652	0.711	0.0117	
Bromodichloromethane	75-27-4	8260	3.27E-02	1	7.33E-02	1	<0.00173	<0.00173	<0.00172	
Bromoform	75-25-1	8260	3.16E-01	1	7.07E-01	1	<0.00228	<0.00229	<0.00228	
Bromomethane	74-83-9	8260	6.54E-02	1	1.95E-01	1	<0.00352	<0.00354	<0.00352	
Carbon Disulfide	75-15-0	8260	6.79E+00	1	2.03E+01	1	<0.00189	<0.0019	<0.00189	
Carbon Tetrachloride	56-23-5	8260	3.09E-02	1	3.09E-02	1	<0.00188	<0.00189	<0.00188	
Chloroethane	75-00-3	8260	1.55E+01	1	4.61E+01	1	<0.00259	<0.0026	<0.00259	
Chloroform	67-66-3	8260	5.10E-01	1	1.52E+00	1	<0.00294	<0.00296	<0.00294	
Chloromethane	74-87-3	8260	2.03E-01	1	4.54E-01	1	<0.00515	<0.00518	<0.00515	
cis-1,2-Dichloroethene	156-59-2	8260	1.24E-01	1	1.24E-01	1	<0.00203	<0.00204	<0.00203	
cis-1,3-Dichloropropene	10061-01-5	8260	3.32E-03	1	7.44E-03	1	<0.00152	<0.00153	<0.00152	
Dibromochloromethane	124-48-1	8260	2.46E-02	1	5.50E-02	1	<0.00195	<0.00196	<0.00195	
Methyl Ethyl Ketone (2-Butanone)	78-93-3	8260	1.46E+01	1	4.37E+01	1	<0.00557	<0.00559	<0.00556	
Methylene Chloride	75-09-2	8260	2.25E-02	2	2.25E-02	2	<0.00378	<0.0038	<0.00378	
Styrene	100-42-5	8260	1.63E+00	1	1.63E+00	1	<0.00189	0.0373	<0.00189	
Tetrachloroethene	127-18-4	8260	2.51E-02	1	2.51E-02	1	<0.00196	<0.00197	<0.00196	
trans-1,2-Dichloroethene	156-60-5	8260	2.45E-01	1	2.45E-01	1	<0.00245	<0.00246	<0.00244	
trans-1,3-Dichloropropene	10061-02-6	8260	1.79E-02	1	4.02E-02	1	<0.0016	<0.0016	<0.00159	
Trichloroethene	79-01-6	8260	1.68E-02	1	1.68E-02	1	<0.00197	<0.00198	<0.00197	
Vinyl Chloride	75-01-4	8260	1.11E-02	1	1.11E-02	1	<0.00196	<0.00197	<0.00196	

Notes:

Sampling locations shown on Figures 4A and 4B.

2. Concentrations > RAL are **bold** type.

3. Concentrations > cPCL are highlighted.

4. Non-detected concentrations > RAL of cPCL are **bold** type.

5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009

6. RAL = Residential Assessment Level, C/I = Commercial/Industrial

7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 4D-4
SUMMARY OF TEST WELL SUBSURFACE SOIL SAMPLING RESULTS - TEMPORARY TEST WELLS
UPRR Houston Wood Preserving Works

							Location ID:	TW-01	TW-02	TW-03
							Sample Date:	3/12/2007	3/12/2007	3/14/2007
							Sample Interval:	10-12'	10-12.5'	11-15'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier		mg/Kg	mg/Kg	mg/Kg
Semvolatile Organic Compounds										
1,2,4-Trichlorobenzene	120-82-1	8270	2.40E+00	1	2.40E+00	1		<0.00332	<0.00334	<0.0332
1,2-Dichlorobenzene	95-50-1	8270	8.94E+00	1	8.94E+00	1		<0.0028	<0.00281	<0.028
1,2-Diphenylhydrazine	122-66-7	8270	2.27E-01	2	5.09E-01	2		<0.0000096	<0.00019	<0.000096
1,3-Dichlorobenzene	541-73-1	8270	3.37E+00	1	1.01E+01	1		<0.00273	<0.00274	<0.0273
1,4-Dichlorobenzene	106-46-7	8270	1.05E+00	1	1.05E+00	1		<0.00304	<0.00305	<0.0303
2,4,5-Trichlorophenol	95-95-4	8270	1.69E+01	1	5.05E+01	1		<0.00434	<0.00436	<0.0433
2,4,6-Trichlorophenol	88-06-2	8270	8.75E-02	1	2.61E-01	1		<0.00242	<0.00243	<0.0242
2,4-Dichlorophenol	120-83-2	8270	1.76E-01	1	5.25E-01	1		<0.00435	<0.00437	<0.0434
2,4-Dimethylphenol	105-67-9	8270	1.77E+01	2	5.27E+01	2		<0.00238	<0.00239	<0.0237
2,4-Dinitrophenol	51-28-5	8270	4.68E-02	1	1.40E-01	1		<0.00667	<0.0067	**<0.0666**
2,4-Dinitrotoluene	121-14-2	8270	2.18E-02	2	4.89E-02	2		<0.00018	<0.00361	<0.00179
2,6-Dinitrotoluene	606-20-2	8270	1.79E-02	2	4.02E-02	2		<0.000245	<0.00492	<0.00244
2-Chloronaphthalene	91-58-7	8270	4.99E+03	2	1.49E+04	2		<0.00183	<0.00184	<0.0183
2-Chlorophenol	95-57-8	8270	8.16E-01	1	2.44E+00	1		<0.00314	<0.00316	<0.0314
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.34E-03	1	7.00E-03	1		**<0.00984**	**<0.198**	**<0.0983**
2-Methylnaphthalene	91-57-6	8270	1.27E+02	2	3.78E+02	2		19.5	13.6	6.14
2-Methylphenol (o-Cresol)	95-48-7	8270	3.56E+00	1	1.06E+01	1		<0.00221	0.153	<0.0221
2-Nitroaniline	88-74-4	8270	6.56E-02	2	1.96E-01	2		<0.00404	<0.00406	<0.0404
2-Nitrophenol	88-75-5	8270	6.73E-02	1	2.01E-01	1		<0.00474	<0.00476	<0.0473
3,3'-Dichlorobenzidine	91-94-1	8270	4.42E-01	2	9.91E-01	2		<0.0111	<0.0112	<0.111
3-Nitroaniline	99-09-2	8270	9.31E-02	2	2.78E-01	2		<0.00453	<0.00455	<0.0452
4-Bromophenyl Phenyl Ether	101-55-3	8270	1.77E-01	1	3.96E-01	1		<0.00334	<0.00336	<0.0334
4-Chloro-3-methylphenol	59-50-7	8270	2.26E+00	1	6.76E+00	1		<0.00326	<0.00328	<0.0326
4-Chloroaniline	106-47-8	8270	2.23E-01	1	6.66E-01	1		<0.0011	<0.0011	<0.011
4-Chlorophenyl Phenyl Ether	7005-72-3	8270	2.39E-01	2	5.36E-01	2		<0.0023	<0.00232	<0.023
4-Methylphenol (p-Cresol)	106-44-5	8270	3.16E-01	1	9.43E-01	1		<0.0017	0.161	<0.017
4-Nitroaniline	100-01-6	8270	1.02E-01	2	2.28E-01	2		<0.00384	<0.00386	<0.0384
4-Nitrophenol	100-02-7	8270	8.31E-03	2	2.65E-01	2		0.00445	**0.0167**	**0.0444**
Acenaphthene	83-32-9	8270	1.75E+03	2	5.23E+03	2		22	17.1	33.7
Acenaphthylene	208-96-8	8270	3.05E+03	2	9.09E+03	2		<0.00176	0.228	<0.0176
Anthracene	120-12-7	8270	3.44E+03	1	1.03E+04	1		9.87	8.14	20.8
Benzo(a)anthracene	56-55-3	8270	1.33E+02	2	2.98E+02	2		2.27	3.04	6.63
Benzo(a)pyrene	50-32-8	8270	5.73E+01	2	5.73E+01	2		0.681	0.36	6.27
Benzo(b)fluoranthene	205-99-2	8270	3.01E+01	1	6.73E+01	1		0.368	0.596	3.18
Benzo(ghi)perylene	191-24-2	8270	2.32E+04	1	6.94E+04	1		0.145	0.166	1.53
Benzo(k)fluoranthene	207-08-9	8270	3.08E+02	1	6.89E+02	1		0.485	0.917	5.01
bis(2-chloroethoxy)methane	111-91-1	8270	7.70E-02	2	1.73E-01	2		<0.000293	<0.00589	<0.00293
bis(2-Chloroethyl)ether	111-44-4	8270	4.58E-03	2	1.03E-02	2		<0.00142	<0.00143	**<0.0142**
bis(2-chloroisopropyl)ether	108-60-1	8270	9.50E-02	1	2.13E-01	1		0.00209	<0.00146	<0.0145
bis(2-ethylhexyl)phthalate	117-81-7	8270	1.23E+03	2	1.23E+03	2		<0.00394	<0.00395	<0.0393

Notes:

Sampling locations shown on Figures 4A and 4B.

2. Concentrations > RAL are **bold** type.

3. Concentrations > cPCL are highlighted.

4. Non-detected concentrations > RAL of cPCL are **bold** type.

5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009

6. RAL = Residential Assessment Level, C/I = Commercial/Industrial

7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 4D-4
SUMMARY OF TEST WELL SUBSURFACE SOIL SAMPLING RESULTS - TEMPORARY TEST WELLS
UPRR Houston Wood Preserving Works

							Location ID:	TW-01	TW-02	TW-03
							Sample Date:	3/12/2007	3/12/2007	3/14/2007
							Sample Interval:	10-12'	10-12.5'	11-15'
Constituent	CAS	Method	RAL	Tier	cPCL	CI Tier	mg/Kg	mg/Kg	mg/Kg	
Semvolatile Organic Compounds										
Butyl Benzyl Phthalate	85-68-7	8270	1.35E+03	1	4.03E+03	1	<0.00243	<0.00245	<0.0243	
Carbazole	86-74-8	8270	3.36E+01	2	7.54E+01	2	2.69	3.14	1.65	
Chrysene	218-01-9	8270	1.16E+04	2	2.60E+04	2	2.29	3.01	9.8	
Dibenzo(a,h)anthracene	53-70-3	8270	7.63E+00	1	1.07E+01	1	0.0639	0.106	0.593	
Dibenzofuran	132-64-9	8270	2.49E+02	2	7.44E+02	2	18.3	11.2	26.2	
Diethyl Phthalate	84-66-2	8270	7.79E+01	1	2.33E+02	1	<0.00238	<0.00239	<0.0237	
Dimethyl Phthalate	131-11-3	8270	3.11E+01	1	9.29E+01	1	<0.00156	<0.00157	<0.0156	
Di-n-butyl phthalate	84-74-2	8270	1.53E+04	1	2.14E+04	1	<0.0023	<0.00232	<0.023	
Di-n-octyl Phthalate	117-84-0	8270	2.76E+05	1	3.87E+05	1	<0.00239	<0.0024	<0.0238	
Fluoranthene	206-44-0	8270	1.44E+04	2	4.29E+04	2	22.5	23	57.5	
Fluorene	86-73-7	8270	2.23E+03	2	6.65E+03	2	19.4	14.4	33.1	
Hexachlorobenzene	118-74-1	8270	5.65E-01	1	5.65E-01	1	<0.00342	<0.00343	<0.0341	
Hexachlorobutadiene	87-68-3	8270	1.64E+00	1	3.68E+00	1	<0.00345	<0.00347	<0.0345	
Hexachlorocyclopentadiene	77-47-4	8270	7.29E+00	1	9.64E+00	1	<0.00385	<0.00387	<0.0385	
Hexachloroethane	67-72-1	8270	9.18E-01	1	2.74E+00	1	<0.00397	<0.00399	<0.0397	
Indeno(1,2,3-cd)pyrene	193-39-5	8270	8.67E+01	1	1.94E+02	1	0.168	0.254	1.86	
Isophorone	78-59-1	8270	1.50E+00	1	3.36E+00	1	<0.00229	<0.0023	<0.0229	
Naphthalene	91-20-3	8270	1.38E+02	1	1.93E+02	1	34.4	29.7	33.8	
Nitrobenzene	98-95-3	8270	4.94E-01	2	1.48E+00	2	<0.00303	<0.00304	<0.0302	
n-Nitrosodi-n-propylamine	621-64-7	8270	8.85E-04	2	1.98E-03	2	**<0.00469**	**<0.00471**	**<0.0468**	
N-Nitrosodiphenylamine	86-30-6	8270	1.87E+01	2	4.18E+01	2	<0.00209	<0.0021	<0.0209	
Pentachlorophenol	87-86-5	8270	1.24E-01	2	1.24E-01	2	<0.00984	<0.198	<0.0983	
Phenanthrene	85-01-8	8270	3.11E+03	2	9.28E+03	2	62.7	48.7	78.7	
Phenol	108-95-2	8270	4.46E+01	2	1.33E+02	2	<0.00353	<0.00355	<0.0353	
Pyrene	129-00-0	8270	8.36E+03	2	2.50E+04	2	11.9	12.3	34.2	

Notes:

Sampling locations shown on Figures 4A and 4B.

2. Concentrations > RAL are **bold** type.

3. Concentrations > cPCL are highlighted.

4. Non-detected concentrations > RAL of cPCL are **bold** type.

5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009

6. RAL = Residential Assessment Level, C/I = Commercial/Industrial

7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 4D-5
SUMMARY OF DEEPER SOIL SAMPLING RESULTS BELOW UPPERMOST GWBU
UPRR Houston Wood Preserving Works

			Location ID:	MW-10A	MW-10A		MW-10B		MW-11A		MW-11B				
			Sample Date:	9/13/1994	9/13/1994	9/14/1994	9/14/1994	9/14/1994	9/15/1994	9/15/1994	9/19/1994	9/19/1994	9/19/1994	9/19/1994	12/5/1995
			Sample Interval:	16-18'	20-22'	24-26'	30-32'	36-38'	44-66'	16-18'	20-22'	26-28'	32-34'	38-40'	42-44'	26-28'
Constituent	CAS	Method		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds																
Benzene	71-43-2	8020		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.14	--
Chlorobenzene	108-90-7	8020		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
Ethylbenzene	100-41-4	8020		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
Toluene	108-88-3	8020		<1.3	<0.77	<0.57	1.7	1.7	1.7	1.6	1	<0.1	<0.1	<0.1	<0.21	--
Xylenes (tot)	1330-20-7	8020		<0.1	<0.1	<0.1	<0.1	<0.1	2.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
1,2-Dichloroethane	107-06-2	8260		--	--	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	75-09-2	8260		--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	75-09-2	8260		--	--	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
2,4-Dimethylphenol	105-67-9	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
2,4-Dinitrotoluene	121-14-2	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
2,6-Dinitrotoluene	606-20-2	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
2-Chloronaphthalene	91-58-7	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
2-Methyl-4,6-dinitrophenol	534-52-1	8270		--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
4,6-Dinitro-o-cresol	534-52-1	8270		<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	--	--	--	--	<3.3
4-Nitrophenol	100-02-7	8270		<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	--	--	--	--	<3.3
Acenaphthene	83-32-9	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Acenaphthylene	208-96-8	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Anthracene	120-12-7	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Benzo(a)anthracene	56-55-3	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Benzo(a)pyrene	50-32-8	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
bis(2-chloroethoxy)methane	111-91-1	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
bis(2-Ethylhexyl)phthalate	117-81-7	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Chrysene	218-01-9	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Dibenzofuran	132-64-9	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Di-n-butyl phthalate	84-74-2	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Fluoranthene	206-44-0	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Fluorene	86-73-7	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Naphthalene	91-20-3	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Nitrobenzene	98-95-3	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
N-Nitrosodiphenylamine	86-30-6	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Pentachlorophenol	87-86-5	8270		<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	--	--	--	--	<3.3
Phenanthrene	85-01-8	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Phenol	108-95-2	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66
Pyrene	129-00-0	8270		<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	--	--	--	--	<0.66

Notes:
1. Sampling locations shown on Figures 4A and 4B.
2. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 4D-5
SUMMARY OF DEEPER SOIL SAMPLING RESULTS BELOW UPPERMOST GWBU
UPRR Houston Wood Preserving Works

			Location ID:	MW-11B		MW-12A	MW-12B		MW-13	MW-14			MW-15A
			Sample Date:	12/5/1995	12/5/1995	12/5/1995	2/27/1997	2/27/1997	2/27/1997	2/25/1997	2/27/1997	2/27/1997	2/27/1997	2/25/1997
			Sample Interval:	32-34'	38-40'	42-44'	20'	30'	40'	21'	17'	35'	40'	20'
Constituent	CAS	Method		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds														
Benzene	71-43-2	8020		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	108-90-7	8020		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	8020		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	8020		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Xylenes (tot)	1330-20-7	8020		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006
1,2-Dichloroethane	107-06-2	8260		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dichloromethane	75-09-2	8260		--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	75-09-2	8260		--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
2,4-Dimethylphenol	105-67-9	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
2,4-Dinitrotoluene	121-14-2	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
2,6-Dinitrotoluene	606-20-2	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
2-Chloronaphthalene	91-58-7	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
2-Methyl-4,6-dinitrophenol	534-52-1	8270		--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	16	<0.33	<0.33	<0.33
4,6-Dinitro-o-cresol	534-52-1	8270		<3.3	<3.3	<3.3	<1.6	<1.6	<1.6	<1.6	<8.2	<1.6	<1.6	<1.6
4-Nitrophenol	100-02-7	8270		<3.3	<3.3	<3.3	<1.6	<1.6	<1.6	<1.6	<8.2	<1.6	<1.6	<1.6
Acenaphthene	83-32-9	8270		16	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	9.9	<0.33	<0.33	<0.33
Acenaphthylene	208-96-8	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
Anthracene	120-12-7	8270		8.6	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
Benzo(a)anthracene	56-55-3	8270		3.6	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
Benzo(a)pyrene	50-32-8	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
bis(2-chloroethoxy)methane	111-91-1	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
bis(2-Ethylhexyl)phthalate	117-81-7	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
Chrysene	218-01-9	8270		3.2	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
Dibenzofuran	132-64-9	8270		11	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	7.8	<0.33	<0.33	<0.33
Di-n-butyl phthalate	84-74-2	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
Fluoranthene	206-44-0	8270		13	<0.66	<0.66	<0.33	0.62	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
Fluorene	86-73-7	8270		<0.66	<0.66	<0.66	<0.33	0.36	<0.33	<0.33	10	<0.33	<0.33	<0.33
Naphthalene	91-20-3	8270		<0.66	<0.66	<0.66	<0.33	0.33	<0.33	<0.33	8.6	<0.33	<0.33	<0.33
Nitrobenzene	98-95-3	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
N-Nitrosodiphenylamine	86-30-6	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
Pentachlorophenol	87-86-5	8270		<3.3	<3.3	<3.3	<1.6	<1.6	<1.6	<1.6	<8.2	<1.6	<1.6	<1.6
Phenanthrene	85-01-8	8270		22	<0.66	<0.66	<0.33	1.1	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
Phenol	108-95-2	8270		<0.66	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33
Pyrene	129-00-0	8270		9.1	<0.66	<0.66	<0.33	<0.33	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33

Notes:
1. Sampling locations shown on Figures 4A and 4B.
2. J = Estimated value, < = Compound not detected at the specified dete

Table 4D-5
SUMMARY OF DEEPER SOIL SAMPLING RESULTS BELOW UPPERMOST GWBU
UPRR Houston Wood Preserving Works

			Location ID:	MW-16	MW-17	MW-17C	MW-18A	MW-24A	MW-25C				MW-30A		MW-31A
			Sample Date:	2/26/1997	2/25/1997	12/18/2003	2/26/1997	3/7/2000	3/9/2000	3/9/2000	3/13/2000	3/13/2000	12/8/2003	12/8/2003	12/8/2003
			Sample Interval:	20'	30'	70-72'	30'	19'	43'	53'	60'	70'	14-16'	31-33'	31-33'
Constituent	CAS	Method		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds															
Benzene	71-43-2	8020		<0.005	<0.025	0.004 J	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	0.0207	0.236	0.171
Chlorobenzene	108-90-7	8020		<0.005	<0.025	0.004 J	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	<0.004	0.004 J	0.004 J
Ethylbenzene	100-41-4	8020		<0.005	0.7	0.004 J	<0.005	<0.006	0.031	<0.006	<0.006	<0.006	<0.008700973	<0.195	<0.181
Toluene	108-88-3	8020		<0.005	0.46	0.004 J	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	0.0471	<0.296	0.418
Xylenes (tot)	1330-20-7	8020		<0.005	2.4	<0.014	<0.005	<0.018	0.12	0.002 J	<0.019	<0.019	<0.023209954	<0.602	0.651 J
1,2-Dichloroethane	107-06-2	8260		<0.005	<0.025	0.004 J	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	<0.004	0.004 J	0.004 J
Dichloromethane	75-09-2	8260		--	--	--	--	<0.006	<0.006	<0.006	0.003	0.004	--	--	--
Methylene Chloride	75-09-2	8260		<0.005	<0.025	0.004 J	<0.005	--	--	--	--	--	<0.004	0.004 J	0.004 J
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270		<0.33	<9.98	<0.00332	<0.33	<0.013	<0.013	<0.014	<0.028	<0.014	<0.00332	<0.00332	<0.00332
2,4-Dimethylphenol	105-67-9	8270		<0.33	<9.98	<0.01665	<0.33	<0.03	<0.029	<0.031	<0.062	<0.032	<0.7275	11.21	10.63
2,4-Dinitrotoluene	121-14-2	8270		<0.33	<9.98	<0.00332	<0.33	<0.002	<0.007	<0.002	<0.002	<0.002	<0.00332	<0.00332	<0.00332
2,6-Dinitrotoluene	606-20-2	8270		<0.33	<9.98	<0.00332	<0.33	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00332	<0.00332	<0.00332
2-Chloronaphthalene	91-58-7	8270		<0.33	<9.98	<0.01665	<0.33	<0.017	<0.016	<0.018	<0.03	<0.018	<0.01665	<0.01665	<0.01665
2-Methyl-4,6-dinitrophenol	534-52-1	8270		--	--	<1.65E-08	--	--	--	--	--	--	<0.05	<0.05	<0.05
2-Methylnaphthalene	91-57-6	8270		<0.33	76	<0.01665	<0.33	<0.022	28	0.023	<0.045	<0.023	0.08844	16.84	34.94
4,6-Dinitro-o-cresol	534-52-1	8270		<1.6	<50	--	<1.6	<0.17	<0.16	<0.18	<0.17	<0.18	--	--	--
4-Nitrophenol	100-02-7	8270		<1.6	<50	<0.05	<1.6	<0.24	<0.23	<0.25	<0.5	<0.26	<0.05	<0.05	<0.05
Acenaphthene	83-32-9	8270		<0.33	26	<0.01665	<0.33	<0.018	18	0.029	<0.038	<0.019	0.08827	7.367	<25.07
Acenaphthylene	208-96-8	8270		<0.33	<9.98	<0.01665	<0.33	<0.013	0.17	<0.014	<0.028	<0.014	0.00472	0.1993	0.4729
Anthracene	120-12-7	8270		<0.33	21	<0.01665	<0.33	<0.01	9.5	0.046	0.002 J	<0.011	0.05084	3.903	21.68
Benzo(a)anthracene	56-55-3	8270		<0.33	<9.98	<0.01665	<0.33	<0.011	1.6	0.014	<0.022	<0.011	<0.0187	<0.7736	4.123
Benzo(a)pyrene	50-32-8	8270		<0.33	<9.98	<0.00332	<0.33	<0.009	0.42	0.003 J	<0.019	<0.01	<0.0304	<0.2574	1.615
bis(2-chloroethoxy)methane	111-91-1	8270		<0.33	<9.98	<0.00332	<0.33	<0.03	<0.029	<0.031	<0.062	<0.032	<0.00332	<0.00332	<0.00332
bis(2-Ethylhexyl)phthalate	117-81-7	8270		<0.33	<9.98	<0.04434	<0.33	0.043	0.014	0.015	0.02	0.01	0.01188	<0.0403	<0.5918
Chrysene	218-01-9	8270		<0.33	<9.98	<0.01665	<0.33	<0.01	1.6	0.015	0.008 J	<0.01	0.02665	0.7559	4.127
Dibenzofuran	132-64-9	8270		<0.33	39	<0.01665	<0.33	<0.018	22	0.033	0.002 J	<0.019	<0.1263	10.27	<23.2
Di-n-butyl phthalate	84-74-2	8270		<0.33	<9.98	<0.01665	<0.33	0.022	<0.02	0.006 J	0.009	0.003	<0.00966	<0.01665	<0.01665
Fluoranthene	206-44-0	8270		<0.33	30	0.00338 J	<0.33	0.001	16	0.096	0.004 J	<0.019	<0.1273	8.594	28.7
Fluorene	86-73-7	8270		<0.33	24	<0.01665	<0.33	<0.013	17	0.041	<0.028	<0.014	<0.1248	6.333	21.29
Naphthalene	91-20-3	8270		<0.33	260	<0.01665	<0.33	<0.016	65	0.042	0.005 J	<0.017	<0.599	82.26	26.03
Nitrobenzene	98-95-3	8270		<0.33	<9.98	<0.01665	<0.33	<0.023	<0.022	<0.024	<0.048	<0.025	<0.01665	<0.01665	<0.01665
N-Nitrosodiphenylamine	86-30-6	8270		<0.33	<9.98	<0.01665	<0.33	<0.011	<0.01	<0.011	<0.022	<0.012	<0.01665	<0.01665	<0.01665
Pentachlorophenol	87-86-5	8270		<1.6	<50	<1.65E-08	<1.6	<0.011	0.006 J	<0.011	<0.011	<0.012	<1.65E-08	<1.7E-08	<1.7E-08
Phenanthrene	85-01-8	8270		<0.33	92	0.0098 J	<0.33	<0.018	54	0.22	0.01 J	<0.013	<0.2931	<24.31	5.986
Phenol	108-95-2	8270		<0.33	<9.98	<0.01665	<0.33	<0.023	<0.022	<0.024	<0.048	<0.025	<0.01665	35.64	45.65
Pyrene	129-00-0	8270		<0.33	17	<0.01665	<0.33	0.001	11	0.057	0.003 J	<0.019	0.103	<4.315	<16.32

Notes:
1. Sampling locations shown on Figures 4A and 4B.
2. J = Estimated value, < = Compound not detected at the specified dete

Table 4D-5
SUMMARY OF DEEPER SOIL SAMPLING RESULTS BELOW UPPERMOST GWBU
UPRR Houston Wood Preserving Works

			Location ID:	MW-32A		MW-33A	MW-44C		MW-45C	MW-46C	SB-02			
			Sample Date:	12/29/2003	12/29/2003	12/30/2003	1/16/2004	1/16/2004	1/22/2004	1/21/2004	3/3/1997	3/3/1997	3/3/1997	3/3/1997
			Sample Interval:	16-18'	28-30'	31-33'	21-23'	43'	68-70'	43'	43'	21'	24'	37.5'	38.5'
Constituent	CAS	Method		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds															
Benzene	71-43-2	8020		<0.004	<0.173	<0.625	<0.004980981	<0.0324	0.004 J	<0.0126	0.004 J	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	108-90-7	8020		<0.004	0.004 J	0.004 J	<0.004	0.004 J	0.004 J	0.004 J	0.004 J	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	8020		<0.004	0.961	<1.7	0.00467	0.0247 J	0.00246 J	0.108	<0.0211	<0.005	<0.005	0.008	0.007
Toluene	108-88-3	8020		<0.004	0.23	0.939	<0.004	0.0285 J	0.004 J	<0.0414	<0.006	<0.005	<0.005	<0.005	<0.005
Xylenes (tot)	1330-20-7	8020		<0.0140066	2.58	<5.53	<0.009900956	0.0648 J	<0.014	<0.296099	0.0705	<0.005	<0.005	0.005	0.006
1,2-Dichloroethane	107-06-2	8260		<0.004	0.004 J	0.004 J	<0.004	0.004 J	0.004 J	0.004 J	0.004 J	<0.005	<0.005	<0.005	<0.005
Dichloromethane	75-09-2	8260		--	--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	75-09-2	8260		<0.004	0.004 J	0.004 J	<0.004	<0.104	0.0214	0.00545 J	0.00487 J	<0.005	<0.005	<0.005	<0.005
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270		<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.33	<0.33	<0.33	<0.33
2,4-Dimethylphenol	105-67-9	8270		<0.01665	<1.654	5.228	0.01713	<0.01665	<0.01665	<0.01665	<0.01665	<0.33	<0.33	<0.33	<0.33
2,4-Dinitrotoluene	121-14-2	8270		<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.33	<0.33	<0.33	<0.33
2,6-Dinitrotoluene	606-20-2	8270		<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.33	<0.33	<0.33	<0.33
2-Chloronaphthalene	91-58-7	8270		<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.33	<0.33	<0.33	<0.33
2-Methyl-4,6-dinitrophenol	534-52-1	8270		<1.65E-08	<1.65E-08	<1.65E-08	<1.65E-08	<1.7E-08	<1.65E-08	<1.65E-08	<1.7E-08	--	--	--	--
2-Methylnaphthalene	91-57-6	8270		<0.01665	<47.72	78.97	0.3758	0.01614 J	0.00915 J	35.18	15.88	<0.33	<0.33	1.4	0.59
4,6-Dinitro-o-cresol	534-52-1	8270		--	--	--	--	--	--	--	--	<1.6	<1.6	<1.6	<1.6
4-Nitrophenol	100-02-7	8270		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1.6	<1.6	<1.6	<1.6
Acenaphthene	83-32-9	8270		<0.0038	31.29	40.79	<0.463	0.00899 J	0.00875 J	17.85	8.817	<0.33	<0.33	2.1	3.1
Acenaphthylene	208-96-8	8270		<0.01665	0.3632	0.3321	<0.01035	<0.01665	<0.01665	<0.01665	<0.08666	<0.33	<0.33	<0.33	<0.33
Anthracene	120-12-7	8270		<0.00687	<18.56	<22.82	0.6018	0.00475 J	0.01614 J	11.64	5.477	<0.33	<0.33	1.4	2
Benzo(a)anthracene	56-55-3	8270		<0.00827	2.502	3.627	<0.1863	<0.01665	0.006 J	<1.713	0.8567	<0.33	<0.33	0.4	0.56
Benzo(a)pyrene	50-32-8	8270		<0.0008	<0.773	1.33	<0.0456	<0.00332	0.000964 J	0.4505	<0.172	<0.33	<0.33	<0.33	<0.33
bis(2-chloroethoxy)methane	111-91-1	8270		<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.33	<0.33	<0.33	<0.33
bis(2-Ethylhexyl)phthalate	117-81-7	8270		0.0362	<0.01665	<0.04724	0.1744	0.1027	<0.2293	<0.03237	<0.01665	<0.33	<0.33	<0.33	<0.33
Chrysene	218-01-9	8270		0.00772	<2.417	3.512	<0.1	<0.01665	<0.01665	1.699	0.8176	<0.33	<0.33	0.4	0.53
Dibenzofuran	132-64-9	8270		0.00431	25.85	38	<0.49	0.0068 J	0.01016 J	17.79	9.192	<0.33	<0.33	1.7	2.6
Di-n-butyl phthalate	84-74-2	8270		<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.33	<0.33	<0.33	<0.33
Fluoranthene	206-44-0	8270		<0.02316	22.62	<31.64	<1.024	0.00932 J	<0.0374	<15.56	8.215	<0.33	<0.33	2.8	4
Fluorene	86-73-7	8270		0.00575	28.53	33.8	0.5626	0.0057 J	0.01099 J	13.71	7.403	<0.33	<0.33	1.9	3.1
Naphthalene	91-20-3	8270		0.01073	194.4	292.3	0.3433	0.08375	0.01874 J	111.5	43.68	<0.33	<0.33	3.6	12
Nitrobenzene	98-95-3	8270		<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.33	<0.33	<0.33	<0.33
N-Nitrosodiphenylamine	86-30-6	8270		<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	0.1664	<0.33	<0.33	<0.33	<0.33
Pentachlorophenol	87-86-5	8270		<1.65E-08	<1.65E-08	<1.65E-08	<1.65E-08	<1.7E-08	<1.65E-08	0.0108 J	<1.7E-08	<1.6	<1.6	<1.6	<1.6
Phenanthrene	85-01-8	8270		0.03127	73.01	104.8	<2.042	0.01965 J	<0.06571	41.36	<23.3	<0.33	<0.33	8.6	17
Phenol	108-95-2	8270		<0.01665	2.672	2.449	<0.01665	<0.01665	<0.01665	<0.01665	<0.01665	<0.33	<0.33	<0.33	<0.33
Pyrene	129-00-0	8270		0.01593	<13.57	<18.8	<0.6883	0.006 J	0.02191	8.89	4.924	<0.33	<0.33	1.2	1.8

Notes:
1. Sampling locations shown on Figures 4A and 4B.
2. J = Estimated value, < = Compound not detected at the specified dete

Table 4D-5
SUMMARY OF DEEPER SOIL SAMPLING RESULTS BELOW UPPERMOST GWBU
UPRR Houston Wood Preserving Works

			Location ID:	SB-02	SB-03				SB-04					
			Sample Date:	3/3/1997	3/5/1997	3/5/1997	3/5/1997	3/5/1997	3/5/1997	3/5/1997	3/5/1997	3/5/1997	3/5/1997	3/5/1997
			Sample Interval:	49'	24'	34'	52'	54'	27'	29'	31'	39'	51'	59'
Constituent	CAS	Method		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds														
Benzene	71-43-2	8020		<0.005	<0.005	<3.1	<0.005	<0.005	0.013	0.013	<0.62	--	<0.025	<0.005
Chlorobenzene	108-90-7	8020		<0.005	<0.005	<3.1	<0.005	<0.005	<0.005	<0.005	<0.62	--	<0.025	<0.005
Ethylbenzene	100-41-4	8020		<0.005	0.016	46	0.025	<0.005	0.064	0.031	1.7	--	0.62	<0.005
Toluene	108-88-3	8020		<0.005	0.029	32	0.02	<0.005	0.028	0.021	1.4	--	0.2	<0.005
Xylenes (tot)	1330-20-7	8020		<0.005	0.051	170	0.075	<0.005	0.18	0.088	6.1	--	1.9	<0.005
1,2-Dichloroethane	107-06-2	8260		<0.005	<0.005	<3.1	<0.005	<0.005	<0.005	<0.005	<0.62	--	<0.025	<0.005
Dichloromethane	75-09-2	8260		--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	75-09-2	8260		<0.005	<0.005	<3.1	<0.005	<0.005	0.007	0.011	<0.62	--	<0.025	<0.005
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	<3.3	<8.2	<0.33
2,4-Dimethylphenol	105-67-9	8270		<0.33	<0.33	<25	<0.33	<0.33	2.3	5.3	<1.6	<3.3	<8.2	<0.33
2,4-Dinitrotoluene	121-14-2	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	<3.3	<8.2	<0.33
2,6-Dinitrotoluene	606-20-2	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	<3.3	<8.2	<0.33
2-Chloronaphthalene	91-58-7	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	<3.3	<8.2	<0.33
2-Methyl-4,6-dinitrophenol	534-52-1	8270		--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270		<0.33	1.1	2200	11	<0.33	53	17	29	1100	51	<0.33
4,6-Dinitro-o-cresol	534-52-1	8270		<1.6	<1.6	<120	<1.6	<1.6	<8.2	<8.2	<8.2	<16	<41	<1.6
4-Nitrophenol	100-02-7	8270		<1.6	<1.6	<120	<1.6	<1.6	<8.2	<8.2	<8.2	<16	<41	<1.6
Acenaphthene	83-32-9	8270		<0.33	1.1	270	2.9	<0.33	16	13	23	750	12	<0.33
Acenaphthylene	208-96-8	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	6.8	<8.2	<0.33
Anthracene	120-12-7	8270		<0.33	0.86	160	1.8	<0.33	9.7	14	18	470	<8.2	<0.33
Benzo(a)anthracene	56-55-3	8270		<0.33	<0.33	42	0.56	<0.33	2.1	1.8	4.4	38	<8.2	<0.33
Benzo(a)pyrene	50-32-8	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	11	<8.2	<0.33
bis(2-chloroethoxy)methane	111-91-1	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	<3.3	<8.2	<0.33
bis(2-Ethylhexyl)phthalate	117-81-7	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	<3.3	<8.2	<0.33
Chrysene	218-01-9	8270		<0.33	<0.33	42	0.56	<0.33	2.1	1.7	4.4	38	<8.2	<0.33
Dibenzofuran	132-64-9	8270		<0.33	1.2	240	2.6	<0.33	14	12	25	750	12	<0.33
Di-n-butyl phthalate	84-74-2	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	<3.3	<8.2	<0.33
Fluoranthene	206-44-0	8270		<0.33	1.8	210	2.9	<0.33	13	11	20	1478 J	<8.2	<0.33
Fluorene	86-73-7	8270		<0.33	1.3	250	3.1	<0.33	16	14	20	620	9	<0.33
Naphthalene	91-20-3	8270		<0.33	4.6	4000	13	0.82	56	59	200	4900	73	<0.33
Nitrobenzene	98-95-3	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	<3.3	<8.2	<0.33
N-Nitrosodiphenylamine	86-30-6	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	<3.3	<8.2	<0.33
Pentachlorophenol	87-86-5	8270		<1.6	<1.6	<120	<1.6	<1.6	<8.2	<8.2	<8.2	<16	<41	<1.6
Phenanthrene	85-01-8	8270		<0.33	3.6	2500	10	<0.33	47	46	56	1800	27	<0.33
Phenol	108-95-2	8270		<0.33	<0.33	<25	<0.33	<0.33	<1.6	<1.6	<1.6	<3.3	<8.2	<0.33
Pyrene	129-00-0	8270		<0.33	1.2	190	2.7	<0.33	10	9.8	23	430	8.2	<0.33

Notes:
1. Sampling locations shown on Figures 4A and 4B.
2. J = Estimated value, < = Compound not detected at the specified dete

Table 4D-5
SUMMARY OF DEEPER SOIL SAMPLING RESULTS BELOW UPPERMOST GWBU
UPRR Houston Wood Preserving Works

			Location ID:	SB-05				SB-06		SB-07		SB-08	SB-50	SB-56
			Sample Date:	3/4/1997	3/4/1997	3/4/1997	3/4/1997	3/4/1997	3/4/1997	3/6/1997	3/6/1997	3/6/1997	3/7/2000	8/25/2006
			Sample Interval:	19.5'	24'	34.5'	39'	54'	24'	49'	22'	24'	22'	30'	19'
Constituent	CAS	Method		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds															
Benzene	71-43-2	8020		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.62	<6.2	0.057	<0.006	--
Chlorobenzene	108-90-7	8020		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.62	<6.2	<0.005	<0.006	--
Ethylbenzene	100-41-4	8020		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	9.1	31	12	<0.006	--
Toluene	108-88-3	8020		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	9.8	31	7.5	<0.006	--
Xylenes (tot)	1330-20-7	8020		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	28	90	43	<0.018	--
1,2-Dichloroethane	107-06-2	8260		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.62	<6.2	<0.005	<0.006	--
Dichloromethane	75-09-2	8260		--	--	--	--	--	--	--	--	--	--	<0.006	--
Methylene Chloride	75-09-2	8260		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.62	<6.2	<0.005	--	--
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.013	--
2,4-Dimethylphenol	105-67-9	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.029	--
2,4-Dinitrotoluene	121-14-2	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.002	--
2,6-Dinitrotoluene	606-20-2	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.002	--
2-Chloronaphthalene	91-58-7	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.016	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270		--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	790	3700	420	<0.021	341
4,6-Dinitro-o-cresol	534-52-1	8270		<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1600	<12000	<1200	<0.16	--
4-Nitrophenol	100-02-7	8270		<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1600	<12000	<1200	<0.24	--
Acenaphthene	83-32-9	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	630	3200	400	<0.018	--
Acenaphthylene	208-96-8	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.013	--
Anthracene	120-12-7	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.01	--
Benzo(a)anthracene	56-55-3	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.01	--
Benzo(a)pyrene	50-32-8	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.009	--
bis(2-chloroethoxy)methane	111-91-1	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.029	--
bis(2-Ethylhexyl)phthalate	117-81-7	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	0.08	--
Chrysene	218-01-9	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.009	--
Dibenzofuran	132-64-9	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	470	2500	300	<0.018	--
Di-n-butyl phthalate	84-74-2	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	0.032	--
Fluoranthene	206-44-0	8270		<0.33	<0.33	<0.33	<0.33	<0.33	0.36	<0.33	380	2500	300	0.002 J	--
Fluorene	86-73-7	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	560	2700	350	<0.013	--
Naphthalene	91-20-3	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	5300	42000	22000	<0.015	466
Nitrobenzene	98-95-3	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.022	--
N-Nitrosodiphenylamine	86-30-6	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.01	--
Pentachlorophenol	87-86-5	8270		<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1600	<12000	<1200	<0.01	--
Phenanthrene	85-01-8	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	1200	6900	840	<0.018	--
Phenol	108-95-2	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	<0.022	--
Pyrene	129-00-0	8270		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<330	<2500	<250	0.001 J	--

Notes:
1. Sampling locations shown on Figures 4A and 4B.
2. J = Estimated value, < = Compound not detected at the specified dete

Table 4D-5
SUMMARY OF DEEPER SOIL SAMPLING RESULTS BELOW UPPERMOST GWBU
UPRR Houston Wood Preserving Works

			Location ID:	SB-64	SB-66	SB-67	SB-72		SB-73			SB-74	
			Sample Date:	8/28/2006	8/31/2006	8/30/2006	8/25/2006	8/25/2006	8/30/2006	8/30/2006	8/30/2006	8/28/2006	8/28/2006
			Sample Interval:	31-33'	31'	31-33'	21'	34'	18-19'	21'	34'	18-19'	21'
Constituent	CAS	Method		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds													
Benzene	71-43-2	8020		--	--	0.336	<0.0233	--	<0.0228	<0.0229	--	0.951	2.55
Chlorobenzene	108-90-7	8020		--	--	--	--	--	--	--	--	--	--
Ethylbenzene	100-41-4	8020		--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	8020		--	--	--	--	--	--	--	--	--	--
Xylenes (tot)	1330-20-7	8020		--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	107-06-2	8260		--	--	--	--	--	--	--	--	--	--
Dichloromethane	75-09-2	8260		--	--	--	--	--	--	--	--	--	--
Methylene Chloride	75-09-2	8260		--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds													
1,2-Diphenylhydrazine	122-66-7	8270		--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	105-67-9	8270		2.88	--	9.07	--	--	1.13	--	--	<0.0971	--
2,4-Dinitrotoluene	121-14-2	8270		--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270		--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270		--	--	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270		--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270		47.1	--	14.7	0.85	14	0.127	139	59.7	1500	505
4,6-Dinitro-o-cresol	534-52-1	8270		--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270		--	--	--	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270		--	--	--	--	--	--	--	--	--	--
Acenaphthylene	208-96-8	8270		--	--	--	--	--	--	--	--	--	--
Anthracene	120-12-7	8270		--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	56-55-3	8270		--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	8270		--	--	--	--	--	--	--	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270		--	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	117-81-7	8270		--	--	--	--	--	--	--	--	--	--
Chrysene	218-01-9	8270		--	--	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270		--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	84-74-2	8270		--	--	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	8270		--	--	--	--	--	--	--	--	--	--
Fluorene	86-73-7	8270		--	--	--	--	--	--	--	--	--	--
Naphthalene	91-20-3	8270		183	86.6	--	1.79	45.8	1.77	486	302	62800	4690
Nitrobenzene	98-95-3	8270		--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	86-30-6	8270		--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270		--	--	--	--	--	--	--	--	--	--
Phenanthrene	85-01-8	8270		--	--	--	--	--	--	--	--	--	--
Phenol	108-95-2	8270		--	--	40.9	--	--	--	--	--	--	--
Pyrene	129-00-0	8270		--	--	--	--	--	--	--	--	--	--

Notes:
1. Sampling locations shown on Figures 4A and 4B.
2. J = Estimated value, < = Compound not detected at the specified dete

Table 4D-5
SUMMARY OF DEEPER SOIL SAMPLING RESULTS BELOW UPPERMOST GWBU
UPRR Houston Wood Preserving Works

			Location ID:	SB-75	SB-76	SB-77	SB-78
			Sample Date:	8/28/2006 8/28/2006	8/30/2006	8/31/2006	8/31/2006
			Sample Interval:	30' 31-33'	31-33'	31'	31'
Constituent	CAS	Method		mg/Kg mg/Kg	mg/Kg	mg/Kg	mg/Kg
Volatile Organic Compounds							
Benzene	71-43-2	8020		-- 0.263	1.65	--	--
Chlorobenzene	108-90-7	8020		-- --	--	--	--
Ethylbenzene	100-41-4	8020		-- --	--	--	--
Toluene	108-88-3	8020		-- --	--	--	--
Xylenes (tot)	1330-20-7	8020		-- --	--	--	--
1,2-Dichloroethane	107-06-2	8260		-- --	--	--	--
Dichloromethane	75-09-2	8260		-- --	--	--	--
Methylene Chloride	75-09-2	8260		-- --	--	--	--
Semivolatile Organic Compounds							
1,2-Diphenylhydrazine	122-66-7	8270		-- --	--	--	--
2,4-Dimethylphenol	105-67-9	8270		-- 10.1	15.9	--	--
2,4-Dinitrotoluene	121-14-2	8270		-- --	--	--	--
2,6-Dinitrotoluene	606-20-2	8270		-- --	--	--	--
2-Chloronaphthalene	91-58-7	8270		-- --	--	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270		-- --	--	--	--
2-Methylnaphthalene	91-57-6	8270		153 27.6	54	--	--
4,6-Dinitro-o-cresol	534-52-1	8270		-- --	--	--	--
4-Nitrophenol	100-02-7	8270		-- --	--	--	--
Acenaphthene	83-32-9	8270		-- --	--	--	--
Acenaphthylene	208-96-8	8270		-- --	--	--	--
Anthracene	120-12-7	8270		-- --	--	--	--
Benzo(a)anthracene	56-55-3	8270		-- --	--	--	--
Benzo(a)pyrene	50-32-8	8270		-- --	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270		-- --	--	--	--
bis(2-Ethylhexyl)phthalate	117-81-7	8270		-- --	--	--	--
Chrysene	218-01-9	8270		-- --	--	--	--
Dibenzofuran	132-64-9	8270		-- --	--	--	--
Di-n-butyl phthalate	84-74-2	8270		-- --	--	--	--
Fluoranthene	206-44-0	8270		-- --	--	--	--
Fluorene	86-73-7	8270		-- --	--	--	--
Naphthalene	91-20-3	8270		-- --	375	783	17.3
Nitrobenzene	98-95-3	8270		-- --	--	--	--
N-Nitrosodiphenylamine	86-30-6	8270		-- --	--	--	--
Pentachlorophenol	87-86-5	8270		-- --	--	--	--
Phenanthrene	85-01-8	8270		-- --	--	--	--
Phenol	108-95-2	8270		3.06	6.27	--	--
Pyrene	129-00-0	8270		-- --	--	--	--

Notes:
1. Sampling locations shown on Figures 4A and 4B.
2. J = Estimated value, < = Compound not detected at the specified dete

TABLE 4D-6
SUMMARY OF SOIL SAMPLING RESULTS FOR CDDs AND CDFs
UPRR Houston Wood Preserving Works

			Toxic Equivalency Factors[1]	MW52A 2/27/2007 2-4'	TW-01 2/28/2007 2-4'
Constituent	CAS	Method		mg/kg	mg/kg
Chlorinated Dibenzodioxins (CDDs)					
2,3,7,8-TCDD	56795-67-6	8280	1	<0.00024	<0.0012
Total TCDD	41903-57-5	8280	--	<0.00024	<0.0012
1,2,3,7,8-PeCDD	40321-76-4	8280	1	<0.00038	<0.0032
Total PeCDD	36088-22-9	8280	--	<0.001	<0.0032
1,2,3,4,7,8-HxCDD	39227-28-6	8280	0.1	<0.00063	<0.0011
1,2,3,6,7,8-HxCDD	57653-85-7	8280	0.1	<0.00026	<0.001
1,2,3,7,8,9-HxCDD	19408-74-3	8280	0.1	<0.00026	<0.0019
Total HxCDD	34465-46-8	8280	--	<0.00064	<0.0019
1,2,3,4,6,7,8-HpCDD	35822-46-9	8280	0.01	0.01	<0.0021
Total HpCDD	37871-00-4	8280	--	0.03	<0.0026
OCDD	3268-87-9	8280	0.0003	0.28	<0.0021
Chlorinated Dibenzofurans (CDFs)					
2,3,7,8-TCDF	51207-31-9	8280	0.1	<0.00019	<0.00055
Total TCDF	41903-57-5	8280	--	<0.00028	<0.00092
1,2,3,7,8-PeCDF	57117-41-6	8280	0.03	<0.00029	<0.00089
2,3,4,7,8-PeCDF	57117-31-4	8280	0.3	<0.00023	<0.0011
Total PeCDF	30402-15-4	8280	--	<0.0008	<0.0017
1,2,3,4,7,8-HxCDF	70648-26-9	8280	0.1	<0.00033	<0.0027
1,2,3,6,7,8-HxCDF	57117-44-9	8280	0.1	<0.00032	<0.0021
2,3,4,6,7,8-HxCDF	60851-34-5	8280	0.1	<0.00032	<0.0022
1,2,3,7,8,9-HxCDF	72918-21-9	8280	0.1	<0.00051	<0.001
Total HxCDF	55684-94-1	8280	--	<0.002	<0.0078
1,2,3,4,6,7,8-HpCDF	67562-39-4	8280	0.01	<0.0034	<0.002
1,2,3,4,7,8,9-HpCDF	55673-89-7	8280	0.01	<0.00071	<0.00098
Total HpCDF	38998-75-3	8280	--	0.01	<0.002
OCDF	39001-02-0	8280	0.0003	0.016 J	<0.0039

Notes:
1. Van den Berg, M., and other. 2006. "2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds." *Toxicological Sciences* 93(2):223-241.

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

4.0 Figures

EXPLANATION

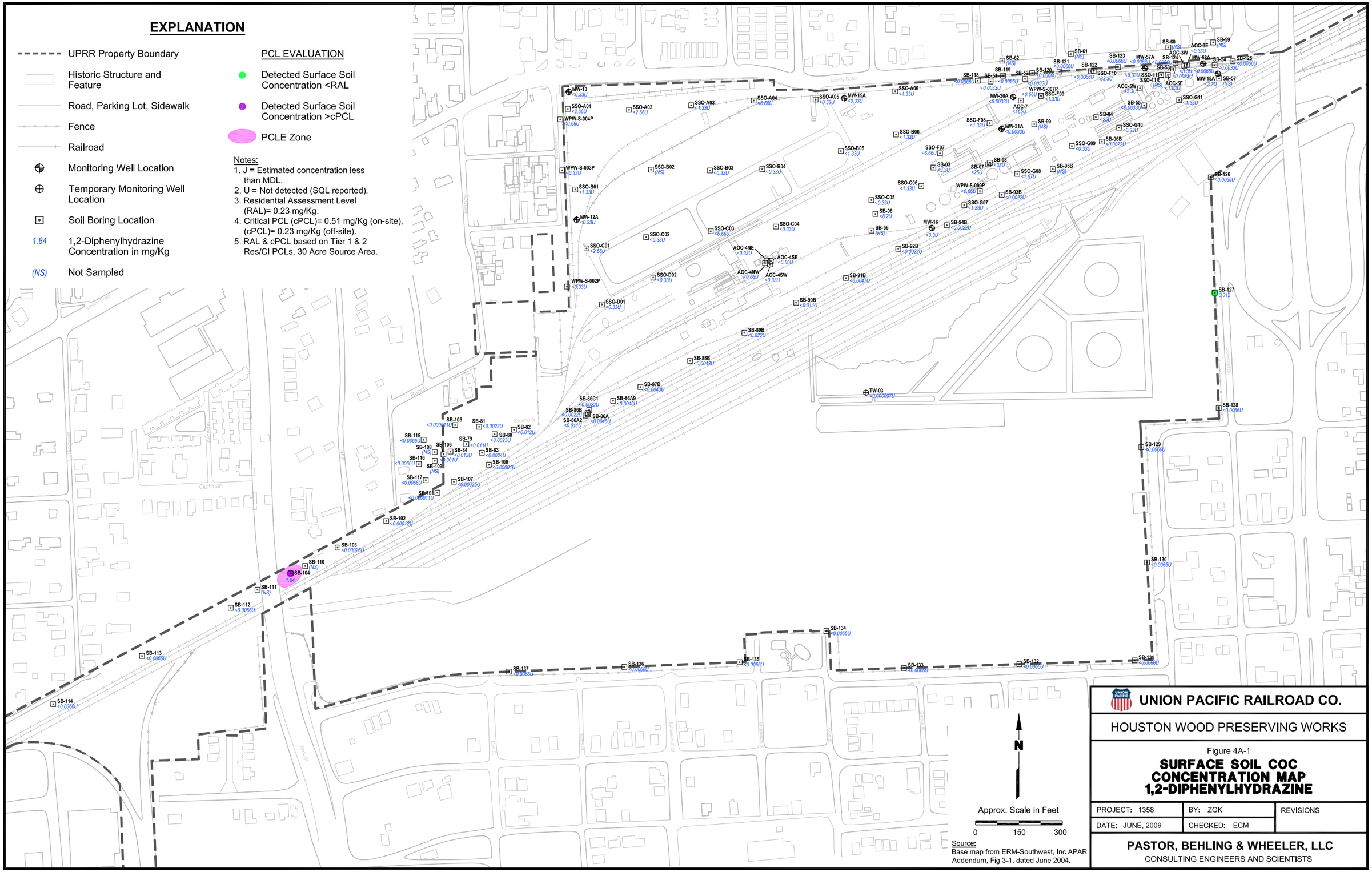
- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 1.84 — 1,2-Diphenylhydrazine Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Surface Soil Concentration <RAL
- Detected Surface Soil Concentration >cPCL
- PCLE Zone

Notes:

1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 0.23 mg/Kg.
4. Critical PCL (cPCL)= 0.51 mg/Kg (on-site), (cPCL)= 0.23 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4A-1

SURFACE SOIL COC CONCENTRATION MAP 1,2-DIPHENYLHYDRAZINE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

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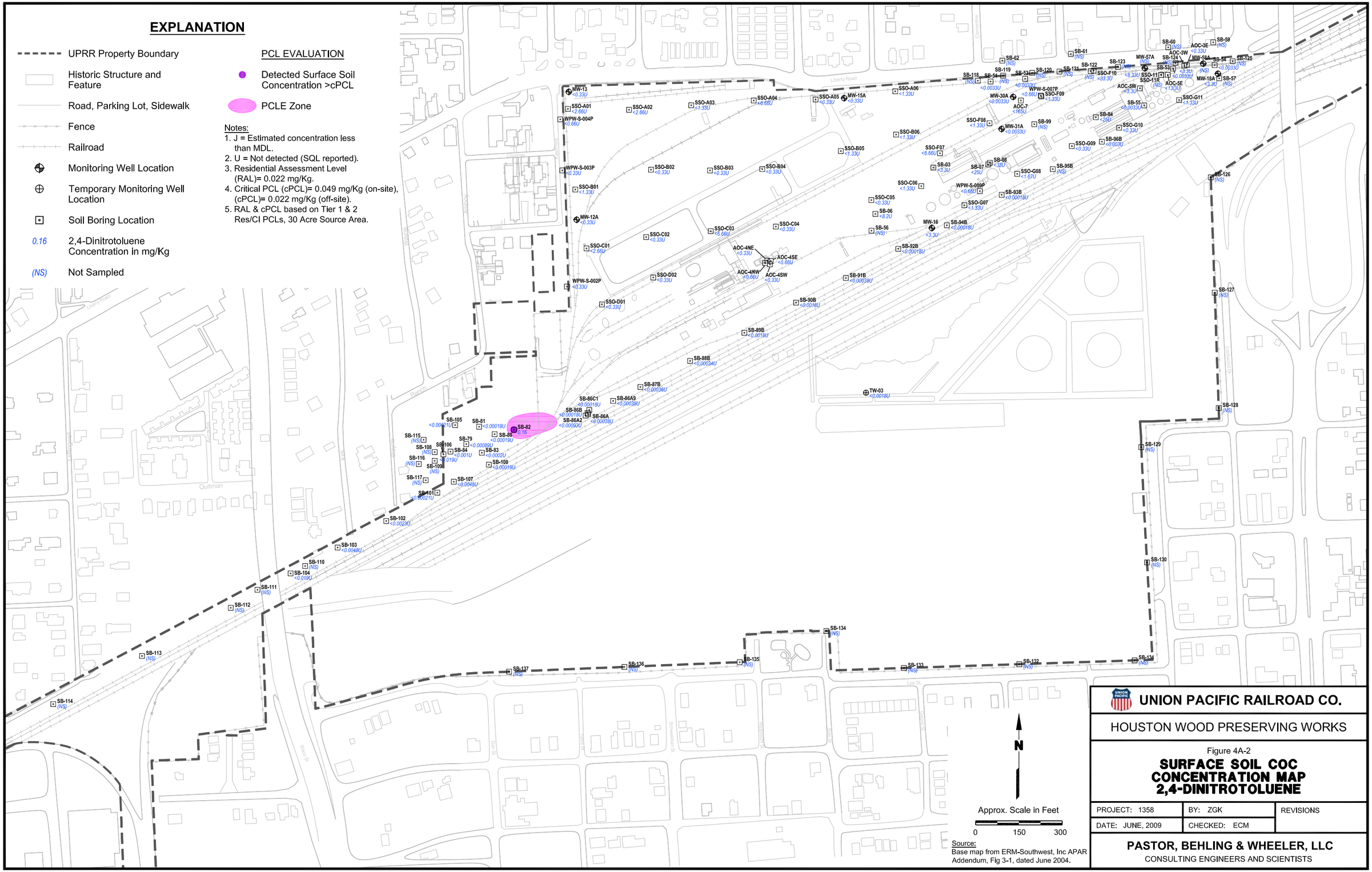
CONSULTING ENGINEERS AND SCIENTISTS



EXPLANATION

▬ ▬ ▬	UPRR Property Boundary
▭	Historic Structure and Feature
─	Road, Parking Lot, Sidewalk
-x-x-	Fence
-+-+-	Railroad
⊕	Monitoring Well Location
⊕	Temporary Monitoring Well Location
⊡	Soil Boring Location
0.16	2,4-Dinitrotoluene Concentration in mg/Kg
(NS)	Not Sampled

PCL EVALUATION

●	Detected Surface Soil Concentration >cPCL
⬭	PCLE Zone

Notes:
1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 0.022 mg/Kg.
4. Critical PCL (cPCL)= 0.049 mg/Kg (on-site), (cPCL)= 0.022 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4A-2

SURFACE SOIL COC CONCENTRATION MAP 2,4-DINITROTOLUENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

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CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

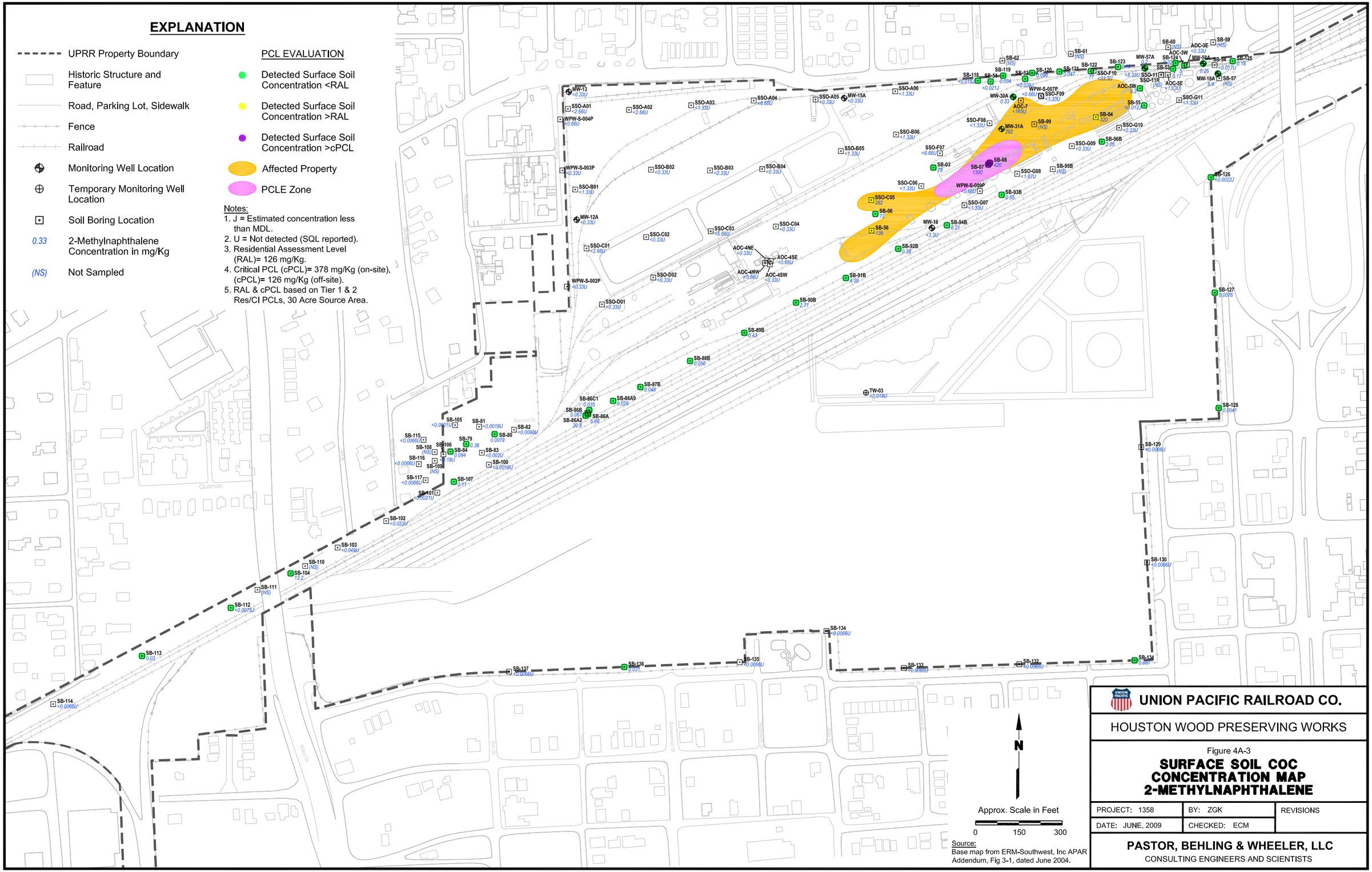
- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 0.33 — 2-Methylnaphthalene Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Surface Soil Concentration <RAL
- Detected Surface Soil Concentration >RAL
- Detected Surface Soil Concentration >cPCL
- Affected Property
- PCLE Zone

Notes:

1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 126 mg/Kg.
4. Critical PCL (cPCL)= 378 mg/Kg (on-site), (cPCL)= 126 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

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HOUSTON WOOD PRESERVING WORKS

Figure 4A-3

SURFACE SOIL COC CONCENTRATION MAP 2-METHYLNAPHTHALENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

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EXPLANATION

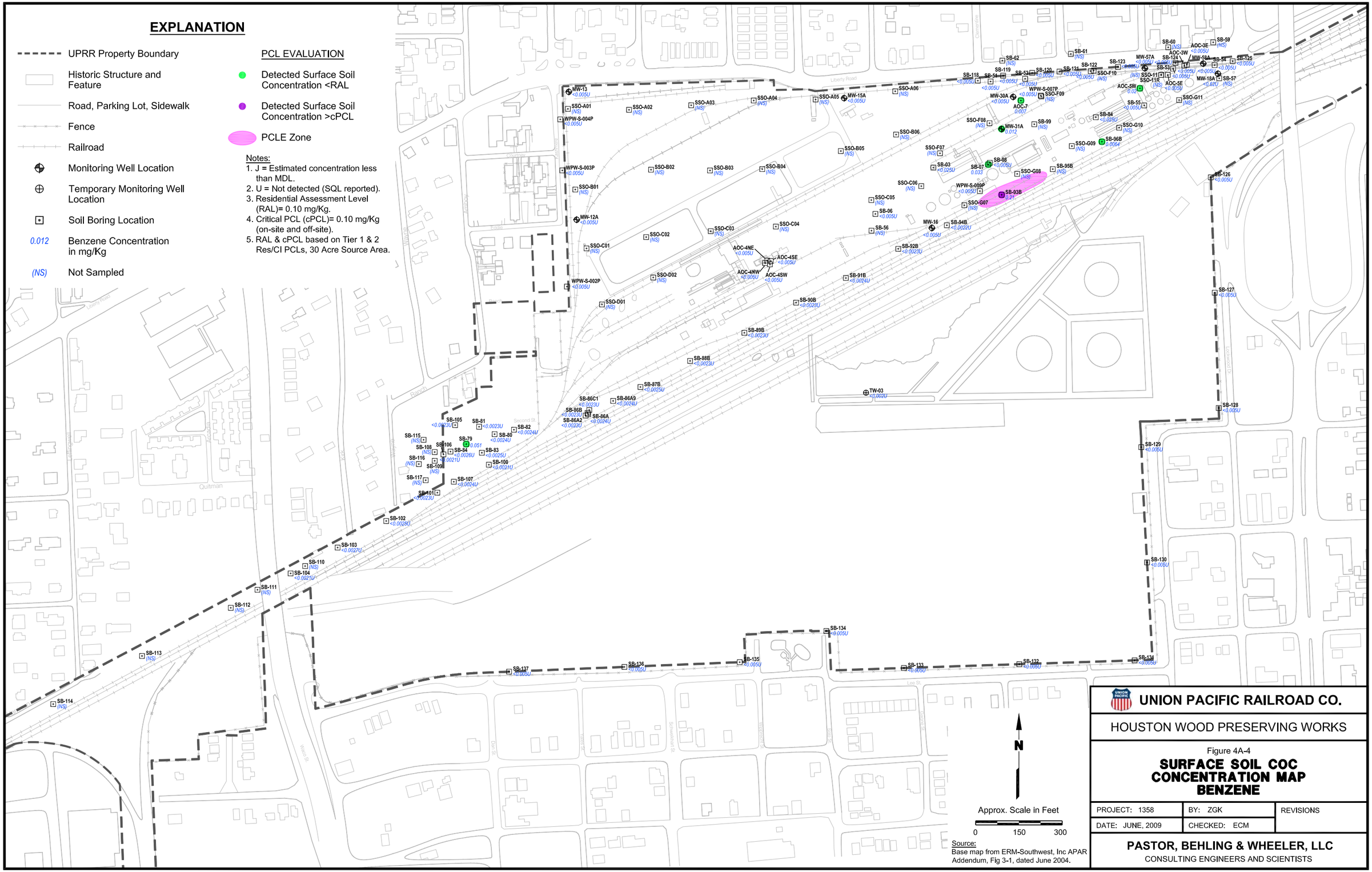
- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 0.012 — Benzene Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Surface Soil Concentration <RAL
- Detected Surface Soil Concentration >cPCL
- PCLE Zone

Notes:

1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 0.10 mg/Kg.
4. Critical PCL (cPCL)= 0.10 mg/Kg (on-site and off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

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HOUSTON WOOD PRESERVING WORKS

Figure 4A-4

SURFACE SOIL COC CONCENTRATION MAP BENZENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

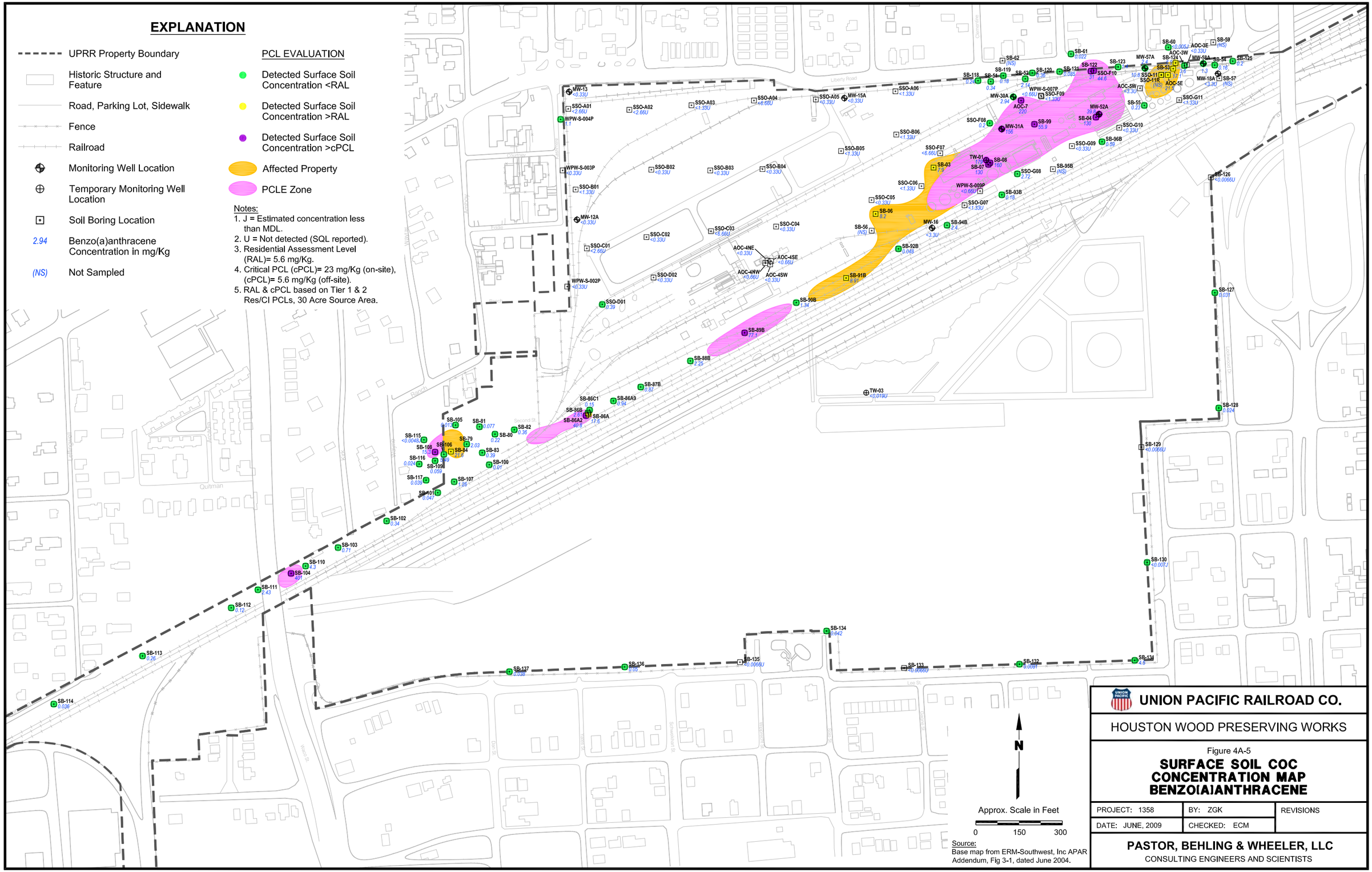
- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 2.94 — Benzo(a)anthracene Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Surface Soil Concentration <RAL
- Detected Surface Soil Concentration >RAL
- Detected Surface Soil Concentration >cPCL
- Affected Property
- PCLE Zone

Notes:

1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 5.6 mg/Kg.
4. Critical PCL (cPCL)= 23 mg/Kg (on-site), (cPCL)= 5.6 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



Approx. Scale in Feet

0 150 300

N

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

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HOUSTON WOOD PRESERVING WORKS

Figure 4A-5

SURFACE SOIL COC CONCENTRATION MAP BENZO(A)ANTHRACENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC

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EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 1.61 — Benzo(a)pyrene Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Surface Soil Concentration <RAL
- Detected Surface Soil Concentration >RAL
- Detected Surface Soil Concentration >cPCL
- Affected Property
- PCLE Zone

Notes:

1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 0.56 mg/Kg.
4. Critical PCL (cPCL)= 2.36 mg/Kg (on-site), (cPCL)= 0.56 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.

N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

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HOUSTON WOOD PRESERVING WORKS

Figure 4A-6

SURFACE SOIL COC CONCENTRATION MAP BENZO(A)PYRENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

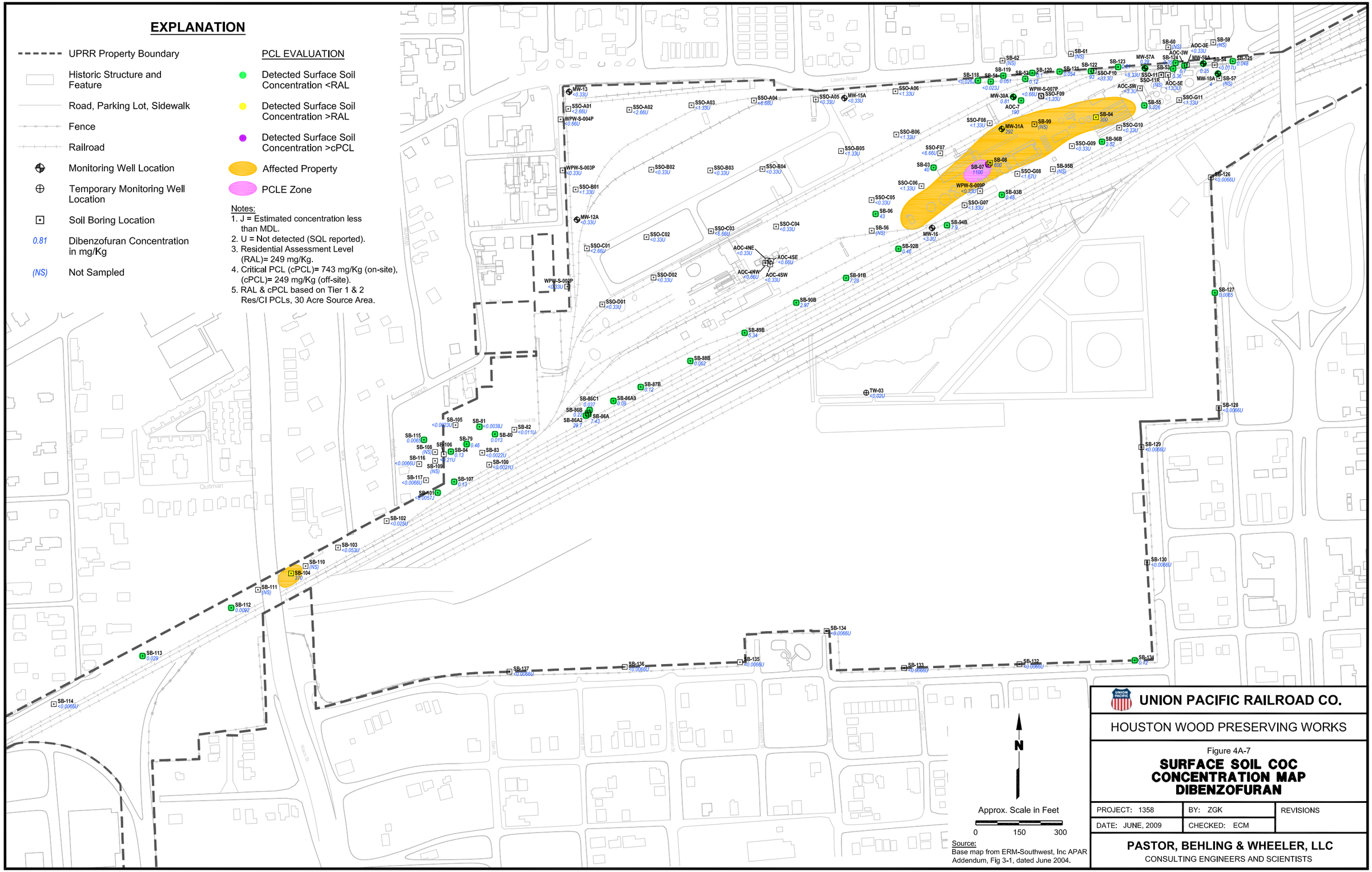
- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 0.81 — Dibenzofuran Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Surface Soil Concentration <RAL
- Detected Surface Soil Concentration >RAL
- Detected Surface Soil Concentration >cPCL
- Affected Property
- PCLE Zone

Notes:

1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 249 mg/Kg.
4. Critical PCL (cPCL)= 743 mg/Kg (on-site), (cPCL)= 249 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4A-7

SURFACE SOIL COC CONCENTRATION MAP DIBENZOFURAN

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 2.8 — Fluoranthene Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Surface Soil Concentration <RAL
- Detected Surface Soil Concentration >RAL
- PCLE Zone

Notes:

1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 2,316 mg/Kg.
4. Critical PCL (cPCL)= 14,366 mg/Kg (on-site), (cPCL)= 2,316 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.

N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4A-8

SURFACE SOIL COC CONCENTRATION MAP FLUORANTHENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 0.039 — Naphthalene Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Surface Soil Concentration <RAL
- Detected Surface Soil Concentration >RAL
- Detected Surface Soil Concentration >cPCL
- Affected Property
- PCLE Zone

Notes:

1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 124 mg/Kg.
4. Critical PCL (cPCL)= 189 mg/Kg (on-site), (cPCL)= 124 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.

N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4A-9

SURFACE SOIL COC CONCENTRATION MAP NAPHTHALENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

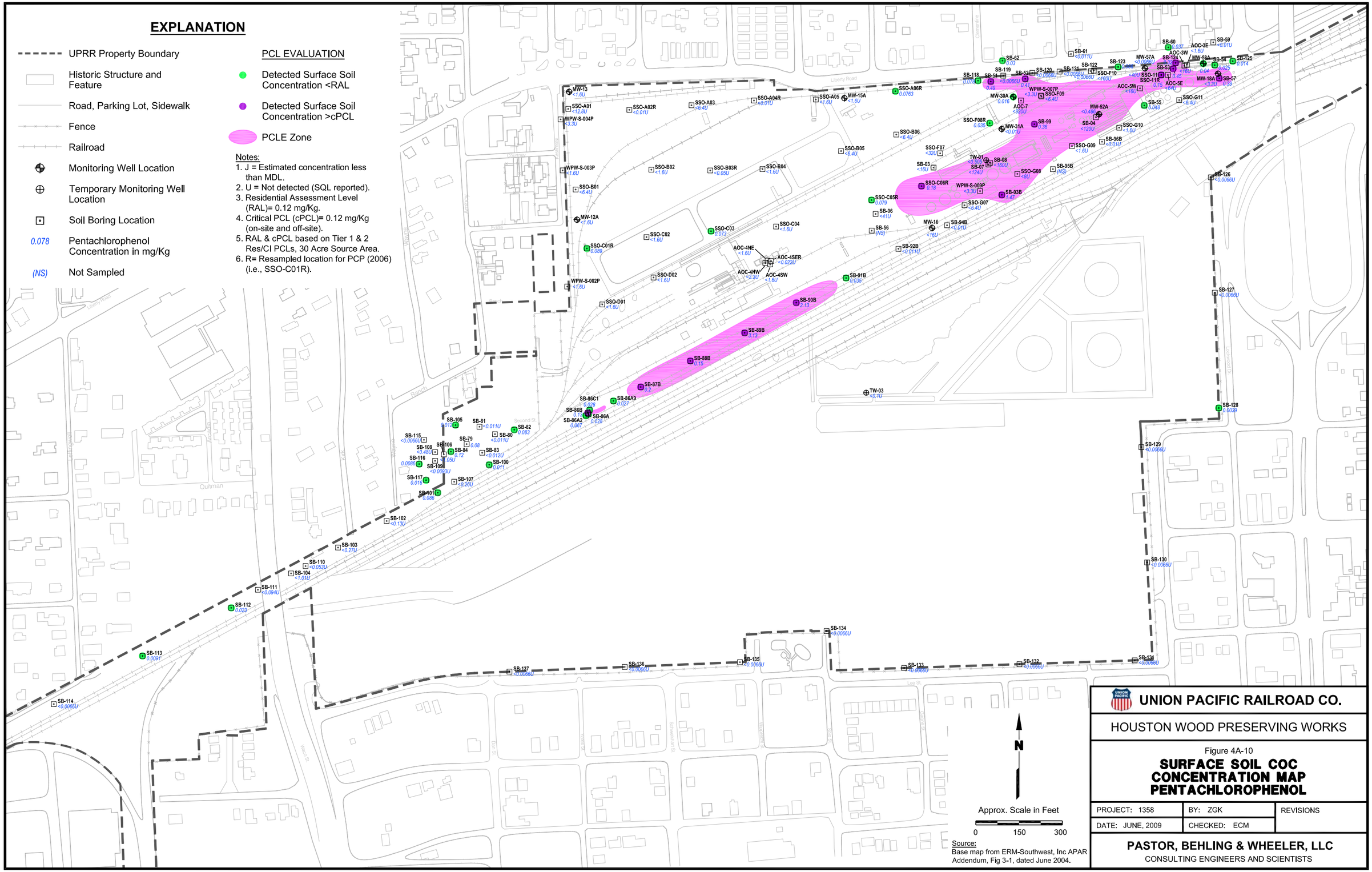
- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 0.078 Pentachlorophenol Concentration in mg/Kg
- (NS) Not Sampled

PCL EVALUATION

- Detected Surface Soil Concentration <RAL
- Detected Surface Soil Concentration >cPCL
- PCLE Zone

Notes:

1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 0.12 mg/Kg.
4. Critical PCL (cPCL)= 0.12 mg/Kg (on-site and off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.
6. R= Resampled location for PCP (2006) (i.e., SSO-C01R).



N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4A-10

SURFACE SOIL COC CONCENTRATION MAP PENTACHLOROPHENOL

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

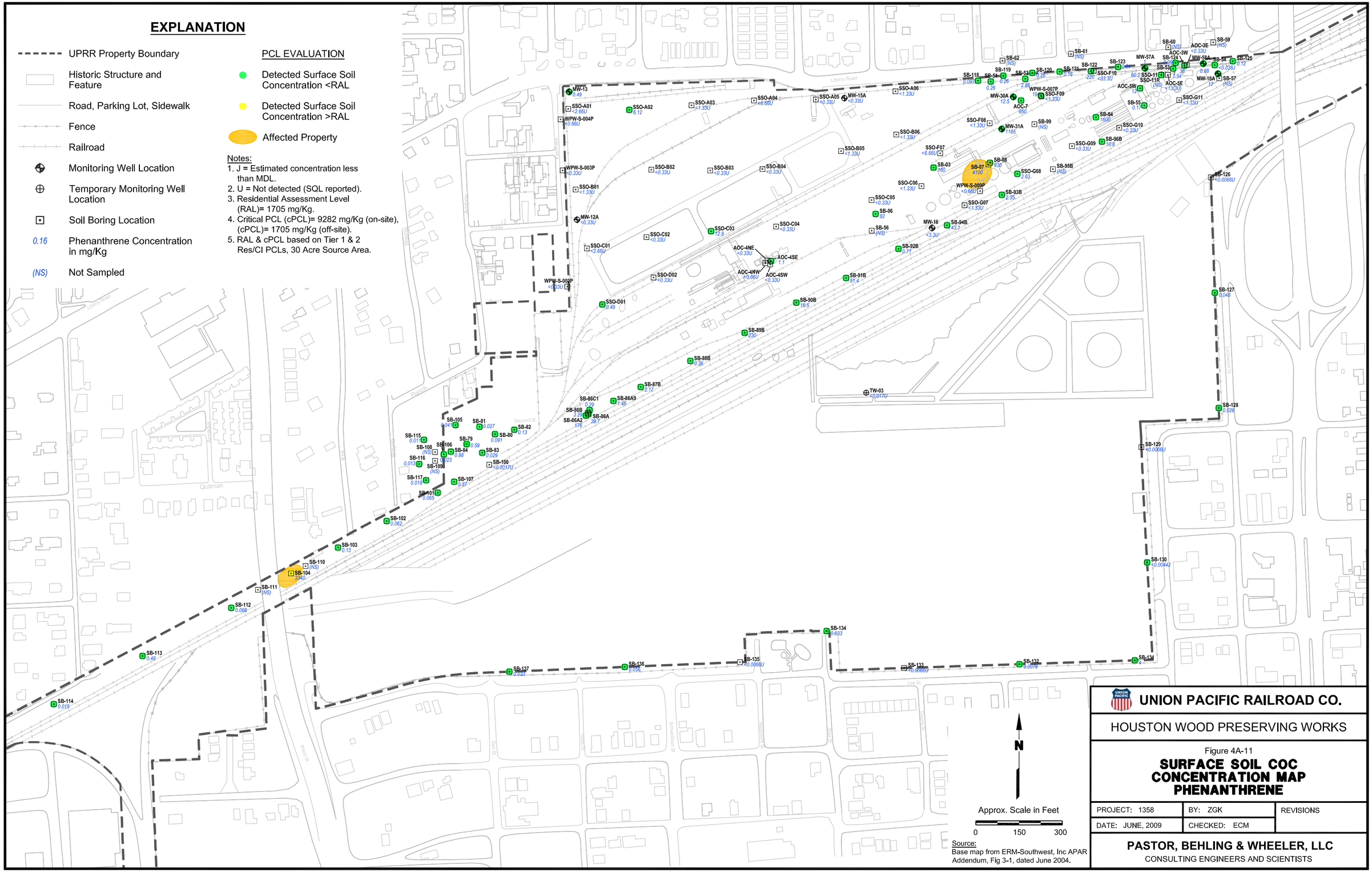
- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 0.16 Phenanthrene Concentration in mg/Kg
- (NS) Not Sampled

PCL EVALUATION

- Detected Surface Soil Concentration <RAL
- Detected Surface Soil Concentration >RAL
- Affected Property

Notes:

1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 1705 mg/Kg.
4. Critical PCL (cPCL)= 9282 mg/Kg (on-site), (cPCL)= 1705 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4A-11

SURFACE SOIL COC CONCENTRATION MAP PHENANTHRENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 25 — 2,4-Dimethylphenol Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Subsurface Soil Concentration >RAL
- Affected Property

Notes:
1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 17.65 mg/Kg.
4. Critical PCL (cPCL)= 52.73 mg/Kg (on-site) (cPCL)= 17.65 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.

MW-26A <0.03U
SB-50 <0.031U
MW-33A <0.017U
MW-32A <0.017U
MW-13 <0.33U
TW-02 <0.002U
SB-73 (NS)
TW-01 <0.002U
SB-08 25
SB-74 (NS)
SB-03 <1.6U
SB-07 <33U
SB-95B <0.002/35U
SB-02 <0.33U
SB-06 <6.6U
MW-10A <0.66U
MW-11A <0.66U
TW-03 <0.024U

Approx. Scale in Feet
0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4B-1

SUBSURFACE SOIL COC CONCENTRATION MAP 2,4-DIMETHYLPHENOL

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

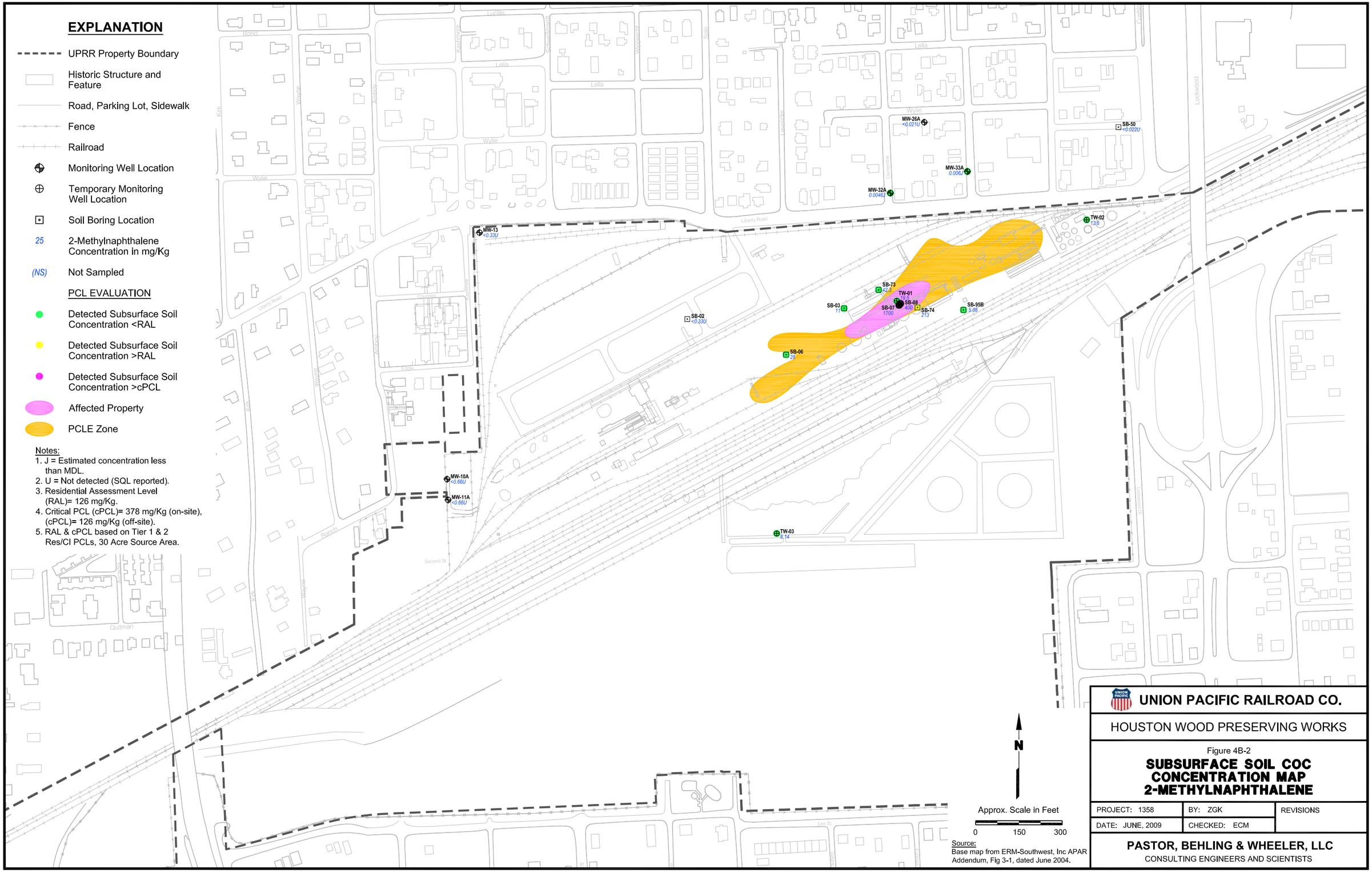
EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 25 — 2-Methylnaphthalene Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Subsurface Soil Concentration <RAL
- Detected Subsurface Soil Concentration >RAL
- Detected Subsurface Soil Concentration >cPCL
- Affected Property
- PCLE Zone

Notes:
1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 126 mg/Kg.
4. Critical PCL (cPCL)= 378 mg/Kg (on-site), (cPCL)= 126 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4B-2

SUBSURFACE SOIL COC CONCENTRATION MAP 2-METHYLNAPHTHALENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

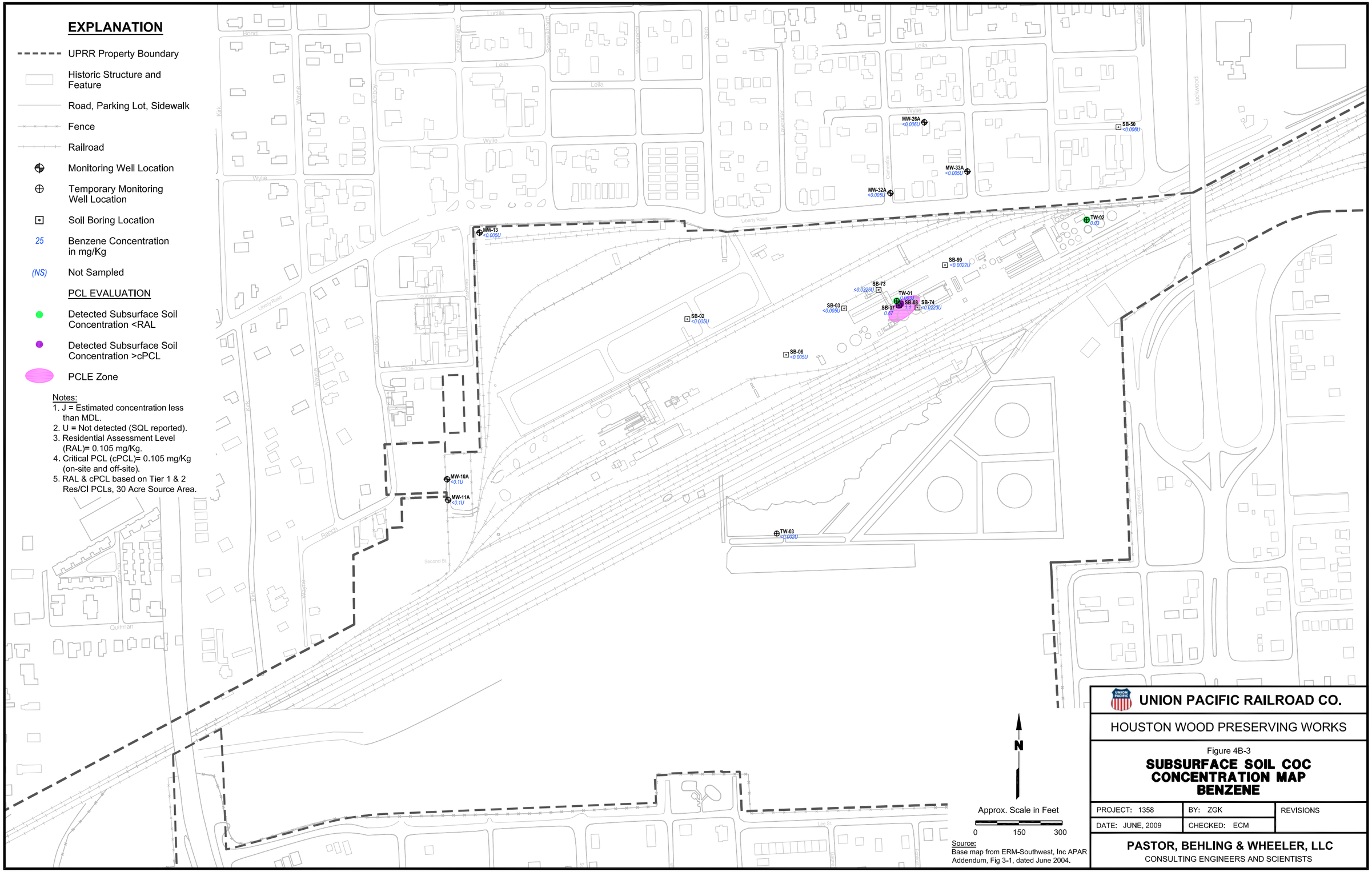
EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 25 — Benzene Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Subsurface Soil Concentration <RAL
- Detected Subsurface Soil Concentration >cPCL
- PCLE Zone

Notes:
1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 0.105 mg/Kg.
4. Critical PCL (cPCL)= 0.105 mg/Kg (on-site and off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4B-3

SUBSURFACE SOIL COC CONCENTRATION MAP BENZENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

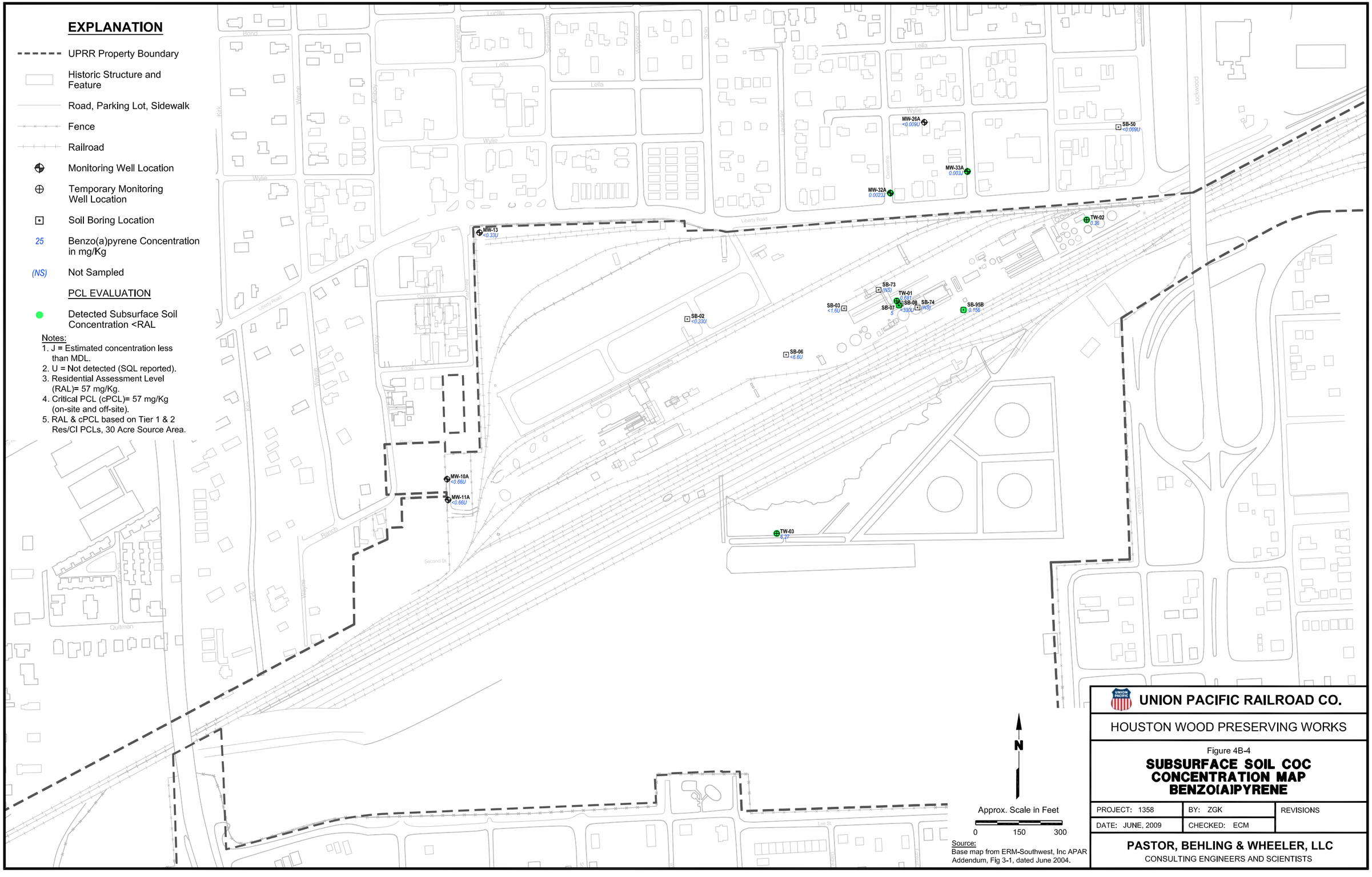
EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- 25 — Benzo(a)pyrene Concentration in mg/Kg
- (NS) — Not Sampled

PCL EVALUATION

- Detected Subsurface Soil Concentration <RAL

Notes:
1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 57 mg/Kg.
4. Critical PCL (cPCL)= 57 mg/Kg (on-site and off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4B-4

SUBSURFACE SOIL COC CONCENTRATION MAP BENZO(A)PYRENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

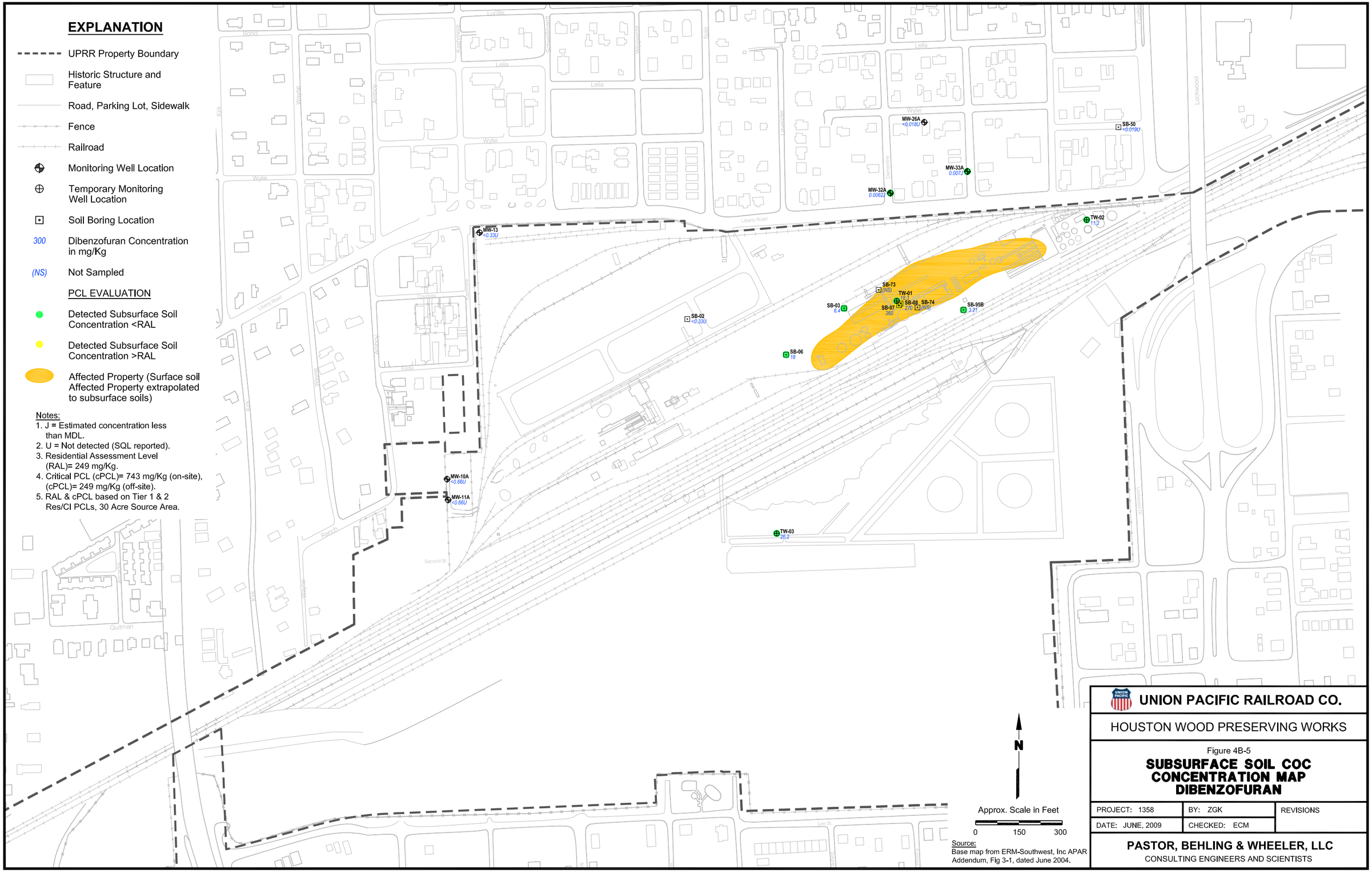
EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- *300* Dibenzofuran Concentration in mg/Kg
- *(NS)* Not Sampled

PCL EVALUATION

- Detected Subsurface Soil Concentration <RAL
- Detected Subsurface Soil Concentration >RAL
- Affected Property (Surface soil Affected Property extrapolated to subsurface soils)

Notes:
1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 249 mg/Kg.
4. Critical PCL (cPCL)= 743 mg/Kg (on-site), (cPCL)= 249 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4B-5

SUBSURFACE SOIL COC CONCENTRATION MAP DIBENZOFURAN

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

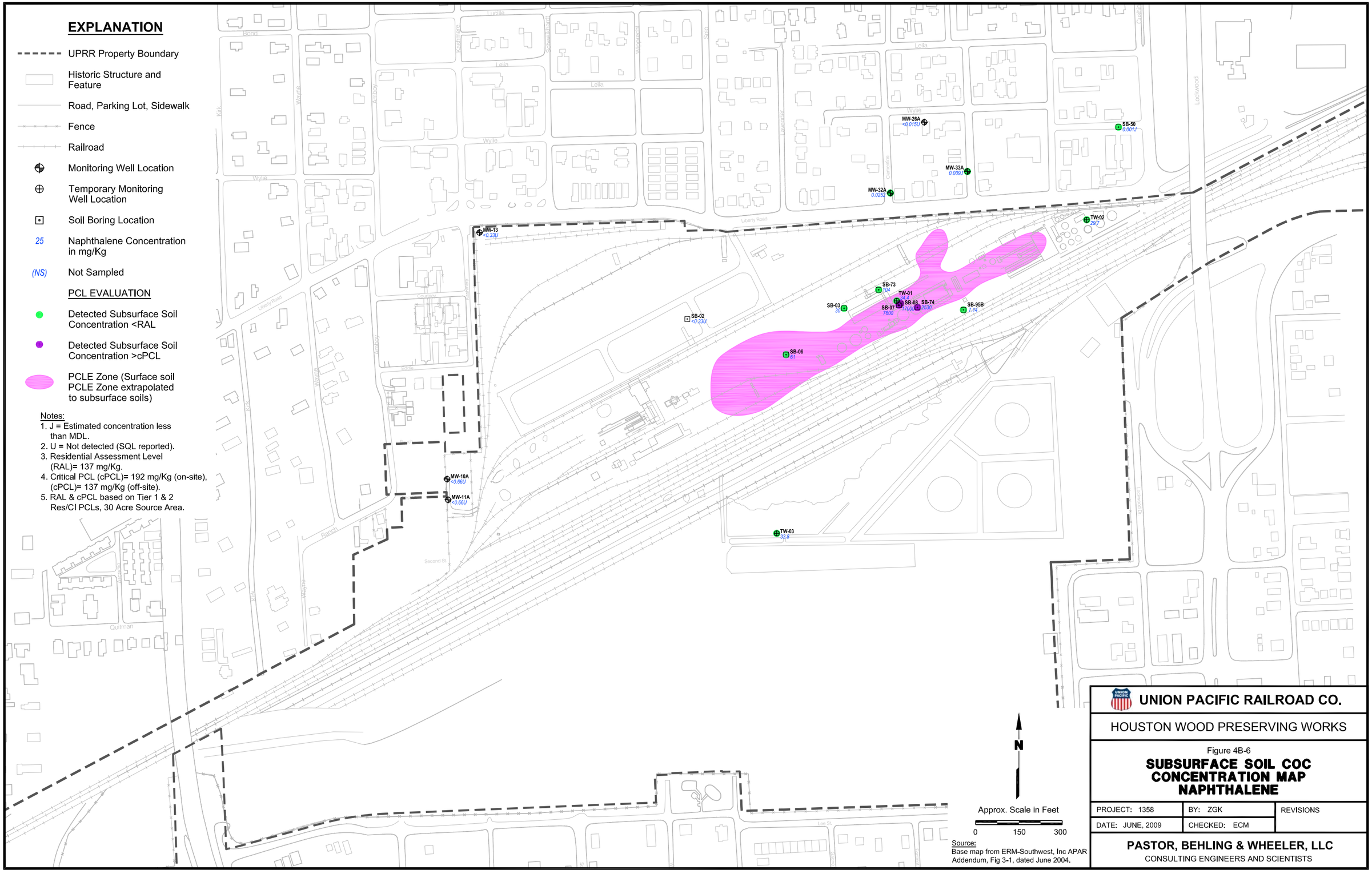
EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- *25* Naphthalene Concentration in mg/Kg
- *(NS)* Not Sampled

PCL EVALUATION

- Detected Subsurface Soil Concentration <RAL
- Detected Subsurface Soil Concentration >cPCL
- PCLE Zone (Surface soil PCLE Zone extrapolated to subsurface soils)

Notes:
1. J = Estimated concentration less than MDL.
2. U = Not detected (SQL reported).
3. Residential Assessment Level (RAL)= 137 mg/Kg.
4. Critical PCL (cPCL)= 192 mg/Kg (on-site), (cPCL)= 137 mg/Kg (off-site).
5. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.



N

Approx. Scale in Feet

0 150 300

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4B-6

SUBSURFACE SOIL COC CONCENTRATION MAP NAPHTHALENE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- Monitoring Well Location
- Temporary Monitoring Well Location
- Soil Boring Location
- *0.25* Pentachlorophenol Concentration in mg/Kg
- *(NS)* Not Sampled

PCL EVALUATION

- Detected Subsurface Soil Concentration >cPCL
- PCLE Zone (Surface soil PCLE Zone extrapolated to subsurface soils)

Notes:
1. U = Not detected (SQL reported).
2. Residential Assessment Level (RAL)= 0.12 mg/Kg.
3. Critical PCL (cPCL)= 0.12 mg/Kg (on-site and off-site).
4. RAL & cPCL based on Tier 1 & 2 Res/CI PCLs, 30 Acre Source Area.

MW-13 <1.6U
SB-02 <1.6U
SB-06 <33U
SB-03 <8.2U
SB-73 NS
TW-01 <0.011U
SB-08 <1.600U
SB-07 <160U
SB-74 NS
SB-95B 0.25
MW-26A <0.011U
MW-33A <0.01U
MW-32A <0.001U
SB-50 <0.011U
TW-02 <0.198U
MW-10A <3.3U
MW-11A <3.3U
TW-03 <0.098U

Approx. Scale in Feet
0 150 300

N

Source:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4B-7

SUBSURFACE SOIL COC CONCENTRATION MAP PENTACHLOROPHENOL

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

Transmissive Zone (TZ): Sand & Silty Sand

Cohesive Zone (CZ): Clay, Silty Clay & Silt

Water Level Elevation (Ft HVD) (A-ATZ, B-BTZ, C-CTZ, D-DTZ)

DNAPL Thickness in Well (Ft)

MONITORING WELL CONSTRUCTION

Boring

Water Level (Ft HVD) Measured 1/22-2/5/2009

Well Screen

ROST LOGS

ROST (% RE)

0 50 100

Parameter	RAL (mg/L)	cPCL (mg/L)	GW CLASS 3 (mg/L)
1,2-Dichloroethane	0.005	0.005	0.5
2,4-Dimethylphenol	0.49	1.5	49
2-Methylnaphthalene	0.098	0.29	9.8
Acenaphthene	1.5	4.4	147
Benzo(a)anthracene	0.0013	0.0028	0.125
Benzene	0.005	0.005	0.5
Benzo(a)pyrene	0.0002	0.0002	0.02
bis(2-ethylhexyl)phthalate	0.006	0.006	0.6
Chrysene	0.13	0.28	12.5
Dibenzofuran	0.098	0.29	9.8
Dichloromethane	0.005	0.005	0.5
Fluoranthene	0.98	2.9	98
Fluorene	0.98	2.9	98
Naphthalene	0.49	1.5	49
Pentachlorophenol	0.001	0.001	0.1
Phenanthrene	0.73	2.2	73
Pyrene	0.73	2.2	73
Toluene	1	1	100

Groundwater Affected Property/ PCLE Zone

Notes:
1. Topography is estimated.
2. See Figure 1B for cross section location.
3. Concentration are in mg/L.
4. Highlighted concentrations exceed RALs.
5. Utility locations based on drawings provided by the City of Houston Department of Public Works & Engineering.
6. Vertical datum based on City of Houston Monument System (HVD), Ft HVD.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Vertical Exaggeration 5X

75 0 75 150

scale in feet

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4C-1

CROSS SECTIONS A-A', B-B' & C-C'

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC

CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

Transmissive Zone (TZ): Sand & Silty Sand

Cohesive Zone (CZ): Clay, Silty Clay & Silt

Water Level Elevation (Ft HVD) (A-ATZ, B-BTZ, C-CTZ, D-DTZ)

DNAPL Thickness in Well (Ft)

MONITORING WELL CONSTRUCTION

Boring

Water Level (Ft HVD) Measured 1/22-2/5/2009

Well Screen

ROST LOGS

ROST (% RE)

0 50 100

Parameter	RAL (mg/L)	cPCL (mg/L)	GW CLASS 3 (mg/L)
1,2-Dichloroethane	0.005	0.005	0.5
2,4-Dimethylphenol	0.49	1.5	49
2-Methylnaphthalene	0.098	0.29	9.8
Acenaphthene	1.5	4.4	147
Benzo(a)anthracene	0.0013	0.0028	0.125
Benzene	0.005	0.005	0.5
Benzo(a)pyrene	0.0002	0.0002	0.02
bis(2-ethylhexyl)phthalate	0.006	0.006	0.6
Chrysene	0.13	0.28	12.5
Dibenzofuran	0.098	0.29	9.8
Dichloromethane	0.005	0.005	0.5
Fluoranthene	0.98	2.9	98
Fluorene	0.98	2.9	98
Naphthalene	0.49	1.5	49
Pentachlorophenol	0.001	0.001	0.1
Phenanthrene	0.73	2.2	73
Pyrene	0.73	2.2	73
Toluene	1	1	100

Groundwater Affected Property/ PCLE Zone

Notes:
1. Topography is estimated.
2. See Figure 1B for cross section location.
3. Concentration are in mg/L.
4. Highlighted concentrations exceed RALs.
5. Utility locations based on drawings provided by the City of Houston Department of Public Works & Engineering.
6. Vertical datum based on City of Houston Monument System (HVD), Ft HVD.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Vertical Exaggeration 5X

75 0 75 150

scale in feet

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4C-2

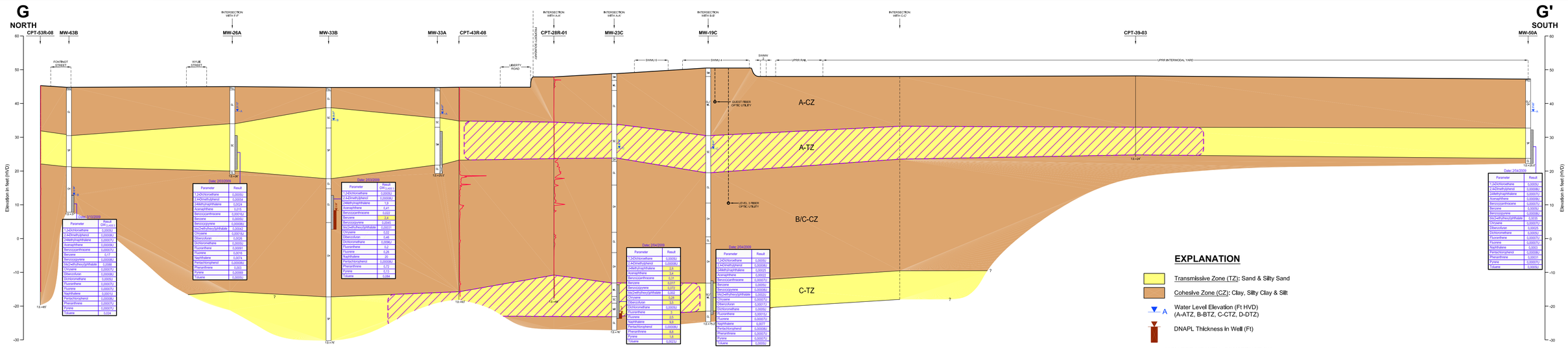
CROSS SECTIONS D-D', E-E' & F-F'

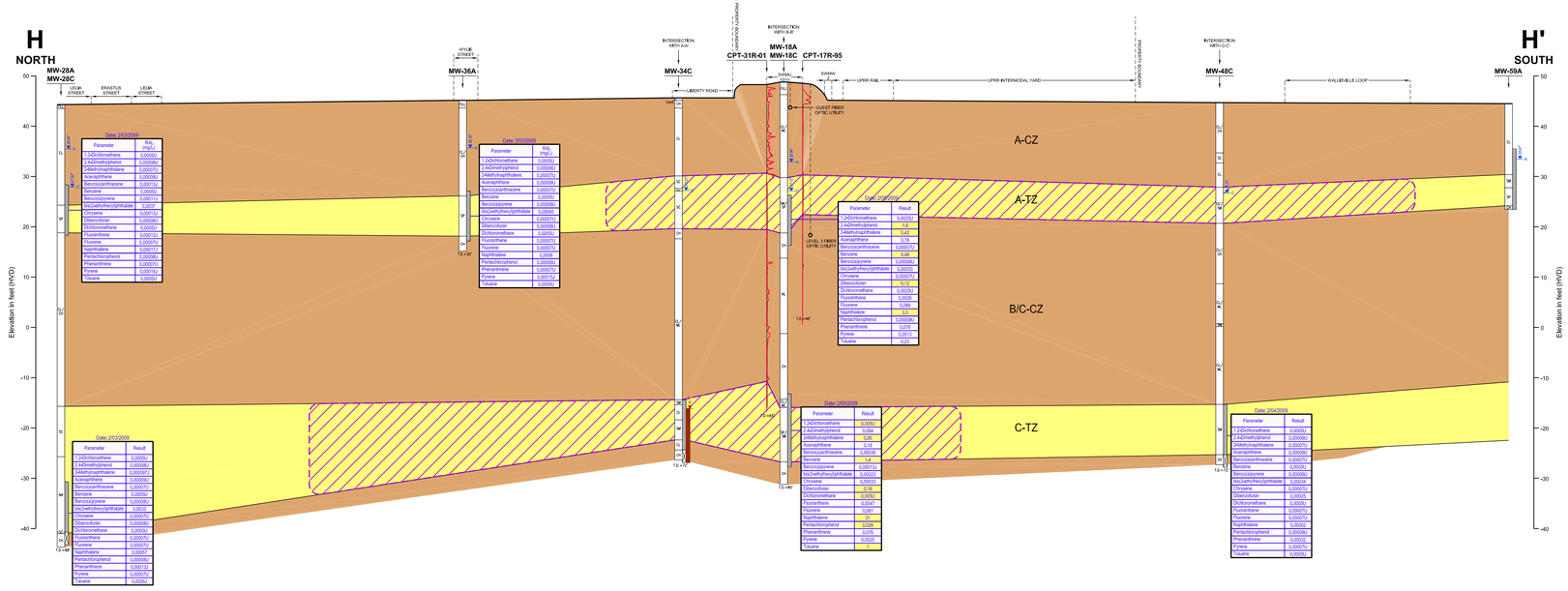
PROJECT: 1358 | BY: ZGK | REVISIONS

DATE: JUNE, 2009 | CHECKED: ECM

PASTOR, BEHLING & WHEELER, LLC

CONSULTING ENGINEERS AND SCIENTISTS





EXPLANATION

- Transmissive Zone (TZ): Sand & Silty Sand
- Cohesive Zone (CZ): Clay, Silty Clay & Silt
- A — Water Level Elevation (Ft HVD) (A-ATZ, B-BTZ, C-CTZ, D-DTZ)
- DNAPL Thickness in Well (Ft)

MONITORING WELL CONSTRUCTION

- Boring
- A — Water Level (Ft HVD) Measured 1/22-2/5/2009
- Well Screen

ROST LOGS

ROST (% RE) 0 50 100

Parameter	RAL (mg/L)	cPCL (mg/L)	$GW_{CLASS\ 3}$ (mg/L)
1,2-Dichloroethane	0.005	0.005	0.5
2,4-Dimethylphenol	0.49	1.5	49
2-Methylnaphthalene	0.098	0.29	9.8
Acenaphthene	1.5	4.4	147
Benzo(a)anthracene	0.0013	0.0028	0.125
Benzene	0.005	0.005	0.5
Benzo(a)pyrene	0.0002	0.0002	0.02
bis(2-ethylhexyl)phthalate	0.006	0.006	0.6
Chrysene	0.13	0.28	12.5
Dibenzofuran	0.098	0.29	9.8
Dichloromethane	0.005	0.005	0.5
Fluoranthene	0.98	2.9	98
Fluorene	0.98	2.9	98
Naphthalene	0.49	1.5	49
Pentachlorophenol	0.001	0.001	0.1
Phenanthrene	0.73	2.2	73
Pyrene	0.73	2.2	73
Toluene	1	1	100

Groundwater Affected Property/ PCLE Zone

Notes:
1. Topography is estimated.
2. See Figure 1B for cross section location.
3. Concentration are in mg/L.
4. Highlighted concentrations exceed RALs.
5. Utility locations based on drawings provided by the City of Houston Department of Public Works & Engineering.
6. Vertical datum based on City of Houston Monument System (HVD), Ft HVD.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No, 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No, 44-023-21

Vertical Exaggeration 5X

75 0 75 150

scale in feet

UNION PACIFIC RAILROAD CO.

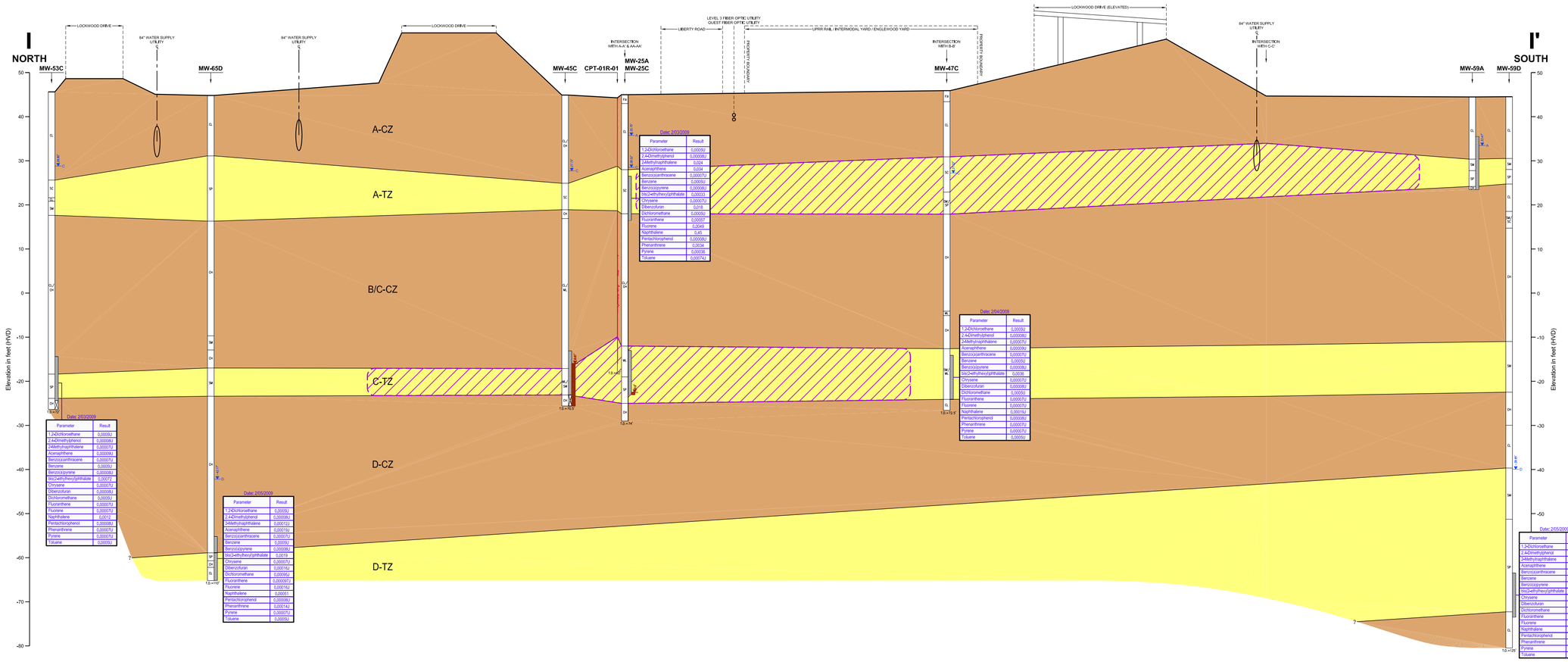
HOUSTON WOOD PRESERVING WORKS

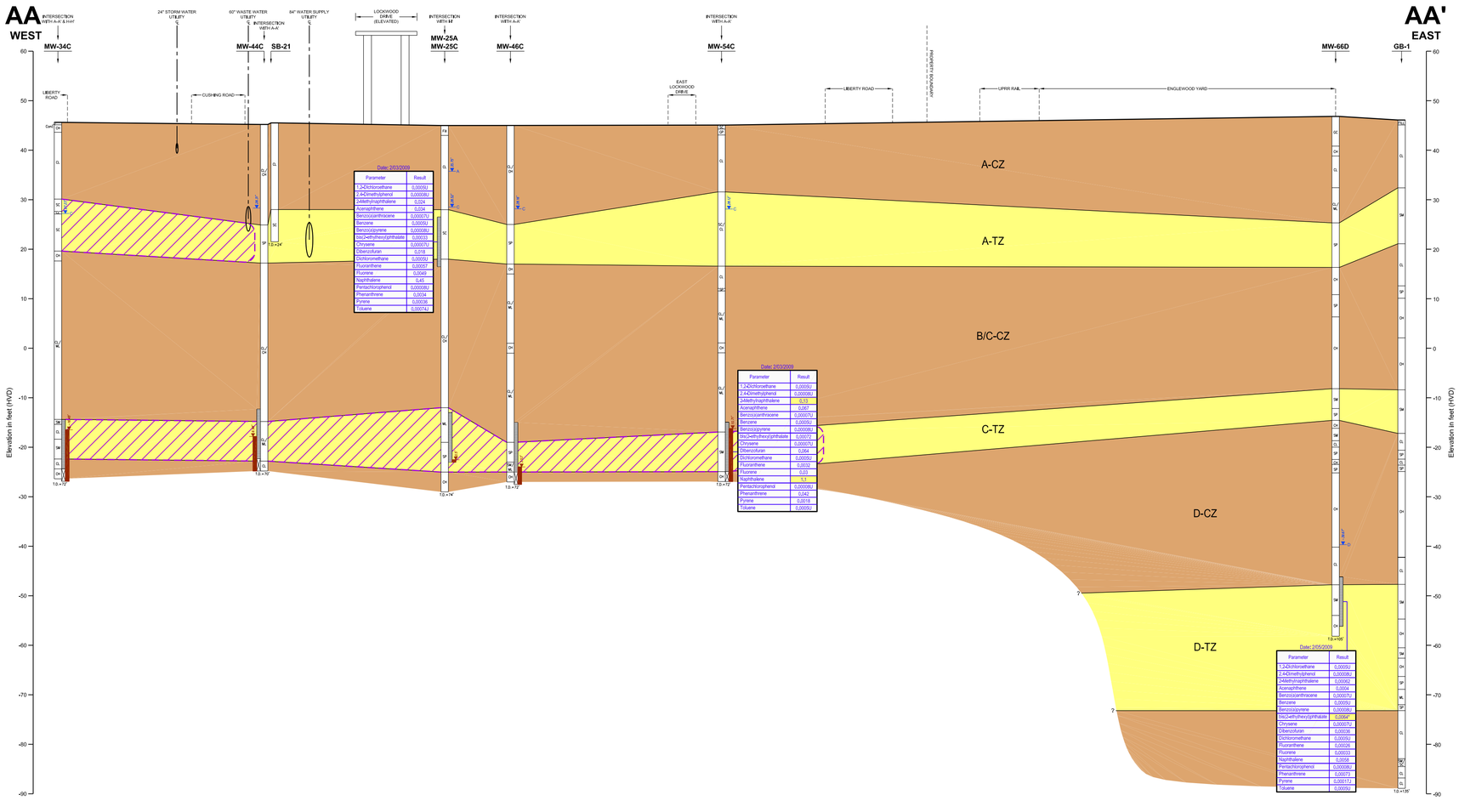
Figure 4C-3

CROSS SECTIONS G-G' & H-H'

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS





EXPLANATION

- Transmissive Zone (TZ): Sand & Silty Sand
- Cohesive Zone (CZ): Clay, Silty Clay & Silt
- Water Level Elevation (Ft HVD) (A-ATZ, B-BTZ, C-CTZ, D-DTZ)
- DNAPL Thickness in Well (Ft)

MONITORING WELL CONSTRUCTION

- Boring
- Water Level (Ft HVD) Measured 1/22-2/5/2009
- Well Screen

ROST LOGS

ROST (% RE) 0 50 100

Parameter	RAL (mg/L)	cPCL (mg/L)	GW$_{CLASS\ 3}$ (mg/L)
1,2-Dichloroethane	0.005	0.005	0.5
2,4-Dimethylphenol	0.49	1.5	49
2-Methylnaphthalene	0.098	0.29	9.8
Acenaphthene	1.5	4.4	147
Benzo(a)anthracene	0.0013	0.0028	0.125
Benzene	0.005	0.005	0.5
Benzo(a)pyrene	0.0002	0.0002	0.02
bis(2-ethylhexyl)phthalate	0.006	0.006	0.6
Chrysene	0.13	0.28	12.5
Dibenzofuran	0.098	0.29	9.8
Dichloromethane	0.005	0.005	0.5
Fluoranthene	0.98	2.9	98
Fluorene	0.98	2.9	98
Naphthalene	0.49	1.5	49
Pentachlorophenol	0.001	0.001	0.1
Phenanthrene	0.73	2.2	73
Pyrene	0.73	2.2	73
Toluene	1	1	100

Groundwater Affected Property/ PCLE Zone

Notes:
1. Topography is estimated.
2. See Figure 1B for cross section location.
3. Concentration are in mg/L.
4. Highlighted concentrations exceed RALs.
5. Utility locations based on drawings provided by the City of Houston Department of Public Works & Engineering.
6. Vertical datum based on City of Houston Monument System (HVD), Ft HVD.
7. * Possible laboratory contaminant.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Vertical Exaggeration 5X

75 0 75 150

scale in feet

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 4C-4

CROSS SECTIONS I-I' & AA-AA'

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

5.0 GROUNDWATER ASSESSMENT

Section 5.1 Derivation of Assessment Levels

The groundwater assessment levels at the Site were selected based on the well yield testing detailed in the Revised APAR (ERM, 2004), and in Section 2.5 of this report. Based on those results, A-TZ, B-TZ, and C-TZ have been classified as a Class 2 GWBU, with the aquitard B-CZ behaving as a Class 3 groundwater resource. No well yield testing has been conducted for the D-TZ unit; however, based on qualitative well yield during the February 2009 sampling event, D-TZ is likely a Class 2 GWBU. Based on the evaluation of potentially complete expose pathways, the following groundwater-related residential pathways were assessed at the Site:

- $^{GW}GW_{Ing}$
- $^{GW}GW_{Class\ 3}$ (for selected B-CZ wells) and
- $^{Air}GW_{Inh\text{-}V}$.

The July 2008 CPT/ROST Hydropunch and January/February 2009 groundwater analytical data from the Site were initially compared to the TCEQ TRRP Residential Groundwater PCLs dated March 2009, assuming the source area is greater than 0.5 acres (30-acre size), to evaluate target COCs that exceeded the groundwater RALs. RALs were established as the lesser value between Residential $^{GW}GW_{Ing}$ (or $^{GW}GW_{Class3}$)and $^{Air}GW_{Inh\text{-}V}$ PCLs.

As discussed in Section 2.0, there are no water bodies within 0.5 miles of the Site. The closest water body is Buffalo Bayou, which is located about 1.6 miles southwest of the Site. Therefore, the surface water pathway as a function of groundwater-to-surface water evaluation (^{SW}GW PCLs) and the sediment pathway as a function of groundwater-to-sediment evaluation (^{Sed}GW PCLs) were considered incomplete for the purposes of this affected property assessment.

The Affected Property was established based on groundwater COC results using the most recent groundwater analytical data (January/February 2009). Details of the nature and extent of the COCs in groundwater as indicated by recent groundwater data are discussed below.

Section 5.2 Nature and Extent of COCs and NAPL in Groundwater

Groundwater samples were collected from monitoring wells installed in the four units of the uppermost GWBUs at the Site. Laboratory data packages are provided in Appendix 10. COCs detected in groundwater samples, and their respective assessment levels, are listed on Table 5A. A complete summary of groundwater analytical data for the Site from 2004 through 2009 is presented on the following tables:

Table	Description
5D-1	Summary of Groundwater Sampling Results – A-TZ
5D-2	Summary of Groundwater Sampling Results – Temporary Wells
5D-3	Summary of Groundwater Sampling Results – B-TZ and B-CZ
5D-4	Summary of Groundwater Sampling Results – C-TZ
5D-5	Summary of Groundwater Sampling Results – D-TZ

COCs evaluated for the purpose of the APAR were site-specific COCs identified in the RFI Work Plan (IC, 1994) prepared for the Site. In addition to the site-specific COCs, groundwater samples from the temporary wells were sampled for a more comprehensive list of constituents (Section 3.1). Comparing the maximum groundwater analytical data from the January/February 2009 groundwater sampling event and temporary well (TW) sampling event in March 2007 to RALs, concentrations of 40 target COCs exceeded their respective RALs or had a SDL greater than the RAL (>SDL):

VOCs

- 1,1,2,2-Tetrachloroethane (>SDL, A-TZ, TW only)
- 1,1,2-Trichloroethane (>SDL, A-TZ, TW only)
- 1,1-Dichloroethene (>SDL, A-TZ, TW only)
- 1,2-Dichloroethane (>SDL, A-TZ, TW only)
- 1,2-Dichloroethene (total) (>SDL, A-TZ, TW only)
- 1,2-Dichloropropane (>SDL, A-TZ, TW only)
- Benzene (A-TZ, B-TZ, C-TZ)
- Bromodichloromethane (>SDL, A-TZ, TW only)
- Bromomethane (>SDL, A-TZ, TW only)
- Carbon Tetrachloride (>SDL, A-TZ, TW only)
- cis-1,3-Dichloropropene (>SDL, A-TZ,

SVOCs

- 2,4-Dimethylphenol (A-TZ only)
- 2-Methylnaphthalene (A-TZ, B-TZ, C-TZ)
- Acenaphthene (C-TZ only)
- Benz(a)anthracene (A-TZ, B-TZ, C-TZ)
- Benzo(a)pyrene (A-TZ, B-TZ, C-TZ)
- Benzo(b)fluoranthene (A-TZ, TW only)
- Benzo(k)fluoranthene (A-TZ, TW only)
- Bis(2-ethylhexyl)phthalate (D-TZ, possible lab contaminant)
- Carbazole (A-TZ, TW only)
- Chrysene (C-TZ only)
- Dibenzo(a,h)anthracene (A-TZ, TW only)

VOCs

TW only)

- Dibromochloromethane (>SDL, A-TZ, TW only)
- Dichloromethane (B-TZ only)
- Ethylbenzene (A-TZ, TW only)
- Methylene Chloride (>SDL)
- Tetrachloroethene (>SDL, A-TZ, TW only)
- Toluene (A-TZ only)
- trans-1,3-Dichloropropene (>SDL, A-TZ, TW only)
- Trichloroethene (>SDL, A-TZ, TW only)
- Vinyl Chloride (>SDL, A-TZ, TW only)
- Xylenes (total) (A-TZ, TW only)

SVOCs

- Dibenzofuran (A-TZ, B-TZ, C-TZ)
- Fluoranthene (C-TZ only)
- Fluorene (C-TZ only)
- Indeno(1,2,3-cd)pyrene (A-TZ, TW only)
- Naphthalene (A-TZ, B-TZ, C-TZ)
- n-Nitrosodi-n-propylamine (A-TZ, TW only)
- Phenanthrene (C-TZ only)
- Pyrene (C-TZ only)

Groundwater flow conditions at the Site have been evaluated based multiple fluid measurements collected since 2004, with the potentiometric surface relatively consistent in the transmissive zones over that time period. Groundwater data collected from the February 2009 gauging event are consistent with data collected previously at the Site. Therefore, potentiometric surface maps from February 2009 for each of the four transmissive zones, A-TZ, B-TZ, C-TZ, and D-TZ, are presented on Figures 5A-1 through and 5A-4, respectively. The NAPL (LNAPL and DNAPL) distribution at the Site is presented on Figure 5A-5. Table 5D provides a summary of the fluid-level measurements since 2004.

The spatial distributions of the COCs exceeding the RALs in each GWBU from the February 2009 monitoring event is presented on Figure 5B-1 for unit A-TZ, on Figure 5B-2 for B-TZ, on Figure 5B-3 for C-TZ, and Figure 5B-4 for D-TZ. Details of the potentiometric surface, occurrence of NAPL, and distribution of the COCs for each transmissive zone are discussed below.

Transmissive Zone A-TZ

Groundwater in the A-TZ generally flows from west to east across the Site at a gradient of approximately 0.006 ft/ft, with groundwater divide on the east side of the Site just west of the Lockwood Road Bridge (Figure 5A-1). West of the bridge is a series of underground utilities (i.e., 60-in wastewater line, and 84-in water line) that run north to south and appear to intersect the A-TZ (see Cross Section A-A', B-B', and C-C', Figure 4C-1). Groundwater flow in the A-TZ flows to the east on the west side of the underground utilities, and flows to the west on the east side of this area. The highest groundwater elevations in the A-

TZ are near SWMU No.1 at 41.25 feet relative to the City of Houston Vertical Datum (HVD) (MW-09) and west of the Site at 43.09 feet HVD (MW-29A), with the lowest elevation of at 32.56 feet HVD (MW-44A).

NAPL

Approximately 1.2 feet of LNAPL has been observed at A-TZ in temporary well TW-02 within the AST Area (SWMU No. 8) (Figure 5A-5), at a depth of approximately 10 feet bgs. A sample of the LNAPL from TW-02 was collected in 2007 and analyzed for hydrocarbon fractions and fluid properties. The hydrocarbon fraction analysis showed that approximately 82.7 percent of the hydrocarbons fell within the C_4-C_{11} range, with less than 10 percent in the C_{11}-C_{15} and C_{15}-C_{28} range (Appendix 11). The specific gravity of LNAPL was 0.82 (at 70 degrees Fahrenheit), and had a viscosity of 0.99 centipoises. This LNAPL likely consists of naphtha or other drying agents that were used in the sap removal process during the wood preserving activities at the Site. LNAPL has not been observed at any other locations at the Site. Three permanent monitoring wells (TW-56A (test well), MW-57A, and MW-58A) were installed in January 2009 to evaluate the lateral extent of LNAPL near TW-02. No LNAPL was observed in these wells in February 2009.

DNAPL is present in A-TZ on the northern edge and off site to the north. Traces of DNAPL are present in monitoring wells MW-33A and MW-17C, and 6.2 feet of DNAPL (in-well thickness) has been observed at MW-32A at a depth approximately 27 feet bgs. A sample of the DNAPL was collected in February 2008 from MW-32A and analyzed for fluid properties. The specific gravity of LNAPL was 1.056 (at 70 degrees Fahrenheit), and had a viscosity of 8.53 centipoises. The in-well DNAPL thickness measured in MW-32A is not representative of the apparent thickness in the formation. The monitoring well was completed approximately 11 feet below the assumed base of the A-TZ. Therefore, the well is acting as a collection sump for DNAPL, and may be collecting DNAPL from the B-CZ (Figure 4C-2). This is supported by the CPT/ROST data for CPT-42R-08 located approximately adjacent to MW-32A (shown on Cross Section F-F', Figure 4C-2). The ROST fluorescence response was observed at approximately 25.5 feet and smaller responses at 26 and 28.5 feet bgs. The DNAPL near MW-32A appears to be delineated to the north based on the ROST response for CPT-36R-08 (Figure 4C-2). Monitoring wells MW-20A, MW-26A, MW-30A, MW-35A, MW-36A, and MW-57A installed in A-TZ show the lateral extent of the DNAPL is sufficiently delineated in this area.

VOCs

During the most recent groundwater monitoring event, benzene concentrations were detected above the RAL of 0.005 mg/L in eight A-TZ wells located predominantly on the eastern portion of the Site (Figure 5B-1), with the maximum concentration detected of 0.69 mg/L at off-site well MW-32A. Naphtha, a common drying agent used in the wood-treating process, consists of lighter fraction carbon chain compounds, including benzene. No other VOC compounds, with the exception of a slight RAL exceedance of toluene at MW-17, were detected at concentrations above the RAL in unit A-TZ.

SVOCs

During the most recent monitoring event, SVOCs were detected above the applicable RALs in nine A-TZ wells located on the eastern portion of the Site and one well located on the western portion of the Site (MW-12A) (Figure 5B-1). The predominant SVOCs detected in the A-TZ include 2-methylnaphthalene, dibenzofuran, and naphthalene. Benzo(a)pyrene and 2-dimethylphenol concentrations were also detected greater than RALs in MW-32A, MW-49A, MW-55A, and MW-57A. The horizontal distribution of SVOCs has been delineated to RALs based on the monitoring points located in all directions around the area with detections of SVOCs less than the RAL or not detected.

For both VOCs and SVOCs, the lateral extent of the Affected Property is based on the benzene concentrations as defined by monitoring wells MW-13 and MW-38A to the west; MW-25A, MW-26A, MW-33A, MW-35A, MW-36A, MW-44A to the north; MW-59A, MW-60A, and MW-51A to the east, and MW-50A and MW-51A to the south.

Transmissive Zone B-TZ

Groundwater in the B-TZ generally flows from west to east across the Site at a gradient of approximately 0.001 ft/ft. There is a piezometric high near the west perimeter of the Site (Figure 5A-2), similar to the A-TZ. Groundwater in the B-TZ appears to flow to the southwest west of the Site, and to the east-northeast across the Site. The highest groundwater elevation in the B-TZ was 41.20 feet HVD (MW-42B), and lowest elevation was 28.54 feet HVD (MW-29B). Four wells were installed in the B-CZ clay unit east of where the B-TZ pinches out (Figure 5A-2): MW-33B, MW-35B, MW-49B, and MW-63B. At each location, groundwater was encountered but the B-CZ behaves as a Class 3 Groundwater-Bearing Unit (GWBU) in those areas east of MW-35B. Therefore, Class 3 groundwater PCLs were developed for the COCs within the B-CZ. Details of the groundwater classification are provided in Section 2.5. Based on the potentiometric elevations within the A-TZ and B-TZ, there appear to be communication between

the two GWBUs on the west side of the Site.

NAPL

DNAPL has been detected in the B-TZ along the western boundary of the Site at MW-12B and MW-41B (Figure 5A-5). The DNAPL present on the west side of the facility had a maximum in-well thickness of 21.02 feet observed at MW-41B in February 2009. The B-TZ is characterized as silty sand approximately 7 feet thick at MW-41B. A DNAPL sample from MW-12B was collected in April 2007 and analyzed for hydrocarbon fractions and fluid properties, and a DNAPL sample from MW-41B was collected in February 2008 and analyzed for fluid properties only. The hydrocarbon fraction analysis showed that the hydrocarbons in MW-12B consisted of approximately 0.1 percent of the C_4-C_{11} range, 21.2 percent of C_{11}-C_{15} range, and 78.8 percent of the C_{15}-C_{28} range, indicating a heavy end hydrocarbon mixture consistent with weathered creosote (Appendix 11). The specific gravities of the DNAPL samples from MW-12B and MW-41B were 1.055 and 1.050, and viscosities of 192 and 44.5 centipoises, respectively, at 70 degrees Fahrenheit. The DNAPL was characterized in the field as a thick, black fluid with a stringy consistency. DNAPL was not detected in monitoring wells MW-38B, MW-39B, MW-40B and MW-P-11, which indicates sufficient horizontal delineation of the DNAPL.

DNAPL was detected in one of the wells completed in the aquitard B-CZ located off site to the north of the Recent Process Area. Approximately 5.6 feet of DNAPL (in-well thickness) was observed at MW-33B in February 2009 (Figure 5A-5). The B-CZ was described in the boring log for MW-33B as a silty clay with "carbonaceous nodules at 33 feet, 35 feet, and 40 feet, a strong odor, and product was visible within the matrix of freshly broken surfaces" (Log of Boring: MW-33B, Appendix 2). The carbonate nodules are within the silty clay matrix. Monitoring well MW-33B was screened from 32 feet to 42 feet bgs across these nodule intervals. The DNAPL appears to be travelling laterally by gravity or hydraulic pressures along these nodule intervals within the B-CZ. Cross Section G-G' (Figure 4C-3) shows the DNAPL in MW-33B, and potential DNAPL in the CPT/ROST borings CPT-43R-08 and CPT-26R-01 within the B-CZ at depths below the A-TZ. The ROST log for CPT-43R-08 shows fluorescence spikes approximately 28 feet and 35 feet bgs within the B-CZ (Appendix 2). In the area of MW-33B, groundwater samples collected from the A-TZ monitoring wells (MW-33A and MW-26A) have shown COC concentrations less than RALs; suggesting that the DNAPL is not travelling horizontally through the A-TZ, but rather through these carbonate nodule intervals. Details of NAPL recoverability and migration within the B-CZ will be discussed in the Response Action Plan (RAP).

VOCs

Benzene was detected above the RAL on the west side of the Site at monitoring well MW-40B at 0.026 mg/L with no detections above the SDL (<0.0005 mg/L) at any B-TZ monitoring points located downgradient from this area (Figure 5B-2). Two CPT Hydropunch reconnaissance groundwater samples from CPT-50R-08 and CPT-51R-08 were collected from the B-TZ north of the Site and a groundwater sample from well MW-39B was collected to evaluate the off-site migration of COCs. Based on these results, benzene concentrations are delineated on-site to the RAL in the B-TZ. No other VOCs were detected in Unit B-TZ monitoring wells at concentrations exceeding the applicable RALs.

As previously discussed, the B-CZ where monitoring wells MW-33B, MW-49B, and MW-63B are completed is an aquitard and does not yield a sufficient quantity of groundwater to be considered a current or future usable water resource. Therefore, Class 3 groundwater PCLs were developed for COCs detected in these wells. On the northeastern portion of the Site within the B-CZ, benzene was detected above the RAL at two locations north of the site, MW-33B ($^{GW}GW_{Class3}$) and MW-35B ($^{GW}GW_{Ing}$) (Figure 5B-2), with a maximum concentration of 2.4 mg/L detected in MW-33B where DNAPL was encountered. Benzene concentrations were detected in MW-63B to the north, and in MW-49B to the southeast at 0.17 mg/L and 0.0095 mg/L, respectively. Based on the groundwater classification and analytical results, the benzene concentrations within the B-CZ are delineated to the applicable RAL.

SVOCs

SVOCs exceeding the applicable RALs were detected at MW-40B on the west side of the Site. The SVOCs detected consisted of 2-methylnaphthalene, benzo(a)pyrene, dibenzofuran, and naphthalene at concentrations exceeding the applicable RALs. SVOCs were not detected above RALs at any of the monitoring wells located downgradient of MW-40B (Figure 5B-2), demonstrating delineation to the RALs in this portion of the B-TZ. Monitoring wells located downgradient of MW-12B and MW-41B, which contain DNAPL, show COCs in groundwater attenuate over a short distance (<100 feet).

On the northeastern portion of the Site, SVOCs were detected in three monitoring wells completed in the B-CZ located north of the Site (MW-33B, MW-35B, and MW-63B) and in one monitoring well east of the Site (MW-49B). Bis(2-ethylhexyl)phthalate, a common laboratory contaminant, was the only SVOC detected at the northernmost well, MW-63B, at a concentration of 0.0088 mg/L, less than the $^{GW}GW_{Class3}$ RAL of 0.6 mg/L. 2-Methylnaphthalene, dibenzofuran, and naphthalene were the only SVOCs detected above the RALs in the B-CZ wells (MW-35B). Using the recent groundwater data, SVOCs are shown to

be delineated within the B-CZ.

Transmissive Zone C-TZ

Groundwater in the C-TZ flows from northeast to southwest across the Site (Figure 5A-3) at a gradient of 0.0009 ft/ft. Groundwater elevations range from approximately 29.28 feet (MW-27C) to 23.60 feet (MW-29C). This flow pattern has been consistent at the Site since 2004.

NAPL

DNAPL is present in the C-TZ extending from the northeast side of the Site at MW-23C to approximately 900 feet off site to the northeast near MW-46C. DNAPL was observed in on-site monitoring well MW-23C, and off-site monitoring wells MW-25C, MW-34C, MW-44C, MW-45C, and MW-46C. Maximum DNAPL in-well thicknesses observed in the C-TZ during the February 2009 sampling event was 10.7 feet at MW-34C and 9.6 feet at MW-45C (Figure 5A-5). The thickness of DNAPL in the wells does not represent actual thicknesses in the GWBU. The monitoring wells generally extend below the lower confining unit and typically have a 0.5-foot to 1-foot sump at the bottom of the well, which allows DNAPL to collect in the bottom of the well.

A sample of the DNAPL from MW-25C was collected in April 2007 and analyzed for hydrocarbon fractions and fluid properties. The hydrocarbon fraction analysis showed that approximately 0.7 percent of the hydrocarbons fell within the C_4-C_{11} range, 42 percent were within the C_{11}-C_{15} range, and 57.3 percent were within the C_{15}-C_{28} range (Appendix 11). The specific gravity of DNAPL was 1.059 (at 70 degrees Fahrenheit), and had a viscosity of 8.72 centipoises. This DNAPL is similar to the DNAPL encountered in the B-TZ on the west side of the Site, with a slightly higher middle fraction (C_{11}-C_{15}) hydrocarbon component compared to MW-12B, and less viscous than the DNAPL in MW-12B.

The groundwater gradient of Unit C-TZ is to the southwest however, DNAPL is not observed southwest of the suspected historic source area indicating DNAPL transport may be influenced by the structure of the confining layer (D-CZ) at the base of the C-TZ and the stratigraphy of sandier material found in the C-TZ. CPT/ROST borings were conducted north and northwest of the DNAPL plume observed in the C-TZ to evaluate the lateral extent of the DNAPL. CPT/ROST locations CPT-44R-08, CPT-45R-08, and CPT-46R-08 (logs provided in Appendix 2) did not show any ROST fluorescence responses in the C-TZ, suggesting no DNAPL present at those locations. Based on the monitoring wells and CPT/ROST borings

completed in the C-TZ, the horizontal extent of the DNAPL has sufficiently been delineated at the Site.

VOCs

Of the VOCs analyzed, benzene concentrations were detected above the RAL in three C-TZ monitoring wells: MW-17C, MW-18C, and MW-23C (0.03 mg/L, 1.4 mg/L, and 0.017 mg/L, respectively) located on the eastern portion of the Site. Benzene was not detected above the RAL in monitoring wells MW-12C, MW-15C, or MW-21C located downgradient of well MW-17C, indicating that benzene is delineated to the RAL downgradient in the C-TZ. Groundwater data from monitoring wells MW-28C, MW-47C, MW-48C, MW-53C, Hydropunch sample CPT-54R-08, and MW-27C collected in the C-TZ confirm the horizontal extent of benzene concentrations to the RAL cross gradient and upgradient. Toluene was detected at one location, MW-18C, at a concentration equal to the RAL (1 mg/L). No other VOCs were detected in the C-TZ monitoring wells at concentrations exceeding the applicable RALs.

SVOCs

SVOCs were detected above RALs in four monitoring wells, MW-17C, MW-18C, MW-23C, and MW-54C located on the eastern portion of the Site. The SVOCs included 2-methylnaphthalene, dibenzofuran, and naphthalene; with numerous SVOCs detected in MW-23C likely a result of DNAPL entrainment collected in the sample. Pentachlorophenol concentrations were detected above the RAL (0.001 mg/L) in MW-18C (0.026 mg/L); however, no other C-TZ monitoring wells had pentachlorophenol detected above the SDL. SVOCs were not detected above RALs at monitoring wells located downgradient of MW-23C, indicating that SVOCs are sufficiently delineated in Unit C-TZ. Dissolved-phase data show relatively limited COC migration beyond the DNAPL.

Transmissive Unit D-TZ

Transmissive Unit D-TZ was evaluated in the vicinity of where DNAPL was detected in the C-TZ to evaluate if COCs and/or DNAPL have migrated to the next GWBU and thus verify the vertical extent of COCs in groundwater has been defined. Groundwater in the D-TZ appears to flow from the southeast to northwest at a gradient of 0.002 ft/ft (Figure 5A-4). The groundwater elevations range from -42.17 feet HVD (MW-65D) to -39.67 feet HVD (MW-66D).

NAPL has not been observed in Unit D-TZ at any monitoring locations; and the site-specific COCs were not observed in the D-TZ groundwater samples from any monitoring locations, except for bis(2-ethylhexyl)phthalate concentrations that were detected in MW-66D at 0.0064 mg/L just above the RAL of

0.006 mg/L. Groundwater COC concentrations in the D-TZ are presented on Figure 5B-4. Bis(2-ethylhexyl)phthalate is a common laboratory contaminant, and the detection in the D-TZ is not likely from the Site as discussed in Section 10.0. Based on these results, COCs at the Site are vertically delineated to the applicable RALs.

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

5.0 Tables

TABLE 5A
GROUNDWATER RESIDENTIAL ASSESSMENT LEVELS
UPRR HOUSTON WOOD PRESERVING WORKS

COC	Source area size (acres)	$^{GW}GW_{Ing}{}^{PCL}$ (mg/l)	Residential Assesment Level		SQL	Maximum Groundwater Concentration			Notes
			(mg/l)	exposure pathway		Sample ID	Sample Date	Concentration (mg/l)	
1,1,2,2-Tetrachloroethane	30	0.0046	0.0046	$^{GW}GW_{Ing}$	0.0091	TW-02	3/13/2007	0.0091U	SQL is greater than RAL
1,1,2-Trichloroethane	30	0.0050	0.0050	$^{GW}GW_{Ing}$	0.0212	TW-02	3/13/2007	0.0212U	SQL is greater than RAL
1,1-Dichloroethene	30	0.0070	0.0070	$^{GW}GW_{Ing}$	0.0134	TW-02	3/13/2007	0.0134U	SQL is greater than RAL
1,2-Dichloroethane	30	0.0050	0.0050	$^{GW}GW_{Ing}$	0.0245	TW-02	3/13/2007	0.0245U	SQL is greater than RAL
1,2-Dichloroethene (total)	30	0.0070	0.0070	$^{GW}GW_{Ing}$	0.05	TW-02	3/13/2007	0.05U	SQL is greater than RAL
1,2-Dichloropropane	30	0.0050	0.0050	$^{GW}GW_{Ing}$	0.0252	TW-02	3/13/2007	0.0252U	SQL is greater than RAL
2,4-Dimethylphenol	30	0.4888	0.4888	$^{GW}GW_{Ing}$	0.2	WG-1620-MW49A-020409	2/4/2009	6.8	
2-Methylnaphthalene	30	0.0978	0.0978	$^{GW}GW_{Ing}$	0.07	WG-1620-MW23C-020409	2/4/2009	2.6	
Acenaphthene	30	1.4665	1.4665	$^{GW}GW_{Ing}$	0.09	WG-1620-MW23C-020409	2/4/2009	3.4	
Acenaphthylene	30	1.4665	1.4665	$^{GW}GW_{Ing}$	0.00008	TW-01	3/15/2007	0.0191	
Acetone	30	21.9978	21.9978	$^{GW}GW_{Ing}$	0.0326	TW-02	3/13/2007	0.134	
Anthracene	30	7.3326	7.3326	$^{GW}GW_{Ing}$	0.07	WG-1620-MW23C-020409	2/4/2009	1.2	
Benz(a)anthracene	30	0.0013	0.0013	$^{GW}GW_{Ing}$	0.007	WG-1620-MW23C-020409	2/4/2009	0.31	
Benzene	30	0.0050	0.0050	$^{GW}GW_{Ing}$	0.025	WG-1620-MW33B-020309	2/3/2009	2.4	
Benzo(a)pyrene	30	0.0002	0.0002	$^{GW}GW_{Ing}$	0.0008	WG-1620-MW23C-020409	2/4/2009	0.072	
Benzo(b)fluoranthene	30	0.0013	0.0013	$^{GW}GW_{Ing}$	0.00006	TW-02	3/13/2007	0.0198	
Benzo(ghi)perylene	30	0.7333	0.7333	$^{GW}GW_{Ing}$	0.00007	TW-02	3/13/2007	0.00406	
Benzo(k)fluoranthene	30	0.0125	0.0125	$^{GW}GW_{Ing}$	0.00007	TW-02	3/13/2007	0.0143	
bis(2-chloroethoxy)methane	30	0.0008	0.0008	$^{GW}GW_{Ing}$	0.00007	TW-03	3/14/2007	0.000734	
Bis(2-ethylhexyl)phthalate	30	0.0060	0.0060	$^{GW}GW_{Ing}$	0.0002	WG-1620-MW66D-020509	2/5/2009	0.0064	
Bromodichloromethane	30	0.0147	0.0147	$^{GW}GW_{Ing}$	0.0263	TW-02	3/13/2007	0.0263U	SQL is greater than RAL
Bromomethane	30	0.0342	0.0342	$^{GW}GW_{Ing}$	0.0383	TW-02	3/13/2007	0.0383U	SQL is greater than RAL
Carbazole	30	0.0456	0.0456	$^{GW}GW_{Ing}$	0.02	TW-02	3/13/2007	0.24	
Carbon Tetrachloride	30	0.0050	0.0050	$^{GW}GW_{Ing}$	0.0194	TW-02	3/13/2007	0.0194U	SQL is greater than RAL
Chrysene	30	0.1250	0.1250	$^{GW}GW_{Ing}$	0.007	WG-1620-MW23C-020409	2/4/2009	0.28	
cis-1,3-Dichloropropene	30	0.0017	0.0017	$^{GW}GW_{Ing}$	0.017	TW-02	3/13/2007	0.017U	SQL is greater than RAL
Dibenzo(a,h)anthracene	30	0.0002	0.0002	$^{GW}GW_{Ing}$	0.00004	TW-02	3/13/2007	0.00251	
Dibenzofuran	30	0.0978	0.0978	$^{GW}GW_{Ing}$	0.08	WG-1620-MW23C-020409	2/4/2009	3.5	
Dibromochloromethane	30	0.0109	0.0109	$^{GW}GW_{Ing}$	0.0197	TW-02	3/13/2007	0.0197U	SQL is greater than RAL
Dichloromethane	30	0.0050	0.0050	$^{GW}GW_{Ing}$	0.005	WG-1620-MW33B-020309	2/3/2009	0.0096J	
Di-n-butyl phthalate	30	2.4442	2.4442	$^{GW}GW_{Ing}$	0.00035	WG-1620-MW64A-020409	2/4/2009	0.02	

TABLE 5A
GROUNDWATER RESIDENTIAL ASSESSMENT LEVELS
UPRR HOUSTON WOOD PRESERVING WORKS

COC	Source area size (acres)	$^{GW}GW_{Ing}$ ^{PCL} (mg/l)	Residential Assesment Level		SQL	Maximum Groundwater Concentration			Notes
			(mg/l)	exposure pathway		Sample ID	Sample Date	Concentration (mg/l)	
Ethylbenzene	30	0.7000	0.7000	$^{GW}GW_{Ing}$	0.406	TW-02	3/13/2007	5.35	
Fluoranthene	30	0.9777	0.9777	$^{GW}GW_{Ing}$	0.07	WG-1620-MW23C-020409	2/4/2009	3	
Fluorene	30	0.9777	0.9777	$^{GW}GW_{Ing}$	0.07	WG-1620-MW23C-020409	2/4/2009	2.5	
Indeno(1,2,3-cd)pyrene	30	0.0013	0.0013	$^{GW}GW_{Ing}$	0.00008	TW-02	3/13/2007	0.00665	
Methylene Chloride	30	0.0050	0.0050	$^{GW}GW_{Ing}$	0.0195	TW-02	3/13/2007	0.0195U	SQL is greater than RAL
Naphthalene	30	0.4888	0.4888	$^{GW}GW_{Ing}$	0.4	WG-1620-MW18C-020509	2/5/2009	21	
n-Nitrosodi-n-propylamine	30	0.0001	0.0001	$^{GW}GW_{Ing}$	0.000095	TW-03	3/14/2007	0.000494	
Pentachlorophenol	30	0.0010	0.0010	$^{GW}GW_{Ing}$	0.004	WG-1620-MW18C-020509	2/5/2009	0.026	
Phenanthrene	30	0.7333	0.7333	$^{GW}GW_{Ing}$	0.07	WG-1620-MW23C-020409	2/4/2009	8.8	
Phenol	30	7.3326	7.3326	$^{GW}GW_{Ing}$	0.18	WG-1620-MW17-020409	2/4/2009	5.5	
Pyrene	30	0.7333	0.7333	$^{GW}GW_{Ing}$	0.07	WG-1620-MW23C-020409	2/4/2009	1.6	
Tetrachloroethene	30	0.0050	0.0050	$^{GW}GW_{Ing}$	0.02	TW-02	3/13/2007	0.02U	SQL is greater than RAL
Toluene	30	1.0000	1.0000	$^{GW}GW_{Ing}$	0.548	TW-02	3/13/2007	28.3	
trans-1,3-Dichloropropene	30	0.0091	0.0091	$^{GW}GW_{Ing}$	0.0143	TW-02	3/13/2007	0.0143U	SQL is greater than RAL
Trichloroethene	30	0.0050	0.0050	$^{GW}GW_{Ing}$	0.0232	TW-02	3/13/2007	0.0232U	SQL is greater than RAL
Vinyl Chloride	30	0.0020	0.0020	$^{GW}GW_{Ing}$	0.0214	TW-02	3/13/2007	0.0214U	SQL is greater than RAL
Xylenes (total)	30	10.00	10.00	$^{GW}GW_{Ing}$	1.16	TW-02	3/13/2007	33.7	

Notes:

1). GWGWIng PCL = TRRP Tier 1 Protective Concentration Level for Class 2 groundwater ingestion pathway (30 acre source area).
2). Residential land use assumed to provide most conservative TRRP PCLs.
3). Only COCs having at least one detection and/or a non-detection with a SQL greater than the RAL are included in this table.
4). Concentrations exceeding the PCL have been highlighted.
5). U = not detected above MCL
6). J = Estimated Concentration between the SQL and the Reporting Limit

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-01A										
					3/17/2004	3/4/2005	7/19/2005	9/8/2005	1/6/2006	7/28/2006	1/23/2007	7/18/2007	1/28/2008	7/16/2008	1/22/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds															
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	--	--	--	--	--	--	--	<0.00052	--
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	0.00416 J	--	--	--	--	--	--	--	<0.00025	--
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	--	--	--	--	--	--	--	<0.00047	--
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	0.00209 J	--	--	--	--	--	--	--	<0.00025	--
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	--	--	--	--	--	--	--	<0.00054	--
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	--	--	--	--	--	--	--	<0.00041	--
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	0.00777 J	--	--	--	--	--	--	--	<0.00127	--
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.000032	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000116	0.0128	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.00004	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.000026	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00008	--	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00079	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.005221	0.0882	0.0557	--	0.00169	0.0205	0.000262	<0.00133	<0.00044	0.0109	0.0069
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00053	--	--	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.04226	0.224	0.245	--	0.0937	0.163	0.0509	0.11	0.0415	0.126	0.054
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.000785	0.00326	0.00221	--	0.00387	0.00182	0.00137	<0.00114	0.00099	0.00143	<0.0007
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.001854	0.00754	0.0101	--	0.0021	0.00613	0.00226	<0.000952	0.00129	0.00267	0.0012 J
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000267	<0.00011	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.000024	--	--	--	--	--	--	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000013	--	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.000973	<0.00035	<0.000356	--	<0.000356	<0.00009	<0.00009	<0.00352	<0.00022	0.00137 J	<0.0012
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	<0.00012	--	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.0194	**0.101**	**0.11**	**0.133**	0.0143	0.0639	0.00839	0.00849 J	0.00129	0.00774	0.0058
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.000691	0.0002 J	--	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.003337	0.00935	0.0139	--	0.00557	0.0079	0.00251	0.00696 J	0.00234	0.00923	0.0024 J
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.02334	0.124	0.137	--	0.0221	0.0792	0.0155	0.0514	0.0162	0.0659	0.028
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.000919	0.12	0.0216	--	0.000519	0.00292	0.000302	<0.00124	<0.00044	0.0168	<0.0008
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.0001	--	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	--	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.000066	--	--	--	--	--	--	--	--	--
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.002194	0.0182	0.0233	--	0.00065	0.00698	0.000229	0.00336 J	<0.00022	0.00177	0.001 J
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	<0.00004	--	--	--	--	--	--	--	--	--
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00117	0.00362	0.00593	--	0.0025	0.00376	0.00105	0.00304 J	0.00107	0.00417	0.001 J

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-02									
					3/17/2004	3/4/2005	7/19/2005	1/5/2006	7/28/2006	1/23/2007	7/18/2007	1/28/2008	7/16/2008	1/22/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	--	--	--	--	--	--	<0.00052	--
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00143	--	--	--	--	--	--	<0.00025	--
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	--	--	--	--	--	--	<0.00047	--
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	--	--	--	--	--	--	<0.00025	--
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	--	--	--	--	--	--	<0.00054	--
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	--	--	--	--	--	--	<0.00041	--
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.0122 J	<0.00441	--	--	--	--	--	--	<0.00127	--
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.000032	--	--	--	--	--	--	--	--
2,4-Dimethylpheno	105-67-9	8270	4.04E-01	1.46E+00	<0.000116	<0.0003	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.00004	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.000026	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00008	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00079	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.001694	0.00008 J	<0.00007	0.00046 J	0.000622	<0.00008	0.0024 J	<0.00038	<0.00039	<0.0008
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00053	--	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.03018	0.0394	0.0031	0.0142	0.0098	0.00675	0.0256	0.017	0.0218	0.014
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.00042 J	0.0004 J	<0.00006	0.00128	0.0002	0.00015 J	<0.00114	<0.00028	0.0003 J	<0.0007
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.001494	0.00114	0.00032 J	0.000857	0.000783	0.000542	0.00138 J	0.000922	0.00042 J	<0.0007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000267	<0.00011	--	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.000024	--	--	--	--	--	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000013	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.000172	<0.00035	<0.000352	<0.00037	0.00018 J	<0.00009	<0.00352	0.00049 J	<0.00019	<0.0012
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	<0.00012	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.01945	0.0152	0.00245	0.0152	0.00767	0.00488	0.0174	0.0106	0.00673	<0.0007
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.000792	0.00031 J	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.001861	0.00421	0.000796	0.00113	0.00123	0.000625	0.00165 J	0.0015	0.000961	<0.0006
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.02035	0.0268	0.00268	0.0148	0.00604	0.00479	0.0157	0.0119	0.0103	0.0039 J
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.000604	0.00161	<0.00006	0.0053	0.0106	0.000406	0.0188	0.000827	0.00118	<0.0008
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.0001	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.000066	--	--	--	--	--	--	--	--
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.002468	0.00024 J	0.00036 J	0.00024 J	0.00103	0.00005 J	0.00167 J	0.000532	<0.00019	<0.0007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	<0.00004	--	--	--	--	--	--	--	--
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.000883	0.00183	0.00042 J	0.00041 J	0.000634	0.000299	<0.000952	0.000816	0.00045 J	<0.0009

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-03				MW-04				MW-05			
					3/17/2004	3/4/2005	3/15/2007	1/30/2008	3/16/2004	3/3/2005	3/15/2007	1/29/2008	3/16/2004	3/1/2005	3/10/2007	1/29/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds																
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	<0.00245	<0.00052	<0.00136	<0.00136	<0.00245	<0.00052	<0.00136	<0.00136	<0.00245	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00143	<0.00257	<0.00025	<0.00143	<0.00143	<0.00257	<0.00025	<0.00143	<0.00143	<0.00257	<0.00025
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	<0.00239	<0.00047	<0.00155	<0.00155	<0.00239	<0.00047	<0.00155	<0.00155	<0.00239	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	<0.00203	<0.00025	<0.00137	<0.00137	<0.00203	<0.00025	<0.00137	<0.00137	<0.00203	<0.00025
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	<0.00195	<0.00054	<0.0013	<0.0013	<0.00195	<0.00054	<0.0013	<0.0013	<0.00195	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	<0.00274	<0.00041	<0.00136	<0.00136	<0.00274	<0.00041	<0.00136	<0.00136	<0.00274	<0.00041
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00441	<0.00581	<0.00127	<0.00441	<0.00441	<0.00581	<0.00127	<0.00441	<0.00441	<0.00581	<0.00127
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.000032	<0.00004	<0.00008	<0.00005	<0.000032	<0.00004	<0.00008	<0.00005	<0.00001	<0.00006	<0.00008
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000116	<0.0003	<0.00005	<0.0003	<0.000116	<0.0003	<0.00005	<0.00029	<0.000116	<0.0003	<0.00018	<0.00029
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.00004	<0.00009	<0.0002	<0.000009	<0.00004	<0.00009	<0.00019	<0.000009	<0.000009	<0.00007	<0.00019
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.000026	<0.0001	<0.0002	<0.000026	<0.000026	<0.0001	<0.00019	<0.000026	<0.000026	<0.00006	<0.00019
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00008	<0.00004	<0.0004	<0.000076	<0.00008	<0.00004	<0.00038	<0.000076	<0.00008	<0.00004	<0.00038
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00079	<0.00022	<0.0002	<0.000295	<0.00079	<0.00022	<0.00019	<0.000295	<0.00079	<0.0001	<0.00019
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.000067	0.00181	<0.00008	<0.0004	<0.000067	<0.00007	<0.00008	<0.00038	<0.000067	<0.00007	0.0001 J	<0.00038
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00053	<0.00014	<0.00025	<0.000285	<0.00053	<0.00014	<0.00024	<0.000285	<0.00053	<0.000952	<0.00024
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.1104	0.117	0.173	0.118	<0.000074	<0.00007	<0.00004	<0.00029	0.00028 J	0.00176	0.00016 J	0.000545
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.000833	0.000948	0.00188	<0.0003	<0.000076	<0.00006	<0.00008	<0.00029	<0.000076	<0.00006	<0.00005	<0.00029
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.00129	0.0039	0.00221	0.00172	0.00026 J	0.00036 J	0.000525	0.000739	0.00025 J	0.00014 J	0.000206	0.000811
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	0.00038 J	0.00023 J	0.000249	<0.0002	<0.000267	<0.00011	<0.00005	<0.00019	<0.000267	<0.00011	<0.00005	<0.00019
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	**0.000511**	<0.000024	<0.00005	<0.0002	<0.000007	<0.000024	<0.00005	<0.00019	<0.000007	<0.000007	<0.00011	<0.00019
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000013	<0.00007	<0.0004	<0.000009	<0.000013	<0.00007	<0.00038	<0.000009	<0.000009	<0.00008	<0.00038
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.000943	0.000797	<0.00009	0.001 J	0.001025	0.000815	<0.00009	0.00029 J	<0.000172	<0.00035	<0.000095	0.00034 J
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	0.00052	0.00021 J	<0.00007	<0.0002	<0.00009	<0.00012	<0.00007	<0.00019	<0.00009	<0.00012	<0.00007	<0.00019
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.0097	0.0347	0.00647	0.00415	<0.000076	<0.00008	<0.00006	<0.00029	<0.000076	0.00022 J	0.00014 J	<0.00029
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.000654	0.00029 J	<0.0001	<0.0002	<0.000143	0.00019 J	<0.0001	<0.00019	0.00025 J	0.00021 J	0.00018 J	<0.00019
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.01034	0.0137	0.0153	0.0125	<0.000093	<0.00008	<0.00004	0.00045 J	<0.000093	<0.00008	0.00016 J	0.00047 J
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.0427	0.0637	0.0926	0.058	<0.000068	<0.00007	0.00018 J	<0.00019	<0.000068	0.00035 J	0.0001 J	0.0002 J
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.00026 J	0.05	<0.00007	0.000872	<0.000067	<0.00006	<0.00007	<0.00038	<0.000067	0.00909	0.000845	<0.00038
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.0001	<0.00006	<0.0004	<0.000143	<0.0001	<0.00006	<0.00038	<0.000143	<0.0001	<0.00007	<0.00038
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	<0.00005	<0.00025	<0.00009	<0.00005	<0.00005	<0.00024	<0.00009	<0.00005	<0.00005	<0.00024
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.000066	<0.00019	<0.0002	<0.000038	<0.000066	<0.00019	<0.00019	<0.000038	<0.000038	<0.000952	<0.00019
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.000663	0.0104	0.000629	0.000592	<0.000077	<0.00009	0.000337	0.00037 J	<0.000077	<0.00009	0.000276	0.00039 J
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	<0.00004	<0.00007	<0.0002	<9.53E-05	<0.00004	<0.00007	<0.00019	<9.53E-05	<0.00004	<0.00007	<0.00019
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.004965	0.00578	0.00581	0.00538	<0.000084	<0.00009	<0.00004	<0.00019	<0.000084	0.00015 J	0.0001 J	0.00045 J

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-07									
					3/16/2004	3/1/2005	7/19/2005	1/5/2006	7/28/2006	1/23/2007	7/17/2007	1/28/2008	7/16/2008	1/22/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	--	--	--	--	--	--	<0.00052	--
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00143	--	--	--	--	--	--	<0.00025	--
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	--	--	--	--	--	--	<0.00047	--
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	--	--	--	--	--	--	<0.00025	--
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	--	--	--	--	--	--	<0.00054	--
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	--	--	--	--	--	--	<0.00041	--
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00441	--	--	--	--	--	--	<0.00127	--
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.000011	--	--	--	--	--	--	--	--
2,4-Dimethylpheno	105-67-9	8270	4.04E-01	1.46E+00	<0.000116	<0.0003	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.000009	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.000026	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00008	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00079	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.000067	<0.00007	<0.00007	<0.00007	<0.00008	<0.00008	<0.00133	<0.00038	<0.00039	<0.0008
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00053	--	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.00029 J	0.0001 J	0.0015	0.00286	0.00362	<0.00004	<0.00114	<0.00028	<0.00029	<0.0008
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.000076	<0.00006	<0.00006	0.00008 J	<0.00008	<0.00008	<0.00114	<0.00028	0.00044 J	<0.0007
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.00022 J	0.0004 J	0.000653	0.000537	0.000417	0.000353	<0.000952	0.000516	0.000982	<0.0007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000267	<0.00011	--	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.000007	--	--	--	--	--	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000009	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.000172	0.000791	<0.000352	0.00042 J	<0.00009	<0.00009	<0.00352	<0.00019	<0.00019	<0.0012
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	<0.00012	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.000076	<0.00008	0.00015 J	0.00009 J	<0.00006	<0.00006	<0.0041	<0.00028	<0.00029	<0.0007
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.0002 J	0.00016 J	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.000093	<0.00008	0.00017 J	<0.00008	0.000275	<0.00004	<0.000952	<0.00019	<0.00019	<0.0006
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.000068	<0.00007	<0.00007	0.00038 J	0.00018 J	<0.00004	<0.000952	<0.00019	<0.00019	<0.0008
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	<0.000067	<0.00006	<0.00006	0.00019 J	<0.00007	0.000637	<0.00124	<0.00038	0.000675	<0.0008
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.0001	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.000039	--	--	--	--	--	--	--	--
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.000077	<0.00009	<0.00009	<0.00009	<0.00004	<0.00004	<0.000952	<0.00019	0.00036 J	<0.0007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	<0.00004	--	--	--	--	--	--	--	--
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.000084	<0.00009	0.00026 J	<0.00009	0.000532	<0.00004	<0.000952	<0.00019	<0.00019	<0.0009

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-08									
					3/16/2004	3/1/2005	7/18/2005	1/6/2006	7/28/2006	1/22/2007	7/17/2007	1/29/2008	7/16/2008	1/22/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	--	--	--	--	--	--	<0.00109	--
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00143	--	--	--	--	--	--	<0.00112	--
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	--	--	--	--	--	--	<0.0015	--
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	--	--	--	--	--	--	<0.00142	--
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	--	--	--	--	--	--	<0.00122	--
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	--	--	--	--	--	--	<0.00138	--
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00441	--	--	--	--	--	--	<0.00302	--
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.00001	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00012	<0.0003	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<9E-06	<9E-06	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<2.6E-05	<2.6E-05	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<7.6E-05	<0.00008	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.0003	<0.00079	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<6.7E-05	<0.00007	<0.00007	<0.00007	<0.00008	<0.00008	<0.00133	<0.00044	<0.0004	<0.0008
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00029	<0.00053	--	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<7.4E-05	0.00012 J	<0.00007	<0.00007	<0.00004	<0.00004	<0.00114	<0.00033	<0.0003	<0.0008
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<7.6E-05	<0.00006	<0.00006	<0.00006	<0.00008	<0.00008	<0.00114	<0.00033	0.00044 J	<0.0007
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.00012	0.00015 J	0.00026 J	0.00011 J	0.00018 J	<0.00004	0.00135 J	0.00031 J	0.000669	<0.0007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00027	<0.00011	--	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<7E-06	<7E-06	--	--	--	--	--	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<9E-06	<9E-06	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.00017	<0.00035	0.00036 J	<0.00036	0.00012 J	<0.00009	<0.00352	<0.00022	<0.0002	<0.0012
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	<0.00012	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<7.6E-05	<0.00008	<0.00008	<0.00008	<0.00006	<0.00006	<0.0041	<0.00033	<0.0003	<0.0007
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00027 J	0.00019 J	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<9.3E-05	<0.00008	<0.00008	<0.00008	<0.00004	<0.00004	<0.00095	<0.00022	<0.0002	<0.0006
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<6.8E-05	<0.00007	<0.00007	<0.00007	<0.00004	<0.00004	<0.00095	<0.00022	<0.0002	<0.0008
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	<6.7E-05	<0.00006	<0.00006	<0.00006	<0.00007	<0.00007	<0.00124	<0.00044	0.000654	<0.0008
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00014	<0.0001	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<3.8E-05	<3.8E-05	--	--	--	--	--	--	--	--
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<7.7E-05	<0.00009	<0.00009	<0.00009	<0.00004	<0.00004	<0.00095	<0.00022	0.00036 J	<0.0007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.5E-05	<0.00004	--	--	--	--	--	--	--	--
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<8.4E-05	<0.00009	0.00012 J	<0.00009	<0.00004	<0.00004	<0.00095	<0.00022	<0.0002	<0.0009

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-09				MW-10A								
					3/15/2004	3/3/2005	3/10/2007	1/29/2008	3/16/2004	3/1/2005	7/19/2005	1/5/2006	7/28/2006	1/23/2007	7/17/2007	1/28/2008	7/16/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds																	
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	<0.00245	<0.00052	<0.00136	<0.00136	--	--	--	--	--	--	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00143	<0.00257	<0.00025	<0.00143	<0.00143	--	--	--	--	--	--	<0.00025
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	<0.00239	<0.00047	<0.00155	<0.00155	--	--	--	--	--	--	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	<0.00203	<0.00025	<0.00137	<0.00137	--	--	--	--	--	--	<0.00025
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	<0.00195	<0.00054	<0.0013	<0.0013	--	--	--	--	--	--	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	<0.00274	<0.00041	<0.00136	<0.00136	--	--	--	--	--	--	<0.00041
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00441	<0.00581	<0.00127	<0.00441	<0.00441	--	--	--	--	--	--	<0.00127
Semivolatile Organic Compounds																	
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.000032	<0.00006	<0.00008	<0.00005	<0.00001	--	--	--	--	--	--	--
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000116	<0.0003	<0.00018	<0.00029	<0.000116	<0.0003	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.00004	<0.00007	<0.00019	<0.000009	<0.000009	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.000026	<0.00006	<0.00019	<0.000026	<0.000026	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00008	<0.00004	<0.00038	<0.000076	<0.00008	--	--	--	--	--	--	--
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00079	<0.0001	<0.00019	<0.000295	<0.00079	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.000067	<0.00007	<0.00006	<0.00038	<0.000067	<0.00007	<0.00007	<0.00007	<0.00008	<0.00008	<0.00133	<0.0004	<0.00038
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00053	<0.000952	<0.00024	<0.000285	<0.00053	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.000074	<0.00007	<0.00005	<0.00029	<0.000074	<0.00007	0.00011 J	<0.00007	0.000327	0.000714	<0.00114	<0.0003	<0.00029
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.000076	<0.00006	<0.00005	<0.00029	<0.000076	<0.00006	<0.00006	<0.00006	<0.00008	<0.00008	<0.00114	<0.0003	<0.00029
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.000124	0.00028 J	0.000352	<0.00019	<0.000124	0.00013 J	<0.00007	0.00011 J	<0.00004	0.000273	<0.000952	<0.0002	<0.00019
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000267	<0.00011	<0.00005	<0.00019	<0.000267	<0.00011	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.000024	<0.00011	<0.00019	<0.000007	<0.000007	--	--	--	--	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000013	<0.00008	<0.00038	<0.000009	<0.000009	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.00099	<0.00035	<0.000095	0.00034 J	0.000916	<0.00035	<0.000352	<0.000359	<0.00009	<0.00009	<0.00352	<0.0002	0.0002 J
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	<0.00012	<0.00007	<0.00019	<0.00009	<0.00012	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.000076	0.00026 J	<0.00005	<0.00029	<0.000076	<0.00008	<0.00008	<0.00008	0.00017 J	0.00009 J	<0.0041	<0.0003	<0.00029
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00033 J	0.00022 J	0.00014 J	<0.00019	<0.000143	0.00013 J	--	--	--	--	--	--	--
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.000093	<0.00008	<0.00007	0.00045 J	<0.000093	<0.00008	<0.00008	<0.00008	<0.00004	<0.00004	<0.000952	<0.0002	<0.00019
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.000068	<0.00007	<0.00004	<0.00019	<0.000068	<0.00007	<0.00007	<0.00007	<0.00004	0.00015 J	<0.000952	<0.0002	<0.00019
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	<0.000067	<0.00006	0.000556	<0.00038	<0.000067	<0.00006	<0.00006	<0.00006	<0.00007	<0.00007	<0.00124	<0.0004	<0.00038
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.0001	<0.00007	<0.00038	<0.000143	<0.0001	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	<0.00005	<0.00024	<0.00009	<0.00005	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.000066	<0.000952	<0.00019	<0.000038	<0.000038	--	--	--	--	--	--	--
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.000077	<0.00009	<0.00004	0.000541	<0.000077	<0.00009	<0.00009	<0.00009	<0.00004	<0.00004	<0.000952	<0.0002	<0.00019
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	<0.00004	<0.00007	<0.00019	<9.53E-05	<0.00004	--	--	--	--	--	--	--
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.000084	<0.00009	<0.00005	<0.00019	<0.000084	<0.00009	<0.00009	<0.00009	<0.00004	<0.00004	<0.000952	<0.0002	<0.00019

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	1/22/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L
Volatile Organic Compounds					
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	--
Benzene	71-43-2	8260	5.00E-03	5.00E-03	--
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	--
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	--
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	--
Toluene	108-88-3	8260	1.00E+00	1.00E+00	--
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	--
Semivolatile Organic Compounds					
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	--
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	--
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	--
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	--
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	--
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.0008
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	--
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.0008
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.0007
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.0007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	--
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	--
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.0012
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	--
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.0007
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	--
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.0006
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.0008
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	<0.0008
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	--
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	--
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	--
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.0007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	--
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.0009

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-11A										MW-12A		
					3/16/2004	3/3/2005	7/19/2005	1/5/2006	7/28/2006	1/23/2007	7/17/2007	1/28/2008	7/16/2008	1/22/2009	3/10/2007	1/30/2008	7/15/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds																	
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	--	--	--	--	--	--	<0.00052	--	<0.00245	<0.00052	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00143	--	--	--	--	--	--	<0.00025	--	<0.00257	<0.00025	<0.00025
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	--	--	--	--	--	--	<0.00047	--	<0.00239	<0.00047	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	--	--	--	--	--	--	<0.00025	--	0.00715	0.00718	<0.00025
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	--	--	--	--	--	--	<0.00054	--	<0.00195	<0.00054	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	--	--	--	--	--	--	<0.00041	--	<0.00274	<0.00041	<0.00041
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00441	--	--	--	--	--	--	<0.00127	--	0.0126 J	0.0105 J	<0.00127
Semivolatile Organic Compounds																	
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.000032	--	--	--	--	--	--	--	--	<0.00006	<0.00008	<0.00008
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000122	<0.0003	--	--	--	--	--	--	--	--	<0.00018	<0.0003	<0.00029
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.00004	--	--	--	--	--	--	--	--	<0.00007	<0.0002	<0.00019
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000027	<0.000026	--	--	--	--	--	--	--	--	<0.00006	<0.0002	<0.00019
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00008	<0.00008	--	--	--	--	--	--	--	--	<0.00004	<0.0004	<0.00039
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.00031	<0.00079	--	--	--	--	--	--	--	--	<0.0001	<0.0002	<0.00049
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.00007	0.00016 J	0.00019 J	<0.00007	<0.00008	<0.00008	<0.00133	<0.00038	<0.0004	<0.0008	**0.183**	**0.174**	**0.332**
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000299	<0.00053	--	--	--	--	--	--	--	--	<0.000952	<0.00025	<0.00024
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.002777	0.0139	0.0732	<0.00007	0.0306	0.00685	0.0404	0.0346	0.02	0.0076	0.204	0.173	0.331
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00008	<0.00006	0.00074	<0.00006	0.000263	<0.00008	<0.00114	<0.00029	<0.0003	<0.0007	0.00375	<0.0003	0.00276
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.00032 J	0.000833	0.00201	<0.00007	0.000543	0.000287	<0.000952	0.000798	0.00054	<0.0007	0.0115	0.0103	0.0137
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00028	<0.00011	--	--	--	--	--	--	--	--	0.000288	0.00028 J	0.00026 J
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.000024	--	--	--	--	--	--	--	--	<0.00011	<0.0002	<0.00019
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000013	--	--	--	--	--	--	--	--	<0.00008	<0.0004	<0.00039
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.001042	0.000806	<0.000352	<0.000363	0.00014 J	<0.00009	<0.00352	0.00028 J	<0.0002	<0.0012	0.00021	0.0013 J	0.00033 J
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.000094	<0.00012	--	--	--	--	--	--	--	--	0.000268	0.00024 J	0.00021 J
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.00046 J	0.00451	0.00957	<0.00008	0.000566	0.0019	<0.0041	0.00276	<0.0003	<0.0007	**0.145**	**0.125**	**0.212**
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.000521	0.00013 J	--	--	--	--	--	--	--	--	0.00014 J	<0.0002	<0.00019
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.00039 J	0.000786	0.0064	0.000516	0.00362	0.000292	0.00297 J	0.00338	0.00387	0.0012 J	0.00806	0.00693	0.0123
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.00035 J	0.00663	0.0229	0.00008 J	0.000657	0.00326	<0.000952	0.0069	0.00089	<0.0008	0.147	0.112	0.475
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.002776	0.011	0.00482	<0.00006	0.00012 J	0.00481	<0.00124	<0.00038	<0.0004	<0.0008	**2.86**	**2.27**	**1.47**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00015	<0.0001	--	--	--	--	--	--	--	--	<0.00007	<0.0004	<0.00039
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.000094	<0.00005	--	--	--	--	--	--	--	--	<0.00005	<0.00025	<0.00024
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00004	<0.000066	--	--	--	--	--	--	--	--	<0.000952	<0.0002	<0.00019
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.000081	0.00023 J	0.00196	<0.00009	0.00018 J	0.000829	0.0011 J	0.00036 J	<0.0002	<0.0007	0.117	0.0833	0.372
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.0001	<0.00004	--	--	--	--	--	--	--	--	<0.00007	<0.0002	<0.00019
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.000088	0.00016 J	0.00308	0.00011 J	0.00186	0.00016 J	0.00148 J	0.00191	0.00184	<0.0009	0.00396	0.00358	0.00518

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	2/4/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L
Volatile Organic Compounds					
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	0.00073 J
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	0.0059
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	0.00079 J
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.012 J
Semivolatile Organic Compounds					
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00012
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	**0.22**
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.25
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.0036
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.0099
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.00031
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	**0.18**
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.0061
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.15
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	**2.6**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.1
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.0025

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-13				MW-15A				MW-16			
					3/10/2007	1/30/2008	7/15/2008	2/4/2009	3/8/2007	1/30/2008	7/15/2008	2/4/2009	3/9/2007	1/31/2008	7/15/2008	2/5/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds																
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.00052	<0.0005	<0.00245	<0.00052	<0.00052	<0.0005	<0.00245	<0.00052	<0.00052	<0.0025
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00257	<0.00025	<0.00025	<0.0005	<0.00257	0.00161 J	<0.00025	0.0018 J	**0.0443**	**0.0383**	**0.11**	**0.048**
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.00047	<0.0005	<0.00239	<0.00047	<0.00047	<0.0005	<0.00239	<0.00047	<0.00047	<0.0025
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00203	<0.00025	<0.00025	<0.0005	<0.00203	0.00122 J	<0.00025	0.0019 J	0.0298	0.037	0.084	0.034
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.00054	<0.0005	<0.00195	<0.00054	<0.00054	<0.0005	<0.00195	<0.00054	<0.00054	<0.0025
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	<0.00041	<0.00041	<0.0005	<0.00274	<0.00041	<0.00041	<0.0005	0.00834	0.00619	0.0382	0.0025 J
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00581	<0.00127	<0.00127	<0.001	<0.00581	0.0056 J	<0.00127	0.0039 J	0.065	0.052	0.121	0.036 J
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00006	<0.00008	<0.00008	<0.0001	<0.00006	<0.00008	<0.00008	<0.0001	<0.00006	<0.00008	<0.0004	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00018	<0.00029	<0.00029	<0.00008	0.00172	<0.0003	0.00042 J	<0.00008	<0.00018	<0.00029	<0.0016	0.0039
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00007	<0.00019	<0.00019	<0.00009	<0.00007	<0.0002	<0.0002	<0.00009	<0.00007	<0.00019	<0.0011	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00006	<0.00019	<0.00019	<0.00007	<0.00006	<0.0002	<0.0002	<0.00007	<0.00006	<0.00019	<0.0011	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.00038	<0.00039	<0.00012	<0.00004	<0.0004	<0.00041	<0.00012	<0.00004	<0.00038	<0.0021	<0.00012
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.0001	<0.00019	<0.00049	--	<0.0001	<0.0002	<0.00051	--	<0.0001	<0.00019	**<0.0026**	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.00006	<0.00038	<0.00039	<0.00007	0.0102	0.0127	**0.0995**	0.044	**0.158**	0.0747	**0.175**	**0.13**
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000952	<0.00024	<0.00024	<0.00007	<0.000952	<0.00025	<0.00026	<0.00007	<0.000952	<0.00024	<0.0013	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.00005	<0.00029	<0.00029	<0.00009	0.157	0.134	0.442	0.17	0.42	0.215	0.939	0.24
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00005	<0.00029	<0.00029	<0.00006	0.00185	<0.0003	<0.00031	0.0017	0.00724	<0.00029	0.0067	0.0044
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.000277	0.000955	0.000642	0.0002	0.00434	0.00377	0.00432	0.003	0.145	0.0151	0.0321	0.011
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00005	<0.00019	<0.00019	<0.00007	<0.00005	0.00023 J	<0.0002	<0.00007	**0.0017**	<0.00019	<0.0011	0.00014 J
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00011	<0.00019	<0.00019	<0.00008	<0.00011	<0.0002	<0.0002	<0.00008	**0.000278**	<0.00019	**<0.0011**	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00008	<0.00038	<0.00039	<0.00009	<0.00008	<0.0004	<0.00041	<0.00009	<0.00008	<0.00038	**<0.0021**	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.000095	0.00051 J	<0.00019	0.00035	<0.000095	<0.0002	<0.0002	0.0026	<0.000095	<0.00019	<0.0011	0.0005
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.00019	<0.00019	<0.00007	<0.00007	<0.0002	<0.0002	<0.00007	0.00141	0.00036 J	<0.0011	0.00014 J
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.00005	<0.00029	<0.00029	<0.00008	0.0347	0.0239	**0.156**	0.047	**0.249**	**0.112**	**0.253**	**0.14**
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00017 J	<0.00019	<0.00019	<0.00007	0.000217	<0.0002	<0.0002	0.00029	0.000275	<0.00019	<0.0011	0.00025
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.00007	0.00046 J	<0.00019	<0.00007	0.00213	0.00178	0.00183	0.0011	0.07	0.00769	0.0142	0.0064
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.00004	<0.00019	<0.00019	<0.00007	0.0473	0.0394	0.18	0.059	0.339	0.114	0.222	0.088
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.000213	<0.00038	<0.00039	<0.0001	0.0193	0.00684	0.271	0.048	**3.81**	**1.9**	**18.9**	**4.1**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00007	<0.00038	<0.00039	<0.00009	<0.00007	<0.0004	<0.00041	<0.00009	<0.00007	<0.00038	<0.0021	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00024	<0.00024	<0.00009	<0.00005	<0.00025	<0.00026	<0.00009	<0.00005	<0.00024	<0.0013	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000952	<0.00019	<0.00019	<0.00008	<0.000952	<0.0002	<0.0002	<0.00008	<0.000952	<0.00019	**<0.0011**	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.00004	<0.00019	<0.00019	<0.00007	0.00631	0.0039	0.0229	0.0095	0.143	0.0421	0.0743	0.04
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.00019	<0.00019	<0.00007	<0.00007	<0.0002	<0.0002	<0.00007	<0.00007	<0.00019	0.0047	0.00022
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.00005	<0.00019	<0.00019	<0.00007	0.000828	0.00127	0.000664	0.00042	0.051	0.00615	0.0114	0.004

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-17				MW-18A				MW-20A	
					3/12/2007	1/31/2008	7/15/2008	2/4/2009	3/11/2007	1/30/2008	7/15/2008	2/5/2009	3/9/2007	1/30/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	**<0.0245**	<0.00052	**<0.01**	<0.0005	<0.00245	<0.00052	<0.00052	<0.0025	<0.00245	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	**0.494**	**0.545**	**0.448**	**0.65**	**0.362**	**0.503**	**0.321**	**0.48**	**0.0742**	**0.0609**
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.0239	<0.00047	<0.0094	<0.0005	0.0124	0.0167	0.0074	0.017 J	<0.00239	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	0.218	0.193	0.142	0.26	0.316	0.555	0.153	0.52	0.124	0.0965
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	**<0.0195**	<0.00054	**<0.011**	<0.0005	<0.00195	<0.00054	<0.00054	<0.0025	<0.00195	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	0.943	0.909	0.728	**1.1**	0.421	0.374	0.0718	0.23	0.0359	0.00716
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.647	0.582	0.44	0.55	0.639	1.13	0.292	0.98	0.166	0.113
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00004	**<0.002**	**<0.008**	<0.0001	<0.00004	**<0.008**	<0.0008	<0.0001	<0.00006	**<0.02**
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00005	**11.7**	**13.4**	**2.6**	**7.52**	**12.5**	**2.17**	**1.9**	0.308	0.134
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009	**<0.0038**	**<0.021**	<0.00009	<0.00009	**<0.02**	**<0.002**	<0.00009	<0.00007	**<0.039**
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.0001	**<0.0038**	**<0.021**	<0.00007	<0.0001	**<0.02**	**<0.002**	<0.00007	<0.00006	**<0.039**
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.0076	<0.042	<0.00012	<0.00004	<0.041	<0.004	<0.00012	<0.00004	<0.078
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00022	**<0.0038**	**<0.053**	--	<0.00022	**<0.02**	**<0.005**	--	<0.00011	**<0.039**
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	**0.637**	**0.42**	**0.582**	**0.27**	**0.439**	**0.548**	**0.594**	**0.42**	**0.593**	**0.204**
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00014	<0.0048	<0.026	<0.00007	<0.00014	<0.026	<0.0025	<0.00007	<0.001	**0.177**
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.221	0.137	0.241	0.094	0.346	0.343	0.466	0.19	0.396	0.113
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00008	<0.0057	<0.032	0.0041	<0.00008	<0.031	0.0131	0.0092	0.00268	<0.059
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.0262	0.0115	0.022	0.0099	0.0181	<0.02	0.0114	0.009	0.00778	<0.039
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	**0.00194**	**<0.0038**	**<0.021**	<0.0004	<0.00005	**<0.02**	**<0.002**	<0.00007	<0.00005	**<0.039**
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	**0.000995**	**<0.0038**	**<0.021**	0.00014 J	<0.00005	**<0.02**	**<0.002**	<0.00008	<0.00012	**<0.039**
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00007	**<0.0076**	**<0.042**	<0.00009	<0.00007	**<0.041**	**<0.004**	<0.00009	<0.00008	**<0.078**
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.00009	<0.0038	**<0.021**	<0.0002	<0.00009	**<0.02**	<0.002	0.00033	<0.0001	**<0.039**
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	0.00176	<0.0038	<0.021	0.00032	<0.00007	<0.02	<0.002	<0.00007	<0.00007	<0.039
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	**0.172**	**0.115**	**0.195**	0.079	**0.23**	**0.233**	**0.29**	**0.12**	**0.267**	0.071
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.0001	<0.0038	<0.021	<0.00007	<0.0001	<0.02	<0.002	<0.00007	<0.00006	<0.039
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.0209	0.0044	<0.021	0.0035	0.00289	<0.02	0.0021	0.0026	0.00217	<0.039
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.108	0.0701	0.109	0.047	0.157	0.155	0.182	0.089	0.193	0.045
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	**14.8**	**23.6**	**25.5**	**9.7**	**6.75**	**7.93**	**7.43**	**3.3**	**7.81**	**4.75**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00006	<0.0076	**<0.042**	<0.00009	<0.00006	**<0.041**	<0.004	<0.00009	<0.00007	**<0.078**
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.0048	<0.026	<0.00009	<0.00005	<0.026	<0.0025	<0.00009	<0.00005	<0.049
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00019	**<0.0038**	**<0.021**	<0.00008	<0.00019	**<0.02**	**<0.002**	<0.00008	<0.001	**<0.039**
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.112	0.0502	0.099	0.038	0.121	0.118	0.12	0.078	0.0837	<0.039
Phenol	108-95-2	8270	7.33E+00	2.19E+01	**14.8**	**20.2**	**16.5**	5.5	0.235	0.364	<0.002	0.005	<0.00007	<0.039
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00839	0.0076	<0.021	0.002	0.00111	<0.02	<0.002	0.0013	0.00127	<0.039

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-22A			MW-24A	MW24AR	MW-25A			
					1/29/2008	7/14/2008	2/3/2009	1/28/2008	2/5/2009	3/15/2007	1/28/2008	7/14/2008	2/3/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds													
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00052	<0.00109	<0.0005	<0.00052	<0.0005	<0.00245	<0.00052	<0.00052	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00025	<0.00112	<0.0005	<0.00025	<0.0005	<0.00257	<0.00025	<0.00025	<0.0005
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00047	<0.0015	<0.0005	<0.00047	<0.0005	<0.00239	<0.00047	<0.00047	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00025	<0.00142	<0.0005	<0.00025	<0.0005	<0.00203	<0.00025	<0.00025	0.0029 J
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00054	<0.00122	<0.0005	<0.00054	<0.0005	<0.00195	<0.00054	<0.00054	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00041	<0.00138	<0.0005	<0.00041	<0.0005	<0.00274	<0.00041	<0.00041	0.00074 J
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00127	<0.00302	<0.001	<0.00127	<0.001	<0.00581	<0.00127	<0.00127	0.0047 J
Semivolatile Organic Compounds													
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00008	<0.00008	<0.0001	<0.00008	<0.0001	<0.00004	<0.00008	<0.00009	<0.0001
2,4-Dimethylpheno	105-67-9	8270	4.04E-01	1.46E+00	<0.00029	<0.00028	<0.00008	<0.00029	<0.00008	<0.00005	<0.00029	<0.00033	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.0002	<0.00019	<0.00009	<0.00019	<0.00009	<0.00009	<0.00019	<0.00022	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.0002	<0.00019	<0.00007	<0.00019	<0.00007	<0.0001	<0.00019	<0.00022	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00039	<0.00038	<0.00012	<0.00038	<0.00012	<0.00004	<0.00038	<0.00044	<0.00012
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.0002	<0.00019	--	<0.00019	--	<0.00022	<0.00019	<0.00022	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.00039	<0.00038	<0.00007	<0.00038	<0.00007	<0.00008	<0.00038	<0.00044	0.024
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00024	<0.00024	<0.00007	<0.00024	<0.00007	<0.00014	<0.00024	<0.00028	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.00029	<0.00028	<0.00009	<0.00029	<0.00009	0.00102	0.00038 J	<0.00033	0.034
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00029	<0.00028	<0.00006	<0.00029	<0.00006	<0.00008	<0.00029	<0.00033	0.0004
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.0002	<0.00019	0.0002	<0.00019	<0.00007	0.000292	0.00067	<0.00022	0.0005
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.0002	<0.00019	<0.00015	<0.00019	<0.00007	0.000277	<0.00019	<0.00022	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.0002	<0.00019	<0.00008	<0.00019	<0.00008	<0.00005	<0.00019	**<0.00022**	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00039	<0.00038	<0.00009	<0.00038	<0.00009	<0.00007	<0.00038	<0.00044	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	**0.0104**	<0.00019	0.00033	<0.00019	0.00031	<0.00009	0.00021 J	<0.00022	0.00033
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.0002	<0.00019	0.00014 J	<0.00019	<0.00007	0.000285	<0.00019	<0.00022	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.00029	<0.00028	<0.00008	0.000571	<0.00008	0.00018 J	0.000601	<0.00033	0.018
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.0002	<0.00019	0.00017 J	0.00063 J	0.0019	<0.0001	<0.00019	<0.00022	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.0002	<0.00019	<0.00007	0.000529	<0.00007	0.00099	0.000556	<0.00022	0.00057
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.0002	<0.00019	<0.00007	<0.00019	<0.00007	0.00027	0.00033 J	<0.00022	0.0049
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	<0.00039	<0.00038	<0.0001	<0.00038	<0.0001	0.00083	0.0011	<0.00044	**0.45**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00039	<0.00038	<0.00009	<0.00038	<0.00009	<0.00006	<0.00038	<0.00044	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00024	<0.00024	<0.00009	<0.00024	<0.00009	<0.00005	<0.00024	<0.00028	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.0002	<0.00019	<0.00008	<0.00019	<0.00008	<0.00019	<0.00019	<0.00022	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.0002	<0.00019	<0.00007	0.000677	<0.00007	0.000844	0.000715	<0.00022	0.0034
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.0002	<0.00019	<0.00007	<0.00019	<0.00007	<0.00007	<0.00019	<0.00022	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.0002	<0.00019	0.00013 J	0.00041 J	<0.00007	0.000786	0.000484	<0.00022	0.00036

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-26A				MW-27A			MW-28A			
					3/11/2007	1/29/2008	7/14/2008	2/3/2009	3/15/2007	1/28/2008	7/14/2008	3/9/2007	1/29/2008	7/14/2008	2/3/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds															
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.00052	<0.0005	<0.00245	<0.00052	<0.00109	<0.00245	<0.00052	<0.00052	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00257	<0.00025	<0.00025	<0.0005	<0.00257	<0.00025	<0.00112	<0.00257	<0.00025	<0.00025	<0.0005
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.00047	<0.0005	<0.00239	<0.00047	<0.0015	<0.00239	<0.00047	<0.00047	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00203	<0.00025	<0.00025	<0.0005	<0.00203	<0.00025	<0.00142	<0.00203	<0.00025	<0.00025	<0.0005
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.00054	<0.0005	<0.00195	<0.00054	<0.00122	<0.00195	<0.00054	<0.00054	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	<0.00041	<0.00041	<0.0005	<0.00274	<0.00041	<0.00138	<0.00274	<0.00041	<0.00041	<0.0005
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00581	<0.00127	<0.00127	<0.001	<0.00581	<0.00127	<0.00302	<0.00581	<0.00127	<0.00127	<0.001
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00004	<0.00008	<0.00008	<0.0001	<0.00004	<0.00008	<0.00008	<0.00006	<0.00008	<0.00008	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00005	<0.0003	<0.0003	0.00054	<0.00005	<0.00029	<0.0003	<0.00018	<0.0003	<0.00032	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009	<0.0002	<0.0002	<0.00009	<0.00009	<0.00019	<0.0002	<0.00007	<0.0002	<0.00021	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.0001	<0.0002	<0.0002	<0.00007	<0.0001	<0.00019	<0.0002	<0.00006	<0.0002	<0.00021	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.0004	<0.0004	<0.00012	<0.00004	<0.00038	<0.0004	<0.00004	<0.0004	<0.00042	<0.00012
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.00022	<0.0002	<0.0002	--	<0.00022	<0.00019	<0.0002	<0.0001	<0.0002	<0.00021	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.000407	<0.0004	<0.0004	0.0024	<0.00008	<0.00038	<0.0004	<0.00006	<0.0004	<0.00042	<0.00007
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00014	<0.00025	<0.00025	<0.00007	<0.00014	<0.00024	<0.00025	<0.000952	<0.00025	<0.00026	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.045	0.0519	0.0173	0.015	<0.00004	<0.00029	<0.0003	<0.00005	<0.0003	<0.00032	<0.00009
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00008	<0.0003	<0.0003	<0.00006	<0.00008	<0.00029	<0.0003	<0.00005	<0.0003	<0.00032	<0.00006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.00128	0.0018	0.00047 J	0.00079	<0.00004	<0.00019	<0.0002	<0.00004	0.000611	<0.00021	<0.00007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00005	<0.0002	<0.0002	0.00016 J	<0.00005	<0.00019	<0.0002	<0.00005	<0.0002	<0.00021	<0.00013
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00005	<0.0002	<0.0002	<0.00008	<0.00005	<0.00019	<0.0002	<0.00011	<0.0002	**<0.00021**	0.00011 J
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00007	<0.0004	<0.0004	<0.00009	<0.00007	<0.00038	<0.0004	<0.00008	<0.0004	<0.00042	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.00009	**0.0214**	<0.0002	0.00042	<0.00009	0.00039 J	0.00026 J	<0.000095	0.0003 J	<0.00021	0.0037
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.0002	<0.0002	0.00018 J	<0.00007	<0.00019	<0.0002	<0.00007	<0.0002	<0.00021	0.00013 J
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.00339	0.00492	0.00123	0.0026	<0.00006	<0.00029	<0.0003	<0.00005	0.00032 J	<0.00032	<0.00008
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00013 J	<0.0002	<0.0002	<0.00007	<0.0001	<0.00019	<0.0002	0.00012 J	<0.0002	<0.00021	0.00016 J
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.0024	0.00244	0.000523	0.00091	<0.00004	<0.00019	<0.0002	<0.00007	<0.0002	<0.00021	0.00012 J
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.00108	0.00235	0.000742	0.0016	<0.00004	<0.00019	<0.0002	<0.00004	<0.0002	<0.00021	<0.00007
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.00245	0.00078	<0.0004	0.0074	0.00072	<0.00038	<0.0004	0.000339	0.000699	<0.00042	0.00017 J
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00006	<0.0004	<0.0004	<0.00009	<0.00006	<0.00038	<0.0004	<0.00007	<0.0004	<0.00042	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00025	<0.00025	<0.00009	<0.00005	<0.00024	<0.00025	<0.00005	<0.00025	<0.00026	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00019	<0.0002	<0.0002	<0.00008	<0.00019	<0.00019	<0.0002	<0.000952	<0.0002	<0.00021	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.000254	<0.0002	<0.0002	0.003	<0.00004	<0.00019	<0.0002	<0.00004	0.00046 J	<0.00021	<0.00007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.0002	<0.0002	<0.00007	0.000212	<0.00019	<0.0002	<0.00007	<0.0002	<0.00021	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00107	0.00126	0.00021 J	0.00069	<0.00004	<0.00019	<0.0002	<0.00005	0.00041 J	<0.00021	0.00016 J

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-29A		MW-30A			MW-31A		
					3/8/2007	1/28/2008	3/18/2004	3/10/2007	1/30/2008	3/17/2004	3/10/2007	1/31/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds												
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	**<0.0136**	<0.00245	<0.00052	**<0.0136**	<0.00245	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00257	<0.00025	**0.213**	**0.197**	**0.147**	**0.192**	**0.174**	**0.178**
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.0155	<0.00239	<0.00047	<0.0155	<0.00239	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00203	<0.00025	0.276	0.14	0.153	0.191	0.171	0.166
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	**0.0465 J**	<0.00195	<0.00054	**0.0175 J**	<0.00195	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	<0.00041	0.998	0.584	0.645	0.426	0.301	0.337
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00581	<0.00127	0.77	0.345	0.386	0.608	0.505	0.562
Semivolatile Organic Compounds												
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00006	<0.0002	<0.00005	<0.00006	**<0.02**	<0.0005	<0.00006	**<0.002**
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00018	<0.00057	**6.489**	**5.96**	**4.1**	**3.718**	**5.08**	**4.74**
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00007	<0.00038	<0.000009	<0.00007	**<0.038**	<0.00009	<0.00007	**<0.0038**
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00006	<0.00038	<0.000026	<0.00006	**<0.038**	<0.00026	<0.00006	**<0.0038**
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.00076	<0.000076	<0.00004	<0.076	<0.000076	<0.00004	<0.0076
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.0001	<0.00038	<0.000295	<0.0001	**<0.038**	<0.000295	<0.0001	**<0.0038**
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.00006	<0.00076	**1.378**	**0.943**	**0.573**	**0.4731**	**0.844**	**0.887**
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000952	<0.00048	<0.000285	<0.000952	**<0.048**	<0.000285	<0.000952	<0.0048
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.00005	<0.00057	0.361	0.404	0.215	0.3594	0.399	0.206
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00005	<0.00057	0.01131	0.0108	<0.057	0.006706	0.00576	<0.0057
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.00004	<0.00038	0.03537	0.0482	<0.038	0.02971	0.0981	0.0145
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00005	<0.00038	<0.000267	<0.00005	**<0.038**	<0.000267	**0.00776**	**<0.0038**
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00011	**<0.00038**	7.5E-05 J	<0.00011	**<0.038**	<0.00007	**0.00243**	**<0.0038**
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00008	<0.00076	<0.000009	<0.00008	**<0.076**	<0.00009	<0.00008	**<0.0076**
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.00072	0.00232 J	<0.000172	<0.000095	**<0.038**	<0.000172	0.00132	<0.0038
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.00038	<0.00009	<0.00007	<0.038	<0.00009	0.00761	<0.0038
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.00005	<0.00057	**0.2616**	**0.322**	**0.156**	**0.2546**	**0.326**	**0.169**
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00015 J	<0.00038	<0.000143	<0.00006	<0.038	<0.000143	<0.00006	<0.0038
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.0001 J	<0.00038	0.01362	0.0211	<0.038	0.01447	0.107	0.006
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.00004	<0.00038	0.1861	0.228	0.109	0.2093	0.255	0.123
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.00017 J	<0.00076	**31.12**	**17.8**	**9.77**	**11.35**	**17**	**13.7**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00007	<0.00076	<0.000143	<0.00007	**<0.076**	<0.000143	<0.00007	<0.0076
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00048	<0.00009	<0.00005	<0.048	<0.00009	<0.00005	<0.0048
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000952	<0.00038	<0.000038	<0.000952	**<0.038**	**0.0803**	**0.0658**	**0.0895**
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.00009 J	<0.00038	0.1575	0.228	0.075	0.181	0.347	0.0774
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.00038	0.6359	1.42	0.174	0.7687	2.88	1.56
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00008 J	<0.00038	0.007218	0.013	<0.038	0.007197	0.0502	0.0084

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-32A					MW-33A				
					3/18/2004	3/15/2007	1/28/2008	7/14/2008	2/3/2009	3/18/2004	3/15/2007	1/29/2008	7/14/2008	2/3/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	**<0.0245**	<0.00052	<0.00109	<0.0005	<0.00136	<0.00245	<0.00052	<0.00109	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	**0.455**	**2.51**	**0.884**	**0.884**	**0.69**	**0.0115**	**0.0301**	<0.00025	**0.0062**	0.00071 J
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.0239	<0.00047	<0.0015	<0.0005	<0.00155	<0.00239	<0.00047	<0.0015	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	0.316	0.453	0.373	0.365	0.34	<0.00137	0.0235	<0.00025	<0.00142	<0.0005
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	**<0.0195**	<0.00054	<0.00122	<0.0005	<0.0013	<0.00195	<0.00054	<0.00122	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	0.667	**1.91**	0.95	0.983	0.74	<0.00136	<0.00274	<0.00041	<0.00138	<0.0005
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.84	1.27	1.02	1.03	0.88	<0.00441	0.0214	<0.00127	<0.00302	<0.001
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.00004	**<0.02**	**<0.008**	<0.0001	<0.00005	<0.00004	<0.0001	<0.00008	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	**5.865**	<0.00005	**9.57**	**12.6**	**2.2**	<0.000116	0.00128	<0.0005	<0.00029	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.00009	**<0.044**	**<0.019**	<0.00009	<0.000009	<0.00009	<0.00033	<0.00019	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.0001	**<0.044**	**<0.019**	<0.00007	<0.000026	<0.0001	<0.00033	<0.00019	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00004	<0.089	<0.039	<0.00012	<0.000076	<0.00004	<0.00067	<0.00038	<0.00012
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00022	**<0.044**	**<0.019**	--	<0.000295	<0.00022	<0.00033	<0.00019	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	**1.896**	0.0106	**1.13**	**0.989**	**1.2**	0.009677	0.0235	<0.00067	<0.00038	0.00066
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00014	**<0.056**	<0.024	<0.00007	<0.000285	<0.00014	<0.00042	<0.00024	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.4108	0.201	0.341	0.294	0.34	0.02102	0.0659	0.0133	0.0124	0.013
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.00778	<0.00008	<0.067	<0.029	0.006	<0.000076	0.00053	<0.0005	<0.00029	<0.00006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.0318	0.0323	<0.044	0.043	0.077	0.000762	0.00134	<0.00033	0.00024 J	0.0002 J
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	0.00039 J	**0.00138**	**<0.044**	**<0.019**	**0.01**	0.000548	0.000407	<0.00033	<0.00019	0.0002 J
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	5.5E-05 J	**0.000627**	**<0.044**	**<0.019**	**0.003**	<0.000007	<0.00005	**<0.00033**	<0.00019	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	**<0.003**	**<0.089**	**<0.039**	<0.00009	<0.000009	<0.00007	<0.00067	<0.00038	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.000172	<0.00009	**<0.044**	**<0.019**	0.00042	<0.000172	<0.00009	0.00137 J	<0.00019	0.00033
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	0.00032 J	0.00113	<0.044	<0.019	0.0087	0.00034 J	<0.00007	<0.00033	<0.00019	0.00012 J
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	**0.3393**	**0.181**	**0.298**	**0.26**	**0.32**	0.005338	0.0144	0.00074	0.000628	0.00078
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00037 J	<0.0001	<0.044	<0.019	<0.00007	<0.000143	0.00014 J	0.00055 J	<0.00019	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.01255	0.0235	<0.044	0.026	0.098	0.01085	0.00506	0.00141	0.00154	0.0022
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.2088	0.107	0.163	0.156	0.22	0.00526	0.012	0.0013	0.000939	0.00067
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	**31.54**	**11.2**	**25**	**16.2**	**16**	0.0437	**0.602**	0.00167	0.0047	0.0028
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00143	<0.00006	**<0.089**	<0.039	<0.00009	<0.000143	<0.00006	<0.00067	<0.00038	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	<0.056	<0.024	<0.00009	<0.00009	<0.00005	<0.00042	<0.00024	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.00019	**<0.044**	**<0.019**	<0.00008	<0.000038	<0.00019	<0.00033	<0.00019	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.213	0.145	0.177	0.185	0.45	0.003058	0.00624	<0.00033	0.00028 J	0.00037
Phenol	108-95-2	8270	7.33E+00	2.19E+01	4.494	**21.5**	**9.01**	**8.83**	1.4	<9.53E-05	0.00108	<0.00033	<0.00019	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.007424	0.00901	<0.044	<0.019	0.062	0.007666	0.00397	0.0019	0.00167	0.0024

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-35A				MW-36A				MW-38A			
					3/9/2007	1/29/2008	7/14/2008	2/3/2009	3/9/2007	1/29/2008	7/14/2008	2/3/2009	3/8/2007	1/29/2008	7/14/2008	2/3/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds																
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.00052	<0.0005	<0.00245	<0.00052	<0.00052	<0.0005	<0.00245	<0.00052	<0.00109	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00257	<0.00025	<0.00025	<0.0005	<0.00257	<0.00025	<0.00025	<0.0005	<0.00257	<0.00025	<0.00112	<0.0005
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.00047	<0.0005	<0.00239	<0.00047	<0.00047	<0.0005	<0.00239	<0.00047	<0.0015	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00203	<0.00025	<0.00025	<0.0005	<0.00203	<0.00025	<0.00025	<0.0005	<0.00203	<0.00025	<0.00142	<0.0005
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.00054	<0.0005	<0.00195	<0.00054	<0.00054	<0.0005	<0.00195	<0.00054	<0.00122	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	<0.00041	<0.00041	<0.0005	<0.00274	<0.00041	<0.00041	<0.0005	<0.00274	<0.00041	<0.00138	<0.0005
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00581	<0.00127	<0.00127	<0.001	<0.00581	<0.00127	<0.00127	<0.001	<0.00581	<0.00127	<0.00302	<0.001
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00006	<0.00008	0.00012 J	<0.0001	<0.00006	<0.00008	<0.00008	<0.0001	<0.00006	<0.00008	<0.00008	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00018	<0.0003	<0.00028	<0.00008	0.000266	<0.0003	<0.00029	<0.00008	<0.00018	<0.00029	<0.00029	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00007	<0.0002	<0.00019	<0.00009	<0.00007	<0.0002	<0.0002	<0.00009	<0.00007	<0.00019	<0.0002	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00006	<0.0002	<0.00019	<0.00007	<0.00006	<0.0002	<0.0002	<0.00007	<0.00006	<0.00019	<0.0002	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.0004	<0.00038	<0.00012	<0.00004	<0.0004	<0.00039	<0.00012	<0.00004	<0.00039	<0.00039	<0.00012
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.0001	<0.0002	<0.00019	--	<0.0001	<0.0002	<0.0002	--	<0.0001	<0.00019	<0.0002	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.00006	<0.0004	<0.00038	<0.00007	<0.00006	<0.0004	<0.00039	<0.00007	<0.00006	<0.00039	<0.00039	0.00044
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000952	<0.00025	<0.00024	<0.00007	<0.000952	<0.00025	<0.00024	<0.00007	<0.000952	<0.00024	<0.00024	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.0109	0.0176	0.00656	0.0035	0.00046	<0.0003	<0.00029	<0.00009	<0.00005	<0.00029	<0.00029	<0.00009
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.00014 J	<0.0003	<0.00028	<0.00006	<0.00005	<0.0003	<0.00029	<0.00006	<0.00005	<0.00029	<0.00029	<0.00006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.000693	0.000542	0.00023 J	<0.00007	<0.00004	0.00065	<0.0002	<0.00007	<0.00004	<0.00019	<0.0002	<0.00007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	0.0001 J	<0.0002	<0.00019	<0.00007	<0.00005	<0.0002	<0.0002	<0.00007	<0.00005	<0.00019	<0.0002	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00011	<0.0002	<0.00019	<0.00008	<0.00011	<0.0002	<0.0002	<0.00008	<0.00011	<0.00019	<0.0002	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00008	<0.0004	<0.00038	<0.00009	<0.00008	<0.0004	<0.00039	<0.00009	<0.00008	<0.00039	<0.00039	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.00011 J	0.00453	<0.00019	0.00024	0.00014 J	0.00061 J	<0.0002	0.00045	<0.000095	0.00078 J	0.00022 J	0.00042
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.0002	<0.00019	<0.00007	<0.00007	<0.0002	<0.0002	<0.00007	<0.00007	<0.00019	<0.0002	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.00245	0.00819	0.00319	0.0014	<0.00005	0.00049 J	<0.00029	<0.00008	<0.00005	<0.00029	<0.00029	<0.00008
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.000978	0.00046 J	<0.00019	<0.00007	0.000229	<0.0002	<0.0002	<0.00007	0.000239	<0.00019	<0.0002	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.00225	0.0014	0.00105	0.00034	<0.00007	0.000526	<0.0002	<0.00007	0.000416	<0.00019	<0.0002	<0.00007
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.0019	0.00328	0.00161	0.00062	<0.00004	0.00028 J	<0.0002	<0.00007	<0.00004	<0.00019	<0.0002	<0.00007
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.000262	0.0257	0.000704	<0.0001	0.000193	0.00119	<0.00039	0.0006	0.00015 J	<0.00039	<0.00039	0.006
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00007	<0.0004	<0.00038	<0.00009	<0.00007	<0.0004	<0.00039	<0.00009	<0.00007	<0.00039	<0.00039	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00025	<0.00024	<0.00009	<0.00005	<0.00025	<0.00024	<0.00009	<0.00005	<0.00024	<0.00024	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000952	<0.0002	<0.00019	<0.00008	<0.000952	<0.0002	<0.0002	<0.00008	<0.000952	<0.00019	<0.0002	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.00004	0.00046 J	<0.00019	<0.00007	<0.00004	0.000727	<0.0002	<0.00007	<0.00004	<0.00019	<0.0002	<0.00007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.0002	<0.00019	<0.00007	<0.00007	<0.0002	<0.0002	<0.00007	<0.00007	<0.00019	<0.0002	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00124	0.000967	0.000547	0.00025	0.000319	0.000531	<0.0002	0.00015 J	0.000245	<0.00019	<0.0002	<0.00007

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-44A				MW-49A				MW-50A			
					3/9/2007	1/30/2008	7/14/2008	2/3/2009	3/16/2007	1/31/2008	7/15/2008	2/4/2009	3/16/2007	1/31/2008	7/16/2008	2/4/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds																
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.00052	<0.0005	<0.00245	<0.00052	<0.00052	<0.0005	<0.00245	<0.00052	<0.00109	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	**0.00681**	**0.00751**	**0.00635**	0.003 J	**0.0809**	**0.0108**	**0.165**	**0.24**	<0.00257	<0.00025	<0.00112	<0.0005
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.00047	<0.0005	0.18	0.00865	0.00702	0.0053	<0.00239	<0.00047	<0.0015	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00203	0.00363 J	<0.00025	<0.0005	0.0384	0.0238	0.0837	0.084	<0.00203	<0.00025	<0.00142	<0.0005
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.00054	<0.0005	<0.00195	<0.00054	<0.00054	<0.0005	<0.00195	<0.00054	<0.00122	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	0.00291 J	0.002 J	<0.00041	<0.0005	0.048	0.00805	0.0415	0.077	<0.00274	<0.00041	<0.00138	<0.0005
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.00846 J	0.0186	0.006 J	0.0013 J	0.0902	0.0352	0.187	0.2	<0.00581	<0.00127	<0.00302	<0.001
Semivolatile Organic Compounds																
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00006	<0.00008	<0.00008	<0.0001	<0.00004	**<0.004**	**<0.002**	<0.0001	<0.00004	<0.00008	<0.00009	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00018	<0.0003	<0.00032	<0.00008	**0.805**	0.025	**6.08**	**6.8**	<0.00005	<0.00029	<0.00033	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00007	<0.0002	<0.00021	<0.00009	<0.00009	**<0.0095**	**<0.004**	<0.00009	<0.00009	<0.00019	<0.00022	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00006	<0.0002	<0.00021	<0.00007	<0.0001	**<0.0095**	**<0.004**	<0.00007	<0.0001	<0.00019	<0.00022	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.0004	<0.00042	<0.00012	<0.00004	<0.019	<0.008	<0.00012	<0.00004	<0.00038	<0.00044	<0.00012
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.0001	<0.0002	<0.00021	--	<0.00022	**<0.0095**	**<0.01**	--	<0.00022	<0.00019	<0.00056	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.00596	0.0244	0.00779	0.00097	**0.442**	0.0693	**0.492**	**0.6**	<0.00008	<0.00038	<0.00044	<0.00007
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000952	<0.00025	<0.00026	<0.00007	<0.00014	<0.012	<0.005	<0.00007	<0.00014	<0.00024	<0.00028	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.0859	0.127	0.202	0.12	0.268	0.215	0.468	0.32	<0.00004	<0.00029	<0.00033	<0.00009
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00005	<0.0003	<0.00032	0.0012	0.00325	<0.014	<0.006	0.0039	<0.00008	<0.00029	<0.00033	<0.00006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.00243	0.00195	0.00393	0.0046	0.0217	<0.0095	0.0164	0.01	<0.00004	<0.00019	<0.00022	0.00011 J
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00005	<0.0002	<0.00021	<0.00007	0.000463	**<0.0095**	**<0.004**	<0.0007	<0.00005	<0.00019	<0.00022	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00011	<0.0002	**<0.00021**	<0.00008	<0.00005	**<0.0095**	**<0.004**	**0.00024**	<0.00005	<0.00019	**<0.00022**	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00008	<0.0004	<0.00042	<0.00009	<0.00007	**<0.019**	**<0.008**	<0.00009	<0.00007	<0.00038	<0.00044	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.000095	0.00097 J	<0.00021	0.00043	0.00162	**<0.0095**	<0.004	0.0009	<0.00009	<0.00019	<0.00022	0.0035
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.0002	<0.00021	<0.00007	0.000482	<0.0095	<0.004	0.0006	<0.00007	<0.00019	<0.00022	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.0117	0.0642	**0.125**	0.054	**0.176**	**0.148**	**0.293**	**0.21**	0.000438	<0.00029	<0.00033	0.00025
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.000232	<0.0002	<0.00021	<0.00007	<0.0001	<0.0095	<0.004	<0.00007	<0.0001	<0.00019	<0.00022	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.00201	0.00269	0.00367	0.0032	0.0228	<0.0095	0.0063	0.0058	0.000252	<0.00019	<0.00022	<0.00007
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.0214	0.045	0.0865	0.056	0.155	0.102	0.205	0.15	0.000382	<0.00019	<0.00022	<0.00007
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.0836	**0.816**	0.287	0.021	**4.95**	**2.13**	**11**	**9**	<0.00007	<0.00038	<0.00044	0.0003
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00007	<0.0004	<0.00042	<0.00009	<0.00006	<0.019	<0.008	<0.00009	<0.00006	<0.00038	<0.00044	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00025	<0.00026	<0.00009	<0.00005	<0.012	<0.005	<0.00009	<0.00005	<0.00024	<0.00028	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000952	<0.0002	<0.00021	<0.00008	<0.00019	**<0.0095**	**<0.004**	<0.00008	<0.00019	<0.00019	<0.00022	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.0107	0.0161	0.0184	0.02	0.206	0.0939	0.147	0.096	0.000411	0.00026 J	<0.00022	0.00031
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.0002	<0.00021	<0.00007	<0.00007	<0.0095	0.0111	<0.00007	<0.00007	<0.00019	<0.00022	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.000864	0.00159	0.00156	0.0016	0.0101	<0.0095	<0.004	0.0046	0.00015 J	<0.00019	<0.00022	<0.00007

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-51A			MW-52A		MW55A	MW57A	MW58A	MW59A
					3/13/2007	1/31/2008	2/4/2009	3/12/2007	1/31/2008	2/4/2009	2/5/2009	2/5/2009	2/5/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds													
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.0005	**<0.0245**	<0.00052	<0.0005	<0.0005	<0.0025	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00257	<0.00025	<0.0005	**0.696**	**0.0576**	**0.19**	**0.26**	**0.052**	<0.0005
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.0005	<0.0239	<0.00047	<0.0005	<0.0005	<0.0025	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00203	<0.00025	<0.0005	0.256	0.0892	0.15	0.34	0.079	<0.0005
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.0005	**<0.0195**	<0.00054	<0.0005	<0.0005	<0.0025	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	<0.00041	<0.0005	0.898	0.103	0.44	0.63	0.022 J	<0.0005
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00581	<0.00127	<0.001	0.767	0.24	0.35	0.92	0.1	<0.001
Semivolatile Organic Compounds													
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00004	<0.00008	<0.0001	<0.00004	**<0.008**	<0.0001	<0.0001	<0.0001	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00005	<0.00029	<0.00008	<0.00005	**1.54**	**1.2**	**1.8**	0.047	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009	<0.00019	<0.00009	<0.00009	**<0.019**	<0.00009	<0.00009	<0.00009	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.0001	<0.00019	<0.00007	<0.0001	**<0.019**	<0.00007	<0.00007	<0.00007	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.00038	<0.00012	<0.00004	<0.038	<0.00012	<0.00012	<0.00012	<0.00012
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	<0.00022	<0.00019	--	<0.00022	**<0.019**	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.00008 J	<0.00038	<0.00007	**0.964**	**0.929**	**0.63**	**0.73**	**0.22**	<0.00007
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00014	<0.00024	<0.00007	<0.00014	<0.024	<0.00007	<0.00007	<0.00007	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.00004	<0.00029	<0.00009	0.353	0.494	0.28	0.24	0.31	<0.00009
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00008	<0.00029	<0.00006	<0.00008	<0.029	0.0037	0.0056	0.0012	<0.00006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.00004	<0.00019	<0.00007	0.0502	0.046	0.047	0.044	0.0045	<0.00007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00005	<0.00019	<0.00007	**0.00137**	**<0.019**	**0.01**	**0.01**	<0.00007	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00005	<0.00019	<0.00008	**0.000714**	**<0.019**	**0.0069**	**0.0045**	<0.00008	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00007	<0.00038	<0.00009	<0.00007	**<0.038**	<0.00009	<0.00009	<0.00009	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.00009	<0.00019	0.00034	<0.00009	**<0.019**	0.00073	0.002	0.0003	0.0006
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.00019	<0.00007	0.00133	<0.019	0.0099	0.0094	<0.00007	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.00006	0.000566	<0.00008	**0.258**	**0.373**	**0.2**	**0.21**	**0.23**	<0.00008
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.0001	<0.00019	<0.00007	<0.0001	<0.019	<0.00007	<0.00007	0.0012	0.00077
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.00018 J	<0.00019	<0.00007	0.0259	0.027	0.052	0.054	0.0025	<0.00007
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.00004	0.000602	<0.00007	0.162	0.263	0.16	0.083	0.15	<0.00007
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.0011	0.00182	0.00029	**20.3**	**10.3**	**17**	**16**	**2.4**	<0.0001
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00006	<0.00038	<0.00009	<0.00006	<0.038	<0.00009	<0.00009	<0.00009	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00024	<0.00009	<0.00005	<0.024	<0.00009	<0.00009	<0.00009	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00019	<0.00019	<0.00008	<0.00019	**<0.019**	0.00053	<0.00008	<0.00008	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.00013 J	0.00097	<0.00007	0.204	0.24	0.2	0.22	0.041	<0.00007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	0.00044 J	<0.00007	<0.00007	0.038	0.15	0.052	0.00029	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00019 J	<0.00019	<0.00007	0.00979	0.039	0.032	0.038	0.0012	<0.00007

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-1
Summary of Groundwater Sampling Results - A-TZ Monitoring Wells
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW60A	MW61A	MW64A	CPT56RATZ
					2/4/2009	2/3/2009	2/4/2009	7/23/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds								
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.0005	<0.0005	<0.0005	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.0005	<0.0005	<0.0005	<0.00025
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.0005	<0.0005	<0.0005	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.0005	<0.0005	<0.0005	<0.00025
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0005	<0.0005	<0.0005	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.0005	<0.0005	<0.0005	<0.00041
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.001	<0.001	<0.001	<0.00127
Semivolatile Organic Compounds								
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.0001	<0.0001	<0.0001	<0.0002
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00008	<0.00008	<0.00008	<0.0006
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009	<0.00009	<0.00009	<0.0004
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00007	<0.00007	<0.00007	<0.0004
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00012	<0.00012	<0.00012	<0.0008
2-Methyl-4,6-dinitropheno	534-52-1	8270	2.44E-03	7.30E-03	--	--	--	<0.001
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.00028	0.00041	0.00014 J	0.00088
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00007	<0.00007	<0.00007	<0.0005
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.00045	0.00017 J	0.00029	<0.0006
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00006	<0.00006	<0.00006	<0.0006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.00034	<0.00007	0.00016 J	<0.0004
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00007	<0.00007	<0.00007	<0.0004
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00008	<0.00008	<0.00008	**<0.0004**
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00009	<0.00009	<0.00009	<0.0008
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.002	0.0017	0.0004	0.00265
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.00007	<0.00007	<0.0004
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.00035	<0.00008	0.00012 J	<0.0006
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.0023	0.011	0.02	0.00108 J
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.00039	<0.00007	0.00076	<0.0004
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.00044	0.00011 J	0.00018 J	0.00099
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.0095	0.0066	0.00092	<0.0008
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00009	<0.00009	<0.00009	<0.0008
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00009	<0.00009	<0.0005
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00008	<0.00008	<0.00008	<0.0004
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.0011	0.00021	0.00055	0.00146
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.00007	<0.00007	<0.0004
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00029	<0.00007	0.00063	<0.0004

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-2
SUMMARY OF GROUNDWATER SAMPLING RESULTS - TEMPORARY WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	TW-01	TW-02	TW-03
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds							
1,1,1-Trichloroethane	71-55-6	8260	2.00E-01	2.00E-01	--	<0.0202	<0.00202
1,1,2,2-Tetrachloroethane	79-34-5	8260	4.56E-03	1.02E-02	--	**<0.0091**	<0.00091
1,1,2-Trichloroethane	79-00-5	8260	5.00E-03	5.00E-03	--	**<0.0212**	<0.00212
1,1-Dichloroethane	75-34-3	8260	4.04E+00	1.46E+01	--	<0.024	<0.0024
1,1-Dichloroethene	75-35-4	8260	7.00E-03	7.00E-03	--	**<0.0134**	<0.00134
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	**<0.0245**	<0.00245
1,2-Dichloropropane	78-87-5	8260	5.00E-03	5.00E-03	--	**<0.0252**	<0.00252
2-Hexanone	591-78-6	8260	1.47E+00	4.38E+00	--	<0.0162	<0.00162
4-Methyl-2-pentanone (MIBK)	108-10-1	8260	1.96E+00	5.84E+00	--	<0.0169	<0.00169
Acetone	67-64-1	8260	2.20E+01	6.57E+01	--	0.134	<0.00326
Benzene	71-43-2	8260	5.00E-03	5.00E-03	**0.0906**	**0.583**	0.00413 J
Bromodichloromethane	75-27-4	8260	1.47E-02	3.30E-02	--	**<0.0263**	<0.00263
Bromoform	75-25-2	8260	1.16E-01	2.59E-01	--	<0.0172	<0.00172
Bromomethane	74-83-9	8260	3.42E-02	1.02E-01	--	<0.0383	<0.00383
Carbon Disulfide	75-15-0	8260	2.44E+00	7.30E+00	--	<0.0191	<0.00191
Carbon Tetrachloride	56-23-5	8260	5.00E-03	5.00E-03	--	**<0.0194**	<0.00194
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.0239	<0.00239
Chloroethane	75-00-3	8260	9.78E+00	2.92E+01	--	<0.0205	<0.00205
Chloroform	67-66-3	8260	2.44E-01	7.30E-01	--	<0.0277	<0.00277
Chloromethane	74-87-3	8260	7.02E-02	1.57E-01	--	<0.0268	<0.00268
cis-1,2-Dichloroethene	156-59-2	8260	7.00E-02	7.00E-02	--	<0.0227	<0.00227
cis-1,3-Dichloropropene	10061-01-	8260	1.69E-03	3.79E-03	--	**<0.017**	**<0.0017**
Dibromochloromethane	124-48-1	8260	1.09E-02	2.43E-02	--	**<0.0197**	<0.00197
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	0.152	**5.35**	0.00619
Methyl Ethyl Ketone (2-Butanone)	78-93-3	8260	1.47E+01	4.38E+01	--	<0.0187	<0.00187
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	**<0.0195**	<0.00195
Styrene	100-42-5	8260	1.00E-01	1.00E-01	--	<0.0223	<0.00223
Tetrachloroethene	127-18-4	8260	5.00E-03	5.00E-03	--	**<0.02**	<0.002
Toluene	108-88-3	8260	1.00E+00	1.00E+00	0.187	**28.3**	0.00376 J
trans-1,2-Dichloroethene	156-60-5	8260	1.00E-01	1.00E-01	--	<0.028	<0.0028
trans-1,3-Dichloropropene	10061-02-	8260	9.13E-03	2.04E-02	--	**<0.0143**	<0.00143
Trichloroethene	79-01-6	8260	5.00E-03	5.00E-03	--	**<0.0232**	<0.00232
Vinyl Chloride	75-01-4	8260	2.00E-03	2.00E-03	--	**<0.0214**	**<0.00214**
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.278	**33.7**	0.0145 J

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-2
SUMMARY OF GROUNDWATER SAMPLING RESULTS - TEMPORARY WELLS
UPRR Houston Wood Preserving Works

			Residential TRRP Assessment Level	C/I TRRP Assessment Level	TW-01	TW-02	TW-03
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L
Semivolatile Organic Compounds							
1,2,4-Trichlorobenzene	120-82-1	8270	7.00E-02	7.00E-02	--	<0.00005	<0.00005
1,2-Dichlorobenzene	95-50-1	8270	6.00E-01	6.00E-01	--	<0.00009	<0.00009
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00004	<0.00004	<0.00004
1,3-Dichlorobenzene	541-73-1	8270	7.33E-01	2.19E+00	--	<0.00007	<0.00007
1,4-Dichlorobenzene	106-46-7	8270	7.50E-02	7.50E-02	--	<0.00008	<0.00008
2,4,5-Trichlorophenol	95-95-4	8270	2.44E+00	7.30E+00	--	<0.000095	<0.000095
2,4,6-Trichlorophenol	88-06-2	8270	2.44E-02	7.30E-02	--	<0.0001	<0.0001
2,4-Dichlorophenol	120-83-2	8270	7.33E-02	2.19E-01	--	<0.00006	<0.00006
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	**1.68**	0.132	<0.00005
2,4-Dinitrophenol	51-28-5	8270	4.04E-02	1.46E-01	--	<0.00012	<0.00012
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009	<0.00009	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.0001	<0.0001	<0.0001
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.00004	<0.00004
2-Chlorophenol	95-57-8	8270	1.22E-01	3.65E-01	--	<0.00005	<0.00005
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00022	<0.00022	<0.00022
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	**2.19**	**0.534**	**0.252**
2-Methylphenol (o-Cresol)	95-48-7	8270	1.22E+00	3.65E+00	--	<0.00006	<0.00006
2-Nitroaniline	88-74-4	8270	7.33E-03	2.19E-02	--	<0.00007	<0.00007
2-Nitrophenol	88-75-5	8270	4.04E-02	1.46E-01	--	<0.0001	<0.0001
3,3'-Dichlorobenzidine	91-94-1	8270	2.03E-03	4.54E-03	--	<0.00035	<0.00035
3-Nitroaniline	99-09-2	8270	7.33E-03	2.19E-02	--	<0.00014	<0.00014
4-Bromophenyl Phenyl Ether	101-55-3	8270	6.08E-05	1.36E-04	--	**<0.00007**	**<0.00007**
4-Chloro-3-methylphenol	59-50-7	8270	1.22E-01	3.65E-01	--	<0.0001	<0.0001
4-Chloroaniline	106-47-8	8270	4.56E-03	1.02E-02	--	<0.000095	<0.000095
4-Chlorophenyl Phenyl Ether	7005-72-3	8270	6.08E-05	1.36E-04	--	<0.00006	<0.00006
4-Methylphenol (p-Cresol)	106-44-5	8270	1.22E-01	3.65E-01	--	<0.00008	<0.00008
4-Nitroaniline	100-01-6	8270	4.56E-02	1.02E-01	--	<0.000095	<0.000095
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00014	<0.00014	<0.00014
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	1.28	0.436	0.149
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.0191	0.00781	0.0034
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.525	0.136	0.0127
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	**0.116**	**0.0449**	0.000449
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	**0.0441**	**0.0154**	<0.00005
Benzo(b)fluoranthene	205-99-2	8270	1.25E-03	2.80E-03	--	**0.0198**	<0.00006
Benzo(ghi)perylene	191-24-2	8270	7.33E-01	2.19E+00	--	0.00406	<0.00007
Benzo(k)fluoranthene	207-08-9	8270	1.25E-02	2.80E-02	--	**0.0143**	<0.00007
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00007	<0.00007	0.000734
bis(2-Chloroethyl)ether	111-44-4	8270	8.30E-04	1.86E-03	--	<0.00006	<0.00006
bis(2-chloroisopropyl)ether	108-60-1	8270	1.30E-02	2.92E-02	--	<0.00005	<0.00005
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.00009	<0.00009	<0.00009
Butyl Benzyl Phthalate	85-68-7	8270	4.80E-01	1.08E+00	--	<0.00009	<0.00009
Carbazole	86-74-8	8270	4.56E-02	1.02E-01	--	**0.24**	0.00087
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	0.111	0.0429	0.000454
Dibenzo(a,h)anthracene	53-70-3	8270	2.00E-04	2.80E-04	--	**<0.00251**	<0.00004
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	**0.99**	**<0.219**	0.0873
Diethyl Phthalate	84-66-2	8270	1.96E+01	5.84E+01	--	<0.00004	<0.00004
Dimethyl Phthalate	131-11-3	8270	1.96E+01	5.84E+01	--	<0.00006	<0.00006
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.0001	<0.0001	<0.0001
Di-n-octyl Phthalate	117-84-0	8270	4.04E-01	1.46E+00	--	<0.00006	<0.00006
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.785	0.341	0.01
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.971	0.303	0.0826
Hexachlorobenzene	118-74-1	8270	1.00E-03	1.00E-03	--	<0.00007	<0.00007
Hexachlorobutadiene	87-68-3	8270	1.17E-02	2.62E-02	--	<0.00008	<0.00008

Notes:
1. Sampling locations shown on Figures 4A an d 4B
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-2
SUMMARY OF GROUNDWATER SAMPLING RESULTS - TEMPORARY WELLS
UPRR Houston Wood Preserving Works

			Residential TRRP Assessment Level	C/I TRRP Assessment Level	TW-01	TW-02	TW-03
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L
Semivolatile Organic Compounds							
Hexachlorocyclopentadiene	77-47-4	8270	5.00E-02	5.00E-02	--	<0.0001	<0.0001
Hexachloroethane	67-72-1	8270	2.44E-02	7.30E-02	--	<0.0001	<0.0001
Indeno(1,2,3-cd)pyrene	193-39-5	8270	1.25E-03	2.80E-03	--	**0.00665**	<0.00008
Isophorone	78-59-1	8270	9.61E-01	2.15E+00	--	<0.00004	<0.00004
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	**19.9**	**2.16**	**4.1**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00006	<0.00006	<0.00006
n-Nitrosodi-n-propylamine	621-64-7	8270	1.30E-04	2.92E-04	--	<0.000095	**0.000494**
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00005	<0.00005
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00019	<0.00019	<0.00019
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	**2.11**	**0.872**	0.0823
Phenol	108-95-2	8270	7.33E+00	2.19E+01	0.0796	<0.00007	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.456	0.183	0.00501

Notes:
1. Sampling locations shown on Figures 4A an d 4B
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-10B									
					3/16/2004	3/1/2005	7/19/2005	1/5/2006	7/28/2006	1/23/2007	7/17/2007	1/28/2008	7/16/2008	1/22/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	--	--	--	--	--	--	<0.00052	--
Benzene	71-43-2	8260	5.00E-03	5.00E-03	0.00231 J	<0.00143	--	--	--	--	--	--	<0.00025	--
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	--	--	--	--	--	--	<0.00047	--
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	--	--	--	--	--	--	<0.00025	--
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	--	--	--	--	--	--	<0.00054	--
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	--	--	--	--	--	--	<0.00041	--
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00441	--	--	--	--	--	--	<0.00127	--
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.00001	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000116	<0.0003	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.000009	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.000026	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00008	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00079	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.00013 J	0.00012 J	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00053	--	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.04421	0.0164	0.0739	0.0113	0.0802	0.0279	0.0961	0.0743	0.0975	0.096
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.000833	0.00035 J	0.000953	0.000711	0.00107	0.00103	<0.00114	0.00122	0.00113	<0.0007
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.002478	0.000995	0.00413	0.000556	0.00491	0.00126	0.00437 J	0.00432	0.00484	0.0043 J
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000267	<0.00011	--	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.000007	--	--	--	--	--	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000009	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.000982	<0.00035	<0.000352	<0.000356	0.00022	0.00016 J	<0.0019	<0.00019	0.0002 J	<0.0012
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	<0.00012	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.0171	0.00482	0.0286	0.0002 J	0.0323	0.00312	0.0325	0.0255	0.0392	0.035
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.0003 J	0.00022 J	0.000648	<0.000106	0.000196	<0.0001	<0.00362	<0.00019	<0.0002	<0.0007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.001567	0.000941	0.00288	0.000649	0.00273	0.000745	0.0028 J	0.00371	0.00397	0.0039 J
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.02079	0.00601	0.0377	<0.00007	0.0434	0.00344	0.0399	0.0374	0.0457	0.051
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.001853	0.00171	0.0789	<0.00006	0.0904	0.000242	0.0252	0.0185	0.014	0.0028 J
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.0001	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	0.00205	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.000038	--	--	--	--	--	--	--	--
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.008858	0.000544	--	--	--	--	--	--	--	--
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	<0.00004	<0.00004	<0.00004	<0.00007	<0.00007	<0.00267	<0.00019	<0.0002	<0.0015
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.000718	0.00041 J	0.00125	0.00038 J	0.00128	0.000283	<0.000952	0.00146	0.00174	0.002 J

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-11B									
					3/16/2004	3/1/2005	7/19/2005	1/5/2006	7/31/2006	1/23/2007	7/17/2007	1/28/2008	7/16/2008	1/22/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	--	--	--	--	--	--	<0.00052	--
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00143	--	--	--	--	--	--	<0.00025	--
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	--	--	--	--	--	--	<0.00047	--
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	--	--	--	--	--	--	<0.00025	--
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	--	--	--	--	--	--	<0.00054	--
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	--	--	--	--	--	--	<0.00041	--
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00441	--	--	--	--	--	--	<0.00127	--
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.000011	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000122	<0.00031	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.000009	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000027	<0.000027	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00008	<0.00008	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00031	<0.00083	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.001569	<0.00007	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000299	<0.00056	--	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.0486	0.0131	0.0577	0.0537	0.0707	0.0125	0.088	0.0649	0.12	0.072
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.001163	0.00031 J	0.000799	0.000617	0.00119	0.000315	<0.00114	<0.00028	0.00126	<0.0007
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.000854	0.00025 J	0.0024	0.00269	0.00345	0.000523	0.00396 J	0.00236	0.00472	0.0022 J
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00028	<0.00012	--	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.000007	--	--	--	--	--	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000009	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.00018	<0.00037	<0.000352	<0.000352	0.00026	<0.00009	<0.0019	0.00021 J	<0.00021	<0.0012
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.000094	<0.00013	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.01581	0.00027 J	0.0289	0.0261	0.0359	0.00295	0.0411	0.0273	0.0649	0.031
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00035 J	0.0003 J	0.00036 J	0.00013 J	0.00042	<0.0001	<0.00362	<0.00019	<0.00021	<0.0007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.001971	0.000589	0.00159	0.00189	0.00245	0.000549	0.0029 J	0.00175	0.00383	0.0018 J
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.0112	0.0001 J	0.0261	0.0259	0.0336	0.00231	0.0353	0.0297	0.0578	0.032
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.01168	<0.00006	0.186	0.0025	0.1	0.00013 J	0.0901	0.0354	0.0772	<0.0008
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00015	<0.00011	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.000094	<0.00005	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00004	<0.00004	--	--	--	--	--	--	--	--
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.0002 J	<0.00009	--	--	--	--	--	--	--	--
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.0001	<0.00004	<0.00004	<0.00004	<0.00007	<0.00007	<0.00267	<0.00019	<0.00021	<0.0015
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.000991	0.00025 J	0.000745	0.000873	0.00122	0.000319	0.00146 J	0.000848	0.00163	<0.0009

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-12B		MW-14				MW-22B		
					3/12/2007	1/31/2008	3/9/2007	1/30/2008	7/15/2008	2/4/2009	1/29/2008	7/14/2008	2/3/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds													
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.00245	<0.00052	<0.00052	<0.0005	<0.00052	<0.00109	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00257	0.00344 J	<0.00257	<0.00025	<0.00025	<0.0005	<0.00025	0.00313 J	<0.0005
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.00239	<0.00047	<0.00047	<0.0005	<0.00047	<0.0015	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	0.00832	0.0125	<0.00203	<0.00025	<0.00025	<0.0005	<0.00025	0.00262 J	<0.0005
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.00195	<0.00054	<0.00054	<0.0005	<0.00054	<0.00122	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	0.00515	<0.00274	<0.00041	<0.00041	<0.0005	<0.00041	<0.00138	<0.0005
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.0199	0.0264	<0.00581	<0.00127	<0.00127	<0.001	<0.00127	0.00339 J	<0.001
Semivolatile Organic Compounds													
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00004	<0.0008	<0.00006	<0.00008	<0.00008	<0.0001	<0.00008	<0.00008	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00005	<0.0029	<0.00018	<0.00029	<0.00029	<0.00008	<0.0003	<0.0003	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009	**<0.0019**	<0.00007	<0.00019	<0.00019	<0.00009	<0.0002	<0.0002	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.0001	**<0.0019**	<0.00006	<0.00019	<0.00019	<0.00007	<0.0002	<0.0002	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.0038	<0.00004	<0.00038	<0.00038	<0.00012	<0.0004	<0.0004	<0.00012
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00022	<0.0019	<0.0001	<0.00019	<0.00048	<0.00008	<0.0002	<0.0002	<0.00008
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	**0.572**	**0.508**	0.00139	0.00047 J	0.000782	0.00075	<0.0004	<0.0004	<0.00007
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00014	<0.0024	<0.000952	<0.00024	<0.00024	<0.00007	<0.00025	<0.00025	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.379	0.336	0.00234	0.00223	0.000515	0.00047	0.0121	0.182	0.022
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.0197	0.0127	<0.00005	<0.00029	<0.00029	<0.00006	<0.0003	0.00192	0.00034
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.0825	0.0267	0.000394	0.000678	<0.00019	<0.00007	0.000948	0.00575	0.00071
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	**0.0252**	**0.00746**	<0.00005	<0.00019	<0.00019	<0.00007	<0.0002	<0.0002	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	**0.00768**	**<0.0019**	<0.00011	<0.00019	<0.00019	<0.00008	<0.0002	<0.0002	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00007	**<0.0038**	<0.00008	<0.00038	<0.00038	<0.00009	<0.0004	<0.0004	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.00009	<0.0019	<0.000095	0.0004 J	<0.00019	0.00081	0.00172 J	<0.0002	0.00053
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	0.0199	0.00596	<0.00007	<0.00019	<0.00019	<0.00007	<0.0002	<0.0002	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	**0.29**	**0.204**	0.00176	0.000491	0.000502	0.00045	0.00363	0.0674	0.0051
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.0001	<0.0019	0.00043	<0.00019	<0.00019	<0.00007	0.00066 J	<0.0002	0.00018 J
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.185	0.0508	0.000949	0.000506	<0.00019	<0.00007	0.00029 J	0.00661	0.0011
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.306	0.196	0.000363	<0.00019	<0.00019	<0.00007	0.00199	0.0395	0.0018
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	**6.33**	**5.55**	0.00561	0.00222	0.00349	0.0032	0.000691	0.00435	0.00017 J
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00006	<0.0038	<0.00007	<0.00038	<0.00038	<0.00009	<0.0004	<0.0004	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.0024	<0.00005	<0.00024	<0.00024	<0.00009	<0.00025	<0.00025	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00019	**<0.0019**	<0.000952	<0.00019	<0.00019	<0.00008	<0.0002	<0.0002	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.508	0.322	0.00423	0.000599	0.00061	0.00035	<0.0002	0.000764	<0.00007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	0.00109	<0.0019	<0.00007	<0.00019	<0.00019	<0.00007	<0.0002	<0.0002	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.0887	0.033	0.000591	<0.00019	<0.00019	<0.00007	<0.0002	0.00239	0.00047

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-24B				MW-29B		MW-33B			
					3/8/2007	1/28/2008	7/14/2008	2/3/2009	3/8/2007	1/28/2008	3/11/2007	1/29/2008	7/14/2008	2/3/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.00109	<0.0005	<0.00245	<0.00052	<0.00245	<0.00052	<0.00109	<0.005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00257	<0.00025	<0.00112	<0.0005	<0.00257	<0.00025	**1.33**	**1.92**	**2.73**	**2.4**
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.0015	<0.0005	<0.00239	<0.00047	<0.00239	<0.00047	<0.0015	<0.005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00203	<0.00025	<0.00142	<0.0005	<0.00203	<0.00025	0.397	0.491	0.626	0.47
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.00122	<0.0005	<0.00195	<0.00054	<0.00195	<0.00054	<0.00122	**0.0096 J**
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	<0.00041	<0.00138	<0.0005	<0.00274	<0.00041	0.102	0.1	0.136	0.084
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00581	<0.00127	<0.00302	<0.001	<0.00581	<0.00127	1.07	1.24	1.63	1.4
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00006	<0.00008	<0.00008	<0.0001	<0.00006	0.00008 J	<0.00004	**<0.01**	**<0.008**	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00018	<0.00029	<0.0003	<0.00008	<0.00018	<0.0003	<0.00005	<0.043	<0.028	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00007	<0.00019	<0.0002	<0.00009	<0.00007	<0.0002	<0.00009	**<0.029**	**<0.019**	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00006	<0.00019	<0.0002	<0.00007	<0.00006	**0.00374**	<0.0001	**<0.029**	**<0.019**	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.00038	<0.0004	<0.00012	<0.00004	<0.0004	<0.00004	<0.057	<0.038	<0.00012
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.0001	<0.00019	<0.0002	<0.00008	<0.0001	<0.0002	<0.00022	**<0.029**	**<0.019**	<0.00008
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.00006	<0.00038	<0.0004	<0.00007	<0.00006	<0.0004	**1.11**	**0.443**	**0.808**	**1.9**
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000952	<0.00024	<0.00025	<0.00007	<0.000952	<0.00025	<0.00014	<0.036	<0.024	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.00005	<0.00029	<0.0003	<0.00009	<0.00005	<0.0003	0.196	0.137	0.152	0.41
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00005	<0.00029	<0.0003	<0.00006	<0.00005	<0.0003	0.00276	<0.043	<0.028	0.0037
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.00004	0.00066	<0.0002	<0.00007	<0.00004	<0.0002	0.00658	<0.029	<0.019	0.14
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00005	<0.00019	<0.0002	0.00015 J	<0.00005	<0.0002	0.00025	**<0.029**	**<0.019**	**0.022**
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00011	<0.00019	<0.0002	<0.00008	<0.00011	<0.0002	<0.00005	**<0.029**	**<0.019**	**0.0045**
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00008	<0.00038	<0.0004	<0.00009	<0.00008	<0.0004	<0.00007	**<0.057**	**<0.038**	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.000095	<0.00019	<0.0002	0.00046	<0.000095	0.00037 J	<0.00009	**<0.029**	**<0.019**	0.00031
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.00019	<0.0002	0.00015 J	<0.00007	<0.0002	<0.00007	<0.029	<0.019	0.02
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.00005	0.000568	<0.0003	<0.00008	<0.00005	<0.0003	**0.175**	**0.118**	**0.17**	**0.46**
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00012 J	<0.00019	<0.0002	<0.00007	0.0001 J	<0.0002	<0.0001	<0.029	<0.019	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.00007	<0.00019	<0.0002	0.00011 J	<0.00007	<0.0002	0.00397	<0.029	<0.019	0.2
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.00004	0.00026 J	<0.0002	<0.00007	<0.00004	<0.0002	0.0631	0.046	0.0683	0.26
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	<0.00004	0.00105	<0.0004	<0.0001	0.000197	<0.0004	**15**	**12.5**	**16**	**20**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00007	<0.00038	<0.0004	<0.00009	<0.00007	<0.0004	<0.00006	**<0.057**	<0.038	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00024	<0.00025	<0.00009	<0.00005	<0.00025	<0.00005	<0.036	<0.024	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000952	<0.00019	<0.0002	<0.00008	<0.000952	<0.0002	<0.00019	**<0.029**	**<0.019**	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.00004	0.000676	<0.0002	<0.00007	<0.00004	<0.0002	0.059	0.0903	0.0688	0.72
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.00019	<0.0002	<0.00007	0.000622	0.00287	<0.00007	<0.029	<0.019	0.003
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.00005	<0.00019	<0.0002	<0.00007	<0.00005	<0.0002	0.00159	0.045	<0.019	0.13

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-35B				MW-38B				
					3/9/2007	1/29/2008	7/14/2008	2/3/2009	3/18/2004	3/8/2007	1/29/2008	7/14/2008	2/3/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds													
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.00109	<0.005	<0.00136	<0.00245	<0.00052	<0.00109	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	**0.0222**	**0.0648**	**0.0281**	**0.062**	<0.00143	<0.00257	<0.00025	<0.00112	<0.0005
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.0015	<0.005	<0.00155	<0.00239	<0.00047	<0.0015	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	0.183	0.176	0.113	0.2	<0.00137	<0.00203	<0.00025	<0.00142	<0.0005
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.00122	<0.005	<0.0013	<0.00195	<0.00054	<0.00122	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	0.00494 J	0.00249 J	0.0057 J	<0.00136	<0.00274	<0.00041	<0.00138	<0.0005
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.145	0.135	0.0787	0.15	<0.00441	<0.00581	<0.00127	<0.00302	<0.001
Semivolatile Organic Compounds													
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00006	<0.00008	<0.00008	<0.0001	<0.00005	<0.00006	<0.00008	<0.00008	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00019	<0.00029	<0.0003	<0.00008	<0.000116	<0.00018	<0.0003	<0.00029	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00007	<0.00019	<0.0002	<0.00009	<0.000009	<0.00007	<0.0002	<0.00019	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00006	<0.00019	<0.0002	<0.00007	<0.000026	<0.00006	<0.0002	<0.00019	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.00038	<0.0004	<0.00012	<0.000076	<0.00004	<0.0004	<0.00038	<0.00012
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00011	<0.00019	<0.0002	<0.00008	<0.000295	<0.0001	<0.0002	<0.00019	<0.00008
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	**1.34**	**0.464**	0.0561	**0.4**	<0.000067	<0.00006	<0.0004	<0.00038	0.00037
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.001	<0.00024	<0.00025	<0.00007	<0.000285	<0.000952	<0.00025	<0.00024	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.446	0.217	0.116	0.17	<0.000074	<0.00005	<0.0003	<0.00029	0.0001 J
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00005	<0.00029	<0.0003	0.00088	<0.000076	<0.00005	<0.0003	<0.00029	<0.00006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.0218	0.0129	0.00842	0.0056	<0.000124	<0.00004	<0.0002	0.00026 J	0.00013 J
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	0.000236	0.00044 J	0.0003 J	0.00017 J	<0.000267	<0.00005	<0.0002	<0.00019	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00012	<0.00019	<0.0002	<0.00008	<0.000007	<0.00011	<0.0002	<0.00019	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00008	<0.00038	<0.0004	<0.00009	<0.000009	<0.00008	<0.0004	<0.00038	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.0001	**0.0198**	<0.0002	0.00052	<0.000172	<0.000095	0.00103 J	<0.00019	0.00041
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	0.000267	0.00033 J	0.00022 J	0.00015 J	<0.00009	<0.00007	<0.0002	<0.00019	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	**0.391**	**0.198**	**0.104**	**0.16**	<0.000076	<0.00005	<0.0003	<0.00029	<0.00008
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.000487	<0.00019	<0.0002	<0.00007	<0.000143	0.00011 J	<0.0002	<0.00019	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.0112	0.00698	0.00624	0.0031	<0.000093	<0.00007	<0.0002	<0.00019	<0.00007
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.202	0.0912	0.0685	0.063	<0.000068	<0.00004	<0.0002	<0.00019	<0.00007
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	**17**	**9.3**	0.365	**12**	<0.000067	0.00011 J	<0.0004	<0.00038	0.0045
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00007	<0.00038	<0.0004	<0.00009	<0.000143	<0.00007	<0.0004	<0.00038	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00024	<0.00025	<0.00009	<0.00009	<0.00005	<0.00025	<0.00024	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.001	<0.00019	<0.0002	<0.00008	<0.000038	<0.000952	<0.0002	<0.00019	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.235	0.1	0.0782	0.061	<0.000077	<0.00004	<0.0002	<0.00019	<0.00007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.00019	0.00059	<0.00007	<9.53E-05	<0.00007	<0.0002	<0.00019	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00637	0.00411	0.0026	0.0017	<0.000084	<0.00005	<0.0002	<0.00019	<0.00007

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-39B					MW-40B				
					3/17/2004	3/10/2007	1/30/2008	7/15/2008	2/4/2009	3/17/2004	3/10/2007	1/30/2008	7/15/2008	2/4/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00245	<0.00052	<0.00052	<0.0005	**<0.0136**	<0.00245	<0.00052	<0.00052	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00257	<0.00025	<0.00025	<0.0005	**0.0403 J**	**0.0271**	**0.0348**	**0.0269**	**0.026**
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00239	<0.00047	<0.00047	<0.0005	<0.0155	<0.00239	<0.00047	<0.00047	0.001 J
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00203	<0.00025	<0.00025	<0.0005	0.0955	0.0995	0.162	0.116	0.1
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.00195	<0.00054	<0.00054	<0.0005	**0.0179 J**	<0.00195	<0.00054	<0.00054	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00274	<0.00041	<0.00041	<0.0005	0.0545	0.0495	0.0791	0.059	0.05
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00581	<0.00127	<0.00127	<0.001	0.195	0.19	0.35	0.244	0.2
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.00006	<0.00008	<0.00008	<0.0001	0.00008 J	<0.00006	**<0.02**	<0.0004	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000116	<0.00018	<0.0003	<0.00029	<0.00008	<0.00012	0.0201	<0.071	0.0445	0.011
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.00007	<0.0002	<0.00019	<0.00009	0.000249	<0.00007	**<0.048**	<0.001	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.00006	<0.0002	<0.00019	<0.00007	<0.000026	<0.00006	**<0.048**	<0.001	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00004	<0.0004	<0.00039	<0.00012	<0.000078	<0.00004	<0.095	<0.002	<0.00012
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.0001	<0.0002	<0.00049	<0.00008	<0.000304	<0.00011	**<0.048**	**<0.0025**	<0.00008
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.00028 J	0.00015 J	<0.0004	<0.00039	<0.00007	<0.000069	**0.521**	**0.522**	**4.41**	**0.58**
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.000952	<0.00025	<0.00024	<0.00007	<0.000293	<0.000962	**<0.06**	<0.0012	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.00023 J	0.000296	0.000664	<0.00029	0.00022	<0.000077	0.368	0.365	**3.17**	0.35
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.000076	<0.00005	<0.0003	<0.00029	<0.00006	<0.000078	<0.00005	<0.071	<0.0015	0.0027
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.000716	0.00043	0.00106	0.000619	0.00028	<0.000128	0.0176	<0.048	0.0141	0.016
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000267	<0.00005	<0.0002	<0.00019	<0.00007	<0.000275	0.000211	**<0.048**	<0.001	0.00028
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.00011	<0.0002	<0.00019	<0.00008	<0.000007	<0.00012	**<0.048**	**<0.001**	0.0002 J
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.00008	<0.0004	<0.00039	<0.00009	<0.000009	<0.00008	**<0.095**	**<0.002**	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.000886	0.000205	0.00119 J	<0.00019	0.00046	0.001636	<0.000096	**<0.048**	<0.001	0.00047
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	<0.00007	<0.0002	<0.00019	<0.00007	<0.000092	0.00016 J	<0.048	<0.001	0.00023
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.000076	0.000218	<0.0003	<0.00029	<0.00008	<0.000078	**0.255**	**0.239**	**2.13**	**0.25**
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00027 J	0.00015 J	<0.0002	<0.00019	<0.00007	0.001464	<0.00006	<0.048	<0.001	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.001388	0.000486	0.00213	0.000575	0.0014	<0.000096	0.0115	<0.048	0.0067	0.0082
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.000068	0.000215	<0.0002	<0.00019	0.00025	<0.00007	0.213	0.175	0.247	0.2
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.003016	0.000714	<0.0004	<0.00039	0.00052	0.00047 J	**9.66**	**9.34**	**94.2**	**9.7**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.00007	<0.0004	<0.00039	<0.00009	<0.000147	<0.00007	**<0.095**	<0.002	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	<0.00025	<0.00024	<0.00009	<0.000092	<0.00005	<0.06	<0.0012	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.000952	<0.0002	<0.00019	<0.00008	0.000354	<0.000962	**<0.048**	<0.001	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.0002 J	0.000471	0.00045 J	<0.00019	<0.00007	<0.000079	0.2	0.173	0.177	0.16
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	<0.00007	<0.0002	<0.00019	<0.00007	<9.81E-05	<0.00007	<0.048	<0.001	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.001207	0.000292	0.00156	0.000956	0.0013	<0.000086	0.00629	<0.048	0.0029	0.0043

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-41B			MW-42B		MW49B	MW62B	MW63B
					3/18/2004	3/16/2007	1/31/2008	3/10/2007	1/30/2008	2/4/2009	2/4/2009	3/10/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds												
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00245	<0.00052	<0.00245	<0.00052	<0.0005	<0.0005	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	**0.0183**	**0.0146**	**0.0103**	<0.00257	0.00117 J	**0.0095**	<0.0005	**0.17**
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00239	<0.00047	<0.00239	<0.00047	<0.0005	<0.0005	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	0.0877	0.0703	0.0508	<0.00203	0.00112 J	0.0081	0.00071 J	0.20
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.00195	<0.00054	<0.00195	<0.00054	<0.0005	<0.0005	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	0.106	0.0753	0.0525	<0.00274	0.00181 J	0.016	<0.0005	0.02
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.237	0.205	0.127	<0.00581	0.00377 J	0.024	<0.001	0.33
Semivolatile Organic Compounds												
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.00004	<0.0008	<0.00006	<0.00008	<0.0001	<0.0001	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	0.1078	0.115	0.104	<0.00018	<0.00029	0.031	<0.00008	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.00009	**<0.0019**	<0.00007	<0.00019	<0.00009	<0.00009	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.0001	**<0.0019**	<0.00006	<0.00019	<0.00007	<0.00007	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00004	<0.0038	<0.00004	<0.00039	<0.00012	<0.00012	<0.00012
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00022	<0.0019	<0.0001	<0.00019	<0.00008	<0.00008	<0.00008
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	**0.7507**	**0.802**	**0.305**	<0.00006	<0.00039	**0.14**	0.00012 J	<0.00007
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00014	<0.0024	<0.000952	<0.00024	<0.00007	<0.00007	<0.003956
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.3707	0.61	0.161	<0.00005	<0.00029	0.094	0.0078	<0.00009
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.007161	0.00851	<0.0029	<0.00005	<0.00029	0.0016	<0.00006	<0.00009
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.02277	0.112	0.0191	<0.00004	<0.00019	0.019	0.00024	<0.00007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000267	**0.0282**	**0.0036**	<0.00005	<0.00019	0.00035	<0.00007	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	**0.00542**	**<0.0019**	<0.00011	<0.00019	<0.00008	<0.00008	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.00007	**<0.0038**	<0.00008	<0.00039	<0.00009	<0.00009	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.000172	<0.00009	<0.0019	0.000232	0.00135 J	0.00029	0.00041	**0.01**
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	0.0223	0.003	<0.00007	<0.00019	0.00038	<0.00007	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	**0.2578**	**0.512**	**0.142**	<0.00005	0.000699	0.071	0.0024	<0.00008
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00041 J	<0.0001	<0.0019	0.00013 J	<0.00019	0.0013	0.00065	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.01669	0.246	0.027	0.00007 J	0.000697	0.014	0.00012 J	<0.00007
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.2383	0.496	0.148	<0.00004	<0.00019	0.071	0.0012	<0.00007
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	**17.65**	**8.58**	**4.57**	0.000817	0.000725	**1.4**	0.0027	<0.0001
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.00006	<0.0038	<0.00007	<0.00039	<0.00009	<0.00009	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	<0.0024	<0.00005	<0.00024	<0.00009	<0.00009	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.00019	**<0.0019**	<0.000952	<0.00019	<0.00008	<0.00008	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.2269	**0.805**	0.161	<0.00004	<0.00019	0.11	0.00087	<0.00007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	0.00164	0.00576	<0.00007	<0.00019	<0.00007	<0.00007	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.007686	0.113	0.017	0.000727	0.000624	0.0074	<0.00007	<0.00007

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	P-10									
					3/16/2004	3/3/2005	7/19/2005	1/5/2006	7/31/2006	1/23/2007	7/17/2007	1/28/2008	7/16/2008	1/22/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	--	--	--	--	--	--	<0.00052	--
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00143	--	--	--	--	--	--	<0.00025	--
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	--	--	--	--	--	--	<0.00047	--
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	--	--	--	--	--	--	<0.00025	--
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	--	--	--	--	--	--	<0.00054	--
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	--	--	--	--	--	--	<0.00041	--
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00441	--	--	--	--	--	--	<0.00127	--
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.000032	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000116	<0.0003	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.00004	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.000026	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00008	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00079	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.000067	<0.00007	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00053	--	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.000074	0.00453	0.0737	0.102	0.0346	0.0165	0.0688	0.00373	0.0106	<0.0008
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.000076	0.00008 J	0.000476	<0.00006	0.00016 J	<0.00008	<0.00114	<0.00028	0.00053	<0.0007
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.000124	0.00015 J	0.00346	0.0057	0.000981	0.000437	0.00319 J	0.000703	0.000747	<0.0007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000267	<0.00011	--	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.000024	--	--	--	--	--	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000013	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.000172	0.000836	<0.000352	<0.000359	0.00016 J	<0.00009	<0.0019	0.00023 J	0.00022 J	<0.0012
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	<0.00012	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.000076	0.000892	0.0314	0.0325	0.00945	0.0044	0.0272	0.000713	0.00176	<0.0007
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00038 J	0.00028 J	0.000481	<0.000107	0.00032	<0.0001	<0.00362	<0.00019	0.00092 J	<0.0007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.000093	0.00015 J	0.0024	0.00273	0.000924	<0.00004	0.0021 J	0.000506	0.00022 J	<0.0006
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.000068	0.000723	0.0364	0.048	0.0115	0.00541	0.0291	0.000668	0.00245	<0.0008
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	<0.000067	0.0142	**0.464**	**0.433**	0.062	0.0204	0.297	<0.00038	0.00079	<0.0008
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.0001	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.000066	--	--	--	--	--	--	--	--
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.000077	<0.00009	--	--	--	--	--	--	--	--
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	<0.00004	<0.00004	<0.00004	<0.00007	<0.00007	<0.00267	<0.00019	<0.00021	<0.0015
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.000084	<0.00009	0.00102	0.00108	0.00046	0.000215	0.001 J	0.00039 J	<0.00021	<0.0009

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	P-11				
					3/17/2004	3/3/2005	1/30/2008	7/15/2008	2/4/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds									
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	<0.00052	<0.00052	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00143	<0.00025	<0.00025	<0.0005
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	<0.00047	<0.00047	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	<0.00025	<0.00025	<0.0005
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	<0.00054	<0.00054	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	<0.00041	<0.00041	<0.0005
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00441	<0.00127	<0.00127	<0.001
Semivolatile Organic Compounds									
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.000034	<0.00008	<0.00008	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000116	<0.00031	<0.00031	<0.00028	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.000042	<0.00021	<0.00019	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.000027	<0.00021	<0.00019	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00008	<0.00042	<0.00038	<0.00012
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00082	<0.00021	<0.00047	<0.00008
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.001097	0.00254	0.000783	<0.00038	<0.00007
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00055	<0.00026	<0.00024	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.1301	0.133	0.0776	<0.00028	0.0057
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.000076	<0.00006	<0.00031	<0.00028	<0.00006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.005611	0.00697	0.00356	<0.00019	0.00015 J
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000267	<0.00012	<0.00021	<0.00019	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.000025	**<0.00021**	<0.00019	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000014	<0.00042	<0.00038	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.000904	<0.00037	0.00116 J	<0.00019	0.00022
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	<0.00013	<0.00021	<0.00019	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.003985	0.013	<0.00031	<0.00028	0.00024
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.000923	<0.00011	<0.00021	<0.00019	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.008623	0.00706	0.0061	<0.00019	<0.00007
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.05025	0.0536	0.0219	<0.00019	0.0018
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.007031	0.198	0.0324	<0.00038	0.0027
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.00011	<0.00042	<0.00038	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	<0.00026	<0.00024	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	<0.000068	<0.00021	<0.00019	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.01956	0.0392	0.0196	<0.00019	0.00048
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	<0.00004	<0.00021	<0.00019	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00445	0.00402	0.00369	<0.00019	<0.00007

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	P-12									
					3/17/2004	3/3/2005	7/18/2005	1/6/2006	7/28/2006	1/22/2007	7/17/2007	1/29/2008	7/16/2008	1/22/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00136	--	--	--	--	--	--	<0.00109	--
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00143	<0.00143	--	--	--	--	--	--	<0.00112	--
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00155	--	--	--	--	--	--	<0.0015	--
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00137	<0.00137	--	--	--	--	--	--	<0.00142	--
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0013	<0.0013	--	--	--	--	--	--	<0.00122	--
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00136	<0.00136	--	--	--	--	--	--	<0.00138	--
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00441	<0.00441	--	--	--	--	--	--	<0.00302	--
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	<0.000032	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000116	<0.0003	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	<0.00004	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	<0.000026	--	--	--	--	--	--	--	--
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000076	<0.00008	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.000295	<0.00079	--	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.000067	<0.00007	--	--	--	--	--	--	--	--
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000285	<0.00053	--	--	--	--	--	--	--	--
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.000074	<0.00007	<0.00007	<0.00007	<0.00004	<0.00004	<0.00114	<0.00029	<0.0003	<0.0008
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.000076	<0.00006	<0.00006	<0.00006	<0.00008	<0.00008	<0.00114	<0.00029	<0.0003	<0.0007
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.000124	<0.00007	<0.00007	<0.00007	<0.00004	<0.00004	<0.000952	0.000645	0.000552	<0.0007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000267	<0.00011	--	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.000007	<0.000024	--	--	--	--	--	--	--	--
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	<0.000013	--	--	--	--	--	--	--	--
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.001748	<0.00035	0.00043 J	<0.000352	0.00011 J	<0.00009	<0.0019	<0.00019	0.00034 J	<0.0012
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00009	<0.00012	--	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.000076	<0.00008	<0.00008	<0.00008	<0.00006	<0.00006	<0.0041	<0.00029	<0.0003	<0.0007
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.000922	0.00013 J	0.000533	<0.000105	0.00017 J	<0.0001	<0.00362	<0.00019	0.00085 J	<0.0007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.000093	<0.00008	<0.00008	<0.00008	<0.00004	<0.00004	<0.000952	<0.00019	<0.0002	<0.0006
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.000068	<0.00007	<0.00007	<0.00007	<0.00004	<0.00004	<0.000952	<0.00019	<0.0002	<0.0008
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	<0.000067	<0.00006	<0.00006	<0.00006	<0.00007	<0.00007	<0.00124	<0.00038	0.000626	<0.0008
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000143	<0.0001	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	--	--	--	--	--	--	--	--
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	0.000337	<0.000066	--	--	--	--	--	--	--	--
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.000077	<0.00009	--	--	--	--	--	--	--	--
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.53E-05	<0.00004	<0.00004	<0.00004	<0.00007	<0.00007	<0.00267	<0.00019	<0.0002	<0.0015
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.007348	0.00592	0.00767	0.00615	0.00545	0.00312	0.0075 J	0.00932	0.00211	0.0026 J

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-3
SUMMARY OF GROUNDWATER SAMPLING RESULTS - B-TZ and B-CZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	CPT49RBTZ	CPT50RBTZ	CPT51RBTZ
					8/12/2008	8/12/2008	8/12/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds							
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00052	<0.00052	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	0.00431 J	<0.00025	<0.00025
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00047	<0.00047	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00025	<0.00025	<0.00025
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00054	<0.00054	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00041	<0.00041	<0.00041
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00127	<0.00127	<0.00127
Semivolatile Organic Compounds							
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00008	<0.00008	<0.00008
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.0003	<0.00029	<0.00029
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.0002	<0.00019	<0.00019
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.0002	<0.00019	<0.00019
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.0004	<0.00038	<0.00038
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.0002	<0.00019	<0.00019
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.0004	<0.00038	<0.00038
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00025	<0.00024	<0.00024
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.0997	<0.00029	0.00689
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.0003	<0.00029	0.000766
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.00197	<0.00019	<0.00019
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.0002	<0.00019	<0.00019
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.0002	<0.00019	<0.00019
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.0004	<0.00038	<0.00038
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.000927	0.00223	0.000506
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.0002	<0.00019	<0.00019
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.023	<0.00029	<0.00029
Di-n-butyl Phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00491	0.00042 J	0.00035 J
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.00352	<0.00019	0.00078
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.00761	<0.00019	0.001
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.00829	<0.00038	0.0047
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.0004	<0.00038	<0.00038
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00025	<0.00024	<0.00024
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.0002	<0.00019	<0.00019
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.00369	<0.00019	<0.00019
Phenol	108-95-2	8270	7.33E+00	2.19E+01	0.00126	0.000624	0.00042 J
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00197	<0.00019	0.00343

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-4
SUMMARY OF GROUNDWATER SAMPLING RESULTS - C-TZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-12C				MW-15C				MW-17C		
					3/10/2007	1/30/2008	7/15/2008	2/4/2009	3/8/2007	1/30/2008	7/15/2008	2/4/2009	3/17/2004	3/12/2007	1/30/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds															
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.00052	<0.0005	<0.00245	<0.00052	<0.00052	<0.0005	**<0.0136**	<0.00245	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00257	<0.00025	<0.00025	<0.0005	<0.00257	0.00109 J	<0.00025	0.00096 J	**0.0928**	**0.0734**	**0.0565**
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.00047	<0.0005	<0.00239	<0.00047	<0.00047	<0.0005	<0.0155	<0.00239	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00203	<0.00025	<0.00025	<0.0005	<0.00203	0.00135 J	<0.00025	0.00068 J	0.188	0.257	0.292
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.00054	<0.0005	<0.00195	<0.00054	<0.00054	<0.0005	**<0.013**	<0.00195	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	<0.00041	<0.00041	<0.0005	<0.00274	<0.00041	<0.00041	<0.0005	0.049 J	0.0125	0.0137
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00581	<0.00127	<0.00127	<0.001	<0.00581	<0.00127	<0.00127	<0.001	0.368	0.423	0.485
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00006	<0.00008	<0.00008	<0.0001	<0.00006	<0.00008	<0.00008	<0.0001	<0.00005	<0.00004	<0.0008
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00018	<0.00031	<0.00032	<0.00008	<0.00018	<0.00029	<0.00032	<0.00008	0.02503	<0.00005	<0.0029
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00007	<0.0002	<0.00021	<0.00009	<0.00007	<0.0002	<0.00021	<0.00009	<0.000009	<0.00009	**<0.0019**
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00006	<0.0002	<0.00021	<0.00007	<0.00006	<0.0002	<0.00021	<0.00007	<0.000026	<0.0001	**<0.0019**
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.00041	<0.00042	<0.00012	<0.00004	<0.00039	<0.00042	<0.00012	<0.000076	<0.00004	<0.0038
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.0001	<0.0002	<0.00053	<0.00008	<0.0001	<0.0002	<0.00053	<0.00008	<0.000295	<0.00022	<0.0019
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.00009 J	<0.00041	<0.00042	0.00045	0.000247	<0.00039	<0.00042	8.4E-05 J	**0.2936**	0.0765	**1.09**
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000952	<0.00026	<0.00026	<0.00007	<0.000952	<0.00024	<0.00026	<0.00007	<0.000285	<0.00014	<0.0024
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.00005	<0.00031	<0.00032	0.00052	0.142	0.0293	0.103	0.034	0.1548	0.173	0.726
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00005	<0.00031	<0.00032	<0.00006	<0.00005	<0.00029	0.000651	0.00052	0.002225	0.00253	<0.0029
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.00004	<0.0002	<0.00021	<0.00007	0.00481	<0.0002	0.000731	0.00078	0.008506	0.0116	0.178
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00005	<0.0002	<0.00021	<0.00007	<0.00005	<0.0002	<0.00021	<0.00007	<0.000267	0.000311	**0.0466**
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00011	<0.0002	**<0.00021**	<0.00008	<0.00011	<0.0002	**<0.00021**	<0.00008	<0.000007	<0.00005	**0.0128**
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00008	<0.00041	<0.00042	<0.00009	<0.00008	<0.00039	<0.00042	<0.00009	<0.000009	<0.00007	**<0.0038**
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.000095	0.00114 J	<0.00021	0.0003	<0.000095	0.00044 J	<0.00021	<0.0002	<0.000172	<0.00009	<0.0019
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.0002	<0.00021	<0.00007	<0.00007	<0.0002	<0.00021	<0.00007	<0.00009	0.000252	0.0428
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.00005	<0.00031	<0.00032	0.0004	**0.157**	0.0336	0.0904	0.034	**0.1231**	**0.13**	**0.61**
Di-n-butyl phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.00015 J	<0.0002	<0.00021	<0.00007	0.00012 J	<0.0002	<0.00021	<0.00007	0.00035 J	0.000206	<0.0019
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.00007 J	<0.0002	<0.00021	<0.00007	0.00792	0.000607	0.00103	0.0006	0.003135	0.0117	0.322
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.00004	<0.0002	<0.00021	0.00037	0.0118	0.00328	0.00278	0.0027	0.04552	0.0707	0.422
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.000811	0.000734	0.000833	0.003	0.00317	0.00137	0.00195	0.0016	**8.547**	**5.5**	**9.8**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00007	<0.00041	<0.00042	<0.00009	<0.00007	<0.00039	<0.00042	<0.00009	<0.000143	<0.00006	<0.0038
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00026	<0.00026	<0.00009	<0.00005	<0.00024	<0.00026	<0.00009	<0.00009	<0.00005	<0.0024
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000952	<0.0002	<0.00021	<0.00008	<0.000952	<0.0002	<0.00021	<0.00008	0.00015 J	<0.00019	**<0.0019**
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.000194	<0.0002	<0.00021	0.00048	0.00271	<0.0002	0.00028 J	<0.00007	0.06252	0.102	**1.09**
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.0002	<0.00021	<0.00007	<0.00007	<0.0002	<0.00021	<0.00007	0.07296	0.00784	<0.0019
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.00005	<0.0002	<0.00021	<0.00007	0.00374	0.000542	0.00052	0.00027	0.001708	0.00561	0.19

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.

Table 5B-4
SUMMARY OF GROUNDWATER SAMPLING RESULTS - C-TZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-17C		MW-18C				MW-19C			
					7/15/2008	2/4/2009	3/11/2007	1/30/2008	7/15/2008	2/5/2009	3/12/2007	1/31/2008	7/15/2008	2/4/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00052	<0.0005	<0.00245	<0.00052	<0.00052	<0.005	<0.00245	<0.00052	<0.00052	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	**0.0426**	**0.03**	**1.28**	**1.34**	**0.964**	**1.4**	<0.00257	0.00398 J	<0.00025	<0.0005
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00047	<0.0005	<0.00239	<0.00047	<0.00047	<0.005	<0.00239	<0.00047	<0.00047	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	0.226	0.17	0.241	0.304	0.178	0.26	<0.00203	<0.00025	<0.00025	<0.0005
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00054	<0.0005	<0.00195	<0.00054	<0.00054	<0.005	<0.00195	<0.00054	<0.00054	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	0.0102	0.008	**1.01**	**1.2**	0.691	1	<0.00274	0.00596	<0.00041	<0.0005
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.353	0.25	0.787	1.1	0.624	1.1	0.00639 J	<0.00127	<0.00127	<0.001
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00008	<0.0001	<0.00004	**<0.04**	<0.0008	<0.0001	<0.00004	<0.00008	0.00023 J	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	0.00054 J	0.0028	<0.00005	<0.15	<0.0031	0.084	<0.00005	<0.00029	<0.00028	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00021	<0.00009	<0.00009	**<0.098**	**0.00636**	<0.00009	<0.00009	<0.00019	<0.00019	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00021	<0.00007	<0.0001	**<0.098**	**<0.002**	<0.00007	<0.00011	<0.00019	<0.00019	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00042	<0.00012	<0.00004	<0.2	<0.0041	<0.00012	<0.00004	<0.00038	<0.00038	<0.00012
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00053	<0.00008	<0.00022	**<0.098**	**<0.0051**	<0.00008	<0.00023	<0.00019	<0.00047	<0.00008
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.0954	0.085	**0.812**	**0.894**	**0.674**	**0.95**	0.000234	0.00132	<0.00038	0.00025
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00026	<0.00007	<0.00014	**<0.12**	<0.0026	<0.00007	<0.00015	<0.00024	<0.00024	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.227	0.14	0.307	0.293	0.251	0.18	0.000204	0.000562	<0.00028	0.00022
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.00251	0.0012	0.00594	<0.15	0.00649	0.0036	<0.00008	<0.00029	<0.00028	<0.00006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.00985	0.0084	0.085	<0.098	0.0321	0.017	0.00012 J	<0.00019	<0.00019	<0.00007
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00021	0.00018 J	**0.00491**	**<0.098**	**0.0025**	0.00039	<0.00005	<0.00019	<0.00019	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	**<0.00021**	<0.00008	**0.00257**	**<0.098**	**<0.002**	0.00013 J	<0.00005	<0.00019	<0.00019	<0.00008
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00042	<0.00009	<0.00007	**<0.2**	**<0.0041**	<0.00009	<0.00007	<0.00038	<0.00038	<0.00009
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.00021 J	<0.0002	<0.00009	**<0.098**	<0.002	0.00023	0.00042	<0.00019	0.00027 J	<0.0002
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00021	0.00017 J	0.00594	<0.098	0.0021	0.00033	<0.00007	<0.00019	<0.00019	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	**0.19**	**0.13**	**0.293**	**0.263**	**0.23**	**0.16**	0.000512	0.00042 J	<0.00028	0.00017 J
Di-n-butyl phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.00021	<0.00007	<0.0001	<0.098	<0.002	<0.00007	0.00013 J	<0.00019	<0.00019	<0.00007
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.00845	0.007	0.116	<0.098	0.0169	0.0047	0.00223	<0.00019	0.00182	0.00015 J
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.0799	0.062	0.178	0.137	0.153	0.081	<0.00004	0.00044 J	<0.00019	<0.00007
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	**5.84**	**3.4**	**14.9**	**16.6**	**16.7**	**21**	0.00924	0.0613	0.000826	0.0077
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00042	<0.00009	<0.00006	**<0.2**	<0.0041	<0.00009	<0.00006	<0.00038	<0.00038	<0.00009
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00026	<0.00009	<0.00005	<0.12	<0.0026	<0.00009	<0.00005	<0.00024	<0.00024	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00021	<0.00008	**<0.0095**	**<0.098**	**0.134**	**0.026**	<0.0002	<0.00019	<0.00019	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.104	0.078	0.361	0.213	0.177	0.076	0.000285	<0.00019	<0.00019	<0.00007
Phenol	108-95-2	8270	7.33E+00	2.19E+01	0.0349	0.0013	<0.00007	<0.098	0.0944	0.031	<0.00007	<0.00019	<0.00019	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00445	0.0033	0.0233	<0.098	0.01	0.0025	0.00105	0.00036 J	0.00117	<0.00007

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-4
SUMMARY OF GROUNDWATER SAMPLING RESULTS - C-TZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-21C				MW-23C		MW-24C			MW-25C	
					3/15/2007	1/29/2008	7/15/2008	2/4/2009	3/12/2007	2/4/2009	3/8/2007	7/14/2008	2/3/2009	3/11/2007	1/28/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds															
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.00052	<0.0005	<0.00245	<0.0005	<0.00245	<0.00109	<0.0005	<0.00245	<0.001
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00257	<0.00025	<0.00025	<0.0005	**0.0207**	**0.017**	<0.00257	<0.00112	<0.0005	**0.0935**	**0.11**
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.00047	<0.0005	<0.00239	0.001 J	<0.00239	<0.0015	<0.0005	<0.00239	<0.00094
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00203	<0.00025	<0.00025	<0.0005	0.143	0.13	<0.00203	<0.00142	<0.0005	0.398	0.545
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.00054	<0.0005	<0.00195	<0.0005	<0.00195	<0.00122	<0.0005	<0.00195	<0.0011
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	<0.00041	<0.00041	<0.0005	0.00448 J	0.0023 J	<0.00274	<0.00138	<0.0005	0.481	0.556
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00581	<0.00127	<0.00127	<0.001	0.0739	0.073	<0.00581	<0.00302	<0.001	1.03	1.43
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00004	<0.00008	<0.00008	<0.0001	<0.00004	<0.0001	<0.00006	<0.00008	<0.0001	<0.00004	**<0.8**
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00005	<0.00029	<0.0003	<0.00008	<0.00005	<0.00008	<0.00018	<0.00029	<0.00008	0.0049	**<2.9**
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009	<0.00019	<0.0002	<0.00009	<0.00009	<0.00009	<0.00007	<0.00019	<0.00009	<0.00009	**<1.9**
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.0001	<0.00019	<0.0002	<0.00007	<0.0001	<0.00007	<0.00006	<0.00019	<0.00007	<0.00011	**<1.9**
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.00038	<0.0004	<0.00012	<0.00004	<0.00012	<0.00004	<0.00038	<0.00012	<0.00004	**<3.8**
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00022	<0.00019	<0.0005	<0.00008	<0.00022	<0.00008	<0.0001	<0.00019	<0.00008	<0.00023	**<1.9**
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.00008	<0.00038	<0.0004	<0.00007	**0.465**	**2.6**	0.00007 J	<0.00038	<0.00007	**0.857**	**193**
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00014	<0.00024	<0.00025	<0.00007	<0.00014	<0.00007	<0.000952	<0.00024	<0.00007	<0.00015	**<2.4**
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.000241	<0.00029	<0.0003	<0.00009	0.496	**3.4**	<0.00005	<0.00029	<0.00009	0.239	**97.5**
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00008	<0.00029	<0.0003	<0.00006	0.00543	0.017	<0.00005	<0.00029	<0.00006	0.00604	**<2.9**
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.000268	0.000563	<0.0002	<0.00007	0.0843	1.2	<0.00004	<0.00019	<0.00007	0.0456	**42.8**
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00005	<0.00019	<0.0002	<0.00007	**0.00835**	**0.31**	<0.00005	<0.00019	<0.00007	**0.00189**	**9.37**
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00005	<0.00019	<0.0002	<0.00008	**0.0025**	**0.072**	<0.00011	<0.00019	<0.00008	**0.000581**	**2.3**
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00007	<0.00038	<0.0004	<0.00009	<0.00007	<0.00009	<0.00008	<0.00038	<0.00009	<0.00007	**<3.8**
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.00009	**0.00888**	<0.0002	<0.0002	<0.00009	0.002	0.00013 J	<0.00019	0.00055	<0.00009	**<1.9**
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	0.0001 J	<0.00019	<0.0002	<0.00007	0.0115	**0.28**	<0.00007	<0.00019	<0.00007	0.00256	**8.38**
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.000245	<0.00029	<0.0003	<0.00008	**0.392**	**3.5**	<0.00005	<0.00029	<0.00008	**0.236**	**102**
Di-n-butyl phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.0001	<0.00019	<0.0002	<0.00007	<0.0001	<0.00007	0.00011 J	<0.00019	<0.00007	<0.00011	<1.9
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.000413	0.00047 J	<0.0002	<0.00007	0.112	**3**	<0.00007	<0.00019	<0.00007	0.0197	**84.1**
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.000291	<0.00019	<0.0002	<0.00007	0.22	**2.5**	<0.00004	<0.00019	<0.00007	0.115	**75.5**
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.000517	<0.00038	<0.0004	0.00039	**6.74**	**9.9**	0.000301	<0.00038	0.00013 J	**12.3**	**750**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00006	<0.00038	<0.0004	<0.00009	<0.00006	<0.00009	<0.00007	<0.00038	<0.00009	<0.00006	**<3.8**
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00024	<0.00025	<0.00009	<0.00005	<0.00009	<0.00005	<0.00024	<0.00009	<0.00005	**<2.4**
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00019	<0.00019	<0.0002	<0.00008	<0.00019	<0.00008	<0.000952	<0.00019	<0.00008	<0.0002	**<1.9**
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.000654	0.00039 J	<0.0002	<0.00007	0.449	**8.8**	<0.00004	<0.00019	<0.00007	0.144	**214**
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.00019	<0.0002	<0.00007	<0.00007	<0.00007	<0.00007	<0.00019	<0.00007	0.0155	<1.9
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00018 J	0.00039 J	<0.0002	<0.00007	0.0568	**1.6**	<0.00005	<0.00019	<0.00007	0.0114	**49.5**

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-4
SUMMARY OF GROUNDWATER SAMPLING RESULTS - C-TZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-27C				MW-28C				MW-29C	
					3/15/2007	1/28/2008	7/14/2008	2/3/2009	3/9/2007	1/29/2008	7/14/2008	2/3/2009	3/8/2007	1/28/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds														
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00245	<0.00052	<0.00109	<0.0005	<0.00245	<0.00052	<0.00052	<0.0005	<0.00245	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00257	<0.00025	<0.00112	<0.0005	<0.00257	<0.00025	<0.00025	<0.0005	<0.00257	<0.00025
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00239	<0.00047	<0.0015	<0.0005	<0.00239	<0.00047	<0.00047	<0.0005	<0.00239	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00203	<0.00025	<0.00142	<0.0005	<0.00203	<0.00025	<0.00025	<0.0005	<0.00203	<0.00025
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00195	<0.00054	<0.00122	<0.0005	<0.00195	<0.00054	<0.00054	<0.0005	<0.00195	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00274	<0.00041	<0.00138	<0.0005	<0.00274	<0.00041	<0.00041	0.0026 J	<0.00274	<0.00041
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00581	<0.00127	<0.00302	<0.001	<0.00581	<0.00127	<0.00127	<0.001	<0.00581	<0.00127
Semivolatile Organic Compounds														
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00004	<0.0001	<0.00008	<0.0001	<0.00006	<0.00008	<0.00009	<0.0001	<0.00006	<0.00008
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	0.000462	<0.00043	<0.00032	<0.00008	<0.00018	<0.00029	0.00114 J	<0.00008	<0.00018	<0.00029
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009	<0.00029	<0.00021	<0.00009	<0.00007	<0.00019	<0.00022	<0.00009	<0.00007	<0.00019
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.0001	<0.00029	<0.00021	<0.00007	<0.00006	<0.00019	<0.00022	<0.00007	<0.00006	<0.00019
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00004	<0.00057	<0.00042	<0.00012	<0.00004	<0.00038	<0.00044	<0.00012	<0.00004	<0.00038
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00022	<0.00029	<0.00021	<0.00008	<0.0001	<0.00019	<0.00022	<0.00008	<0.0001	<0.00019
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.000296	<0.00057	<0.00042	<0.00007	0.000541	<0.00038	<0.00044	9.7E-05 J	<0.00006	<0.00038
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00014	<0.00036	<0.00026	<0.00007	<0.000952	<0.00024	<0.00028	<0.00007	<0.000952	<0.00024
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.000201	<0.00043	<0.00032	0.00026	0.000306	<0.00029	<0.00033	<0.00009	<0.00005	<0.00029
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00008	<0.00043	<0.00032	<0.00006	<0.00005	<0.00029	<0.00033	<0.00006	<0.00005	<0.00029
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.00007 J	0.00087	<0.00021	<0.00007	0.0001 J	0.00059	<0.00022	<0.00007	<0.00004	<0.00019
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00005	<0.00029	<0.00021	<0.00007	<0.00005	<0.00019	<0.00022	<0.00007	0.00011 J	<0.00019
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00005	**<0.00029**	**<0.00021**	<0.00008	<0.00011	<0.00019	**<0.00022**	<0.00008	0.00013 J	<0.00019
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00007	<0.00057	<0.00042	<0.00009	<0.00008	<0.00038	<0.00044	<0.00009	<0.00008	<0.00038
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.00009	0.00044 J	0.00029 J	0.00038	<0.000095	0.00049 J	<0.00022	0.0033	0.000541	0.00042 J
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.00029	<0.00021	<0.00007	<0.00007	<0.00019	<0.00022	<0.00007	0.00012 J	<0.00019
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.00015 J	0.00044 J	<0.00032	<0.00008	0.000296	0.00044 J	<0.00033	<0.00008	<0.00005	<0.00029
Di-n-butyl phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.0001	<0.00029	<0.00021	<0.00007	0.00013 J	<0.00019	<0.00022	<0.00007	0.00017 J	<0.00019
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.00004	0.000756	<0.00021	<0.00007	0.00011 J	0.000497	<0.00022	<0.00007	0.000253	<0.00019
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.00012 J	<0.00029	<0.00021	<0.00007	0.000224	0.00022 J	<0.00022	<0.00007	<0.00004	<0.00019
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.00293	0.0018	<0.00042	0.00037	0.00443	0.00234	0.00196	0.00057	0.00016 J	0.00047 J
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00006	<0.00057	<0.00042	<0.00009	<0.00007	<0.00038	<0.00044	<0.00009	<0.00007	<0.00038
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00005	<0.00036	<0.00026	<0.00009	<0.00005	<0.00024	<0.00028	<0.00009	<0.00005	<0.00024
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00019	<0.00029	<0.00021	<0.00008	<0.000952	0.00056 J	<0.00022	<0.00008	<0.000952	<0.00019
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.000219	0.000746	<0.00021	<0.00007	0.00049	0.000624	<0.00022	0.00013 J	0.00017 J	<0.00019
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.00029	<0.00021	<0.00007	0.0111	0.00865	0.00648	0.00063	<0.00007	<0.00019
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.00004	0.00062	<0.00021	<0.00007	0.00007 J	0.00041 J	<0.00022	<0.00007	0.00017 J	<0.00019

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-4
SUMMARY OF GROUNDWATER SAMPLING RESULTS - C-TZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-34C		MW-44C			MW-45C			MW-46C		
					3/18/2004	1/29/2008	3/18/2004	3/11/2007	1/29/2008	3/18/2004	3/15/2007	1/29/2008	3/18/2004	3/11/2007	1/30/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds															
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00136	<0.00052	<0.00272	<0.00245	<0.00052	**<0.0136**	<0.00245	<0.00052	<0.00136	<0.00245	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	**0.0181**	**0.0287**	<0.00286	<0.00257	<0.00025	**0.125**	**0.074**	**0.0448**	**0.0807**	**0.0902**	**0.0222**
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00155	<0.00047	<0.0031	<0.00239	<0.00047	<0.0155	<0.00239	<0.00047	<0.00155	<0.00239	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	0.0232	0.0903	0.0549	0.0281	0.0204	0.328	0.206	0.111	0.129	0.128	0.0249
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	0.00317 J	<0.00054	**0.00794 J**	<0.00195	<0.00054	**0.0476 J**	<0.00195	<0.00054	<0.0013	<0.00195	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	0.031	0.0832	0.0264	0.0164	0.0117	0.371	0.202	0.112	0.105	0.0697	0.0167
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	0.0616	0.25	0.131	0.0865	0.0487	0.892	0.583	0.298	0.334	0.211	0.0377
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00005	**<0.002**	<0.00005	<0.00004	<0.0002	<0.00005	<0.00004	**<0.002**	<0.00005	<0.00004	<0.0004
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.000117	<0.0059	0.00025 J	<0.00005	0.00219 J	0.002327	<0.00005	0.0104	0.000914	<0.00005	<0.0014
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.000009	**<0.004**	<0.000009	<0.00009	<0.00039	<0.000009	<0.00009	**<0.004**	<0.000009	<0.00009	<0.00096
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.000026	**<0.004**	<0.000027	<0.0001	<0.00039	<0.000026	<0.0001	**<0.004**	<0.000027	<0.0001	<0.00096
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.000077	<0.0079	<0.00008	<0.00004	<0.00078	<0.000076	<0.00004	<0.008	<0.00008	<0.00004	<0.0019
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.000298	**<0.004**	<0.00031	<0.00022	<0.00039	<0.000295	<0.00022	**<0.004**	<0.00031	<0.00022	<0.00096
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	**0.2118**	**0.437**	**0.2035**	**0.368**	0.00551	**1.174**	**0.812**	**1.01**	**0.2029**	**0.38**	0.0825
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.000288	<0.005	<0.000299	<0.00014	<0.00049	<0.000285	<0.00014	<0.005	<0.000299	<0.00014	<0.0012
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.1113	0.365	0.09775	0.351	0.0531	0.2788	0.416	0.472	0.2464	0.237	0.0635
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	0.0012	<0.0059	0.001053	0.0065	0.00083	0.003108	0.00675	0.0085	0.00218	0.0024	<0.0014
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.01103	0.0712	0.01077	0.0372	0.0131	0.02233	0.0653	0.18	0.03295	0.0448	0.0222
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.000269	**0.017**	<0.00028	**0.00144**	**0.00327**	0.000866	**0.0101**	**0.0416**	0.000993	**0.00146**	**0.00597**
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	**0.000272**	**0.0065**	<0.000007	**0.000363**	**<0.00039**	**0.000204**	**0.0031**	**<0.004**	0.00019	**0.000382**	**0.00215**
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.000009	**<0.0079**	<0.000009	<0.00007	<0.00078	<0.000009	<0.00007	**<0.008**	<0.000009	<0.00007	**<0.0019**
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	<0.000173	**0.0076**	<0.00018	<0.00009	0.00235 J	<0.000172	<0.00009	<0.004	0.001125	<0.00009	<0.00096
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	0.000713	0.0128	<0.000094	0.00206	0.00278	0.000766	0.00846	0.0347	0.001116	0.00234	0.00521
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.08652	**0.412**	0.08406	**0.216**	0.046	**0.2238**	**0.338**	**0.488**	**0.2098**	**0.207**	0.0636
Di-n-butyl phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.000144	<0.004	0.00039 J	<0.0001	<0.00039	0.00031 J	<0.0001	<0.004	0.000624	<0.0001	<0.00096
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.0161	0.14	0.01131	0.0423	0.0264	0.01533	0.107	0.384	0.02769	0.0345	0.0426
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.05615	0.228	0.04143	0.157	0.0346	0.1301	0.207	0.357	0.1315	0.113	0.048
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	**3.765**	**5.87**	**3.712**	**2.47**	<0.00078	**24.01**	**5.52**	**6.05**	**2.197**	**8.96**	**1.1**
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.000144	<0.0079	<0.00015	<0.00006	<0.00078	<0.000143	<0.00006	<0.008	<0.00015	<0.00006	<0.0019
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.005	<0.000094	<0.00005	<0.00049	<0.00009	<0.00005	<0.005	<0.000094	<0.00005	<0.0012
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.000038	**<0.004**	<0.00004	<0.00019	<0.00039	<0.000038	<0.00019	**<0.004**	<0.00004	<0.00019	<0.00096
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.09135	0.431	0.08156	0.000566	0.0668	0.1432	0.386	**0.903**	0.2393	0.188	0.119
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<9.62E-05	<0.004	<0.0001	<0.00007	<0.00039	<9.53E-05	0.00168	<0.004	0.000698	<0.00007	0.0133
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.01404	0.0853	0.007689	0.0196	0.0159	0.008996	0.061	0.234	0.01749	0.0137	0.0252

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-4
SUMMARY OF GROUNDWATER SAMPLING RESULTS - C-TZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-47C			MW-48C					MW-53C		
					1/29/2008	7/14/2008	2/4/2009	3/18/2004	3/16/2007	1/29/2008	7/14/2008	2/4/2009	3/11/2007	1/29/2008	7/14/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds															
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.00052	<0.00109	<0.0005	<0.00136	<0.00245	<0.00052	<0.00109	<0.0005	<0.00245	<0.00052	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.00025	<0.00112	<0.0005	<0.00143	<0.00257	<0.00025	<0.00112	<0.0005	<0.00257	<0.00025	<0.00025
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.00047	<0.0015	<0.0005	<0.00155	<0.00239	<0.00047	<0.0015	<0.0005	<0.00239	<0.00047	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.00025	<0.00142	<0.0005	<0.00137	<0.00203	<0.00025	<0.00142	<0.0005	<0.00203	<0.00025	<0.00025
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.00054	<0.00122	<0.0005	0.00493 J	<0.00195	<0.00054	<0.00122	<0.0005	<0.00195	<0.00054	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.00041	<0.00138	<0.0005	<0.00136	<0.00274	<0.00041	<0.00138	<0.0005	<0.00274	<0.00041	<0.00041
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.00127	<0.00302	<0.001	<0.00441	<0.00581	<0.00127	<0.00302	<0.001	0.00638 J	<0.00127	<0.00127
Semivolatile Organic Compounds															
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.00008	<0.00008	<0.0001	<0.00005	<0.00004	<0.00008	<0.00009	<0.0001	<0.00004	<0.00008	<0.00009
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00029	<0.00032	<0.00008	0.001685	<0.00005	<0.00029	<0.00033	<0.00008	<0.00005	<0.00029	<0.00033
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00019	<0.00021	<0.00009	<0.000009	<0.00009	<0.00019	<0.00022	<0.00009	<0.00009	<0.00019	<0.00022
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00019	<0.00021	<0.00007	<0.000026	<0.0001	<0.00019	<0.00022	<0.00007	<0.00011	<0.00019	<0.00022
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00038	<0.00042	<0.00012	<0.000076	<0.00004	<0.00038	<0.00044	<0.00012	<0.00004	<0.00038	<0.00044
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00019	<0.00021	<0.00008	<0.000295	<0.00022	<0.00019	<0.00022	<0.00008	<0.00022	<0.00019	<0.00022
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.00038	<0.00042	<0.00007	0.004438	<0.00008	<0.00038	<0.00044	<0.00007	0.00356	<0.00038	<0.00044
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00024	<0.00026	<0.00007	<0.000285	<0.00014	<0.00024	<0.00028	<0.00007	<0.00014	<0.00024	<0.00028
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.00029	<0.00032	<0.00009	0.02343	0.000349	<0.00029	<0.00033	<0.00009	0.00175	<0.00029	<0.00033
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00029	<0.00032	<0.00006	0.00033 J	<0.00008	<0.00029	<0.00033	<0.00006	<0.00008	<0.00029	<0.00033
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	0.000584	<0.00021	<0.00007	0.003482	0.000205	0.000589	<0.00022	0.00012 J	0.000328	0.000569	<0.00022
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00019	<0.00021	<0.00007	<0.000267	<0.00005	<0.00019	<0.00022	<0.00007	<0.00005	<0.00019	<0.00022
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00019	**<0.00021**	<0.00008	<0.000007	<0.00005	<0.00019	**<0.00022**	<0.00008	<0.00005	<0.00019	**<0.00022**
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00038	<0.00042	<0.00009	<0.000009	<0.00007	<0.00038	<0.00044	<0.00009	0.00011 J	<0.00038	<0.00044
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.00045 J	<0.00021	0.0036	<0.000172	<0.00009	<0.00019	0.00028 J	0.00034	<0.00009	<0.00019	0.00026 J
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00019	<0.00021	<0.00007	<0.00009	<0.00007	<0.00019	<0.00022	<0.00007	<0.00007	<0.00019	<0.00022
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.00031 J	<0.00032	<0.00008	0.01294	0.000192	<0.00029	<0.00033	0.00025	0.00156	<0.00029	<0.00033
Di-n-butyl phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.00019	<0.00021	<0.00007	0.00033 J	<0.0001	<0.00019	<0.00022	<0.00007	0.00013 J	<0.00019	<0.00022
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	0.00047 J	<0.00021	<0.00007	0.004735	0.00129	0.000687	0.00033 J	<0.00007	0.000222	<0.00019	<0.00022
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.00019	<0.00021	<0.00007	0.01085	0.000192	<0.00019	<0.00022	<0.00007	0.00103	<0.00019	<0.00022
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.00119	<0.00042	0.00019 J	0.001665	0.000396	0.00062	<0.00044	0.00052	0.0325	0.00075	0.00161
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00038	<0.00042	<0.00009	<0.000143	<0.00006	<0.00038	<0.00044	<0.00009	<0.00006	<0.00038	<0.00044
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00024	<0.00026	<0.00009	<0.00009	<0.00005	<0.00024	<0.00028	<0.00009	<0.00005	<0.00024	<0.00028
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00019	<0.00021	<0.00008	<0.000038	<0.00019	<0.00019	<0.00022	<0.00008	<0.00019	<0.00019	<0.00022
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.00046 J	<0.00021	<0.00007	0.00032 J	0.000512	0.00043 J	<0.00022	0.00032	0.0016	0.00043 J	<0.00022
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00019	<0.00021	<0.00007	<9.53E-05	<0.00007	<0.00019	<0.00022	<0.00007	<0.00007	<0.00019	0.00027 J
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	0.00039 J	<0.00021	<0.00007	0.002762	0.000684	0.000528	<0.00022	<0.00007	<0.00004	0.00039 J	<0.00022

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-4
SUMMARY OF GROUNDWATER SAMPLING RESULTS - C-TZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW-53C	MW-54C				CPT54RCTZ
					2/3/2009	3/11/2007	1/28/2008	7/14/2008	2/3/2009	7/24/2008
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds										
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.0005	<0.00245	<0.00052	<0.00052	<0.0005	<0.00052
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.0005	<0.00257	<0.00025	<0.00025	<0.0005	<0.00025
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.0005	<0.00239	<0.00047	<0.00047	<0.0005	<0.00047
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.0005	0.0065	0.00584	0.00391 J	0.0029 J	<0.00025
Methylene Chloride	75-09-2	8260	5.00E-03	5.00E-03	<0.0005	<0.00195	<0.00054	<0.00054	<0.0005	<0.00054
Toluene	108-88-3	8260	1.00E+00	1.00E+00	<0.0005	<0.00274	<0.00041	<0.00041	<0.0005	<0.00041
Xylenes (total)	1330-20-7	8260	1.00E+01	1.00E+01	<0.001	0.021	0.00335 J	<0.00127	0.0027 J	<0.00127
Semivolatile Organic Compounds										
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.0001	<0.00004	<0.00008	<0.00008	<0.0001	<0.0002
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00008	<0.00005	<0.00029	<0.00029	<0.00008	<0.0006
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009	<0.00009	<0.00019	<0.0002	<0.00009	<0.0004
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00007	<0.0001	<0.00019	<0.0002	<0.00007	<0.0004
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00012	<0.00004	<0.00038	<0.00039	<0.00012	<0.0008
2-Methyl-4,6-dinitrophenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00008	<0.00022	<0.00019	<0.0002	<0.00008	<0.001
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	<0.00007	**0.31**	**0.109**	**0.14**	**0.13**	<0.0008
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00007	<0.00014	<0.00024	<0.00024	<0.00007	<0.0005
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	<0.00009	0.111	0.074	0.0738	0.067	<0.0006
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00006	0.00135	<0.00029	<0.00029	0.00072	<0.0006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.00007	0.00837	0.00268	0.00293	0.003	<0.0004
Benzo(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00007	<0.00005	0.00024 J	<0.0002	<0.00007	<0.0004
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00008	<0.00005	<0.00019	<0.0002	<0.00008	**<0.0004**
bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00009	<0.00007	<0.00038	<0.00039	<0.00009	<0.0008
bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.00072	<0.00009	0.00105 J	0.00029 J	0.00072	0.00528
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.00007	0.00021 J	<0.0002	<0.00007	<0.0004
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	<0.00008	**0.113**	0.0611	0.0739	0.064	<0.0006
Di-n-butyl phthalate	84-74-2	8270	2.44E+00	7.30E+00	<0.00007	0.00011 J	0.00069 J	<0.0002	<0.00007	0.0007 J
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.00007	0.00465	0.00426	0.00349	0.0032	<0.0004
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	<0.00007	0.0427	0.0323	0.0351	0.03	<0.0004
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.0012	**1.94**	**0.892**	**0.912**	**1.1**	<0.0008
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00009	<0.00006	<0.00038	<0.00039	<0.00009	<0.0008
n-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00005	<0.00024	<0.00024	<0.00009	<0.0005
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00008	<0.00019	0.00025 J	<0.0002	<0.00008	<0.0004
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	<0.00007	0.0621	0.0389	0.0495	0.042	<0.0004
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.00007	<0.00019	<0.0002	<0.00007	<0.0004
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.00007	0.00167	0.00227	0.00163	0.0018	<0.0004

Notes:
1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit

Table 5B-5
SUMMARY OF GROUNDWATER SAMPLING RESULTS - D-TZ MONITORING WELLS
UPRR Houston Wood Preserving Works

			Residential Assessment Level	C/I Assessment Level	MW59D 2/5/2009	MW65D 2/5/2009	MW66D* 2/5/2009
Constituent	CAS	Method	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds							
1,2-Dichloroethane	107-06-2	8260	5.00E-03	5.00E-03	<0.0005	<0.0005	<0.0005
Benzene	71-43-2	8260	5.00E-03	5.00E-03	<0.0005	<0.0005	<0.0005
Chlorobenzene	108-90-7	8260	1.00E-01	1.00E-01	<0.0005	<0.0005	<0.0005
Dichloromethane	75-09-2	8260	5.00E-03	5.00E-03	0.0011 J	0.00095 J	<0.0005
Ethylbenzene	100-41-4	8260	7.00E-01	7.00E-01	<0.0005	<0.0005	<0.0005
Toluene	108-88-3	8260	1.00E+00	1.00E+00	0.00064 J	<0.0005	<0.0005
Xylenes, Total	1330-20-7	8260	1.00E+01	1.00E+01	<0.001	<0.001	<0.001
Semivolatile Organic Compounds							
1,2-Diphenylhydrazine	122-66-7	8270	1.14E-03	2.56E-03	<0.0001	<0.0001	<0.0001
2,4-Dimethylphenol	105-67-9	8270	4.04E-01	1.46E+00	<0.00008	<0.00008	<0.00008
2,4-Dinitrotoluene	121-14-2	8270	1.34E-03	3.01E-03	<0.00009	<0.00009	<0.00009
2,6-Dinitrotoluene	606-20-2	8270	1.34E-03	3.01E-03	<0.00007	<0.00007	<0.00007
2-Chloronaphthalene	91-58-7	8270	1.96E+00	5.84E+00	<0.00012	<0.00012	<0.00012
2-Methylnaphthalene	91-57-6	8270	9.78E-02	2.92E-01	0.00015 J	0.00012 J	0.00062
4,6-Dinitro-2-methylphenol	534-52-1	8270	2.44E-03	7.30E-03	<0.00008	<0.00008	<0.00008
4-Nitrophenol	100-02-7	8270	4.04E-02	1.46E-01	<0.00007	<0.00007	<0.00007
Acenaphthene	83-32-9	8270	1.47E+00	4.38E+00	0.00015 J	0.00019 J	0.0004
Acenaphthylene	208-96-8	8270	1.47E+00	4.38E+00	<0.00006	<0.00006	<0.00006
Anthracene	120-12-7	8270	7.33E+00	2.19E+01	<0.00007	0.000078 J	0.00015 J
Benz(a)anthracene	56-55-3	8270	1.25E-03	2.80E-03	<0.00007	<0.00007	<0.00007
Benzo(a)pyrene	50-32-8	8270	2.00E-04	2.00E-04	<0.00008	<0.00008	<0.00008
Bis(2-chloroethoxy)methane	111-91-1	8270	8.30E-04	1.86E-03	<0.00009	<0.00009	<0.00009
Bis(2-ethylhexyl)phthalate	117-81-7	8270	6.00E-03	6.00E-03	0.006	0.0019	**0.0064**
Chrysene	218-01-9	8270	1.25E-01	2.80E-01	<0.00007	<0.00007	<0.00007
Dibenzofuran	132-64-9	8270	9.78E-02	2.92E-01	0.00014 J	0.00016 J	0.00036
Di-n-butyl phthalate	84-74-2	8270	2.44E+00	7.30E+00	0.0029	0.00029	0.00044
Fluoranthene	206-44-0	8270	9.78E-01	2.92E+00	<0.00007	0.000097 J	0.00026
Fluorene	86-73-7	8270	9.78E-01	2.92E+00	0.00013 J	0.00016 J	0.00033
Naphthalene	91-20-3	8270	4.04E-01	1.46E+00	0.0019	0.00051	0.0058
Nitrobenzene	98-95-3	8270	4.04E-02	1.46E-01	<0.00009	<0.00009	<0.00009
N-Nitrosodiphenylamine	86-30-6	8270	1.86E-01	4.17E-01	<0.00009	<0.00009	<0.00009
Pentachlorophenol	87-86-5	8270	1.00E-03	1.00E-03	<0.00008	<0.00008	<0.00008
Phenanthrene	85-01-8	8270	7.33E-01	2.19E+00	0.0002	0.00014 J	0.00073
Phenol	108-95-2	8270	7.33E+00	2.19E+01	<0.00007	<0.00007	<0.00007
Pyrene	129-00-0	8270	7.33E-01	2.19E+00	<0.00007	<0.00007	0.00017 J

1. Sampling locations shown on Figure 1A
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL or cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated value, < = Compound not detected at the specified detection limit.
8. * = bis(2-ethylhexyl)phthalate result for MW-66D likely from laboratory contaminant

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-01A	47.92	2-Sep-93	6.96			40.99
	47.92	21-Dec-93	3.28			44.67
	47.92	24-Mar-94	3.95			44.00
	47.92	22-Jun-94	5.30			42.65
	47.92	28-Sep-94	7.10			40.85
	47.92	13-Oct-94	7.26			40.69
	47.92	24-Jan-95	2.63			45.32
	47.92	11-Apr-95	2.61			45.34
	47.92	11-Jul-95	4.78			43.17
	47.92	23-Jan-96	5.67			42.28
	47.92	19-Jul-96	7.84			40.11
	47.92	17-Sep-96	8.33			39.62
	47.92	31-Oct-96	6.90			41.05
	47.92	22-Nov-96	8.63			39.32
	47.92	27-Dec-96	5.50			42.45
	47.92	22-Jan-97	3.41			44.54
	47.92	21-Feb-97	2.68			45.27
	47.92	25-Mar-97	2.96			44.99
	47.92	23-Apr-97	4.27			43.68
	47.92	24-Apr-97	4.47			43.48
	47.92	13-May-97	2.91			45.04
	47.92	20-Jun-97	4.88			43.07
	47.92	25-Jun-97	2.59			45.36
	47.92	1-Jul-97	4.04			43.91
	47.92	24-Jul-97	6.80			41.15
	47.92	16-Aug-97	7.84			40.11
	47.92	22-Aug-97	9.52			38.43
	47.92	25-Sep-97	6.02			41.93
	47.92	22-Oct-97	4.89			43.06
	47.92	25-Nov-97	4.88			43.07
	47.92	19-Dec-97	4.26			43.69
	47.92	20-Jan-98	3.10			44.85
	47.92	3-Mar-98	2.87			45.08
	47.92	18-Mar-98	2.68			45.27
	47.92	24-Apr-98	6.73			41.22
	47.92	21-May-98	6.89			41.06
	47.92	30-Jul-98	7.96			39.99
	47.92	25-Aug-98	6.87			41.08
	47.92	21-Sep-98	4.70			43.25
	47.92	26-Oct-98	5.98			41.97
	47.92	23-Nov-98	4.11			43.84
	47.92	29-Jan-99	3.01			44.94
	47.92	26-Feb-99	3.20			44.75
	47.92	16-Mar-99	3.71			44.24
	47.92	29-Apr-99	3.93			44.02
	47.92	1-Jun-99	3.98			43.97
	47.92	30-Jul-99	4.31			43.64
	47.92	27-Aug-99	4.11			43.84
	47.92	27-Sep-99	9.67			38.28
	47.92	29-Oct-99	10.67			37.28
	47.92	29-Dec-99	10.00			37.95
	47.92	4-Feb-00	12.71			35.24
	47.92	25-Feb-00	9.10			38.85
	47.92	27-Mar-00	7.38			40.57
	47.92	7-Apr-00	7.00			40.95
	47.92	31-May-00	7.15			40.80

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-01A	47.92	1-Jun-00	7.00			40.95
	47.92	28-Jul-00	7.11			40.84
	47.92	30-Aug-00	10.33			37.62
	47.92	19-Sep-00	11.56			36.39
	47.92	27-Oct-00	9.01			38.94
	47.92	21-Nov-00	8.49			39.46
	47.92	1-May-01	6.60	16.50	3.19	41.35
	47.92	1-Oct-01	6.85			41.10
	47.92	11-Mar-02	3.31			44.64
	47.92	23-Sep-02	3.23			44.72
	47.92	10-Mar-03	2.48			45.44
	47.92	23-Sep-03	4.29			43.63
	47.92	15-Mar-04	3.49			44.43
	47.92	13-Sep-04	8.26			39.66
	47.92	18-Jul-05	3.73			44.19
	47.92	4-Jan-06	8.54			39.38
	47.92	27-Jul-06	3.10			44.82
	47.92	23-Jan-07	2.26			45.66
	47.92	7-Mar-07	2.36			45.56
	47.92	27-Jul-07	4.05			43.87
	47.92	28-Jan-08	2.51			45.41
	47.92	16-Jul-08	7.21			40.71
	47.92	22-Jan-09	6.21			41.71
MW-02	47.97	2-Sep-93	7.45			40.58
	47.97	21-Dec-93	2.58			45.45
	47.97	24-Mar-94	4.08			43.95
	47.97	22-Jun-94	5.85			42.18
	47.97	28-Sep-94	7.05			40.98
	47.97	13-Oct-94	7.69			40.34
	47.97	24-Jan-95	2.12			45.91
	47.97	11-Apr-95	2.53			45.50
	47.97	11-Jul-95	5.34			42.69
	47.97	23-Jan-96	5.69			42.34
	47.97	19-Jul-96	8.28			39.75
	47.97	17-Sep-96	8.84			39.19
	47.97	31-Oct-96	7.11			40.92
	47.97	22-Nov-96	8.99			39.04
	47.97	27-Dec-96	5.42			42.61
	47.97	22-Jan-97	3.08			44.95
	47.97	21-Feb-97	2.60			45.43
	47.97	25-Mar-97	2.98			45.05
	47.97	23-Apr-97	4.60			43.43
	47.97	24-Apr-97	4.78			43.25
	47.97	13-May-97	2.89			45.14
	47.97	20-Jun-97	5.45			42.58
	47.97	25-Jun-97	2.59			45.44
	47.97	1-Jul-97	4.48			43.55
	47.97	24-Jul-97	7.42			40.61
	47.97	16-Aug-97	8.42			39.61
	47.97	22-Aug-97	9.20			38.83
	47.97	25-Sep-97	4.53			43.50
	47.97	22-Oct-97	4.95			43.08
	47.97	25-Nov-97	4.97			43.06
	47.97	19-Dec-97	4.33			43.70
	47.97	20-Jan-98	3.05			44.98
	47.97	3-Mar-98	2.88			45.15

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-02	47.97	18-Mar-98	2.66			45.37
	47.97	24-Apr-98	7.09			40.94
	47.97	21-May-98	7.00			41.03
	47.97	30-Jul-98	8.11			39.92
	47.97	25-Aug-98	7.33			40.70
	47.97	21-Sep-98	4.18			43.85
	47.97	26-Oct-98	6.85			41.18
	47.97	23-Nov-98	4.63			43.40
	47.97	29-Jan-99	3.51			44.52
	47.97	26-Feb-99	3.61			44.42
	47.97	16-Mar-99	3.55			44.48
	47.97	29-Apr-99	3.76			44.27
	47.97	1-Jun-99	3.76			44.27
	47.97	30-Jul-99	4.61			43.42
	47.97	27-Aug-99	3.96			44.07
	47.97	27-Sep-99	10.12			37.91
	47.97	29-Oct-99	11.33			36.70
	47.97	29-Dec-99	10.66			37.37
	47.97	4-Feb-00	13.19			34.84
	47.97	25-Feb-00	9.57			38.46
	47.97	27-Mar-00	7.73			40.30
	47.97	7-Apr-00	7.30			40.73
	47.97	31-May-00	7.33			40.70
	47.97	1-Jun-00	7.31			40.72
	47.97	28-Jul-00	7.35			40.68
	47.97	30-Aug-00	10.55			37.48
	47.97	19-Sep-00	11.93			36.10
	47.97	27-Oct-00	9.04			38.99
	47.97	21-Nov-00	8.66			39.37
	47.97	1-May-01	6.91			41.12
	47.97	1-Oct-01	8.22			39.81
	47.97	11-Mar-02	3.33			44.70
	47.97	23-Sep-02	3.16			44.87
	47.97	10-Mar-03	2.54			45.43
	47.97	23-Sep-03	3.29			44.68
	47.97	15-Mar-04	2.87			45.10
	47.97	13-Sep-04	8.71			39.26
	47.97	18-Jul-05	2.98			44.99
	47.97	4-Jan-06	8.77			39.20
	47.97	27-Jul-06	2.87			45.10
	47.97	23-Jan-07	2.34			45.63
	47.97	7-Mar-07	2.23			45.74
	47.97	27-Jul-07	4.40			43.57
	47.97	28-Jan-08	2.42			45.55
	47.97	16-Jul-08	7.72			40.25
	47.97	22-Jan-09	6.31			41.66
MW-03	48.34	2-Sep-93	8.17			40.17
	48.34	21-Dec-93	3.81			44.53
	48.34	24-Mar-94	4.74			43.60
	48.34	22-Jun-94	6.35			41.99
	48.34	28-Sep-94	7.56			40.78
	48.34	13-Oct-94	8.21			40.13
	48.34	24-Jan-95	3.18			45.16
	48.34	11-Apr-95	3.22			45.12
	48.34	11-Jul-95	7.90			40.44
	48.34	23-Jan-96	6.27			42.07

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-03	48.34	19-Jul-96	8.77			39.57
	48.34	17-Sep-96	9.31			39.03
	48.34	31-Oct-96	7.61			40.73
	48.34	22-Nov-96	9.48			38.86
	48.34	27-Dec-96	6.14			42.20
	48.34	22-Jan-97	5.68			42.66
	48.34	21-Feb-97	3.13			45.21
	48.34	25-Mar-97	3.48			44.86
	48.34	23-Apr-97	5.17			43.17
	48.34	24-Apr-97	5.25			43.09
	48.34	13-May-97	3.41			44.93
	48.34	20-Jun-97	5.91			42.43
	48.34	25-Jun-97	3.11			45.23
	48.34	1-Jul-97	4.91			43.43
	48.34	24-Jul-97	7.90			40.44
	48.34	16-Aug-97	8.91			39.43
	48.34	22-Aug-97	9.65			38.69
	48.34	25-Sep-97	6.96			41.38
	48.34	22-Oct-97	5.50			42.84
	48.34	25-Nov-97	5.55			42.79
	48.34	19-Dec-97	5.10			43.24
	48.34	20-Jan-98	3.58			44.76
	48.34	3-Mar-98	3.37			44.97
	48.34	18-Mar-98	3.16			45.18
	48.34	24-Apr-98	7.54			40.80
	48.34	21-May-98	7.50			40.84
	48.34	30-Jul-98	8.44			39.90
	48.34	25-Aug-98	7.56			40.78
	48.34	21-Sep-98	5.28			43.06
	48.34	26-Oct-98	6.96			41.38
	48.34	23-Nov-98	5.11			43.23
	48.34	29-Jan-99	4.21			44.13
	48.34	26-Feb-99	4.32			44.02
	48.34	16-Mar-99	4.16			44.18
	48.34	29-Apr-99	4.33			44.01
	48.34	1-Jun-99	4.39			43.95
	48.34	30-Jul-99	5.88			42.46
	48.34	27-Aug-99	4.57			43.77
	48.34	27-Sep-99	10.48			37.86
	48.34	29-Oct-99	11.61			36.73
	48.34	29-Dec-99	10.11			38.23
	48.34	4-Feb-00	13.22			35.12
	48.34	25-Feb-00	9.14			39.20
	48.34	27-Mar-00	8.06			40.28
	48.34	7-Apr-00	7.64			40.70
	48.34	31-May-00	7.70			40.64
	48.34	1-Jun-00	7.66			40.68
	48.34	28-Jul-00	7.71			40.63
	48.34	30-Aug-00	10.59			37.75
	48.34	19-Sep-00	12.29			36.05
	48.34	27-Oct-00	9.09			39.25
	48.34	21-Nov-00	9.11			39.23
	48.34	1-May-01	7.26	17.27	2.43	41.08
	48.34	1-Oct-01	7.57			40.77
	48.34	11-Mar-02	7.40			40.94
	48.34	23-Sep-02	4.60			43.74

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-03	48.34	10-Mar-03	2.89			45.45
	48.34	23-Sep-03	3.74			44.60
	48.34	15-Mar-04	3.27			45.07
	48.34	13-Sep-04	9.03			39.31
	48.34	18-Jul-05	3.94			44.40
	48.34	4-Jan-06	9.13			39.21
	48.34	27-Jul-06	3.30			45.04
	48.34	7-Mar-07	2.62			45.72
	48.34	27-Jul-07	3.74			44.60
	48.34	30-Jan-08	2.85			45.49
	48.34	16-Jul-08	7.96			40.38
	48.34	4-Feb-09	7.18			41.16
MW-04	49.85	2-Sep-93	8.57			41.28
	49.85	21-Dec-93	5.42			44.43
	49.85	24-Mar-94	5.85			44.00
	49.85	22-Jun-94	6.77			43.08
	49.85	28-Sep-94	8.18			41.67
	49.85	13-Oct-94	8.93			40.92
	49.85	24-Jan-95	4.72			45.13
	49.85	11-Apr-95	4.57			45.28
	49.85	11-Jul-95	6.47			43.38
	49.85	23-Jan-96	7.85			42.00
	49.85	19-Jul-96	9.62			40.23
	49.85	17-Sep-96	10.09			39.76
	49.85	31-Oct-96	7.93			41.92
	49.85	22-Nov-96	10.62			39.23
	49.85	27-Dec-96	8.06			41.79
	49.85	22-Jan-97	6.07			43.78
	49.85	21-Feb-97	4.86			44.99
	49.85	25-Mar-97	5.16			44.69
	49.85	23-Apr-97	6.25			43.60
	49.85	24-Apr-97	6.45			43.40
	49.85	13-May-97	5.07			44.78
	49.85	20-Jun-97	6.69			43.16
	49.85	25-Jun-97	4.68			45.17
	49.85	1-Jul-97	5.91			43.94
	49.85	24-Jul-97	8.61			41.24
	49.85	16-Aug-97	9.62			40.23
	49.85	22-Aug-97	10.35			39.50
	49.85	25-Sep-97	8.13			41.72
	49.85	22-Oct-97	7.23			42.62
	49.85	25-Nov-97	7.25			42.60
	49.85	19-Dec-97	6.76			43.09
	49.85	20-Jan-98	5.40			44.45
	49.85	3-Mar-98	5.00			44.85
	49.85	18-Mar-98	4.82			45.03
	49.85	24-Apr-98	8.63			41.22
	49.85	21-May-98	9.30			40.55
	49.85	30-Jul-98	10.19			39.66
	49.85	25-Aug-98	9.05			40.80
	49.85	21-Sep-98	7.05			42.80
	49.85	26-Oct-98	8.12			41.73
	49.85	23-Nov-98	6.01			43.84
	49.85	29-Jan-99	5.19			44.66
	49.85	26-Feb-99	5.22			44.63
	49.85	16-Mar-99	6.21			43.64

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-04	49.85	29-Apr-99	6.33			43.52
	49.85	1-Jun-99	6.39			43.46
	49.85	30-Jul-99	7.79			42.06
	49.85	27-Aug-99	6.51			43.34
	49.85	27-Sep-99	11.32			38.53
	49.85	29-Oct-99	12.21			37.64
	49.85	29-Dec-99	11.52			38.33
	49.85	4-Feb-00	14.33			35.52
	49.85	25-Feb-00	10.63			39.22
	49.85	27-Mar-00	9.38			40.47
	49.85	7-Apr-00	9.09			40.76
	49.85	31-May-00	9.13			40.72
	49.85	1-Jun-00	9.10			40.75
	49.85	28-Jul-00	9.18			40.67
	49.85	30-Aug-00	12.17			37.68
	49.85	19-Sep-00	13.39			36.46
	49.85	27-Oct-00	10.69			39.16
	49.85	21-Nov-00	9.61			40.24
	49.85	1-May-01	8.41			41.44
	49.85	1-Oct-01	8.68			41.17
	49.85	11-Mar-02	5.41			44.44
	49.85	23-Sep-02	5.29			44.56
	49.85	10-Mar-03	4.36			45.49
	49.85	23-Sep-03	5.28			44.57
	49.85	15-Mar-04	4.80			45.05
	49.85	13-Sep-04	9.80			40.05
	49.85	18-Jul-05	5.84			44.01
	49.85	4-Jan-06	10.48			39.37
	49.85	27-Jul-06	5.30			44.55
	49.85	7-Mar-07	4.10			45.75
	49.85	27-Jul-07	5.36			44.49
	49.85	29-Jan-08	4.18			45.67
	49.85	16-Jul-08	8.66			41.19
	49.85	4-Feb-09	8.93			40.92
MW-05	49.24	2-Sep-93	4.90			44.34
	49.24	21-Dec-93	2.21			47.03
	49.24	24-Mar-94	2.30			46.94
	49.24	22-Jun-94	2.80			46.44
	49.24	28-Sep-94	3.90			45.34
	49.24	13-Oct-94	5.05			44.19
	49.24	24-Jan-95	1.36			47.88
	49.24	11-Apr-95	3.90			45.34
	49.24	11-Jul-95	5.33			43.91
	49.24	23-Jan-96	7.42			41.82
	49.24	19-Jul-96	8.61			40.63
	49.24	17-Sep-96	9.01			40.23
	49.24	31-Oct-96	7.84			41.40
	49.24	22-Nov-96	9.68			39.56
	49.24	27-Dec-96	7.66			41.58
	49.24	22-Jan-97	5.89			43.35
	49.24	21-Feb-97	4.45			44.79
	49.24	25-Mar-97	4.65			44.59
	49.24	23-Apr-97	5.53			43.71
	49.24	24-Apr-97	5.68			43.56
	49.24	13-May-97	4.39			44.85
	49.24	20-Jun-97	5.67			43.57

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-05	49.24	25-Jun-97	3.97			45.27
	49.24	1-Jul-97	5.06			44.18
	49.24	24-Jul-97	7.46			41.78
	49.24	16-Aug-97	8.57			40.67
	49.24	22-Aug-97	9.20			40.04
	49.24	25-Sep-97	7.28			41.96
	49.24	22-Oct-97	6.70			42.54
	49.24	25-Nov-97	6.70			42.54
	49.24	19-Dec-97	6.26			42.98
	49.24	20-Jan-98	5.05			44.19
	49.24	4-Mar-98	4.54			44.70
	49.24	18-Mar-98	4.36			44.88
	49.24	24-Apr-98	7.67			41.57
	49.24	21-May-98	8.80			40.44
	49.24	30-Jul-98	9.90			39.34
	49.24	25-Aug-98	8.86			40.38
	49.24	21-Sep-98	6.59			42.65
	49.24	26-Oct-98	7.77			41.47
	49.24	23-Nov-98	5.79			43.45
	49.24	29-Jan-99	4.88			44.36
	49.24	26-Feb-99	4.96			44.28
	49.24	16-Mar-99	5.81			43.43
	49.24	29-Apr-99	5.91			43.33
	49.24	1-Jun-99	5.99			43.25
	49.24	30-Jul-99	7.00			42.24
	49.24	27-Aug-99	6.13			43.11
	49.24	27-Sep-99	10.17			39.07
	49.24	29-Oct-99	11.65			37.59
	49.24	29-Dec-99	10.90			38.34
	49.24	4-Feb-00	13.77			35.47
	49.24	25-Feb-00	9.46			39.78
	49.24	27-Mar-00	8.62			40.62
	49.24	7-Apr-00	8.20			41.04
	49.24	31-May-00	8.26			40.98
	49.24	1-Jun-00	8.21			41.03
	49.24	28-Jul-00	8.26			40.98
	49.24	30-Aug-00	11.33			37.91
	49.24	19-Sep-00	12.33			36.91
	49.24	27-Oct-00	9.94			39.30
	49.24	21-Nov-00	9.21			40.03
	49.24	1-May-01	7.47	21.72	5.70	41.77
	49.24	1-Oct-01	7.79			41.45
	49.24	11-Mar-02	4.92			44.32
	49.24	23-Sep-02	4.76			44.48
	49.24	10-Mar-03	3.77			45.47
	49.24	23-Sep-03	4.61			44.63
	49.24	15-Mar-04	4.22			45.02
	49.24	13-Sep-04	8.58			40.66
	49.24	18-Jul-05	5.61			43.63
	49.24	4-Jan-06	9.76			39.48
	49.24	27-Jul-06	4.85			44.39
	49.24	7-Mar-07	5.94			43.30
	49.24	27-Jul-07	4.53			44.71
	49.24	29-Jan-08	3.71			45.53
	49.24	15-Jul-08	7.77			41.47
	49.24	4-Feb-09	8.33			40.91

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-07	48.86	2-Sep-93	8.09			40.77
	48.86	21-Dec-93	4.60			44.26
	48.86	24-Mar-94	5.06			43.80
	48.86	22-Jun-94	6.03			42.83
	48.86	28-Sep-94	7.52			41.34
	48.86	13-Oct-94	8.13			40.73
	48.86	24-Jan-95	3.81			45.05
	48.86	11-Apr-95	3.41			45.45
	48.86	11-Jul-95	5.74			43.12
	48.86	23-Jan-96	6.99			41.87
	48.86	19-Jul-96	8.89			39.97
	48.86	17-Sep-96	9.41			39.45
	48.86	31-Oct-96	8.04			40.82
	48.86	22-Nov-96	9.94			38.92
	48.86	27-Dec-96	7.30			41.56
	48.86	22-Jan-97	5.25			43.61
	48.86	21-Feb-97	4.00			44.86
	48.86	25-Mar-97	4.32			44.54
	48.86	23-Apr-97	5.51			43.35
	48.86	24-Apr-97	5.67			43.19
	48.86	13-May-97	4.26			44.60
	48.86	20-Jun-97	6.00			42.86
	48.86	25-Jun-97	3.86			45.00
	48.86	1-Jul-97	5.21			43.65
	48.86	24-Jul-97	7.99			40.87
	48.86	16-Aug-97	8.92			39.94
	48.86	22-Aug-97	9.72			39.14
	48.86	25-Sep-97	7.50			41.36
	48.86	22-Oct-97	6.48			42.38
	48.86	25-Nov-97	6.50			42.36
	48.86	19-Dec-97	6.12			42.74
	48.86	20-Jan-98	4.52			44.34
	48.86	4-Mar-98	4.14			44.72
	48.86	18-Mar-98	3.94			44.92
	48.86	24-Apr-98	7.85			41.01
	48.86	21-May-98	8.61			40.25
	48.86	30-Jul-98	9.54			39.32
	48.86	25-Aug-98	8.63			40.23
	48.86	21-Sep-98	6.34			42.52
	48.86	26-Oct-98	7.56			41.30
	48.86	23-Nov-98	5.91			42.95
	48.86	29-Jan-99	4.71			44.15
	48.86	26-Feb-99	4.76			44.10
	48.86	16-Mar-99	5.32			43.54
	48.86	29-Apr-99	5.41			43.45
	48.86	1-Jun-99	5.49			43.37
	48.86	30-Jul-99	6.98			41.88
	48.86	27-Aug-99	5.61			43.25
	48.86	27-Sep-99	10.64			38.22
	48.86	29-Oct-99	11.56			37.30
	48.86	29-Dec-99	9.90			38.96
	48.86	4-Feb-00	14.21			34.65
	48.86	25-Feb-00	8.86			40.00
	48.86	27-Mar-00	8.62			40.24
	48.86	7-Apr-00	8.15			40.71
	48.86	31-May-00	8.21			40.65

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-07	48.86	1-Jun-00	8.22			40.64
	48.86	28-Jul-00	8.29			40.57
	48.86	30-Aug-00	11.55			37.31
	48.86	19-Sep-00	12.65			36.21
	48.86	27-Oct-00	10.00			38.86
	48.86	21-Nov-00	9.46			39.40
	48.86	1-May-01	7.64			41.22
	48.86	1-Oct-01	8.00			40.86
	48.86	11-Mar-02	4.56			44.30
	48.86	23-Sep-02	4.69			44.17
	48.86	10-Mar-03	3.52			45.34
	48.86	23-Sep-03	4.70			44.16
	48.86	15-Mar-04	3.89			44.97
	48.86	13-Sep-04	9.04			39.82
	48.86	18-Jul-05	5.27			43.59
	48.86	4-Jan-06	9.91			38.95
	48.86	27-Jul-06	4.60			44.26
	48.86	23-Jan-07	3.46			45.40
	48.86	7-Mar-07	3.82			45.04
	48.86	27-Jul-07	4.94			43.92
	48.86	29-Jan-08	3.39			45.47
	48.86	16-Jul-08	7.94			40.92
	48.86	22-Jan-09	7.49			41.37
MW-08	49.33	2-Sep-93	8.18			41.19
	49.33	21-Dec-93	5.02			44.35
	49.33	24-Mar-94	5.53			43.84
	49.33	22-Jun-94	6.38			42.99
	49.33	28-Sep-94	7.72			41.65
	49.33	13-Oct-94	8.43			40.94
	49.33	24-Jan-95	4.15			45.22
	49.33	11-Apr-95	4.02			45.35
	49.33	11-Jul-95	5.95			43.42
	49.33	23-Jan-96	7.20			42.17
	49.33	19-Jul-96	9.06			40.31
	49.33	17-Sep-96	9.51			39.86
	49.33	31-Oct-96	7.99			41.38
	49.33	22-Nov-96	9.98			39.39
	49.33	27-Dec-96	7.24			42.13
	49.33	22-Jan-97	5.25			44.12
	49.33	21-Feb-97	4.21			45.16
	49.33	25-Mar-97	4.48			44.89
	49.33	23-Apr-97	5.61			43.76
	49.33	24-Apr-97	5.76			43.61
	49.33	13-May-97	4.45			44.92
	49.33	20-Jun-97	6.09			43.28
	49.33	25-Jun-97	4.56			44.81
	49.33	1-Jul-97	5.06			44.31
	49.33	24-Jul-97	7.97			41.40
	49.33	16-Aug-97	8.05			41.32
	49.33	22-Aug-97	9.73			39.64
	49.33	25-Sep-97	7.57			41.80
	49.33	22-Oct-97	6.43			42.94
	49.33	25-Nov-97	6.48			42.89
	49.33	19-Dec-97	5.22			44.15
	49.33	20-Jan-98	4.70			44.67
	49.33	4-Mar-98	4.38			44.99

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-08	49.33	18-Mar-98	4.18			45.19
	49.33	24-Apr-98	8.00			41.37
	49.33	21-May-98	8.45			40.92
	49.33	30-Jul-98	9.33			40.04
	49.33	25-Aug-98	8.46			40.91
	49.33	21-Sep-98	6.31			43.06
	49.33	26-Oct-98	7.66			41.71
	49.33	23-Nov-98	5.96			43.41
	49.33	29-Jan-99	4.80			44.57
	49.33	26-Feb-99	4.89			44.48
	49.33	16-Mar-99	5.45			43.92
	49.33	29-Apr-99	5.66			43.71
	49.33	1-Jun-99	5.66			43.71
	49.33	30-Jul-99	7.20			42.17
	49.33	27-Aug-99	5.85			43.52
	49.33	27-Sep-99	10.78			38.59
	49.33	29-Oct-99	11.76			37.61
	49.33	29-Dec-99	11.03			38.34
	49.33	4-Feb-00	14.66			34.71
	49.33	25-Feb-00	10.33			39.04
	49.33	27-Mar-00	8.75			40.62
	49.33	7-Apr-00	8.37			41.00
	49.33	31-May-00	8.40			40.97
	49.33	1-Jun-00	8.36			41.01
	49.33	28-Jul-00	8.40			40.97
	49.33	30-Aug-00	11.29			38.08
	49.33	19-Sep-00	12.82			36.55
	49.33	27-Oct-00	12.63			36.74
	49.33	21-Nov-00	9.64			39.73
	49.33	1-May-01	7.83			41.54
	49.33	1-Oct-01	8.05			41.32
	49.33	11-Mar-02	4.75			44.62
	49.33	23-Sep-02	4.69			44.68
	49.33	10-Mar-03	3.84			45.49
	49.33	23-Sep-03	4.73			44.60
	49.33	15-Mar-04	4.31			45.02
	49.33	13-Sep-04	9.31			40.02
	49.33	18-Jul-05	5.32			44.01
	49.33	4-Jan-06	10.63			38.70
	49.33	27-Jul-06	4.79			44.54
	49.33	22-Jan-07	3.81			45.52
	49.33	7-Mar-07	3.96			45.37
	49.33	27-Jul-07	5.06			44.27
	49.33	29-Jan-08	3.71			45.62
	49.33	16-Jul-08	8.32			41.01
	49.33	22-Jan-09	7.71			41.62
MW-09	49.26	2-Sep-93	7.43			41.86
	49.26	21-Dec-93	4.89			44.40
	49.26	24-Mar-94	4.92			44.37
	49.26	22-Jun-94	5.51			43.78
	49.26	28-Sep-94	6.90			42.39
	49.26	13-Oct-94	7.66			41.63
	49.26	24-Jan-95	4.10			45.19
	49.26	11-Apr-95	3.74			45.55
	49.26	11-Jul-95	5.08			44.21
	49.26	23-Jan-96	7.09			42.20

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-09	49.26	19-Jul-96	8.27			41.02
	49.26	17-Sep-96	8.58			40.71
	49.26	31-Oct-96	7.27			42.02
	49.26	22-Nov-96	9.17			40.12
	49.26	27-Dec-96	7.05			42.24
	49.26	22-Jan-97	5.42			43.87
	49.26	21-Feb-97	4.09			45.20
	49.26	25-Mar-97	4.17			45.12
	49.26	23-Apr-97	5.05			44.24
	49.26	24-Apr-97	5.21			44.08
	49.26	13-May-97	4.16			45.13
	49.26	20-Jun-97	5.32			43.97
	49.26	25-Jun-97	3.80			45.49
	49.26	1-Jul-97	4.57			44.72
	49.26	24-Jul-97	7.03			42.26
	49.26	16-Aug-97	8.26			41.03
	49.26	22-Aug-97	8.67			40.62
	49.26	25-Sep-97	6.99			42.30
	49.26	22-Oct-97	6.10			43.19
	49.26	25-Nov-97	6.12			43.17
	49.26	19-Dec-97	5.62			43.67
	49.26	20-Jan-98	4.60			44.69
	49.26	4-Mar-98	4.15			45.14
	49.26	18-Mar-98	4.02			45.27
	49.26	24-Apr-98	7.32			41.97
	49.26	21-May-98	8.10			41.19
	49.26	30-Jul-98	9.12			40.17
	49.26	25-Aug-98	8.41			40.88
	49.26	21-Sep-98	6.11			43.18
	49.26	26-Oct-98	7.61			41.68
	49.26	23-Nov-98	5.43			43.86
	49.26	29-Jan-99	4.60			44.69
	49.26	26-Feb-99	4.68			44.61
	49.26	16-Mar-99	5.46			43.83
	49.26	29-Apr-99	5.66			43.63
	49.26	1-Jun-99	5.66			43.63
	49.26	30-Jul-99	7.11			42.18
	49.26	27-Aug-99	5.86			43.43
	49.26	27-Sep-99	9.81			39.48
	49.26	29-Oct-99	10.63			38.66
	49.26	29-Dec-99	9.99			39.30
	49.26	4-Feb-00	12.44			36.85
	49.26	25-Feb-00	8.88			40.41
	49.26	27-Mar-00	8.22			41.07
	49.26	7-Apr-00	8.10			41.19
	49.26	31-May-00	8.15			41.14
	49.26	1-Jun-00	8.00			41.29
	49.26	28-Jul-00	8.11			41.18
	49.26	30-Aug-00	11.10			38.19
	49.26	19-Sep-00	11.91			37.38
	49.26	27-Oct-00	9.84			39.45
	49.26	21-Nov-00	8.89			40.40
	49.26	1-May-01	7.16			42.13
	49.26	1-Oct-01	7.39			41.90
	49.26	11-Mar-02	4.61			44.68
	49.26	23-Sep-02	4.45			44.84

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-09	49.26	10-Mar-03	3.59			45.67
	49.26	23-Sep-03	4.31			44.95
	49.26	15-Mar-04	4.18			45.08
	49.26	13-Sep-04	8.39			40.87
	49.26	18-Jul-05	5.53			43.73
	49.26	4-Jan-06	9.46			39.80
	49.26	27-Jul-06	4.85			44.41
	49.26	7-Mar-07	5.58			43.68
	49.26	27-Jul-07	3.78			45.48
	49.26	29-Jan-08	3.52			45.74
	49.26	15-Jul-08	7.04			42.22
	49.26	4-Feb-09	8.01			41.25
MW-10A	49.86	28-Sep-94	8.69			41.21
	49.86	13-Oct-94	9.36			40.54
	49.86	24-Jan-95	4.62			45.28
	49.86	11-Apr-95	4.60			45.30
	49.86	11-Jul-95	7.00			42.90
	49.86	23-Jan-96	7.74			42.16
	49.86	19-Jul-96	9.98			39.92
	49.86	17-Sep-96	10.54			39.36
	49.86	31-Oct-96	7.94			41.96
	49.86	22-Nov-96	10.82			39.08
	49.86	27-Dec-96	7.81			42.09
	49.86	22-Jan-97	5.45			44.45
	49.86	21-Feb-97	4.63			45.27
	49.86	25-Mar-97	5.01			44.89
	49.86	23-Apr-97	6.39			43.51
	49.86	24-Apr-97	6.58			43.32
	49.86	13-May-97	4.93			44.97
	49.86	20-Jun-97	7.08			42.82
	49.86	25-Jun-97	4.58			45.32
	49.86	1-Jul-97	6.13			43.77
	49.86	24-Jul-97	9.11			40.79
	49.86	16-Aug-97	10.10			39.80
	49.86	22-Aug-97	10.81			39.09
	49.86	25-Sep-97	8.47			41.43
	49.86	22-Oct-97	7.02			42.88
	49.86	25-Nov-97	7.05			42.85
	49.86	19-Dec-97	6.89			43.01
	49.86	20-Jan-98	5.10			44.80
	49.86	3-Mar-98	4.87			45.03
	49.86	18-Mar-98	4.65			45.25
	49.86	24-Apr-98	8.84			41.06
	49.86	21-May-98	9.10			40.80
	49.86	30-Jul-98	10.23			39.67
	49.86	25-Aug-98	9.11			40.79
	49.86	21-Sep-98	6.82			43.08
	49.86	26-Oct-98	8.19			41.71
	49.86	23-Nov-98	6.12			43.78
	49.86	29-Jan-99	5.61			44.29
	49.86	26-Feb-99	5.69			44.21
	49.86	16-Mar-99	5.91			43.99
	49.86	29-Apr-99	6.11			43.79
	49.86	1-Jun-99	6.10			43.80
	49.86	30-Jul-99	7.70			42.20
	49.86	27-Aug-99	6.31			43.59

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-10A	49.86	27-Sep-99	11.73			38.17
	49.86	29-Oct-99	12.69			37.21
	49.86	29-Dec-99	12.00			37.90
	49.86	4-Feb-00	14.30			35.60
	49.86	25-Feb-00	11.44			38.46
	49.86	27-Mar-00	9.57			40.33
	49.86	7-Apr-00	9.27			40.63
	49.86	31-May-00	9.31			40.59
	49.86	1-Jun-00	9.10			40.80
	49.86	28-Jul-00	9.30			40.60
	49.86	30-Aug-00	12.09			37.81
	49.86	19-Sep-00	13.70			36.20
	49.86	27-Oct-00	10.69			39.21
	49.86	21-Nov-00	10.49			39.41
	49.86	1-May-01	8.64	18.58	7.06	41.26
	49.86	1-Oct-01	8.93			40.97
	49.86	11-Mar-02	5.30			44.60
	49.86	23-Sep-02	5.19			44.71
	49.86	10-Mar-03	4.43			45.43
	49.86	23-Sep-03	5.31			44.55
	49.86	15-Mar-04	4.69			45.17
	49.86	13-Sep-04	10.30			39.56
	49.86	18-Jul-05	5.57			44.29
	49.86	4-Jan-06	9.68			40.18
	49.86	27-Jul-06	5.01			44.85
	49.86	23-Jan-07	4.29			45.57
	49.86	7-Mar-07	4.13			45.73
	49.86	27-Jul-07	6.03			43.83
	49.86	28-Jan-08	4.22			45.64
	49.86	16-Jul-08	9.31			40.55
	49.86	22-Jan-09	8.27			41.59
MW-10B	49.94	28-Sep-94	8.77			41.20
	49.94	13-Oct-94	9.45			40.52
	49.94	24-Jan-95	4.72			45.25
	49.94	11-Apr-95	4.72			45.25
	49.94	11-Jul-95	7.13			42.84
	49.94	23-Jan-96	7.84			42.13
	49.94	19-Jul-96	10.27			39.70
	49.94	17-Sep-96	10.64			39.33
	49.94	31-Oct-96	8.01			41.96
	49.94	22-Nov-96	10.93			39.04
	49.94	27-Dec-96	7.99			41.98
	49.94	22-Jan-97	5.72			44.25
	49.94	21-Feb-97	4.78			45.19
	49.94	25-Mar-97	5.13			44.84
	49.94	23-Apr-97	6.52			43.45
	49.94	24-Apr-97	6.71			43.26
	49.94	13-May-97	5.09			44.88
	49.94	20-Jun-97	7.21			42.76
	49.94	25-Jun-97	4.71			45.26
	49.94	1-Jul-97	6.27			43.70
	49.94	24-Jul-97	9.15			40.82
	49.94	16-Aug-97	10.19			39.78
	49.94	22-Aug-97	10.92			39.05
	49.94	25-Sep-97	8.69			41.28
	49.94	22-Oct-97	7.18			42.79

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-10B	49.94	25-Nov-97	7.21			42.76
	49.94	19-Dec-97	6.56			43.41
	49.94	20-Jan-98	5.25			44.72
	49.94	3-Mar-98	5.00			44.97
	49.94	18-Mar-98	4.79			45.18
	49.94	24-Apr-98	8.95			41.02
	49.94	21-May-98	9.30			40.67
	49.94	30-Jul-98	10.30			39.67
	49.94	25-Aug-98	9.20			40.77
	49.94	21-Sep-98	7.06			42.91
	49.94	26-Oct-98	8.31			41.66
	49.94	23-Nov-98	6.25			43.72
	49.94	29-Jan-99	5.71			44.26
	49.94	26-Feb-99	5.76			44.21
	49.94	16-Mar-99	6.05			43.92
	49.94	29-Apr-99	6.10			43.87
	49.94	1-Jun-99	6.10			43.87
	49.94	30-Jul-99	7.61			42.36
	49.94	27-Aug-99	6.33			43.64
	49.94	27-Sep-99	11.90			38.07
	49.94	29-Oct-99	12.60			37.37
	49.94	29-Dec-99	12.10			37.87
	49.94	4-Feb-00	14.29			35.68
	49.94	25-Feb-00	11.15			38.82
	49.94	27-Mar-00	9.67			40.30
	49.94	7-Apr-00	9.32			40.65
	49.94	31-May-00	9.38			40.59
	49.94	1-Jun-00	9.21			40.76
	49.94	28-Jul-00	9.33			40.64
	49.94	30-Aug-00	12.11			37.86
	49.94	19-Sep-00	13.77			36.20
	49.94	27-Oct-00	10.63			39.34
	49.94	21-Nov-00	10.64			39.33
	49.94	1-May-01	8.75	18.70	27.87	41.22
	49.94	1-Oct-01	9.12			40.85
	49.94	11-Mar-02	5.47			44.50
	49.94	23-Sep-02	5.40			44.57
	49.94	10-Mar-03	4.59			45.35
	49.94	23-Sep-03	5.58			44.36
	49.94	15-Mar-04	5.78			44.16
	49.94	13-Sep-04	10.41			39.53
	49.94	18-Jul-05	5.97			43.97
	49.94	4-Jan-06	10.75			39.19
	49.94	27-Jul-06	5.73			44.21
	49.94	23-Jan-07	4.45			45.49
	49.94	7-Mar-07	4.61			45.33
	49.94	27-Jul-07	6.15			43.79
	49.94	28-Jan-08	4.44			45.50
	49.94	16-Jul-08	9.42			40.52
	49.94	22-Jan-09	8.39			41.55
MW-11A	50.05	28-Sep-94	8.66			41.38
	50.05	13-Oct-94	9.35			40.69
	50.05	24-Jan-95	4.88			45.16
	50.05	11-Apr-95	4.81			45.23
	50.05	11-Jul-95	6.67			43.37
	50.05	23-Jan-96	8.01			42.03

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-11A	50.05	19-Jul-96	10.09			39.95
	50.05	17-Sep-96	10.56			39.48
	50.05	31-Oct-96	8.16			41.88
	50.05	22-Nov-96	10.98			39.06
	50.05	27-Dec-96	8.21			41.83
	50.05	22-Jan-97	6.06			43.98
	50.05	21-Feb-97	4.98			45.06
	50.05	25-Mar-97	5.32			44.72
	50.05	23-Apr-97	6.59			43.45
	50.05	24-Apr-97	6.77			43.27
	50.05	13-May-97	5.31			44.73
	50.05	20-Jun-97	7.15			42.89
	50.05	25-Jun-97	4.88			45.16
	50.05	1-Jul-97	6.29			43.75
	50.05	24-Jul-97	9.12			40.92
	50.05	16-Aug-97	10.11			39.93
	50.05	22-Aug-97	10.82			39.22
	50.05	25-Sep-97	8.70			41.34
	50.05	22-Oct-97	7.40			42.64
	50.05	25-Nov-97	7.41			42.63
	50.05	19-Dec-97	6.10			43.94
	50.05	20-Jan-98	5.49			44.55
	50.05	3-Mar-98	5.16			44.88
	50.05	18-Mar-98	4.96			45.08
	50.05	24-Apr-98	8.98			41.06
	50.05	21-May-98	9.40			40.64
	50.05	30-Jul-98	10.56			39.48
	50.05	25-Aug-98	9.32			40.72
	50.05	21-Sep-98	7.28			42.76
	50.05	26-Oct-98	8.43			41.61
	50.05	23-Nov-98	6.41			43.63
	50.05	29-Jan-99	5.31			44.73
	50.05	26-Feb-99	5.39			44.65
	50.05	16-Mar-99	6.32			43.72
	50.05	29-Apr-99	6.51			43.53
	50.05	1-Jun-99	6.57			43.47
	50.05	30-Jul-99	8.00			42.04
	50.05	27-Aug-99	6.79			43.25
	50.05	27-Sep-99	11.73			38.31
	50.05	29-Oct-99	12.81			37.23
	50.05	29-Dec-99	12.11			37.93
	50.05	4-Feb-00	14.33			35.71
	50.05	25-Feb-00	11.10			38.94
	50.05	27-Mar-00	9.66			40.38
	50.05	7-Apr-00	9.40			40.64
	50.05	31-May-00	9.50			40.54
	50.05	1-Jun-00	9.30			40.74
	50.05	28-Jul-00	9.47			40.57
	50.05	30-Aug-00	12.44			37.60
	50.05	19-Sep-00	13.74			36.30
	50.05	27-Oct-00	11.01			39.03
	50.05	21-Nov-00	10.69			39.35
	50.05	1-May-01	8.78			41.26
	50.05	1-Oct-01	9.12			40.93
	50.05	11-Mar-02	5.59			44.45
	50.05	23-Sep-02	5.60			44.44

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-11A	50.05	10-Mar-03	4.66			45.39
	50.05	23-Sep-03	5.73			44.32
	50.05	15-Mar-04	4.99			45.06
	50.05	13-Sep-04	10.28			39.77
	50.05	18-Jul-05	6.66			43.39
	50.05	5-Jan-06	10.85			39.20
	50.05	27-Jul-06	5.02			45.03
	50.05	23-Jan-07	4.54			45.51
	50.05	7-Mar-07	4.26			45.79
	50.05	27-Jul-07	6.09			43.96
	50.05	28-Jan-08	4.46			45.59
	50.05	16-Jul-08	9.25			40.80
	50.05	22-Jan-09	8.57			41.48
MW-11B	50.18	28-Sep-94	8.92			41.27
	50.18	13-Oct-94	9.59			40.60
	50.18	24-Jan-95	5.04			45.15
	50.18	11-Apr-95	5.01			45.18
	50.18	11-Jul-95	7.23			42.96
	50.18	23-Jan-96	8.20			41.99
	50.18	19-Jul-96	8.92			41.27
	50.18	17-Sep-96	10.83			39.36
	50.18	31-Oct-96	9.34			40.85
	50.18	22-Nov-96	11.23			38.96
	50.18	27-Dec-96	8.45			41.74
	50.18	22-Jan-97	6.28			43.91
	50.18	21-Feb-97	5.16			45.03
	50.18	25-Mar-97	5.51			44.68
	50.18	23-Apr-97	6.81			43.38
	50.18	24-Apr-97	6.99			43.20
	50.18	13-May-97	5.46			44.73
	50.18	20-Jun-97	7.40			42.79
	50.18	25-Jun-97	5.06			45.13
	50.18	1-Jul-97	6.52			43.67
	50.18	24-Jul-97	9.36			40.83
	50.18	16-Aug-97	10.36			39.83
	50.18	22-Aug-97	11.11			39.08
	50.18	25-Sep-97	8.96			41.23
	50.18	22-Oct-97	7.61			42.58
	50.18	25-Nov-97	7.63			42.56
	50.18	19-Dec-97	7.11			43.08
	50.18	20-Jan-98	5.70			44.49
	50.18	3-Mar-98	5.35			44.84
	50.18	18-Mar-98	5.14			45.05
	50.18	24-Apr-98	9.19			41.00
	50.18	21-May-98	9.61			40.58
	50.18	30-Jul-98	10.72			39.47
	50.18	25-Aug-98	9.48			40.71
	50.18	21-Sep-98	7.49			42.70
	50.18	26-Oct-98	8.57			41.62
	50.18	23-Nov-98	6.32			43.87
	50.18	26-Feb-99	5.32			44.87
	50.18	16-Mar-99	6.49			43.70
	50.18	29-Apr-99	6.66			43.53
	50.18	1-Jun-99	6.66			43.53
	50.18	30-Jul-99	8.12			42.07
	50.18	27-Aug-99	6.88			43.31

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-11B	50.18	27-Sep-99	12.04			38.15
	50.18	29-Oct-99	13.00			37.19
	50.18	29-Dec-99	12.33			37.86
	50.18	4-Feb-00	15.61			34.58
	50.18	25-Feb-00	11.49			38.70
	50.18	27-Mar-00	9.93			40.26
	50.18	7-Apr-00	9.54			40.65
	50.18	31-May-00	9.61			40.58
	50.18	1-Jun-00	9.51			40.68
	50.18	28-Jul-00	9.60			40.59
	50.18	30-Aug-00	12.76			37.43
	50.18	19-Sep-00	13.97			36.22
	50.18	27-Oct-00	11.23			38.96
	50.18	21-Nov-00	10.88			39.31
	50.18	1-May-01	5.97	18.90	30.47	44.22
	50.18	1-Oct-01	9.33			40.86
	50.18	11-Mar-02	5.80			44.39
	50.18	23-Sep-02	5.79			44.40
	50.18	10-Mar-03	4.85			45.33
	50.18	23-Sep-03	5.95			44.23
	50.18	15-Mar-04	5.16			45.02
	50.18	13-Sep-04	10.53			39.65
	50.18	18-Jul-05	5.45			44.73
	50.18	4-Jan-06	11.01			39.17
	50.18	27-Jul-06	5.26			44.92
	50.18	23-Jan-07	4.13			46.05
	50.18	7-Mar-07	4.42			45.76
	50.18	27-Jul-07	6.29			43.89
	50.18	28-Jan-08	4.69			45.49
	50.18	16-Jul-08	9.49			40.69
	50.18	22-Jan-09	8.72			41.46
MW-12A	49.96	25-Mar-97	5.52			44.44
	49.96	23-Apr-97	6.51			43.45
	49.96	24-Apr-97	6.66			43.30
	49.96	13-May-97	5.47			44.49
	49.96	20-Jun-97	6.81			43.15
	49.96	25-Sep-97	8.08			41.88
	49.96	22-Oct-97	7.10			42.86
	49.96	25-Nov-97	7.12			42.84
	49.96	19-Dec-97	6.96			43.00
	49.96	20-Jan-98	5.69			44.27
	49.96	4-Mar-98	4.52			45.44
	49.96	18-Mar-98	5.28			44.68
	49.96	24-Apr-98	8.70			41.26
	49.96	21-May-98	9.10			40.86
	49.96	25-Aug-98	10.05			39.91
	49.96	21-Sep-98	7.11			42.85
	49.96	26-Oct-98	9.11			40.85
	49.96	23-Nov-98	6.01			43.95
	49.96	29-Jan-99	5.44			44.52
	49.96	26-Feb-99	5.52			44.44
	49.96	16-Mar-99	6.21			43.75
	49.96	29-Apr-99	6.38			43.58
	49.96	1-Jun-99	6.31			43.65
	49.96	30-Jul-99	7.88			42.08
	49.96	27-Aug-99	6.56			43.40

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-12A	49.96	27-Sep-99	11.61			38.35
	49.96	29-Oct-99	12.79			37.17
	49.96	18-Nov-99	13.18			36.78
	49.96	29-Dec-99	12.03			37.93
	49.96	4-Feb-00	15.43			34.53
	49.96	25-Feb-00	11.34			38.62
	49.96	27-Mar-00	9.22			40.74
	49.96	7-Apr-00	8.80			41.16
	49.96	31-May-00	8.84			41.12
	49.96	1-Jun-00	8.81			41.15
	49.96	28-Jul-00	8.87			41.09
	49.96	30-Aug-00	11.76			38.20
	49.96	19-Sep-00	13.22			36.74
	49.96	27-Oct-00	10.54			39.42
	49.96	21-Nov-00	10.16			39.80
	49.96	1-May-01	8.60			41.36
	49.96	1-Oct-01	8.73			41.23
	49.96	11-Mar-02	6.01			43.95
	49.96	23-Sep-02	5.87			44.09
	49.96	10-Mar-03	5.37			44.59
	49.96	23-Sep-03	5.96			44.00
	49.96	15-Mar-04	5.54			44.42
	49.96	13-Sep-04	10.30			39.66
	49.96	18-Jul-05	7.01			42.95
	49.96	4-Jan-06	10.57			39.39
	49.96	27-Jul-06	6.60			43.36
	49.96	7-Mar-07	6.94			43.02
	49.96	27-Jul-07	5.79			44.17
	49.96	30-Jan-08	5.29			44.67
	49.96	15-Jul-08	9.19			40.77
	49.96	4-Feb-09	8.81			41.15
MW-12B	50.02	25-Mar-97	5.60			44.42
	50.02	23-Apr-97	6.64			43.38
	50.02	24-Apr-97	6.74			43.28
	50.02	13-May-97	5.55			44.47
	50.02	20-Jun-97	7.01			43.01
	50.02	25-Sep-97	8.32			41.70
	50.02	22-Oct-97	7.25			42.77
	50.02	25-Nov-97	7.29			42.73
	50.02	19-Dec-97	6.86			43.16
	50.02	20-Jan-98	5.88			44.14
	50.02	4-Mar-98	5.64	44.08		44.38
	50.02	18-Mar-98	5.38	44.07		44.64
	50.02	9-Apr-98	7.87		0.98	42.15
	50.02	16-Apr-98	8.31		1.35	41.71
	50.02	24-Apr-98	8.72	43.82	1.00	41.30
	50.02	8-May-98	NM		0.50	NM
	50.02	12-May-98	NM		0.50	NM
	50.02	21-May-98	10.48			39.54
	50.02	25-May-98	NM		1.00	NM
	50.02	9-Jun-98	NM		1.00	NM
	50.02	16-Jun-98	NM		1.20	NM
	50.02	26-Jun-98	NM		1.50	NM
	50.02	2-Jul-98	NM		1.50	NM
	50.02	10-Jul-98	NM		2.00	NM
	50.02	14-Jul-98	NM		2.00	NM

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-12B	50.02	23-Jul-98	NM		2.00	NM
	50.02	5-Aug-98	NM		2.00	NM
	50.02	13-Aug-98	NM		2.00	NM
	50.02	18-Aug-98	NM		2.00	NM
	50.02	25-Aug-98	10.22			39.80
	50.02	15-Sep-98	NM		2.00	NM
	50.02	21-Sep-98	7.73			42.29
	50.02	30-Sep-98	NM		4.00	NM
	50.02	8-Oct-98	NM		4.00	NM
	50.02	16-Oct-98	NM		4.00	NM
	50.02	26-Oct-98	8.88			41.14
	50.02	6-Nov-98	NM		4.00	NM
	50.02	13-Nov-98	NM		1.49	NM
	50.02	19-Nov-98	NM		4.00	NM
	50.02	23-Nov-98	6.11			43.91
	50.02	16-Dec-98	NM		4.00	NM
	50.02	7-Jan-99	NM		4.00	NM
	50.02	15-Jan-99	NM		4.00	NM
	50.02	22-Jan-99	NM		4.00	NM
	50.02	26-Jan-99	NM		4.00	NM
	50.02	29-Jan-99	5.70			44.32
	50.02	4-Feb-99	NM		4.00	NM
	50.02	9-Feb-99	NM		3.00	NM
	50.02	26-Feb-99	5.83	39.95	4.00	44.19
	50.02	16-Mar-99	6.30	43.60	2.30	43.72
	50.02	29-Apr-99	6.44	38.90	7.00	43.58
	50.02	21-May-99	7.40	36.90	9.00	42.62
	50.02	27-May-99	7.38	36.90	9.00	42.64
	50.02	1-Jun-99	6.40	37.90	8.00	43.62
	50.02	10-Jun-99	7.36	36.90	9.00	42.66
	50.02	30-Jul-99	7.98			42.04
	50.02	27-Aug-99	6.61	38.90	7.00	43.41
	50.02	27-Sep-99	11.71	42.34	3.50	38.31
	50.02	29-Oct-99	12.76	41.84	4.00	37.26
	50.02	18-Nov-99	13.22			36.80
	50.02	29-Dec-99	12.01	41.84	4.00	38.01
	50.02	4-Feb-00	13.22	41.84	4.00	36.80
	50.02	25-Feb-00	11.44	41.84	4.00	38.58
	50.02	27-Mar-00	NM			NM
	50.02	7-Apr-00	8.73	41.81	4.00	41.29
	50.02	31-May-00	8.77	41.81	4.00	41.25
	50.02	1-Jun-00	8.73	41.81	4.00	41.29
	50.02	28-Jul-00	8.77	41.89	4.00	41.25
	50.02	30-Aug-00	11.66	41.82	4.00	38.36
	50.02	19-Sep-00	13.33	40.89	4.94	36.69
	50.02	27-Oct-00	11.75	41.80	4.00	38.27
	50.02	21-Nov-00	10.64	43.48	2.34	39.38
	50.02	1-May-01	8.71	43.46	2.10	41.31
	50.02	1-Oct-01	8.37		15.00	41.65
	50.02	14-Mar-02	6.37	36.99	9.13	43.65
	50.02	23-Sep-02	6.10	40.03	8.32	43.92
	50.02	10-Mar-03	5.45			44.57
	50.02	24-Sep-03	6.29	39.85	5.98	43.73
	50.02	15-Mar-04	5.63			44.39
	50.02	13-Sep-04	10.44	38.72	7.10	39.58
	50.02	18-Jul-05	7.14	38.40	7.39	42.88

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-12B	50.02	4-Jan-06	10.75	35.98	9.83	39.27
	50.02	27-Jul-06	6.07	35.74	10.13	43.95
	50.02	7-Mar-07	6.96	34.60	12.20	43.06
	50.02	27-Jul-07	5.36	33.45	12.39	44.66
	50.02	31-Jan-08	5.75	33.34	12.46	44.27
	50.02	15-Jul-08	9.38	38.88	6.92	40.64
	50.02	4-Feb-09	8.89	38.14	7.66	41.13
MW-12C	50.14	13-May-97	39.34			10.80
	50.14	20-Jun-97	38.94			11.20
	50.14	25-Sep-97	36.70			13.44
	50.14	22-Oct-97	36.09			14.05
	50.14	25-Nov-97	36.13			14.01
	50.14	19-Dec-97	35.34			14.80
	50.14	20-Jan-98	32.60			17.54
	50.14	4-Mar-98	31.56			18.58
	50.14	18-Mar-98	31.64			18.50
	50.14	24-Apr-98	31.06			19.08
	50.14	21-May-98	38.20			11.94
	50.14	25-Aug-98	31.00			19.14
	50.14	21-Sep-98	29.86			20.28
	50.14	26-Oct-98	30.12			20.02
	50.14	23-Nov-98	28.38			21.76
	50.14	29-Jan-99	27.61			22.53
	50.14	26-Feb-99	27.69			22.45
	50.14	16-Mar-99	28.00			22.14
	50.14	29-Apr-99	28.21			21.93
	50.14	1-Jun-99	28.20			21.94
	50.14	30-Jul-99	29.80			20.34
	50.14	27-Aug-99	28.41			21.73
	50.14	27-Sep-99	29.20			20.94
	50.14	29-Oct-99	29.78			20.36
	50.14	18-Nov-99	30.17			19.97
	50.14	29-Dec-99	29.09			21.05
	50.14	4-Feb-00	29.66			20.48
	50.14	25-Feb-00	30.32			19.82
	50.14	27-Mar-00	28.91			21.23
	50.14	7-Apr-00	27.40			22.74
	50.14	31-May-00	27.44			22.70
	50.14	1-Jun-00	27.43			22.71
	50.14	28-Jul-00	27.45			22.69
	50.14	30-Aug-00	33.61			16.53
	50.14	19-Sep-00	30.03			20.11
	50.14	27-Oct-00	33.94			16.20
	50.14	21-Nov-00	29.12			21.02
	50.14	1-May-01	26.85			23.29
	50.14	1-Oct-01	26.85			23.29
	50.14	11-Mar-02	25.59			24.55
	50.14	23-Sep-02	26.57			23.57
	50.14	10-Mar-03	24.85			25.29
	50.14	23-Sep-03	26.06			24.08
	50.14	15-Mar-04	24.31			25.83
	50.14	13-Sep-04	26.15			23.99
	50.14	18-Jul-05	26.23			23.91
	50.14	4-Jan-06	22.26			27.88
	50.14	27-Jul-06	25.28			24.86
	50.14	7-Mar-07	23.78			26.36

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-12C	50.14	27-Jul-07	22.05			28.09
	50.14	30-Jan-08	22.69			27.45
	50.14	15-Jul-08	24.41	70.03	5.58	25.73
	50.14	4-Feb-09	24.59			25.55
MW-13	50.65	25-Mar-97	9.43			41.22
	50.65	23-Apr-97	9.87			40.78
	50.65	24-Apr-97	9.92			40.73
	50.65	13-May-97	9.30			41.35
	50.65	20-Jun-97	10.11			40.54
	50.65	25-Sep-97	10.75			39.90
	50.65	22-Oct-97	10.09			40.56
	50.65	25-Nov-97	10.11			40.54
	50.65	19-Dec-97	10.01			40.64
	50.65	20-Jan-98	9.32			41.33
	50.65	4-Mar-98	9.23			41.42
	50.65	18-Mar-98	8.90			41.75
	50.65	24-Apr-98	10.74			39.82
	50.65	21-May-98	12.11			38.54
	50.65	25-Aug-98	12.00			38.56
	50.65	21-Sep-98	10.13			40.43
	50.65	26-Oct-98	11.15			39.41
	50.65	23-Nov-98	9.22			41.34
	50.65	29-Jan-99	8.00			42.65
	50.65	26-Feb-99	8.11			42.54
	50.65	16-Mar-99	9.51			41.14
	50.65	29-Apr-99	9.79			40.86
	50.65	1-Jun-99	9.70			40.95
	50.65	30-Jul-99	11.01			39.64
	50.65	27-Aug-99	9.96			40.69
	50.65	27-Sep-99	12.84			37.81
	50.65	29-Oct-99	13.88			36.77
	50.65	17-Nov-99	14.00			36.65
	50.65	29-Dec-99	13.08			37.57
	50.65	4-Feb-00	15.61			35.04
	50.65	25-Feb-00	12.17			38.48
	50.65	27-Mar-00	10.95			39.70
	50.65	7-Apr-00	10.51			40.14
	50.65	31-May-00	10.57			40.08
	50.65	1-Jun-00	10.51			40.14
	50.65	28-Jul-00	10.54			40.11
	50.65	30-Aug-00	13.63			37.02
	50.65	19-Sep-00	14.57			36.08
	50.65	27-Oct-00	11.11			39.54
	50.65	21-Nov-00	11.44			39.21
	50.65	1-May-01	10.70			39.95
	50.65	1-Oct-01	10.31			40.34
	50.65	11-Mar-02	9.62			41.03
	50.65	23-Sep-02	9.17			41.48
	50.65	10-Mar-03	9.17			41.48
	50.65	23-Sep-03	9.14			41.51
	50.65	15-Mar-04	9.30			41.35
	50.65	13-Sep-04	11.98			38.67
	50.65	18-Jul-05	10.25			40.40
	50.65	4-Jan-06	12.03			38.62
	50.65	27-Jul-06	8.82			41.83
	50.65	7-Mar-07	9.95			40.70

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-13	50.65	27-Jul-07	8.90			41.75
	50.65	30-Jan-08	8.85			41.80
	50.65	15-Jul-08	10.89			39.76
	50.65	4-Feb-09	10.59			40.06
MW-14	50.66	25-Mar-97	7.71			42.95
	50.66	23-Apr-97	8.31			42.35
	50.66	24-Apr-97	8.34			42.32
	50.66	13-May-97	7.83			42.83
	50.66	20-Jun-97	8.64			42.02
	50.66	25-Sep-97	9.95			40.71
	50.66	22-Oct-97	8.89			41.77
	50.66	25-Nov-97	8.86			41.80
	50.66	19-Dec-97	8.62			42.04
	50.66	20-Jan-98	8.08			42.58
	50.66	4-Mar-98	7.72			42.94
	50.66	18-Mar-98	7.66			43.00
	50.66	24-Apr-98	9.75			40.91
	50.66	21-May-98	11.00			39.66
	50.66	25-Aug-98	12.00			38.66
	50.66	21-Sep-98	9.41			41.25
	50.66	26-Oct-98	11.10			39.56
	50.66	23-Nov-98	8.08			42.58
	50.66	29-Jan-99	7.10			43.56
	50.66	26-Feb-99	7.21			43.45
	50.66	16-Mar-99	8.74			41.92
	50.66	29-Apr-99	8.93			41.73
	50.66	1-Jun-99	8.92			41.74
	50.66	30-Jul-99	10.44			40.22
	50.66	27-Aug-99	9.21			41.45
	50.66	27-Sep-99	12.56			38.10
	50.66	29-Oct-99	13.56			37.10
	50.66	17-Nov-99	13.63			37.03
	50.66	29-Dec-99	12.88			37.78
	50.66	4-Feb-00	14.22			36.44
	50.66	25-Feb-00	11.73			38.93
	50.66	27-Mar-00	10.54			40.12
	50.66	7-Apr-00	10.14			40.52
	50.66	31-May-00	10.17			40.49
	50.66	1-Jun-00	10.13			40.53
	50.66	28-Jul-00	10.17			40.49
	50.66	30-Aug-00	13.22			37.44
	50.66	19-Sep-00	14.27			36.39
	50.66	27-Oct-00	11.56			39.10
	50.66	21-Nov-00	11.17			39.49
	50.66	1-May-01	9.71			40.95
	50.66	1-Oct-01	10.64			40.02
	50.66	11-Mar-02	8.45			42.21
	50.66	23-Sep-02	7.90			42.76
	50.66	10-Mar-03	8.59			42.07
	50.66	23-Sep-03	7.70			42.96
	50.66	15-Mar-04	7.96			42.70
	50.66	13-Sep-04	11.05			39.61
	50.66	18-Jul-05	9.55			41.11
	50.66	4-Jan-06	11.83			38.83
	50.66	27-Jul-06	7.80			42.86
	50.66	7-Mar-07	8.96			41.70

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-14	50.66	27-Jul-07	8.01			42.65
	50.66	30-Jan-08	7.66			43.00
	50.66	15-Jul-08	10.41			40.25
	50.66	4-Feb-09	10.27			40.39
MW-15A	50.41	25-Mar-97	8.22			42.19
	50.41	23-Apr-97	8.28			42.13
	50.41	24-Apr-97	8.51			41.90
	50.41	13-May-97	8.06			42.35
	50.41	20-Jun-97	8.64			41.77
	50.41	25-Sep-97	9.75			40.66
	50.41	22-Oct-97	9.09			41.32
	50.41	25-Nov-97	9.13			41.28
	50.41	19-Dec-97	8.89			41.52
	50.41	20-Jan-98	8.35			42.06
	50.41	4-Mar-98	8.09			42.32
	50.41	18-Mar-98	7.98			42.43
	50.41	24-Apr-98	9.57			40.84
	50.41	21-May-98	11.10			39.31
	50.41	25-Aug-98	11.78			38.63
	50.41	21-Sep-98	9.59			40.82
	50.41	26-Oct-98	10.69			39.72
	50.41	23-Nov-98	8.46			41.95
	50.41	29-Jan-99	7.11			43.30
	50.41	26-Feb-99	7.23			43.18
	50.41	16-Mar-99	9.17			41.24
	50.41	29-Apr-99	9.29			41.12
	50.41	1-Jun-99	9.29			41.12
	50.41	30-Jul-99	10.83			39.58
	50.41	27-Aug-99	9.39			41.02
	50.41	27-Sep-99	12.02			38.39
	50.41	29-Oct-99	13.11			37.30
	50.41	17-Nov-99	13.44			36.97
	50.41	29-Dec-99	12.49			37.92
	50.41	4-Feb-00	15.71			34.70
	50.41	25-Feb-00	11.34			39.07
	50.41	27-Mar-00	10.66			39.75
	50.41	7-Apr-00	10.20			40.21
	50.41	31-May-00	10.23			40.18
	50.41	1-Jun-00	10.22			40.19
	50.41	28-Jul-00	10.23			40.18
	50.41	30-Aug-00	13.34			37.07
	50.41	19-Sep-00	14.01			36.40
	50.41	27-Oct-00	11.77			38.64
	50.41	21-Nov-00	11.09			39.32
	50.41	1-May-01	9.85			40.56
	50.41	1-Oct-01	9.73			40.68
	50.41	11-Mar-02	8.81			41.60
	50.41	23-Sep-02	8.21			42.20
	50.41	10-Mar-03	7.76			42.65
	50.41	23-Sep-03	7.87			42.54
	50.41	15-Mar-04	7.94			42.47
	50.41	13-Sep-04	10.72			39.69
	50.41	18-Jul-05	9.33			41.08
	50.41	4-Jan-06	11.66			38.75
	50.41	27-Jul-06	7.92			42.49
	50.41	7-Mar-07	9.19			41.22

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-15A	50.41	27-Jul-07	7.88			42.53
	50.41	30-Jan-08	8.02			42.39
	50.41	15-Jul-08	10.26			40.15
	50.41	4-Feb-09	10.59			39.82
MW-15C	50.01	13-May-97	33.46			16.55
	50.01	20-Jun-97	34.18			15.83
	50.01	25-Sep-97	33.77			16.24
	50.01	22-Oct-97	32.89			17.12
	50.01	25-Nov-97	32.95			17.06
	50.01	19-Dec-97	32.01			18.00
	50.01	20-Jan-98	29.90			20.11
	50.01	4-Mar-98	28.56			21.45
	50.01	18-Mar-98	28.53			21.48
	50.01	24-Apr-98	28.46			21.55
	50.01	21-May-98	35.00			15.01
	50.01	25-Aug-98	29.30			20.71
	50.01	21-Sep-98	28.15			21.86
	50.01	26-Oct-98	28.11			21.90
	50.01	23-Nov-98	26.50			23.51
	50.01	29-Jan-99	25.44			24.57
	50.01	26-Feb-99	25.51			24.50
	50.01	16-Mar-99	26.11			23.90
	50.01	29-Apr-99	26.33			23.68
	50.01	1-Jun-99	26.39			23.62
	50.01	30-Jul-99	27.99			22.02
	50.01	27-Aug-99	26.51			23.50
	50.01	27-Sep-99	27.46			22.55
	50.01	29-Oct-99	28.26			21.75
	50.01	17-Nov-99	28.55			21.46
	50.01	29-Dec-99	27.61			22.40
	50.01	4-Feb-00	28.11			21.90
	50.01	25-Feb-00	28.23			21.78
	50.01	27-Mar-00	27.45			22.56
	50.01	7-Apr-00	26.11			23.90
	50.01	31-May-00	26.13			23.88
	50.01	1-Jun-00	26.03			23.98
	50.01	28-Jul-00	26.14			23.87
	50.01	30-Aug-00	29.11			20.90
	50.01	19-Sep-00	28.67			21.34
	50.01	27-Oct-00	27.64			22.37
	50.01	21-Nov-00	27.56			22.45
	50.01	1-May-01	25.24			24.77
	50.01	1-Oct-01	25.40			24.61
	50.01	11-Mar-02	24.17			25.84
	50.01	23-Sep-02	25.35			24.66
	50.01	10-Mar-03	23.52			26.49
	50.01	23-Sep-03	24.88			25.13
	50.01	15-Mar-04	22.97			27.04
	50.01	13-Sep-04	24.80			25.21
	50.01	18-Jul-05	25.17			24.84
	50.01	4-Jan-06	26.23			23.78
	50.01	27-Jul-06	24.31			25.70
	50.01	7-Mar-07	22.76			27.25
	50.01	27-Jul-07	21.03			28.98
	50.01	30-Jan-08	21.80			28.21
	50.01	15-Jul-08	23.63			26.38

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-15C	50.01	4-Feb-09	23.73			26.28
MW-16	51.51	25-Mar-97	7.41			44.10
	51.51	23-Apr-97	8.44			43.07
	51.51	24-Apr-97	8.52			42.99
	51.51	13-May-97	8.29			43.22
	51.51	20-Jun-97	8.41			43.10
	51.51	25-Sep-97	10.71			40.80
	51.51	22-Oct-97	9.53			41.98
	51.51	25-Nov-97	9.55			41.96
	51.51	19-Dec-97	9.10			42.41
	51.51	20-Jan-98	8.60			42.91
	51.51	4-Mar-98	8.13			43.38
	51.51	18-Mar-98	8.59			42.92
	51.51	24-Apr-98	9.96			41.55
	51.51	21-May-98	11.43			40.08
	51.51	30-Jul-98	12.56			38.95
	51.51	25-Aug-98	11.53			39.98
	51.51	21-Sep-98	9.81			41.70
	51.51	26-Oct-98	10.44			41.07
	51.51	23-Nov-98	8.98			42.53
	51.51	29-Jan-99	7.12			44.39
	51.51	26-Feb-99	7.23			44.28
	51.51	16-Mar-99	10.06			41.45
	51.51	29-Apr-99	10.16			41.35
	51.51	1-Jun-99	10.16			41.35
	51.51	30-Jul-99	11.76			39.75
	51.51	27-Aug-99	10.33			41.18
	51.51	27-Sep-99	11.79			39.72
	51.51	29-Oct-99	12.93			38.58
	51.51	17-Nov-99	13.71			37.80
	51.51	29-Dec-99	12.20			39.31
	51.51	4-Feb-00	15.11			36.40
	51.51	25-Feb-00	11.10			40.41
	51.51	27-Mar-00	11.48			40.03
	51.51	7-Apr-00	11.09			40.42
	51.51	31-May-00	11.11			40.40
	51.51	1-Jun-00	11.00			40.51
	51.51	28-Jul-00	11.11			40.40
	51.51	30-Aug-00	13.10			38.41
	51.51	19-Sep-00	14.83			36.68
	51.51	27-Oct-00	11.66			39.85
	51.51	21-Nov-00	11.29			40.22
	51.51	1-May-01	9.92			41.59
	51.51	1-Oct-01	9.93			41.58
	51.51	11-Mar-02	9.12			42.39
	51.51	23-Sep-02	8.65			42.86
	51.51	10-Mar-03	7.74			43.77
	51.51	23-Sep-03	8.48			43.03
	51.51	15-Mar-04	8.09			43.42
	51.51	13-Sep-04	10.38			41.13
	51.51	18-Jul-05	10.42			41.09
	51.51	4-Jan-06	12.48			39.03
	51.51	27-Jul-06	9.37			42.14
	51.51	7-Mar-07	9.66			41.85
	51.51	27-Jul-07	7.85			43.66
	51.51	31-Jan-08	8.42	25.40	3.40	43.09

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW16	51.51	15-Jul-08	10.16			41.35
	51.51	5-Feb-09	11.93			39.58
MW-17	50.92	25-Mar-97	9.97			40.95
	50.92	23-Apr-97	10.41			40.51
	50.92	24-Apr-97	10.51			40.41
	50.92	13-May-97	10.32			40.60
	50.92	20-Jun-97	11.07			39.85
	50.92	25-Sep-97	12.39			38.53
	50.92	22-Oct-97	11.19			39.73
	50.92	25-Nov-97	11.21			39.71
	50.92	19-Dec-97	11.01			39.91
	50.92	20-Jan-98	10.25			40.67
	50.92	4-Mar-98	9.93			40.99
	50.92	18-Mar-98	9.94			40.98
	50.92	9-Apr-98	11.32			39.60
	50.92	16-Apr-98	11.52			39.40
	50.92	24-Apr-98	11.80			39.12
	50.92	8-May-98	NM			NM
	50.92	12-May-98	NM			NM
	50.92	21-May-98	13.30			37.62
	50.92	25-May-98	NM			NM
	50.92	9-Jun-98	NM			NM
	50.92	16-Jun-98	NM			NM
	50.92	26-Jun-98	NM			NM
	50.92	2-Jul-98	NM			NM
	50.92	10-Jul-98	NM			NM
	50.92	14-Jul-98	NM			NM
	50.92	23-Jul-98	NM			NM
	50.92	5-Aug-98	NM			NM
	50.92	13-Aug-98	NM			NM
	50.92	25-Aug-98	13.78			37.14
	50.92	15-Sep-98	NM			NM
	50.92	21-Sep-98	11.49			39.43
	50.92	30-Sep-98	NM			NM
	50.92	8-Oct-98	NM			NM
	50.92	16-Oct-98	NM			NM
	50.92	26-Oct-98	12.22			38.70
	50.92	6-Nov-98	NM			NM
	50.92	13-Nov-98	NM			NM
	50.92	19-Nov-98	NM			NM
	50.92	23-Nov-98	10.21			40.71
	50.92	16-Dec-98	NM			NM
	50.92	7-Jan-99	NM			NM
	50.92	15-Jan-99	NM			NM
	50.92	22-Jan-99	NM			NM
	50.92	26-Jan-99	NM			NM
	50.92	29-Jan-99	10.88			40.04
	50.92	4-Feb-99	NM			NM
	50.92	9-Feb-99	NM			NM
	50.92	26-Feb-99	10.93			39.99
	50.92	16-Mar-99	11.18			39.74
	50.92	29-Apr-99	11.00			39.92
	50.92	21-May-99	11.25			39.67
	50.92	27-May-99	11.31			39.61
	50.92	1-Jun-99	11.07			39.85
	50.92	10-Jun-99	11.28			39.64

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-17	50.92	30-Jul-99	12.67			38.25
	50.92	27-Aug-99	11.27			39.65
	50.92	27-Sep-99	14.67			36.25
	50.92	29-Oct-99	15.11			35.81
	50.92	17-Nov-99	16.08			34.84
	50.92	29-Dec-99	14.43			36.49
	50.92	4-Feb-00	17.21			33.71
	50.92	25-Feb-00	13.63			37.29
	50.92	27-Mar-00	13.08		0.70	37.84
	50.92	7-Apr-00	12.63		1.00	38.29
	50.92	31-May-00	12.67		1.00	38.25
	50.92	1-Jun-00	12.61		1.00	38.31
	50.92	28-Jul-00	12.69		1.00	38.23
	50.92	30-Aug-00	15.56			35.36
	50.92	19-Sep-00	16.24		1.10	34.68
	50.92	27-Oct-00	14.10			36.82
	50.92	21-Nov-00	13.12			37.80
	50.92	1-May-01	11.82		0.86	39.10
	50.92	1-Oct-01	12.55		1.00	38.37
	50.92	14-Mar-02	10.91		1.51	40.01
	50.92	23-Sep-02	10.48			40.44
	50.92	10-Mar-03	9.76			41.16
	50.92	24-Sep-03	10.59		0.45	40.33
	50.92	15-Mar-04	10.15			40.77
	50.92	13-Sep-04	13.09			37.83
	50.92	18-Jul-05	12.06		0.40	38.86
	50.92	4-Jan-06	13.90		0.40	37.02
	50.92	27-Jul-06	10.71		0.02	40.21
	50.92	7-Mar-07	10.91		0.30	40.01
	50.92	27-Jul-07	9.33		0.28	41.59
	50.92	31-Jan-08	10.00		2.13	40.92
	50.92	15-Jul-08	12.95	33.08	0.23	37.97
	50.92	4-Feb-09	12.64	Trace	Trace	38.28
MW-17C	50.17	15-Mar-04	22.75			27.42
	50.17	13-Sep-04	24.56			25.61
	50.17	18-Jul-05	25.02			25.15
	50.17	4-Jan-06	26.07			24.10
	50.17	27-Jul-06	24.15			26.02
	50.17	7-Mar-07	22.51			27.66
	50.17	27-Jul-07	20.93			29.24
	50.17	30-Jan-08	21.74			28.43
	50.17	15-Jul-08	23.65			26.52
	50.17	4-Feb-09	23.72			26.45
MW-18A	51.57	25-Mar-97	15.41			36.16
	51.57	23-Apr-97	15.80			35.77
	51.57	13-May-97	14.92			36.65
	51.57	20-Jun-97	16.02			35.55
	51.57	25-Sep-97	15.15			36.42
	51.57	22-Oct-97	16.38			35.19
	51.57	25-Nov-97	16.37			35.20
	51.57	19-Dec-97	16.11			35.46
	51.57	20-Jan-98	15.49			36.08
	51.57	4-Mar-98	15.19			36.38
	51.57	18-Mar-98	14.28			37.29
	51.57	24-Apr-98	17.53			34.04
	51.57	21-May-98	18.41			33.16

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-18A	51.57	30-Jul-98	18.59			32.98
	51.57	25-Aug-98	16.95			34.62
	51.57	21-Sep-98	16.39			35.18
	51.57	26-Oct-98	15.77			35.80
	51.57	23-Nov-98	16.26			35.31
	51.57	29-Jan-99	17.02			34.55
	51.57	26-Feb-99	17.11			34.46
	51.57	29-Apr-99	16.01			35.56
	51.57	1-Jun-99	16.11			35.46
	51.57	30-Jul-99	17.55			34.02
	51.57	27-Aug-99	16.39			35.18
	51.57	27-Sep-99	19.13			32.44
	51.57	29-Oct-99	20.50			31.07
	51.57	17-Nov-99	21.63			29.94
	51.57	29-Dec-99	19.83			31.74
	51.57	4-Feb-00	23.71			27.86
	51.57	25-Feb-00	18.80			32.77
	51.57	27-Mar-00	17.98			33.59
	51.57	7-Apr-00	17.61			33.96
	51.57	31-May-00	17.65			33.92
	51.57	1-Jun-00	17.60			33.97
	51.57	28-Jul-00	17.67			33.90
	51.57	30-Aug-00	20.30			31.27
	51.57	19-Sep-00	19.54			32.03
	51.57	27-Oct-00	18.75			32.82
	51.57	21-Nov-00	16.52			35.05
	51.57	1-May-01	17.91	27.85	7.94	33.66
	51.57	1-Oct-01	17.47			34.10
	51.57	11-Mar-02	16.68			34.89
	51.57	23-Sep-02	15.30			36.27
	51.57	10-Mar-03	15.77			35.80
	51.57	23-Sep-03	25.08			26.49
	51.57	15-Mar-04	15.58			35.99
	51.57	13-Sep-04	18.32			33.25
	51.57	18-Jul-05	14.88			36.69
	51.57	4-Jan-06	17.96			33.61
	51.57	27-Jul-06	14.15			37.42
	51.57	7-Mar-07	17.32			34.25
	51.57	27-Jul-07	15.22			36.35
	51.57	30-Jan-08	15.63			35.94
	51.57	15-Jul-08	17.43			34.14
	51.57	5-Feb-09	18.67			32.90
MW-18C	51.47	13-May-97	29.45			22.02
	51.47	20-Jun-97	30.37			21.10
	51.47	25-Sep-97	31.53			19.94
	51.47	22-Oct-97	30.71			20.76
	51.47	25-Nov-97	30.75			20.72
	51.47	19-Dec-97	30.10			21.37
	51.47	20-Jan-98	28.30			23.17
	51.47	4-Mar-98	27.03			24.44
	51.47	18-Mar-98	26.81			24.66
	51.47	9-Apr-98	27.04			24.43
	51.47	16-Apr-98	27.03			24.44
	51.47	24-Apr-98	27.25			24.22
	51.47	8-May-98	NM			NM
	51.47	12-May-98	NM			NM

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-18C	51.47	21-May-98	27.68			23.79
	51.47	25-May-98	NM			NM
	51.47	9-Jun-98	NM			NM
	51.47	16-Jun-98	NM			NM
	51.47	26-Jun-98	NM			NM
	51.47	2-Jul-98	NM			NM
	51.47	10-Jul-98	NM			NM
	51.47	14-Jul-98	NM			NM
	51.47	23-Jul-98	NM			NM
	51.47	30-Jul-98	28.40			23.07
	51.47	5-Aug-98	NM			NM
	51.47	13-Aug-98	NM			NM
	51.47	25-Aug-98	28.88			22.59
	51.47	15-Sep-98	NM			NM
	51.47	21-Sep-98	27.94			23.53
	51.47	30-Sep-98	NM			NM
	51.47	8-Oct-98	NM			NM
	51.47	16-Oct-98	NM			NM
	51.47	26-Oct-98	27.62			23.85
	51.47	6-Nov-98	NM			NM
	51.47	11-Nov-98	26.85		0.67	24.62
	51.47	19-Nov-98	NM			NM
	51.47	23-Nov-98	26.21			25.26
	51.47	16-Dec-98	NM			NM
	51.47	7-Jan-99	NM			NM
	51.47	15-Jan-99	NM			NM
	51.47	22-Jan-99	NM			NM
	51.47	26-Jan-99	NM			NM
	51.47	29-Jan-99	25.36			26.11
	51.47	4-Feb-99	NM			NM
	51.47	9-Feb-99	NM			NM
	51.47	26-Feb-99	25.41			26.06
	51.47	29-Apr-99	26.33			25.14
	51.47	21-May-99	25.75			25.72
	51.47	27-May-99	25.76			25.71
	51.47	1-Jun-99	26.38			25.09
	51.47	10-Jun-99	25.68			25.79
	51.47	30-Jul-99	25.61			25.86
	51.47	27-Aug-99	26.51			24.96
	51.47	27-Sep-99	27.28			24.19
	51.47	29-Oct-99	27.95			23.52
	51.47	17-Nov-99	28.42			23.05
	51.47	29-Dec-99	27.26			24.21
	51.47	4-Feb-00	27.84			23.63
	51.47	25-Feb-00	27.83			23.64
	51.47	27-Mar-00	27.48			23.99
	51.47	7-Apr-00	25.80			25.67
	51.47	31-May-00	25.83			25.64
	51.47	1-Jun-00	25.81			25.66
	51.47	28-Jul-00	25.86			25.61
	51.47	30-Aug-00	28.42			23.05
	51.47	19-Sep-00	28.77	80.44	0.97	22.70
	51.47	27-Oct-00	28.69			22.78
	51.47	21-Nov-00	27.67			23.80
	51.47	1-May-01	25.20			26.27
	51.47	1-Oct-01	25.59			25.80

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-18C	51.47	14-Mar-02	24.35			27.12
	51.47	25-Sep-02	25.45			26.02
	51.47	10-Mar-03	23.60			27.87
	51.47	24-Sep-03	25.15			26.32
	51.47	15-Mar-04	24.23			27.24
	51.47	13-Sep-04	25.12	78.22	1.70	26.35
	51.47	18-Jul-05	25.50	66.20	0.30	25.97
	51.47	4-Jan-06	26.71			24.76
	51.47	27-Jul-06	24.80			26.67
	51.47	7-Mar-07	23.11			28.36
	51.47	27-Jul-07	24.80			26.67
	51.47	30-Jan-08	22.64			28.83
	51.47	15-Jul-08	24.43			27.04
	51.47	5-Feb-09	24.34			27.13
MW-19C	53.05	23-Nov-98	28.84			24.21
	53.05	29-Jan-99	28.21			24.84
	53.05	26-Feb-99	28.28			24.77
	53.05	16-Mar-99	28.31			24.74
	53.05	29-Apr-99	28.56			24.49
	53.05	1-Jun-99	28.48			24.57
	53.05	30-Jul-99	30.00			23.05
	53.05	27-Aug-99	28.61			24.44
	53.05	27-Sep-99	29.72			23.33
	53.05	29-Oct-99	30.46			22.59
	53.05	17-Nov-99	30.76			22.29
	53.05	29-Dec-99	29.44			23.61
	53.05	4-Feb-00	30.22			22.83
	53.05	25-Feb-00	29.93			23.12
	53.05	27-Mar-00	29.80			23.25
	53.05	7-Apr-00	28.40			24.65
	53.05	31-May-00	28.44			24.61
	53.05	1-Jun-00	28.33			24.72
	53.05	28-Jul-00	28.37			24.68
	53.05	30-Aug-00	29.99			23.06
	53.05	19-Sep-00	30.97			22.08
	53.05	27-Oct-00	28.49			24.56
	53.05	21-Nov-00	29.88			23.17
	53.05	1-May-01	27.61	71.55	3.56	25.44
	53.05	1-Oct-01	27.84			25.21
	53.05	11-Mar-02	26.68			26.37
	53.05	23-Sep-02	27.66			25.39
	53.05	10-Mar-03	25.77			27.28
	53.05	23-Sep-03	27.21			25.84
	53.05	15-Mar-04	25.36			27.69
	53.05	13-Sep-04	27.20			25.85
	53.05	18-Jul-05	27.71			25.34
	53.05	4-Jan-06	28.78			24.27
	53.05	27-Jul-06	26.91			26.14
	53.05	7-Mar-07	25.22			27.83
	53.05	27-Jul-07	23.71			29.34
	53.05	31-Jan-08	24.57			28.48
	53.05	15-Jul-08	26.38			26.67
	53.05	4-Feb-09	26.44			26.61
MW-20A	50.43	23-Nov-98	8.31			42.12
	50.43	29-Jan-99	8.70			41.73
	50.43	26-Feb-99	8.81			41.62

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-20A	50.43	16-Mar-99	9.26			41.17
	50.43	29-Apr-99	9.33			41.10
	50.43	1-Jun-99	9.30			41.13
	50.43	30-Jul-99	10.91			39.52
	50.43	27-Aug-99	9.56			40.87
	50.43	27-Sep-99	10.79			39.64
	50.43	29-Oct-99	11.96			38.47
	50.43	17-Nov-99	13.06			37.37
	50.43	29-Dec-99	11.11			39.32
	50.43	4-Feb-00	14.89			35.54
	50.43	25-Feb-00	10.33			40.10
	50.43	27-Mar-00	10.79			39.64
	50.43	7-Apr-00	10.41			40.02
	50.43	31-May-00	10.46			39.97
	50.43	1-Jun-00	10.41			40.02
	50.43	28-Jul-00	10.47			39.96
	50.43	30-Aug-00	12.56			37.87
	50.43	19-Sep-00	13.68			36.75
	50.43	27-Oct-00	11.01			39.42
	50.43	21-Nov-00	10.64			39.79
	50.43	1-May-01	9.40			41.03
	50.43	1-Oct-01	10.42			40.01
	50.43	11-Mar-02	8.59			41.84
	50.43	23-Sep-02	8.51			41.92
	50.43	10-Mar-03	7.42			43.01
	50.43	23-Sep-03	7.95			42.48
	50.43	15-Mar-04	7.72			42.71
	50.43	13-Sep-04	10.22			40.21
	50.43	18-Jul-05	9.88			40.55
	50.43	4-Jan-06	11.72			38.71
	50.43	27-Jul-06	8.59			41.84
	50.43	7-Mar-07	8.91			41.52
	50.43	27-Jul-07	7.63			42.80
	50.43	30-Jan-08	7.91			42.52
	50.43	15-Jul-08	10.05			40.38
	50.43	4-Feb-09	10.18			40.25
MW-21C	49.05	23-Nov-98	27.83			21.22
	49.05	29-Jan-99	27.11			21.94
	49.05	26-Feb-99	27.26			21.79
	49.05	16-Mar-99	27.42			21.63
	49.05	29-Apr-99	27.99			21.06
	49.05	1-Jun-99	27.80			21.25
	49.05	30-Jul-99	29.00			20.05
	49.05	27-Aug-99	27.99			21.06
	49.05	27-Sep-99	28.43			20.62
	49.05	29-Oct-99	29.12			19.93
	49.05	18-Nov-99	29.25			19.80
	49.05	29-Dec-99	10.89			38.16
	49.05	4-Feb-00	28.94			20.11
	49.05	25-Feb-00	11.43			37.62
	49.05	27-Mar-00	28.13			20.92
	49.05	7-Apr-00	26.79			22.26
	49.05	31-May-00	26.83			22.22
	49.05	1-Jun-00	26.83			22.22
	49.05	28-Jul-00	26.88			22.17
	49.05	30-Aug-00	29.91			19.14

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-21C	49.05	19-Sep-00	29.15			19.90
	49.05	27-Oct-00	30.21			18.84
	49.05	21-Nov-00	28.33			20.72
	49.05	1-May-01	26.01			23.04
	49.05	1-Oct-01	26.05			23.00
	49.05	11-Mar-02	24.80			24.25
	49.05	23-Sep-02	25.50			23.55
	49.05	10-Mar-03	23.82			25.23
	49.05	23-Sep-03	25.08			23.97
	49.05	15-Mar-04	23.48			25.57
	49.05	13-Sep-04	25.44			23.61
	49.05	18-Jul-05	25.33			23.72
	49.05	4-Jan-06	26.44			22.61
	49.05	27-Jul-06	24.55			24.50
	49.05	7-Mar-07	22.91			26.14
	49.05	27-Jul-07	21.29			27.76
	49.05	29-Jan-08	22.09			26.96
	49.05	15-Jul-08	23.31			25.74
	49.05	4-Feb-09	24.03			25.02
MW-22A	46.07	23-Nov-98	NM			NM
	46.07	29-Jan-99	2.10			43.97
	46.07	26-Feb-99	2.21			43.86
	46.07	16-Mar-99	2.65			43.42
	46.07	29-Apr-99	2.71			43.36
	46.07	1-Jun-99	2.68			43.39
	46.07	30-Jul-99	4.12			41.95
	46.07	27-Aug-99	2.81			43.26
	46.07	27-Sep-99	8.53			37.54
	46.07	29-Oct-99	10.23			35.84
	46.07	18-Nov-99	9.92			36.15
	46.07	29-Dec-99	9.56			36.51
	46.07	4-Feb-00	12.31			33.76
	46.07	25-Feb-00	8.72			37.35
	46.07	27-Mar-00	6.30			39.77
	46.07	7-Apr-00	6.03			40.04
	46.07	31-May-00	6.12			39.95
	46.07	1-Jun-00	6.00			40.07
	46.07	28-Jul-00	6.13			39.94
	46.07	30-Aug-00	9.09			36.98
	46.07	19-Sep-00	10.12			35.95
	46.07	27-Oct-00	8.64			37.43
	46.07	21-Nov-00	7.69			38.38
	46.07	1-May-01	5.15			40.92
	46.07	1-Oct-01	5.49			40.58
	46.07	11-Mar-02	2.34			43.73
	46.07	23-Sep-02	2.11			43.96
	46.07	10-Mar-03	1.68			44.39
	46.07	23-Sep-03	2.30			43.77
	46.07	15-Mar-04	2.05			44.02
	46.07	14-Sep-04	6.89			39.18
	46.07	18-Jul-05	3.65			42.42
	46.07	6-Jan-06	7.29			38.78
	46.07	27-Jul-06	1.65			44.42
	46.07	7-Mar-07	NM			NM
	46.07	27-Jul-07	2.84			43.23
	46.07	29-Jan-08	1.05			45.02

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-22A	46.07	14-Jul-08	5.33			40.74
	46.07	3-Feb-09	5.24			40.83
MW-22B	45.86	23-Nov-98	2.25			43.61
	45.86	29-Jan-99	2.28			43.58
	45.86	26-Feb-99	2.34			43.52
	45.86	16-Mar-99	2.42			43.44
	45.86	29-Apr-99	2.56			43.30
	45.86	1-Jun-99	2.60			43.26
	45.86	30-Jul-99	4.31			41.55
	45.86	27-Aug-99	2.83			43.03
	45.86	27-Sep-99	8.45			37.41
	45.86	29-Oct-99	10.11			35.75
	45.86	18-Nov-99	9.75			36.11
	45.86	29-Dec-99	9.43			36.43
	45.86	4-Feb-00	12.56			33.30
	45.86	25-Feb-00	8.63			37.23
	45.86	27-Mar-00	6.00			39.86
	45.86	7-Apr-00	5.64			40.22
	45.86	31-May-00	5.69			40.17
	45.86	1-Jun-00	5.61			40.25
	45.86	28-Jul-00	5.67			40.19
	45.86	30-Aug-00	8.57			37.29
	45.86	19-Sep-00	9.94			35.92
	45.86	27-Oct-00	7.03			38.83
	45.86	21-Nov-00	7.63			38.23
	45.86	1-May-01	4.93			40.93
	45.86	1-Oct-01	5.40			40.46
	45.86	11-Mar-02	1.75			44.11
	45.86	23-Sep-02	2.11			43.75
	45.86	10-Mar-03	1.02			44.84
	45.86	23-Sep-03	2.99			42.87
	45.86	15-Mar-04	1.20			44.66
	45.86	14-Sep-04	NM			NM
	45.86	18-Jul-05	NM			NM
	45.86	6-Jan-06	7.05			38.81
	45.86	27-Jul-06	1.58			44.28
	45.86	7-Mar-07	NM			NM
	45.86	27-Jul-07	2.85			43.01
	45.86	29-Jan-08	0.85			45.01
	45.86	14-Jul-08	5.45			40.41
	45.86	3-Feb-09	4.78			41.08
MW-23C	51.91	23-Nov-98	27.41			24.50
	51.91	29-Jan-99	26.80			25.11
	51.91	26-Feb-99	26.88			25.03
	51.91	16-Mar-99	26.93			24.98
	51.91	29-Apr-99	27.09			24.82
	51.91	1-Jun-99	27.00			24.91
	51.91	30-Jul-99	29.55			22.36
	51.91	27-Aug-99	27.29			24.62
	51.91	27-Sep-99	28.40			23.51
	51.91	29-Oct-99	29.11			22.80
	51.91	17-Nov-99	29.49			22.42
	51.91	29-Dec-99	28.46			23.45
	51.91	4-Feb-00	28.96			22.95
	51.91	25-Feb-00	28.96			22.95
	51.91	27-Mar-00	28.61			23.30

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-23C	51.91	7-Apr-00	27.10			24.81
	51.91	31-May-00	27.15			24.76
	51.91	1-Jun-00	27.11			24.80
	51.91	28-Jul-00	27.15			24.76
	51.91	30-Aug-00	29.96			21.95
	51.91	19-Sep-00	29.77			22.14
	51.91	27-Oct-00	28.44			23.47
	51.91	21-Nov-00	28.61			23.30
	51.91	1-May-01	26.26			25.65
	51.91	1-Oct-01	26.50		0.60	25.41
	51.91	11-Mar-02	25.33			26.58
	51.91	23-Sep-02	26.43			25.48
	51.91	10-Mar-03	24.53			27.38
	51.91	23-Sep-03	25.95			25.96
	51.91	15-Mar-04	24.15			27.76
	51.91	13-Sep-04	25.97			25.94
	51.91	18-Jul-05	26.46			25.45
	51.91	4-Jan-06	27.53			24.38
	51.91	7-Mar-07	23.96			27.95
	51.91	27-Jul-07	22.41			29.50
	51.91	31-Jan-08	23.22	75.98	1.71	28.69
	48.89[1]	4-Feb-09	22.11	72.05	1.47	26.78
MW-24A	45.79	27-Mar-00	7.87			37.92
	45.79	7-Apr-00	7.63			38.16
	45.79	31-May-00	7.65			38.14
	45.79	1-Jun-00	7.43			38.36
	45.79	28-Jul-00	7.60			38.19
	45.79	30-Aug-00	10.44			35.35
	45.79	19-Sep-00	10.57			35.22
	45.79	27-Oct-00	NM			NM
	45.79	21-Nov-00	7.09			38.70
	45.79	1-May-01	6.72			39.07
	45.79	1-Oct-01	7.81			37.98
	45.79	11-Mar-02	3.91			41.88
	45.79	23-Sep-02	5.04			40.75
	45.79	10-Mar-03	2.76			43.03
	45.79	23-Sep-03	4.66			41.13
	45.79	15-Mar-04	3.10			42.69
	45.79	14-Sep-04	8.24			37.55
	45.79	18-Jul-05	6.03			39.76
	45.79	6-Jan-06	8.93			36.86
	45.79	27-Jul-06	4.21			41.58
	45.79	7-Mar-07	3.86			41.93
	45.79	30-Jan-08	NM			NM
MW-24AR	45.65	5-Feb-09	5.18			40.47
MW-24B	46.06	27-Mar-00	11.91			34.15
	46.06	7-Apr-00	11.60			34.46
	46.06	31-May-00	11.63			34.43
	46.06	1-Jun-00	11.51			34.55
	46.06	28-Jul-00	11.69			34.37
	46.06	30-Aug-00	13.91			32.15
	46.06	19-Sep-00	14.72			31.34
	46.06	27-Oct-00	12.44			33.62
	46.06	21-Nov-00	11.38			34.68
	46.06	1-May-01	10.71			35.35
	46.06	1-Oct-01	11.75			34.31

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-24B	46.06	11-Mar-02	9.01			37.05
	46.06	23-Sep-02	9.69			36.37
	46.06	10-Mar-03	7.83			38.23
	46.06	23-Sep-03	8.98			37.08
	46.06	15-Mar-04	7.33			38.73
	46.06	14-Sep-04	9.24			36.82
	46.06	18-Jul-05	9.54			36.52
	46.06	6-Jan-06	11.86			34.20
	46.06	27-Jul-06	10.50			35.56
	46.06	7-Mar-07	8.88			37.18
	46.06	27-Jul-07	9.85			36.21
	46.06	28-Jan-08	7.37			38.69
	46.06	14-Jul-08	11.41			34.65
	46.06	3-Feb-09	11.18			34.88
MW-24C	46.05	27-Mar-00	25.77			20.28
	46.05	7-Apr-00	24.27			21.78
	46.05	31-May-00	24.30			21.75
	46.05	1-Jun-00	24.22			21.83
	46.05	28-Jul-00	24.26			21.79
	46.05	30-Aug-00	27.34			18.71
	46.05	19-Sep-00	26.59			19.46
	46.05	27-Oct-00	27.64			18.41
	46.05	21-Nov-00	25.43			20.62
	46.05	1-May-01	23.90			22.15
	46.05	1-Oct-01	23.71			22.34
	46.05	11-Mar-02	22.40			23.65
	46.05	23-Sep-02	23.04			23.01
	46.05	10-Mar-03	21.71			24.34
	46.05	23-Sep-03	23.04			23.01
	46.05	15-Mar-04	21.45			24.60
	46.05	14-Sep-04	22.45			23.60
	46.05	18-Jul-05	22.19			23.86
	46.05	6-Jan-06	23.57			22.48
	46.05	27-Jul-06	22.61			23.44
	46.05	7-Mar-07	21.07			24.98
	46.05	27-Jul-07	19.62			26.43
	46.05	28-Jan-08	19.43			26.62
	46.05	14-Jul-08	20.63			25.42
	46.05	3-Feb-09	21.68			24.37
MW-25A	44.65	27-Mar-00	9.15			35.50
	44.65	7-Apr-00	8.79			35.86
	44.65	31-May-00	8.81			35.84
	44.65	1-Jun-00	8.86			35.79
	44.65	28-Jul-00	8.84			35.81
	44.65	30-Aug-00	11.43			33.22
	44.65	19-Sep-00	11.12			33.53
	44.65	27-Oct-00	10.09			34.56
	44.65	21-Nov-00	8.10			36.55
	44.65	1-May-01	8.94			35.71
	44.65	1-Oct-01	8.81			35.84
	44.65	11-Mar-02	7.23			37.42
	44.65	23-Sep-02	5.65			39.00
	44.65	10-Mar-03	5.84			38.81
	44.65	23-Sep-03	5.35			39.30
	44.65	15-Mar-04	5.75			38.90
	44.65	14-Sep-04	7.00			37.65

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-25A	44.65	18-Jul-05	6.42			38.23
	44.65	6-Jan-06	9.29			35.36
	44.65	27-Jul-06	5.10			39.55
	44.65	7-Mar-07	4.76			39.89
	44.65	27-Jul-07	4.22			40.43
	44.65	28-Jan-08	4.25			40.40
	44.65	14-Jul-08	8.59			36.06
	44.65	3-Feb-09	8.90			35.75
MW-25C	44.49	27-Mar-00	19.92			24.57
	44.49	7-Apr-00	19.50			24.99
	44.49	31-May-00	19.56			24.93
	44.49	1-Jun-00	19.51			24.98
	44.49	28-Jul-00	19.54			24.95
	44.49	30-Aug-00	22.14			22.35
	44.49	19-Sep-00	21.30	66.73	0.90	23.19
	44.49	27-Oct-00	20.63			23.86
	44.49	21-Nov-00	27.63			16.86
	44.49	1-May-01	18.14			26.35
	44.49	1-Oct-01	18.29		0.40	26.20
	44.49	14-Mar-02	17.39	64.32	4.13	27.10
	44.49	23-Sep-02	17.81	61.41	6.00	26.68
	44.49	10-Mar-03	16.73			27.76
	44.49	23-Sep-03	22.35			22.14
	44.49	15-Mar-04	16.15			28.34
	44.49	14-Sep-04	17.00	60.14	2.56	27.49
	44.49	18-Jul-05	15.57			28.92
	44.49	6-Jan-06	18.49			26.00
	44.49	27-Jul-06	15.32	60.64	2.03	29.17
	44.49	7-Mar-07	15.87	59.82	12.23	28.62
	44.49	27-Jul-07	14.25	60.61	1.04	30.24
	44.49	28-Jan-08	14.91	60.88	0.67	29.58
	44.49	14-Jul-08	17.24	60.95	0.60	27.25
	44.49	3-Feb-09	15.97	TRACE	TRACE	28.52
MW-26A	44.62	27-Mar-00	7.40			37.22
	44.62	7-Apr-00	6.99			37.63
	44.62	31-May-00	7.10			37.52
	44.62	1-Jun-00	7.00			37.62
	44.62	28-Jul-00	7.11			37.51
	44.62	30-Aug-00	9.69			34.93
	44.62	19-Sep-00	11.43			33.19
	44.62	27-Oct-00	8.11			36.51
	44.62	21-Nov-00	8.24			36.38
	44.62	1-May-01	6.01			38.61
	44.62	1-Oct-01	6.34			38.28
	44.62	11-Mar-02	4.05			40.57
	44.62	23-Sep-02	4.29			40.33
	44.62	10-Mar-03	2.84			41.78
	44.62	23-Sep-03	4.84			39.78
	44.62	15-Mar-04	3.30			41.32
	44.62	14-Sep-04	6.80			37.82
	44.62	18-Jul-05	6.72			37.90
	44.62	6-Jan-06	9.34			35.28
	44.62	27-Jul-06	4.42			40.20
	44.62	7-Mar-07	4.70			39.92
	44.62	27-Jul-07	3.98			40.64
	44.62	29-Jan-08	2.37			42.25

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-26A	44.62	14-Jul-08	7.87			36.75
	44.62	3-Feb-09	6.89			37.73
MW-27A	44.90	1-May-01	6.41			38.49
	44.90	1-Oct-01	5.31			39.59
	44.90	11-Mar-02	4.21			40.69
	44.90	23-Sep-02	3.31			41.59
	44.90	10-Mar-03	4.05			40.85
	44.90	23-Sep-03	3.24			41.66
	44.90	15-Mar-04	2.99			41.91
	44.90	14-Sep-04	5.09			39.81
	44.90	18-Jul-05	4.45			40.45
	44.90	6-Jan-06	4.55			40.35
	44.90	27-Jul-06	4.26			40.64
	44.90	7-Mar-07	3.01			41.89
	45.04	27-Jul-07	2.12			42.92
	45.04	28-Jan-08	1.88			43.16
	45.04	14-Jul-08	4.57			40.47
	45.04	3-Feb-09	4.27			40.77
MW-27C	45.04	1-May-01	17.82			27.22
	45.04	1-Oct-01	17.82			27.22
	45.04	11-Mar-02	16.36			28.68
	45.04	23-Sep-02	16.49			28.55
	45.04	10-Mar-03	18.68			26.36
	45.04	23-Sep-03	16.89			28.15
	45.04	15-Mar-04	14.35			30.69
	45.04	14-Sep-04	14.49			30.55
	45.04	18-Jul-05	16.12			28.92
	45.04	6-Jan-06	18.07			26.97
	45.04	27-Jul-06	17.13			27.91
	45.04	7-Mar-07	15.47			29.57
	44.90	27-Jul-07	14.85			30.05
	45.04	28-Jan-08	14.31			30.73
	45.04	14-Jul-08	17.51			27.53
	45.04	3-Feb-09	15.76			29.28
MW-28A	43.86	1-May-01	7.45			36.41
	43.86	1-Oct-01	8.26			35.60
	43.86	11-Mar-02	4.90			38.96
	43.86	23-Sep-02	5.71			38.15
	43.86	10-Mar-03	3.11			40.75
	43.86	23-Sep-03	5.81			38.05
	43.86	14-Sep-04	9.34			34.52
	43.86	18-Jul-05	7.52			36.34
	43.86	6-Jan-06	9.32			34.54
	43.86	27-Jul-06	5.54			38.32
	43.86	7-Mar-07	5.06			38.80
	43.86	27-Jul-07	2.86			41.00
	43.86	29-Jan-08	2.61			41.25
	43.86	14-Jul-08	8.74			35.12
	43.86	3-Feb-09	8.36			35.50
MW-28C	43.96	1-May-01	17.14			26.82
	43.96	1-Oct-01	17.51			26.45
	43.96	11-Mar-02	16.29			27.67
	43.96	23-Sep-02	17.75			26.21
	43.96	10-Mar-03	15.84			28.12
	43.96	23-Sep-03	17.48			26.48
	43.96	15-Mar-04	15.56			28.40

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-28C	43.96	14-Sep-04	17.20			26.76
	43.96	18-Jul-05	16.60			27.36
	43.96	6-Jan-06	17.61			26.35
	43.96	27-Jul-06	17.73			26.23
	43.96	7-Mar-07	15.59			28.37
	43.96	27-Jul-07	12.90			31.06
	43.96	29-Jan-08	14.35			29.61
	43.96	14-Jul-08	16.26			27.70
	43.96	3-Feb-09	16.03			27.93
MW-29A	46.59	1-May-01	5.01			41.58
	46.59	1-Oct-01	5.38			41.21
	46.59	11-Mar-02	1.51			45.08
	46.59	23-Sep-02	1.65			44.94
	46.59	10-Mar-03	1.42			45.17
	46.59	23-Sep-03	1.50			45.09
	46.59	15-Mar-04	1.85			44.74
	46.59	14-Sep-04	6.35			40.24
	46.59	18-Jul-05	3.12			43.47
	46.59	6-Jan-06	6.57			40.02
	46.59	27-Jul-06	1.44			45.15
	46.59	7-Mar-07	1.95			44.64
	46.59	27-Jul-07	2.49			44.10
	46.59	28-Jan-08	1.28			45.31
	46.59	14-Jul-08	4.14			42.45
	46.59	3-Feb-09	3.50			43.09
MW-29B	46.26	1-May-01	19.01			27.25
	46.26	1-Oct-01	19.41			26.85
	46.26	11-Mar-02	18.04			28.22
	46.26	23-Sep-02	18.82			27.44
	46.26	10-Mar-03	17.21			29.05
	46.26	23-Sep-03	18.09			28.17
	46.26	15-Mar-04	17.10			29.16
	46.26	14-Sep-04	17.76			28.50
	46.26	18-Jul-05	18.11			28.15
	46.26	6-Jan-06	18.83			27.43
	46.26	27-Jul-06	18.41			27.85
	46.26	7-Mar-07	17.21			29.05
	46.26	27-Jul-07	15.49			30.77
	46.26	28-Jan-08	15.32			30.94
	46.26	14-Jul-08	18.23			28.03
	46.26	3-Feb-09	17.72			28.54
MW-29C	46.46	1-May-01	25.51			20.95
	46.46	1-Oct-01	25.04			21.42
	46.46	11-Mar-02	23.51			22.95
	46.46	23-Sep-02	24.10			22.36
	46.46	10-Mar-03	22.71			23.75
	46.46	23-Sep-03	23.48			22.98
	46.46	15-Mar-04	22.24			24.22
	46.46	14-Sep-04	24.12			22.34
	46.46	18-Jul-05	23.75			22.71
	46.46	6-Jan-06	25.12			21.34
	46.46	27-Jul-06	23.35			23.11
	46.46	7-Mar-07	22.38			24.08
	46.46	27-Jul-07	20.42			26.04
	46.46	28-Jan-08	21.08			25.38
	46.46	14-Jul-08	22.38			24.08

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-29C	46.46	3-Feb-09	22.86			23.60
MW-30A	50.45	15-Mar-04	9.71			40.74
	50.45	13-Sep-04	12.76			37.69
	50.45	18-Jul-05	11.80			38.65
	50.45	4-Jan-06	13.52			36.93
	50.45	27-Jul-06	10.45			40.00
	50.45	7-Mar-07	10.98			39.47
	50.45	27-Jul-07	9.49			40.96
	50.45	30-Jan-08	9.62			40.83
	50.45	15-Jul-08	12.52			37.93
	50.45	4-Feb-09	13.01			37.44
MW-31A	52.08	15-Mar-04	10.97			41.11
	52.08	13-Sep-04	13.00			39.08
	52.08	18-Jul-05	13.05			39.03
	52.08	4-Jan-06	14.77			37.31
	52.08	27-Jul-06	11.83			40.25
	52.08	7-Mar-07	12.43			39.65
	52.08	27-Jul-07	10.83			41.25
	52.08	31-Jan-08	10.99			41.09
	52.08	15-Jul-08	13.68			38.40
	52.08	4-Feb-09	14.23			37.85
MW-32A	43.77	15-Mar-04	1.00			42.77
	43.77	14-Sep-04	6.03	29.00	3.48	37.74
	43.77	18-Jul-05	5.82	26.56	5.92	37.95
	43.77	6-Jan-06	6.93	24.92	7.57	36.84
	43.77	27-Jul-06	12.96	25.71	6.74	30.81
	43.77	7-Mar-07	4.03	25.26	7.19	39.74
	43.77	27-Jul-07	1.95	30.76	1.70	41.82
	43.77	28-Jan-08	2.18			41.59
	43.77	14-Jul-08	6.14	26.25	6.20	37.63
	43.77	3-Feb-09	5.71	26.29	6.16	38.06
MW-33A	44.25	15-Mar-04	3.90			40.35
	44.25	14-Sep-04	7.85			36.40
	44.25	18-Jul-05	6.35			37.90
	44.25	6-Jan-06	8.00			36.25
	44.25	27-Jul-06	4.73			39.52
	44.25	7-Mar-07	5.22			39.03
	44.25	27-Jul-07	3.48			40.77
	44.25	29-Jan-08	3.34			40.91
	44.25	14-Jul-08	7.42	25.19	0.03	36.83
	44.25	3-Feb-09	7.28			36.97
MW-33B	44.25	7-Mar-07	4.21			40.04
	44.25	27-Jul-07	3.72			40.53
	44.25	29-Jan-08	2.37	39.12	3.37	41.88
	44.25	14-Jul-08	5.74	37.44	5.05	38.51
	44.25	3-Feb-09	9.28	36.91	5.58	34.97
MW-34C	45.31	15-Mar-04	17.40			27.91
	45.31	14-Sep-04	18.82			26.49
	45.31	18-Jul-05	19.41	65.29	7.19	25.90
	45.31	6-Jan-06	20.54	65.27	8.38	24.77
	45.31	27-Jul-06	18.55	63.84	8.61	26.76
	45.31	9-Apr-07	16.34	62.06	10.39	28.97
	45.31	27-Jul-07	NM			NM
	45.31	29-Jan-08	16.32			28.99
	45.31	15-Jul-08	18.13	43.49	29.01	27.18
	45.31	5-Feb-09	18.08	61.79	10.71	27.23

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-35A	45.31	7-Mar-07	3.49			41.82
	45.31	27-Jul-07	3.05			42.26
	45.31	29-Jan-08	1.82			43.49
	45.31	14-Jul-08	6.21			39.10
	45.31	3-Feb-09	5.54			39.77
MW-35B	44.83	7-Mar-07	3.31			41.52
	44.83	27-Jul-07	3.29			41.54
	44.83	29-Jan-08	1.95			42.88
	44.83	14-Jul-08	6.40			38.43
	44.83	3-Feb-09	5.79			39.04
MW-36A	46.39	7-Mar-07	8.71			37.68
	46.39	27-Jul-07	6.54			39.85
	46.39	29-Jan-08	5.59			40.80
	46.39	14-Jul-08	9.33			37.06
	46.39	3-Feb-09	10.69			35.70
MW-38A	46.39	7-Mar-07	3.26			43.13
	46.39	27-Jul-07	3.08			43.31
	46.39	29-Jan-08	1.85			44.54
	46.39	14-Jul-08	5.84			40.55
	46.39	3-Feb-09	5.15			41.24
MW-38B	45.51	15-Mar-04	1.07			44.44
	45.51	14-Sep-04	6.10			39.41
	45.51	18-Jul-05	2.41			43.10
	45.51	6-Jan-06	6.33			39.18
	45.51	27-Jul-06	1.27			44.24
	45.51	7-Mar-07	2.38			43.13
	45.51	27-Jul-07	2.25			43.26
	45.51	29-Jan-08	0.61			44.90
	45.51	14-Jul-08	4.86			40.65
	45.51	3-Feb-09	4.33			41.18
MW-39B	49.58	15-Mar-04	5.48			44.10
	49.58	13-Sep-04	10.02			39.56
	49.58	18-Jul-05	7.21			42.37
	49.58	4-Jan-06	10.37			39.21
	49.58	27-Jul-06	6.08			43.50
	49.58	7-Mar-07	6.91			42.67
	49.58	27-Jul-07	5.74			43.84
	49.58	30-Jan-08	6.34			43.24
	49.58	15-Jul-08	8.96			40.62
	49.58	4-Feb-09	8.60			40.98
MW-40B	49.59	15-Mar-04	5.46			44.13
	49.59	13-Sep-04	9.72			39.87
	49.59	18-Jul-05	7.19			42.40
	49.59	4-Jan-06	10.25			39.34
	49.59	27-Jul-06	6.18			43.41
	49.59	7-Mar-07	6.81			42.78
	49.59	27-Jul-07	5.00			44.59
	49.59	30-Jan-08	5.23			44.36
	49.59	15-Jul-08	8.76			40.83
	49.59	4-Feb-09	8.57			41.02
MW-41B	49.37	15-Mar-04	4.66			44.71
	49.37	13-Sep-04	9.76	35.01	10.00	39.61
	49.37	18-Jul-05	5.96	32.23	12.77	43.41
	49.37	4-Jan-06	10.03	32.21	12.80	39.34
	49.37	27-Jul-06	5.65	29.55	15.31	43.72
	49.37	7-Mar-07	4.41	29.13	12.07	44.96

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-41B	49.37	27-Jul-07	5.27	12.00	20.55	44.10
	49.37	30-Jan-08	4.67	12.49	20.04	44.70
	49.37	15-Jul-08	8.87	25.09	7.44	40.50
	49.37	4-Feb-09	8.93	23.79	21.02	40.44
MW-42B	50.52	7-Mar-07	7.31			43.21
	50.52	27-Jul-07	5.74			44.78
	50.52	30-Jan-08	6.62			43.90
	50.52	15-Jul-08	8.73			41.79
	50.52	4-Feb-09	9.32			41.20
MW-44A	45.11	7-Mar-07	10.86			34.25
	45.11	27-Jul-07	7.46			37.65
	45.11	30-Jan-08	8.44			36.67
	45.11	14-Jul-08	10.75			34.36
	45.11	3-Feb-09	12.55			32.56
MW-44C	45.03	15-Mar-04	17.54			27.49
	45.03	14-Sep-04	18.35			26.68
	45.03	18-Jul-05	18.90	64.77	5.35	26.13
	45.03	6-Jan-06	20.03	66.50	5.37	25.00
	45.03	27-Jul-06	18.47	63.35	6.75	26.56
	45.03	7-Mar-07	16.02	62.30	7.75	29.01
	45.03	27-Jul-07	14.83	65.45	5.50	30.20
	45.03	29-Jan-08	15.95			29.08
	45.03	14-Jul-08	17.91	64.95	6.18	27.12
	45.03	3-Feb-09	16.72	64.15	6.98	28.31
MW-45C	44.73	15-Mar-04	17.15			27.58
	44.73	14-Sep-04	17.82	61.66	9.02	26.91
	44.73	18-Jul-05	18.38	60.76	9.89	26.35
	44.73	6-Jan-06	19.51	62.87	8.87	25.22
	44.73	27-Jul-06	17.92	61.64	8.94	26.81
	44.73	7-Mar-07	15.95	60.81	9.79	28.78
	44.73	27-Jul-07	14.38			30.35
	44.73	29-Jan-08	14.86	61.39	9.46	29.87
	44.73	14-Jul-08	17.22	61.25	9.88	27.51
	44.73	3-Feb-09	17.00	61.24	9.61	27.73
MW-46C	44.94	15-Mar-04	16.16			28.78
	44.94	14-Sep-04	17.97			26.97
	44.94	18-Jul-05	18.50	69.05	3.78	26.44
	44.94	13-Jan-06	19.66	70.20	3.22	25.28
	44.94	27-Jul-06	17.96	68.89	3.90	26.98
	44.94	7-Mar-07	16.01	69.32	3.43	28.93
	44.94	27-Jul-07	14.54			30.40
	44.94	30-Jan-08	15.68	70.81	2.00	29.26
	44.94	14-Jul-08	17.38	69.97	2.84	27.56
	44.94	3-Feb-09	16.78	69.28	3.53	28.16
MW-47C	45.61	27-Jul-07	16.62			28.99
	45.61	29-Jan-08	16.04			29.57
	45.61	14-Jul-08	18.15			27.46
	45.61	4-Feb-09	18.39			27.22
MW-48C	44.68	15-Mar-04	17.31			27.37
	44.68	14-Sep-04	18.60			26.08
	44.68	18-Jul-05	19.17			25.51
	44.68	6-Jan-06	20.33			24.35
	44.68	27-Jul-06	18.73			25.95
	44.68	7-Mar-07	16.52			28.16
	44.68	27-Jul-07	15.22			29.46
	44.68	29-Jan-08	16.32			28.36

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
MW-48C	44.68	14-Jul-08	17.63			27.05
	44.68	4-Feb-09	17.97			26.71
MW-49A	46.18	7-Mar-07	12.91			33.27
	46.18	27-Jul-07	8.86			37.32
	46.18	31-Jan-08	12.02			34.16
	46.18	15-Jul-08	12.99			33.19
	46.18	4-Feb-09	13.29			32.89
	46.22	4-Feb-09	11.65			34.57
MW-50A	46.96	7-Mar-07	8.16			38.80
	46.96	27-Jul-07	4.70			42.26
	46.96	31-Jan-08	5.68			41.28
	46.96	16-Jul-08	7.99			38.97
	46.96	4-Feb-09	9.31			37.65
MW-51A	47.80	7-Mar-07	6.96			40.84
	47.80	27-Jul-07	5.45			42.35
	47.80	31-Jan-08	5.92			41.88
	47.80	15-Jul-08				47.80
	47.80	4-Feb-09	9.98			37.82
MW-52A	51.91	7-Mar-07	13.66			38.25
	51.91	27-Jul-07	11.76			40.15
	51.91	31-Jan-08	12.60			39.31
	51.91	15-Jul-08	14.42			37.49
	51.91	5-Feb-09	15.52			36.39
MW-53C	45.49	7-Mar-07	16.12			29.37
	45.49	27-Jul-07	14.55			30.94
	45.49	29-Jan-08	15.12			30.37
	45.49	14-Jul-08	16.86			28.63
	45.49	3-Feb-09	16.69			28.80
MW-54C	44.99	7-Mar-07	15.74			29.25
	44.99	27-Jul-07	14.63			30.36
	44.99	28-Jan-08	15.28			29.71
	44.99	14-Jul-08	16.68			28.31
	44.99	3-Feb-09	16.87			28.12
MW-55A	52.01	4-Feb-09	13.79			38.22
MW-57A	47.72	5-Feb-09	12.73			34.99
MW-58A	47.76	5-Feb-09	14.55			33.21
MW-59A	44.18	5-Feb-09	10.71			33.47
MW-59D	44.22	5-Feb-09	84.17			-39.95
MW-60A	46.79	4-Feb-09	9.56			37.23
MW-61A	44.67	3-Feb-09	8.35			36.32
MW-62B	48.16	4-Feb-09	6.99			41.17
MW-63B	44.48	5-Feb-09	31.54			12.94
MW-64A	48.31	4-Feb-09	9.02			39.29
MW-65D	44.55	5-Feb-09	86.72			-42.17
MW-66D	46.51	5-Feb-09	86.18			-39.67
P-10	47.69	2-Sep-93	6.87			40.85
	47.69	21-Dec-93	3.32			44.40
	47.69	24-Mar-94	3.88			43.84
	47.69	22-Jun-94	4.98			42.74
	47.69	28-Sep-94	6.38			41.34
	47.69	13-Oct-94	7.07			40.65
	47.69	24-Jan-95	2.67			45.05
	47.69	11-Apr-95	2.59			45.13
	47.69	11-Jul-95	4.69			43.03
	47.69	23-Jan-96	5.84			41.88

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
P-10	47.69	19-Jul-96	10.04			37.68
	47.69	17-Sep-96	8.34			39.38
	47.69	31-Oct-96	6.97			40.75
	47.69	22-Nov-96	8.84			38.88
	47.69	27-Dec-96	6.20			41.52
	47.69	22-Jan-97	4.10			43.62
	47.69	21-Feb-97	2.86			44.86
	47.69	25-Mar-97	3.19			44.53
	47.69	23-Apr-97	4.42			43.30
	47.69	24-Apr-97	4.57			43.15
	47.69	13-May-97	3.14			44.58
	47.69	20-Jun-97	4.94			42.78
	47.69	25-Jun-97	2.74			44.98
	47.69	1-Jul-97	4.13			43.59
	47.69	24-Jul-97	7.91			39.81
	47.69	16-Aug-97	7.86			39.86
	47.69	22-Aug-97	8.67			39.05
	47.69	25-Sep-97	6.54			41.18
	47.69	22-Oct-97	5.36			42.36
	47.69	25-Nov-97	5.36			42.36
	47.69	19-Dec-97	4.72			43.00
	47.69	20-Jan-98	3.40			44.32
	47.69	29-Jan-98	3.11			44.61
	47.69	18-Mar-98	2.84			44.88
	47.69	24-Apr-98	6.80			40.92
	47.69	21-May-98	7.35			40.37
	47.69	30-Jul-98	8.23			39.49
	47.69	25-Aug-98	7.34			40.38
	47.69	21-Sep-98	5.25			42.47
	47.69	26-Oct-98	6.11			41.61
	47.69	23-Nov-98	4.10			43.62
	47.69	26-Feb-99	3.21			44.51
	47.69	16-Mar-99	4.21			43.51
	47.69	29-Apr-99	4.53			43.19
	47.69	1-Jun-99	4.53			43.19
	47.69	30-Jul-99	6.00			41.72
	47.69	27-Aug-99	4.72			43.00
	47.69	27-Sep-99	9.58			38.14
	47.69	29-Oct-99	10.61			37.11
	47.69	29-Dec-99	11.55			36.17
	47.69	4-Feb-00	13.71			34.01
	47.69	25-Feb-00	10.44			37.28
	47.69	27-Mar-00	7.53			40.19
	47.69	7-Apr-00	7.09			40.63
	47.69	31-May-00	7.14			40.58
	47.69	1-Jun-00	7.11			40.61
	47.69	28-Jul-00	7.15			40.57
	47.69	30-Aug-00	10.15			37.57
	47.69	19-Sep-00	11.56			36.16
	47.69	27-Oct-00	8.66			39.06
	47.69	21-Nov-00	9.64			38.08
	47.69	1-May-01	6.52			41.20
	47.69	1-Oct-01	6.85			40.87
	47.69	11-Mar-02	3.41			44.31
	47.69	23-Sep-02	3.54			44.18
	47.69	10-Mar-03	2.43			45.26

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
P-10	47.69	23-Sep-03	1.61			46.08
	47.69	15-Mar-04	2.85			44.84
	47.69	13-Sep-04	7.99			39.70
	47.69	18-Jul-05	4.20			43.49
	47.69	4-Jan-06	8.58			39.11
	47.69	27-Jul-06	3.46			44.23
	47.69	23-Jan-07	2.36			45.33
	47.69	7-Mar-07	NM			NM
	47.69	27-Jul-07	3.75			43.94
	47.69	29-Jan-08	2.30			45.39
	47.69	16-Jul-08	6.91			40.78
	47.69	22-Jan-09	6.35			41.34
P-11	48.98	2-Sep-93	7.87			41.15
	48.98	21-Dec-93	4.57			44.45
	48.98	24-Mar-94	5.04			43.98
	48.98	22-Jun-94	6.19			42.83
	48.98	28-Sep-94	7.40			41.62
	48.98	13-Oct-94	8.14			40.88
	48.98	24-Jan-95	3.90			45.12
	48.98	11-Apr-95	3.77			45.25
	48.98	11-Jul-95	5.69			43.33
	48.98	23-Jan-96	6.81			42.21
	48.98	19-Jul-96	7.81			41.21
	48.98	17-Sep-96	9.15			39.87
	48.98	31-Oct-96	7.52			41.50
	48.98	22-Nov-96	9.46			39.56
	48.98	27-Dec-96	6.64			42.38
	48.98	22-Jan-97	4.70			44.32
	48.98	21-Feb-97	3.88			45.14
	48.98	25-Mar-97	4.09			44.93
	48.98	23-Apr-97	5.27			43.75
	48.98	24-Apr-97	5.41			43.61
	48.98	13-May-97	4.12			44.90
	48.98	20-Jun-97	5.79			43.23
	48.98	25-Jun-97	3.83			45.19
	48.98	1-Jul-97	5.01			44.01
	48.98	24-Jul-97	7.56			41.46
	48.98	16-Aug-97	8.74			40.28
	48.98	22-Aug-97	9.37			39.65
	48.98	25-Sep-97	7.24			41.78
	48.98	22-Oct-97	5.98			43.04
	48.98	25-Nov-97	6.00			43.02
	48.98	19-Dec-97	5.52			43.50
	48.98	20-Jan-98	4.30			44.72
	48.98	4-Mar-98	4.08			44.94
	48.98	18-Mar-98	3.92			45.10
	48.98	24-Apr-98	7.61			41.41
	48.98	21-May-98	8.10			40.92
	48.98	30-Jul-98	9.21			39.81
	48.98	25-Aug-98	8.44			40.58
	48.98	21-Sep-98	5.91			43.11
	48.98	26-Oct-98	7.59			41.43
	48.98	23-Nov-98	5.41			43.61
	48.98	29-Jan-99	4.11			44.91
	48.98	26-Feb-99	4.22			44.80
	48.98	16-Mar-99	4.96			44.06

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
P-11	48.98	29-Apr-99	5.15			43.87
	48.98	1-Jun-99	5.15			43.87
	48.98	30-Jul-99	6.66			42.36
	48.98	27-Aug-99	5.23			43.79
	48.98	27-Sep-99	10.49			38.53
	48.98	29-Oct-99	11.91			37.11
	48.98	29-Dec-99	11.12			37.90
	48.98	4-Feb-00	12.13			36.89
	48.98	25-Feb-00	10.46			38.56
	48.98	27-Mar-00	8.32			40.70
	48.98	7-Apr-00	7.91			41.11
	48.98	31-May-00	7.96			41.06
	48.98	1-Jun-00	7.93			41.09
	48.98	28-Jul-00	7.97			41.05
	48.98	30-Aug-00	10.88			38.14
	48.98	19-Sep-00	12.32			36.70
	48.98	27-Oct-00	10.94			38.08
	48.98	21-Nov-00	9.77			39.25
	48.98	1-May-01	7.48			41.54
	48.98	1-Oct-01	7.74			41.28
	48.98	11-Mar-02	4.51			44.51
	48.98	23-Sep-02	4.46			44.56
	48.98	10-Mar-03	3.69			45.29
	48.98	23-Sep-03	4.54			44.44
	48.98	15-Mar-04	4.51			44.47
	48.98	13-Sep-04	9.14			39.84
	48.98	18-Jul-05	5.27			43.71
	48.98	4-Jan-06	9.56			39.42
	48.98	27-Jul-06	4.54			44.44
	48.98	7-Mar-07	NM			NM
	48.98	27-Jul-07	4.61			44.37
	48.98	30-Jan-08	2.71			46.27
	48.98	15-Jul-08	7.93			41.05
	48.98	4-Feb-09	7.82			41.16
P-12	48.78	2-Sep-93	7.02			41.80
	48.78	21-Dec-93	4.30			44.52
	48.78	24-Mar-94	4.45			44.37
	48.78	22-Jun-94	5.06			43.76
	48.78	28-Sep-94	6.46			42.36
	48.78	13-Oct-94	7.19			41.63
	48.78	24-Jan-95	3.63			45.19
	48.78	11-Apr-95	3.25			45.57
	48.78	11-Jul-95	4.62			44.20
	48.78	23-Jan-96	6.62			42.20
	48.78	19-Jul-96	8.64			40.18
	48.78	17-Sep-96	8.12			40.70
	48.78	31-Oct-96	6.81			42.01
	48.78	22-Nov-96	8.70			40.12
	48.78	27-Dec-96	6.57			42.25
	48.78	22-Jan-97	4.93			43.89
	48.78	21-Feb-97	3.61			45.21
	48.78	25-Mar-97	3.70			45.12
	48.78	23-Apr-97	4.58			44.24
	48.78	24-Apr-97	4.74			44.08
	48.78	13-May-97	3.69			45.13
	48.78	20-Jun-97	4.86			43.96

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
P-12	48.78	25-Jun-97	3.35			45.47
	48.78	1-Jul-97	4.11			44.71
	48.78	24-Jul-97	6.58			42.24
	48.78	16-Aug-97	7.80			41.02
	48.78	22-Aug-97	8.22			40.60
	48.78	25-Sep-97	6.54			42.28
	48.78	22-Oct-97	5.66			43.16
	48.78	25-Nov-97	5.70			43.12
	48.78	19-Dec-97	5.13			43.69
	48.78	20-Jan-98	4.15			44.67
	48.78	4-Mar-98	3.78			45.04
	48.78	18-Mar-98	3.61			45.21
	48.78	24-Apr-98	6.90			41.92
	48.78	21-May-98	7.80			41.02
	48.78	30-Jul-98	8.15			40.67
	48.78	25-Aug-98	8.31			40.51
	48.78	21-Sep-98	5.64			43.18
	48.78	26-Oct-98	7.66			41.16
	48.78	23-Nov-98	5.65			43.17
	48.78	29-Jan-99	4.20			44.62
	48.78	26-Feb-99	4.31			44.51
	48.78	16-Mar-99	4.99			43.83
	48.78	29-Apr-99	5.10			43.72
	48.78	1-Jun-99	5.10			43.72
	48.78	30-Jul-99	6.75			42.07
	48.78	27-Aug-99	5.34			43.48
	48.78	27-Sep-99	9.36			39.46
	48.78	29-Oct-99	10.11			38.71
	48.78	29-Dec-99	9.44			39.38
	48.78	4-Feb-00	12.10			36.72
	48.78	25-Feb-00	8.63			40.19
	48.78	27-Mar-00	7.76			41.06
	48.78	7-Apr-00	7.35			41.47
	48.78	31-May-00	7.39			41.43
	48.78	1-Jun-00	7.34			41.48
	48.78	28-Jul-00	7.37			41.45
	48.78	30-Aug-00	10.66			38.16
	48.78	19-Sep-00	11.45			37.37
	48.78	27-Oct-00	10.94			37.88
	48.78	21-Nov-00	8.93			39.89
	48.78	1-May-01	6.70			42.12
	48.78	1-Oct-01	6.93			41.89
	48.78	11-Mar-02	4.15			44.67
	48.78	23-Sep-02	3.90			44.92
	48.78	10-Mar-03	3.13			45.65
	48.78	23-Sep-03	3.86			44.92
	48.78	15-Mar-04	NM			NM
	48.78	13-Sep-04	7.93			40.85
	48.78	18-Jul-05	5.06			43.72
	48.78	4-Jan-06	8.98			39.80
	48.78	27-Jul-06	4.35			44.43
	48.78	22-Jan-07	3.19			45.59
	48.78	7-Mar-07	NM			NM
	48.78	27-Jul-07	4.22			44.56
	48.78	29-Jan-08	3.03			45.75
	48.78	16-Jul-08	6.78			42.00

Table 5D
GROUNDWATER MEASUREMENTS
UPRR Houston Wood Preserving Works

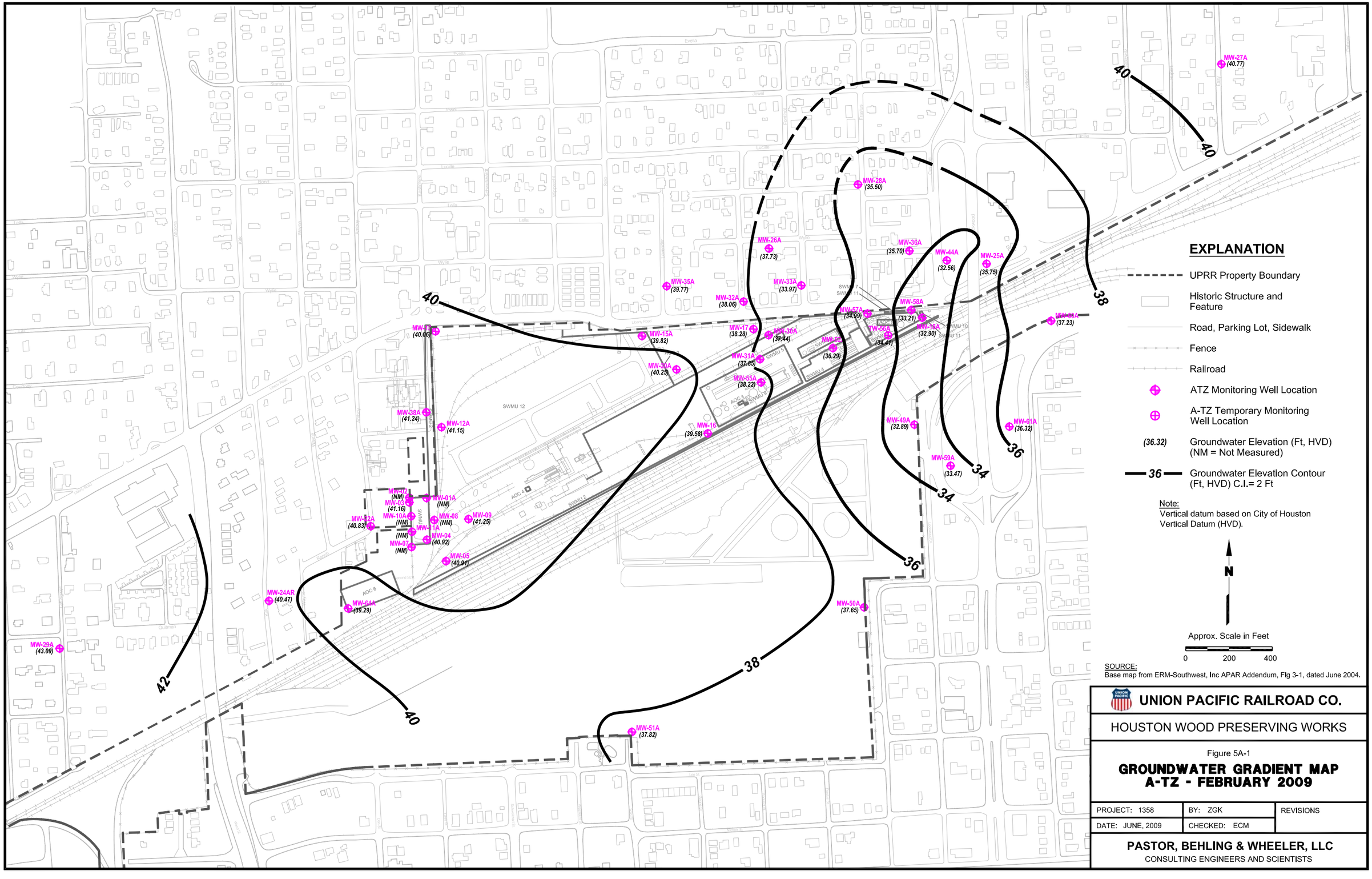
Well ID	TOC Elevation (ft)	Date	Depth to Water (ft)	Depth to DNAPL (ft BTOC)	DNAPL Thickness (ft)	GW Elevation (ft)
P-12	48.78	22-Jan-09	6.99			41.79
TW-01		27-Jul-07	8.45			
		31-Jan-08	8.17			
TW-02		27-Jul-07	11.64	10.04[2]	1.57[2]	
		31-Jan-08	10.96	9.81[2]	1.15[2]	
		15-Jul-08	11.42			
		4-Feb-09	12.31			
TW-41B	49.67	4-Feb-09	8.44			41.23
TW-56A	51.89	5-Feb-09	17.48			34.41

Notes:
1. The surface completion for MW-23C was repaired and resurveyed in January/February 2009
2. LNAPL measuered in TW-02, no DNAPL
3. NM = Not Measured

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

5.0 Figures



EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- ATZ Monitoring Well Location
- A-TZ Temporary Monitoring Well Location
- *(36.32)* Groundwater Elevation (Ft, HVD) (NM = Not Measured)
- 36 Groundwater Elevation Contour (Ft, HVD) C.I.= 2 Ft

Note:
Vertical datum based on City of Houston Vertical Datum (HVD).

N

Approx. Scale in Feet

0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Flg 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

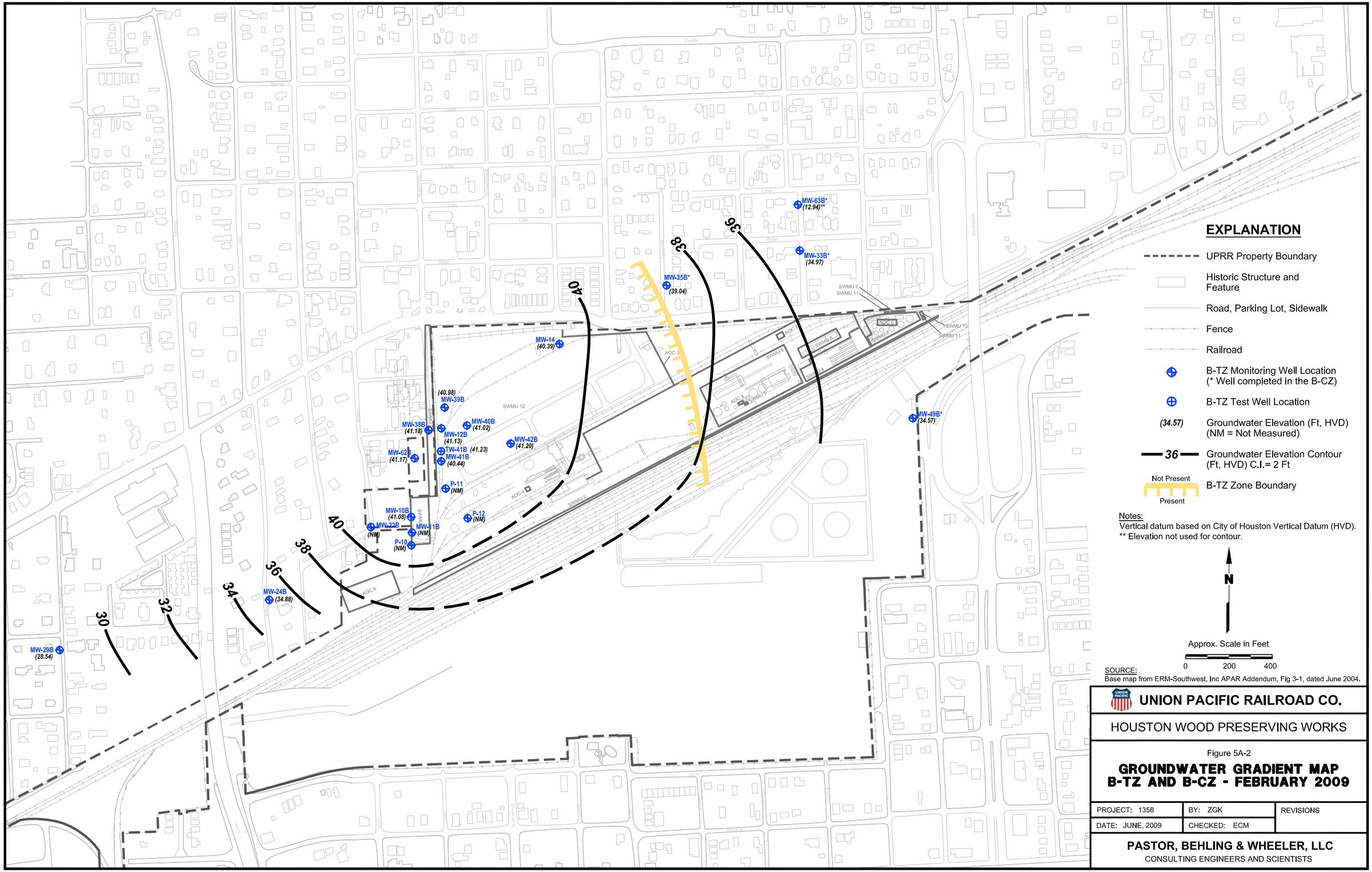
HOUSTON WOOD PRESERVING WORKS

Figure 5A-1

GROUNDWATER GRADIENT MAP A-TZ - FEBRUARY 2009

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS



EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- B-TZ Monitoring Well Location (* Well completed in the B-CZ)
- B-TZ Test Well Location
- *(34.57)* Groundwater Elevation (Ft, HVD) (NM = Not Measured)
- *36* Groundwater Elevation Contour (Ft, HVD) C.I.= 2 Ft
- Not Present / Present — B-TZ Zone Boundary

Notes:
Vertical datum based on City of Houston Vertical Datum (HVD).
** Elevation not used for contour.

N

Approx. Scale in Feet

0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

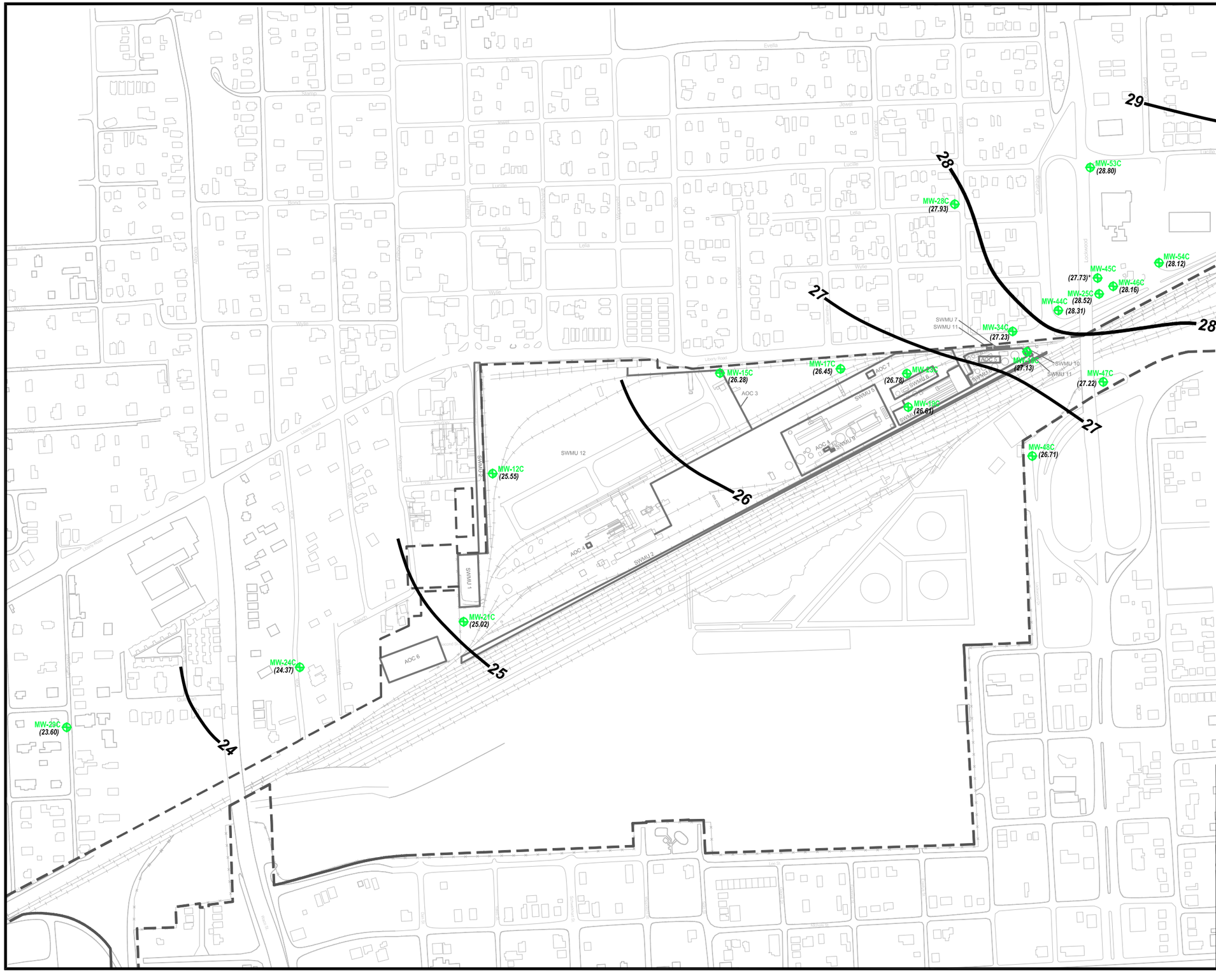
HOUSTON WOOD PRESERVING WORKS

Figure 5A-2

GROUNDWATER GRADIENT MAP B-TZ AND B-CZ - FEBRUARY 2009

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS



EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- C-TZ Monitoring Well Location
- (26.61) Groundwater Elevation (Ft, HVD)
- 28 Groundwater Elevation Contour (Ft, HVD) C.I.= 1 Ft
- * Not Used for Contouring

Note:
Vertical datum based on City of Houston Vertical Datum (HVD).

N

Approx. Scale in Feet

0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Flg 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

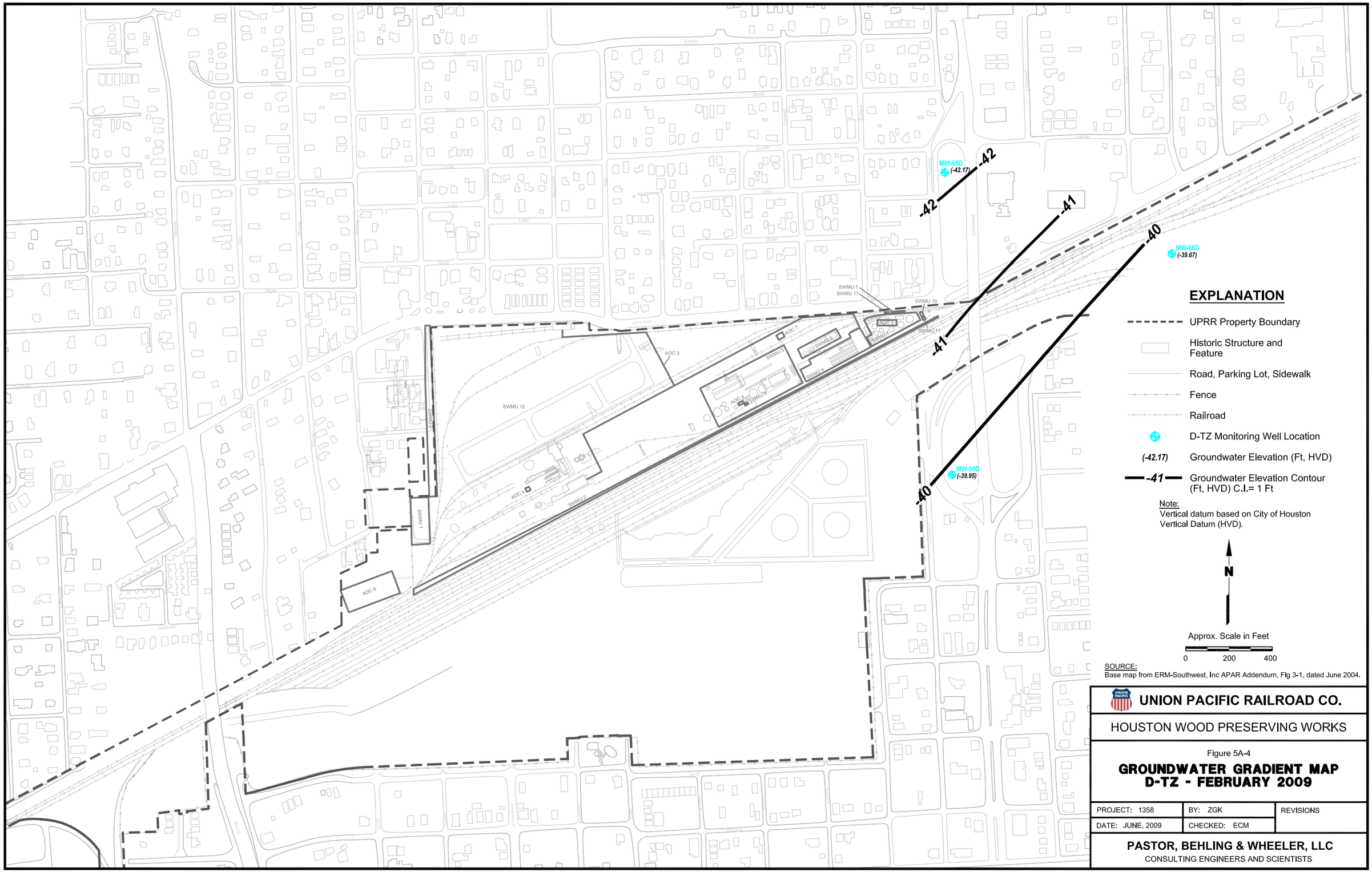
HOUSTON WOOD PRESERVING WORKS

Figure 5A-3

GROUNDWATER GRADIENT MAP C-TZ - FEBRUARY 2009

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS



Note:
Vertical datum based on City of Houston Vertical Datum (HVD).

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

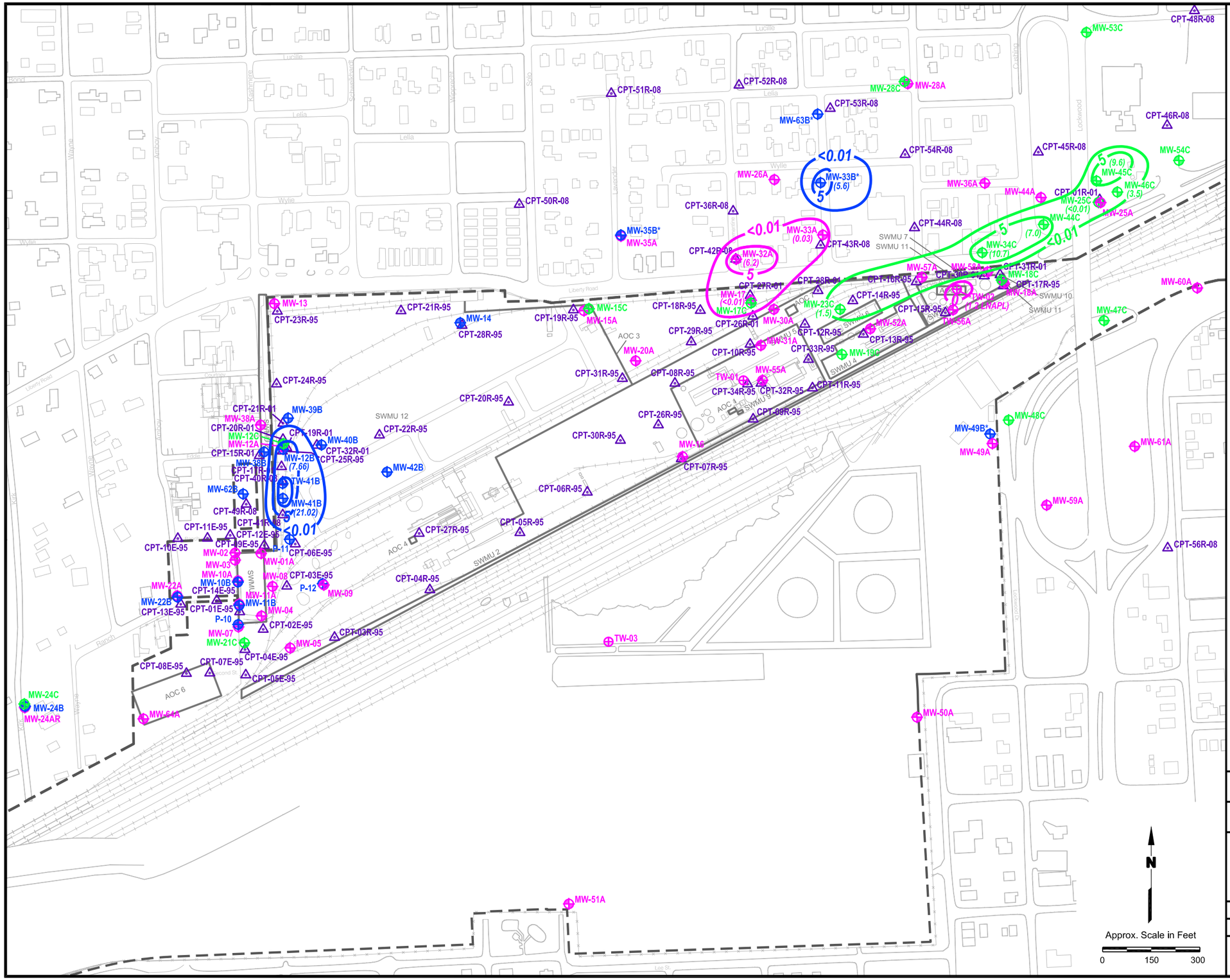
HOUSTON WOOD PRESERVING WORKS

Figure 5A-4

GROUNDWATER GRADIENT MAP D-TZ - FEBRUARY 2009

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS



EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- A-TZ Monitoring Well Location
- B-TZ Monitoring Well Location (* Well completed in the B-CZ)
- C-TZ Monitoring Well Location
- A-TZ Temporary Monitoring Well Location
- CPT with Rost Location
- (5.6) DNAPL Thickness Measured in Well (Ft)
- 5 A-TZ DNAPL Thickness Contour (except TW-02, LNAPL contour)
- 5 B-TZ DNAPL Thickness Contour
- 5 C-TZ DNAPL Thickness Contour

Note:
TW-02 contains LNAPL, only well with LNAPL observed.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

N

Approx. Scale in Feet
0 150 300

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 5A-5

NAPL DISTRIBUTION MAP A-TZ, B-TZ, C-TZ - FEB 2009

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

▬ ▬ ▬	UPRR Property
▭	Historic Structure and Feature
──	Road, Parking Lot, Sidewalk
─×─×─	Fence
─┼─┼─	Railroad
⊕	A-TZ Monitoring Well Location
⊕	A-TZ Temporary Monitoring Well Location
↙	General Groundwater Flow Direction
◯	Affected Property/PCLE Zone

Notes:
All concentrations are in mg/L.
J = Estimated value between SQL and MDL.
U = Not detected (RL/SQL reported).
NA = Not Analyzed.
Bolded and highlighted concentrations exceed Residential Assessment Level (RAL).
DNAPL = Dense non-aqueous phase liquids detected in monitoring well (Feb 09).
LNAPL = Light non-aqueous phase liquids detected in monitoring well (Feb 09).

Residential Assessment Levels

Parameter	RAL (mg/L)	cPCL (mg/L)
1,2-Dichloroethane	0.005	0.005
2,4-Dimethylphenol	0.49	1.5
2-Methylnaphthalene	0.098	0.29
Acenaphthene	1.5	4.4
Benzo(a)anthracene	0.0013	0.0028
Benzene	0.005	0.005
Benzo(a)pyrene	0.0002	0.0002
bis(2-ethylhexyl)phthalate	0.006	0.006
Chrysene	0.13	0.28
Dibenzofuran	0.098	0.29
Dichloromethane	0.005	0.005
Fluoranthene	0.98	2.9
Fluorene	0.98	2.9
Naphthalene	0.49	1.5
Pentachlorophenol	0.001	0.001
Phenanthrene	0.73	2.2
Pyrene	0.73	2.2
Toluene	1	1

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

N

Scale in Feet
0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

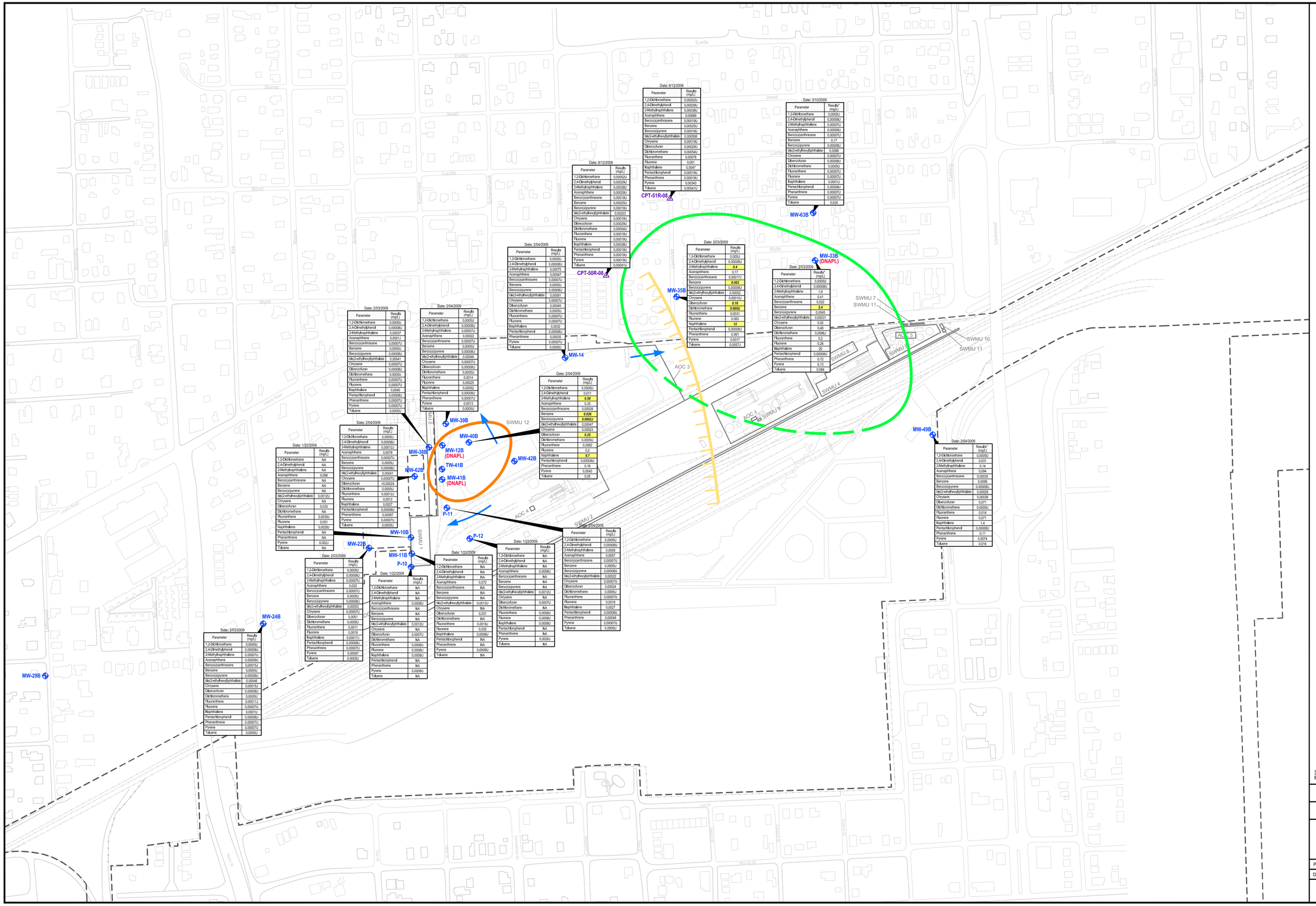
HOUSTON WOOD PRESERVING WORKS

Figure 5B-1

GROUNDWATER COC
CONCENTRATION MAP
A-TZ

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS



Date: 8/12/2008

Parameter	Results (mg/L)
1,2-Dichloroethane	0.00052U
2,4-Dimethylphenol	0.00029U
2-Methylnaphthalene	0.00038U
Acenaphthene	0.00689
Benzo(a)anthracene	0.00019U
Benzene	0.00025U
Benzo(a)pyrene	0.00019U
bis(2-ethylhexyl)phthalate	0.000506
Chrysene	0.00019U
Dibenzofuran	0.00029U
Dichloromethane	0.00054U
Fluoranthene	0.00078
Fluorene	0.001
Naphthalene	0.0047
Pentachlorophenol	0.00019U
Phenanthrene	0.00019U
Pyrene	0.00343
Toluene	0.00041U

Date: 3/10/2009

Parameter	Results* (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.00008U
2-Methylnaphthalene	0.00007U
Acenaphthene	0.00009U
Benzo(a)anthracene	0.00007U
Benzene	0.17
Benzo(a)pyrene	0.00008U
bis(2-ethylhexyl)phthalate	0.0088
Chrysene	0.00007U
Dibenzofuran	0.00008U
Dichloromethane	0.0005U
Fluoranthene	0.00007U
Fluorene	0.00007U
Naphthalene	0.0001U
Pentachlorophenol	0.00008U
Phenanthrene	0.00007U
Pyrene	0.00007U
Toluene	0.024

Date: 8/12/2008

Parameter	Results (mg/L)
1,2-Dichloroethane	0.00052U
2,4-Dimethylphenol	0.00029U
2-Methylnaphthalene	0.00038U
Acenaphthene	0.00029U
Benzo(a)anthracene	0.00019U
Benzene	0.00025U
Benzo(a)pyrene	0.00019U
bis(2-ethylhexyl)phthalate	0.00223
Chrysene	0.00019U
Dibenzofuran	0.00029U
Dichloromethane	0.00054U
Fluoranthene	0.00019U
Fluorene	0.00019U
Naphthalene	0.00038U
Pentachlorophenol	0.00019U
Phenanthrene	0.00019U
Pyrene	0.00019U
Toluene	0.00041U

Date: 2/04/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.00008U
2-Methylnaphthalene	0.00075
Acenaphthene	0.00047
Benzo(a)anthracene	0.00007U
Benzene	0.0005U
Benzo(a)pyrene	0.00008U
bis(2-ethylhexyl)phthalate	0.00081
Chrysene	0.00007U
Dibenzofuran	0.00045
Dichloromethane	0.0005U
Fluoranthene	0.00007U
Fluorene	0.00007U
Naphthalene	0.0032
Pentachlorophenol	0.00008U
Phenanthrene	0.00035
Pyrene	0.00007U
Toluene	0.0005U

Date: 2/03/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	0.005U
2,4-Dimethylphenol	0.00008U
2-Methylnaphthalene	***0.4***
Acenaphthene	0.17
Benzo(a)anthracene	0.00017J
Benzene	***0.062***
Benzo(a)pyrene	0.00008U
bis(2-ethylhexyl)phthalate	0.00052
Chrysene	0.00015J
Dibenzofuran	***0.16***
Dichloromethane	***0.005U***
Fluoranthene	0.0031
Fluorene	0.063
Naphthalene	***12***
Pentachlorophenol	0.00008U
Phenanthrene	0.061
Pyrene	0.0017
Toluene	0.0057J

Date: 2/03/2009

Parameter	Results* (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.00008U
2-Methylnaphthalene	1.9
Acenaphthene	0.41
Benzo(a)anthracene	0.022
Benzene	***2.4***
Benzo(a)pyrene	0.0045
bis(2-ethylhexyl)phthalate	0.00031
Chrysene	0.02
Dibenzofuran	0.46
Dichloromethane	0.0096J
Fluoranthene	0.2
Fluorene	0.26
Naphthalene	20
Pentachlorophenol	0.00008U
Phenanthrene	0.72
Pyrene	0.13
Toluene	0.084

Date: 2/03/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.00008U
2-Methylnaphthalene	0.00037
Acenaphthene	0.0001J
Benzo(a)anthracene	0.00007U
Benzene	0.0005U
Benzo(a)pyrene	0.00008U
bis(2-ethylhexyl)phthalate	0.00041
Chrysene	0.00007U
Dibenzofuran	0.00008U
Dichloromethane	0.0005U
Fluoranthene	0.00007U
Fluorene	0.00007U
Naphthalene	0.0045
Pentachlorophenol	0.00008U
Phenanthrene	0.00007U
Pyrene	0.00007U
Toluene	0.0005U

Date: 2/04/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.00008U
2-Methylnaphthalene	0.00007U
Acenaphthene	0.00022
Benzo(a)anthracene	0.00007U
Benzene	0.0005U
Benzo(a)pyrene	0.00008U
bis(2-ethylhexyl)phthalate	0.00046
Chrysene	0.00007U
Dibenzofuran	0.00008U
Dichloromethane	0.0005U
Fluoranthene	0.0014
Fluorene	0.00025
Naphthalene	0.00052
Pentachlorophenol	0.00008U
Phenanthrene	0.00007U
Pyrene	0.0013
Toluene	0.0005U

Date: 2/04/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.011
2-Methylnaphthalene	***0.58***
Acenaphthene	0.35
Benzo(a)anthracene	0.00028
Benzene	***0.026***
Benzo(a)pyrene	***0.0002J***
bis(2-ethylhexyl)phthalate	0.00047
Chrysene	0.00023
Dibenzofuran	***0.25***
Dichloromethane	0.0005U
Fluoranthene	0.0082
Fluorene	0.2
Naphthalene	***9.7***
Pentachlorophenol	0.00008U
Phenanthrene	0.16
Pyrene	0.0043
Toluene	0.05

Date: 2/04/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.00008U
2-Methylnaphthalene	0.00012J
Acenaphthene	0.0078
Benzo(a)anthracene	0.00007U
Benzene	0.0005U
Benzo(a)pyrene	0.00008U
bis(2-ethylhexyl)phthalate	0.00041
Chrysene	0.00007U
Dibenzofuran	<0.00024
Dichloromethane	0.0005U
Fluoranthene	0.00012J
Fluorene	0.0012
Naphthalene	0.0027
Pentachlorophenol	0.00008U
Phenanthrene	0.00087
Pyrene	0.00007U
Toluene	0.0005U

Date: 1/22/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	NA
2,4-Dimethylphenol	NA
2-Methylnaphthalene	NA
Acenaphthene	0.096
Benzo(a)anthracene	NA
Benzene	NA
Benzo(a)pyrene	NA
bis(2-ethylhexyl)phthalate	0.0012U
Chrysene	NA
Dibenzofuran	0.035
Dichloromethane	NA
Fluoranthene	0.0039J
Fluorene	0.051
Naphthalene	0.0028J
Pentachlorophenol	NA
Phenanthrene	NA
Pyrene	0.002J
Toluene	NA

Date: 2/04/2009

Parameter	Results* (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.031
2-Methylnaphthalene	0.14
Acenaphthene	0.094
Benzo(a)anthracene	0.00035
Benzene	0.0095
Benzo(a)pyrene	0.00008U
bis(2-ethylhexyl)phthalate	0.00029
Chrysene	0.00038
Dibenzofuran	0.071
Dichloromethane	0.0005U
Fluoranthene	0.014
Fluorene	0.071
Naphthalene	1.4
Pentachlorophenol	0.00008U
Phenanthrene	0.11
Pyrene	0.0074
Toluene	0.016

Date: 2/04/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.00008U
2-Methylnaphthalene	0.0008
Acenaphthene	0.0057
Benzo(a)anthracene	0.00007U
Benzene	0.0005U
Benzo(a)pyrene	0.00008U
bis(2-ethylhexyl)phthalate	0.00022
Chrysene	0.00007U
Dibenzofuran	0.00024
Dichloromethane	0.0005U
Fluoranthene	0.00007U
Fluorene	0.0018
Naphthalene	0.0027
Pentachlorophenol	0.00008U
Phenanthrene	0.00048
Pyrene	0.00007U
Toluene	0.0005U

Date: 1/22/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	NA
2,4-Dimethylphenol	NA
2-Methylnaphthalene	NA
Acenaphthene	0.0008U
Benzo(a)anthracene	NA
Benzene	NA
Benzo(a)pyrene	NA
bis(2-ethylhexyl)phthalate	0.0012U
Chrysene	NA
Dibenzofuran	0.0007U
Dichloromethane	NA
Fluoranthene	0.0006U
Fluorene	0.0008U
Naphthalene	0.0008U
Pentachlorophenol	NA
Phenanthrene	NA
Pyrene	0.0026J
Toluene	NA

Date: 1/22/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	NA
2,4-Dimethylphenol	NA
2-Methylnaphthalene	NA
Acenaphthene	0.072
Benzo(a)anthracene	NA
Benzene	NA
Benzo(a)pyrene	NA
bis(2-ethylhexyl)phthalate	0.0012U
Chrysene	NA
Dibenzofuran	0.031
Dichloromethane	NA
Fluoranthene	0.0018J
Fluorene	0.032
Naphthalene	0.0008U
Pentachlorophenol	NA
Phenanthrene	NA
Pyrene	0.0009U
Toluene	NA

Date: 2/03/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.00008U
2-Methylnaphthalene	0.00007U
Acenaphthene	0.022
Benzo(a)anthracene	0.00007U
Benzene	0.0005U
Benzo(a)pyrene	0.00008U
bis(2-ethylhexyl)phthalate	0.00053
Chrysene	0.00007U
Dibenzofuran	0.0051
Dichloromethane	0.0005U
Fluoranthene	0.0011
Fluorene	0.0018
Naphthalene	0.00017J
Pentachlorophenol	0.00008U
Phenanthrene	0.00007U
Pyrene	0.00047
Toluene	0.0005U

Date: 1/22/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	NA
2,4-Dimethylphenol	NA
2-Methylnaphthalene	NA
Acenaphthene	0.0008U
Benzo(a)anthracene	NA
Benzene	NA
Benzo(a)pyrene	NA
bis(2-ethylhexyl)phthalate	0.0012U
Chrysene	NA
Dibenzofuran	0.0007U
Dichloromethane	NA
Fluoranthene	0.0006U
Fluorene	0.0008U
Naphthalene	0.0008U
Pentachlorophenol	NA
Phenanthrene	NA
Pyrene	0.0009U
Toluene	NA

Date: 2/03/2009

Parameter	Results (mg/L)
1,2-Dichloroethane	0.0005U
2,4-Dimethylphenol	0.00008U
2-Methylnaphthalene	0.00007U
Acenaphthene	0.00009U
Benzo(a)anthracene	0.00015J
Benzene	0.0005U
Benzo(a)pyrene	0.00008U
bis(2-ethylhexyl)phthalate	0.00046
Chrysene	0.00015J
Dibenzofuran	0.00008U
Dichloromethane	0.0005U
Fluoranthene	0.00011J
Fluorene	0.00007U
Naphthalene	0.0001U
Pentachlorophenol	0.00008U
Phenanthrene	0.00007U
Pyrene	0.00007U
Toluene	0.0005U

EXPLANATION

- - - - - -	UPRR Property
▭	Historic Structure and Feature
—	Road, Parking Lot, Sidewalk
—×—×—	Fence
—+—+—	Railroad
⊕	B-TZ Monitoring Well Location
△	CPT with Rost
↙	General Groundwater Flow Direction
🟩	Affected Property/PCLE Zone - B-CZ
🟧	Affected Property/PCLE Zone - B-TZ
Not Present / Present	B-TZ Zone Boundary

Notes:
All concentrations are in mg/L.
J = Estimated value between SQL and MDL.
U = Not detected (RL/SQL reported).
NA = Not Analyzed.
Bolded and highlighted concentrations exceed Residential Assessment Level (RAL).
DNAPL = Dense non-aqueous phase liquids detected in monitoring well (Feb 09).
Results* = Results compared to GWClass 3 PCL for MW-33B, MW-49B, and MW-63B.

Residential Assessment Levels

Parameter	RAL (mg/L)	cPCL (mg/L)	$GW_{CLASS\ 3}$ (mg/L)
1,2-Dichloroethane	0.005	0.005	0.5
2,4-Dimethylphenol	0.49	1.5	49
2-Methylnaphthalene	0.098	0.29	9.8
Acenaphthene	1.5	4.4	147
Benzo(a)anthracene	0.0013	0.0028	0.125
Benzene	0.005	0.005	0.5
Benzo(a)pyrene	0.0002	0.0002	0.02
bis(2-ethylhexyl)phthalate	0.006	0.006	0.6
Chrysene	0.13	0.28	12.5
Dibenzofuran	0.098	0.29	9.8
Dichloromethane	0.005	0.005	0.5
Fluoranthene	0.98	2.9	98
Fluorene	0.98	2.9	98
Naphthalene	0.49	1.5	49
Pentachlorophenol	0.001	0.001	0.1
Phenanthrene	0.73	2.2	73
Pyrene	0.73	2.2	73
Toluene	1	1	100

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

N

Scale in Feet
0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

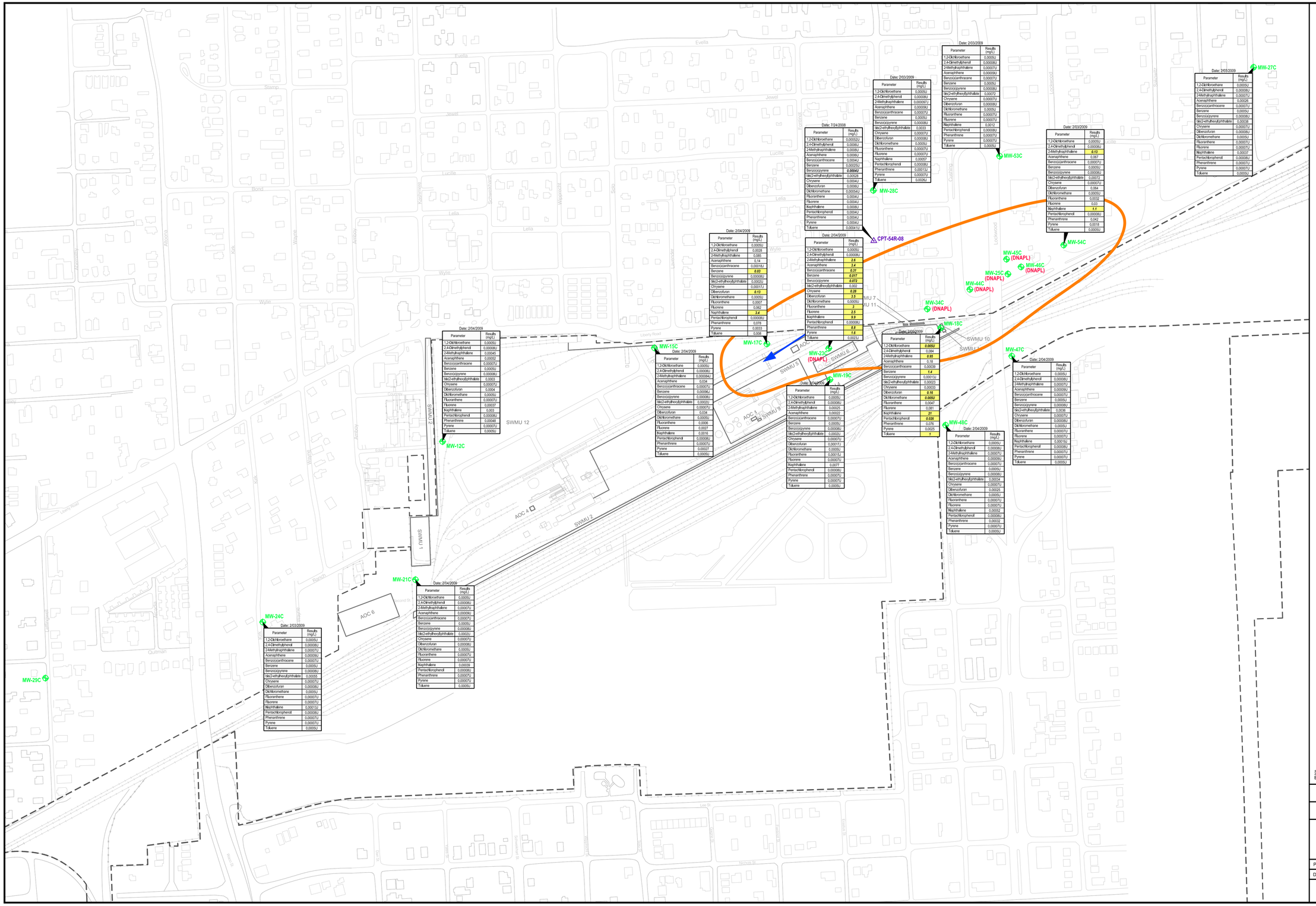
HOUSTON WOOD PRESERVING WORKS

Figure 5B-2

GROUNDWATER COC CONCENTRATION MAP B-TZ AND B-CZ

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS



EXPLANATION

- UPRR Property
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- C-TZ Monitoring Well Location
- CPT with Rost
- General Groundwater Flow Direction
- Affected Property/PCLE Zone

Notes:
All concentrations are in mg/L.
J = Estimated value between SQL and MDL.
U = Not detected (RL/SQL reported).
NA = Not Analyzed.
Bolded and highlighted concentrations exceed Residential Assessment Level (RAL).
DNAPL = Dense non-aqueous phase liquids detected in monitoring well (Feb 09).

Residential Assessment Levels

Parameter	RAL (mg/L)	cPCL (mg/L)
1,2-Dichloroethane	0.005	0.005
2,4-Dimethylphenol	0.49	1.5
2-Methylnaphthalene	0.098	0.29
Acenaphthene	1.5	4.4
Benzo(a)anthracene	0.00013	0.0028
Benzene	0.005	0.005
Benzo(a)pyrene	0.0002	0.0002
bis(2-ethylhexyl)phthalate	0.006	0.006
Chrysene	0.13	0.28
Dibenzofuran	0.098	0.29
Dichloromethane	0.005	0.005
Fluoranthene	0.98	2.9
Fluorene	0.98	2.9
Naphthalene	0.49	1.5
Pentachlorophenol	0.001	0.001
Phenanthrene	0.73	2.2
Pyrene	0.73	2.2
Toluene	1	1

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

N

Scale in Feet
0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 5B-3
GROUNDWATER COC CONCENTRATION MAP C-TZ

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

- UPRR Property
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- D-TZ Monitoring Well Location

Notes:
All concentrations are in mg/L.
J = Estimated value between SQL and MDL.
U = Not detected (RL/SQL reported).
NA = Not Analyzed.
Bolded and highlighted concentrations exceed Residential Assessment Level (RAL).
7. * Possible laboratory contaminant.

Residential Assessment Levels

Parameter	RAL (mg/L)	cPCL (mg/L)
1,2-Dichloroethane	0.005	0.005
2,4-Dimethylphenol	0.49	1.5
2-Methylnaphthalene	0.098	0.29
Acenaphthene	1.5	4.4
Benzo(a)anthracene	0.0013	0.0028
Benzene	0.005	0.005
Benzo(a)pyrene	0.0002	0.0002
bis(2-ethylhexyl)phthalate	0.006	0.006
Chrysene	0.13	0.28
Dibenzofuran	0.098	0.29
Dichloromethane	0.005	0.005
Fluoranthene	0.98	2.9
Fluorene	0.98	2.9
Naphthalene	0.49	1.5
Pentachlorophenol	0.001	0.001
Phenanthrene	0.73	2.2
Pyrene	0.73	2.2
Toluene	1	1

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

N

Scale in Feet
0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 5B-4
GROUNDWATER COC CONCENTRATION MAP D-TZ

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

SECTION 9.0 ECOLOGICAL RISK ASSESSMENT

Based on the original APAR (ERM, 2000) and Revised ARAR (ERM, 2004), the Site passed the TCEQ Tier 1 Ecological Exclusion Criteria Checklist. The justification provided in the Revised APAR for passing the exclusion criteria stated the following:

> *The site is wholly contained within contiguous land that is utilized for industrial activity and is characterized by pavement, active railroads, roadways, equipment storage areas, loading areas for locomotives, or otherwise disturbed ground. Adjacent off-site areas include industrial properties, commercial properties, residential properties, and minor undeveloped tracts. The on-site and off-site areas are highly disturbed. The nearest surface water bodies, SWMU 2 and AOC 6, are intermittent/seasonal storm water conveyance features and past corrective actions have removed the visibly affected material. The environmental setting of the affected property does not facilitate or support the establishment of ecological communities, either on site or off site.*
>
> *The evaluation concludes that the constituents associated with the HWPW property are not an imminent threat to surface waters because the drainage ditches (SWMU 2) and portions of AOC 6 are not considered to be waters of the State and that these areas are not in ultimate contact with surface waters of the State. In addition, these areas do not routinely contain surface water (intermittent - seasonal) and are not likely to be consistently or routinely used as valuable habitats by ecological communities.*
>
> *The HWPW site meets the exclusion criteria for soil and surface water/sediment pathways and, therefore, no further ecological evaluations are considered necessary.*

However, as stated in the TCEQ comment letters on the Revised APAR dated October 8, 2004 and April 15, 2005 (Comment No. 2 and RTC 2, respectfully), the TCEQ requested that the Inactive Wastewater Lagoon (AOC 6) and SDD southwest of AOC 6 be further investigated to assess if a Tier 2/3 Ecological Risk Assessment (ERA) was necessary to evaluate protectiveness for ecological receptors. Instead of conducting a Tier 2 Ecological ERA, an Expedited Stream Evaluation (ESE) was conducted on the man-man ditch southwest of AOC 6. A discussion of the ESE to address the drainage ditch and an evaluation of the Inactive Waste Water Lagoon (AOC 6) are provided in the following sections.

Section 9.1 Expedited Stream Evaluation

As stated in the previous Tier 1 Ecological Exclusion Criteria Checklists, the man-made drainage ditch is not considered a viable habitat to sustain ecological communities. To further support this observation, an ESE was conducted for the drainage ditch. Below is an evaluation of the site relative to the ESE criteria as detailed in the TCEQ Guidance for Conducting Ecological Risk Assessments at Remediation Site in Texas (RG-262 (revised)), December 2001) (TCEQ, 2001). These conditions are itemized below together with site information that provides the rationale for meeting the conditions. Photographs of the drainage ditch are provided in Attachment 13.

- **The stream is intermittent (dries up completely at least one week a year) without perennial pools.**

The sole purpose of the ditch is to serve as flood control by conveying storm water from the rail area and from the residential areas southwest of the Site. There are no underground storm water lines immediately southwest of the Site, nor in the residential areas southwest of the Site. Base flow for this drainage ditch is non-existent as no evidence is reported that suggests otherwise. During storm events, the ditch receives storm water flow from the railroad and from the adjacent residential properties (Figure 9A). A May 2009 site visit conducted by PBW found the ditch was dry with areas of standing water at a portion of the ditch approximately 10 feet long and 3 feet wide, as shown on the Site photographs (Appendix 13). The area where water was noted coincides in the general area where the excavation activities were conducted in 1995 and 1997 (see Section 1.2 for details). The standing water is likely a result of areas within the ditch that were not fully backfilled following the excavation activities, or where there is a topographic low within the drainage ditch.

Based on this conclusion, the ditch meets the definition of intermittent without perennial pools as defined at §307.3 (a), as amended and discussed in the Implementation Procedures (TNRCC, 2000), as amended).

- **The stream is located in a disturbed area (generally, such situations occur in predominantly urban or commercial/industrial settings).**

The drainage ditch is located in a disturbed area. Land use in the vicinity of the Site and along the drainage ditch is developed as commercial/industrial with residential properties north of the ditch west of the Site (Figure 9A and 9B). The UPRR rail line, which through its construction created the drainage ditch, parallels the drainage ditch south of the ditch. In the vicinity and west of Waco Street, storm water from the residential properties flows into the drainage ditch (Figure 9B). Oil and grease (other sources of PAHs) from vehicles parked and abandoned in the residential areas likely run off into the drainage ditch (USGS, 2007).

- **The stream meets the acute water quality criteria specified in Table 1 of 30 TAC §307.6 or appropriate surrogate values if there is no criteria specified.**

No surface water samples were collected for this assessment. Since the drainage ditch receives storm water from urban run off and especially from paved areas (i.e. city streets), it is likely that PAH compounds from storm water run off have entered the ditch. Based on a USGS study on the effects of coal-tar sealed parking lots, average concentration in PAH particles washed off parking lots that were not seal-coated was 54 mg/kg, with seal-coated lots having much higher PAH concentrations (USGS, 2007). Therefore, with the ditch receiving storm water run off from residential streets made with asphalt, PAHs from anthropogenic sources likely enter the drainage ditch and any surface water sampling would be influenced from these other sources.

- **There is a lack of appreciable instream, edge, or riparian habitat, forage, or shelter in or along the watercourse.**

The ditch is best characterized as a storm water drainage ditch with no appreciable instream habitat available. The ditch is bounded to the south by rail lines, and to the north by a chainlink fence within the Site (Appendix 13). There is a segment of the adjacent property north of the ditch, including AOC 6, that contains wooded areas, but these areas only extend to Kirk Street (Figure 9A). The width of this vegetative band, flanked on both sides by industrial and urban activities does not constitute viable habitat for ecological communities. The presence of the numerous residential developments, roads, and the railroad line does not provide for appreciable amounts of forage or shelter areas along the ditch.

- **The watercourse or surrounding vicinity is not known to serve as habitat, foraging area, or refuge to threatened/endangered or otherwise protected species.**

Because of the limited size of the vegetated area and the industrial and urban setting surrounding this area, the ditch and its surrounding areas do not serve as viable habitat, forage area or refuge for threatened and endangered (T&E) species.

- **The area is not consistently or routinely used as valuable habitat for natural communities including birds, mammals, reptiles, etc.**

As noted above, the ditch is banked by localized patches of heavy vegetation; however, this vegetation corridor is narrow due to adjacent rail lines, urban roads, and residential properties. This "patchy" vegetation within the urban environment along a drainage ditch is not considered to provide viable habitat capable of sustaining natural communities.

- **There are no impacts immediately evident in downstream areas where habitat is more likely to support wildlife.**

The drainage ditch likely discharges storm water to Buffalo Bayou, which would be considered the downstream area where habitat is likely to support wildlife, approximately 8,500 feet from the Site. The drainage ditch receives storm water run off from numerous urban areas between the Site and the likely discharge point into Buffalo Bayou. Since the COCs detected in surface soils with the drainage ditch were delineated to TRRP RALs immediately west of Waco Street (SB-112, SB-113, and SB-114, (Figure 9A), impacts from the Site do not likely impact the downstream habitat.

Section 9.2 Reasoned Justification

The Inactive Wastewater Lagoon (AOC 6) received sap water discharge from the Recent Process Area that flowed via the wood-lined SDD (SWMU No. 2) prior to 1974 (PRC, 1993). The lagoon was a low-lying area that allowed collection of discharged sap water and storm water. In May 1979, the material in the lagoon caught fire and was extinguished by the Houston Fire Department (TDWR IOM, 1979b). In response, SPTC excavated a trench across the lot to collect the liquids impounded on the property and

excavated the surface soils in the area (TDWR IOM, 1979b) (approximate area of excavation shown on Figure 1A-3). Soils excavated from this area were placed in the Closed Surface Impoundment (SWMU No. 1) in 1979. The SDD (SWMU No. 2) was plugged to prevent further discharge into the area (PRC, 1993). There is little information on how the area was backfilled. Currently, the Inactive Wastewater Lagoon (AOC 6) is undeveloped and is characterized by medium and large-growth trees and some vegetation.

From 2006 through 2009, a total of 24 shallow soil borings (SB-79 through SB-84, and SB-100 through SB-117) were drilled and sampled within the southwest drainage ditch and the Inactive Wastewater Lagoon (Figure 9A). Soil samples were generally collected from 0 to 0.5 feet, and from 1 to 2 feet bgs and analyzed for site-specific COCs.

Soil analytical results were compared to TRRP RALs to identify the Affected Property, as discussed in Section 4.0. The primary COCs that exceeded RALs in these samples were PAHs benz(a)anthracene, benzo(a)pyrene, and fluoranthene, which are summarized on Table 9A for the soil samples collected in this area. Only two non-PAH COCs were detected above RALs, which consisted of dibenzofuran and 1,2-diphenylhydrazine, both detected in SB-104(1-2). For benz(a)anthracene and benzo(a)pyrene, concentrations detected in SB-79(1.5-2), SB-82(1.5-2), SB-84(0-0.5) and SB-84(1.5-2), SB-104(1-2), SB-106(0-0.5), SB-107(1-2), SB-108(0-2), and SB-110(0-0.5)/SB-110(0.5-2) exceeded critical PCLs and will require a response action in accordance with TRRP.

These soil data were also compared to ecological soil screening levels (Eco-SSLs) developed by the EPA Office of Solid Waste and Emergency Response (OSWER) (EPA, 2007). The Eco-SSLs developed by the EPA are used to evaluate contaminants of potential concern (COPCs) and are not designed to be used as cleanup levels. Therefore, the Eco-SSLs were used to compare to TRRP PCLs for evaluating if a response action addressing human health risk would eliminate a potential ecological pathway through the reasoned justification clause (30 TAC §350.77).

The Eco-SSLs were developed based on the two categories of PAHs:

- low molecular weight (LMW) PAHs that include 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, fluorine, naphthalene, and phenanthrene; and
- high molecular weight (HMW) PAHs that include benzo(a)anthracene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluoranthene, pyrene.

With no appreciable habitat noted along the drainage ditch and the narrow band of vegetation not likely to sustain a viable ecological community as discussed in Section 9.1, soil invertebrates were the only potential ecological pathway evaluated. The EPA Eco-SSLs for soil invertebrates are 29 mg/Kg for LMW PAHs and 18 mg/Kg HMW PAHs (EPA, 2007).

Most of the surface soil data collected at AOC 6 and the drainage ditch include the PAHs listed above except for dibenzo(a,h)anthracene, which is not considered a site-specific COC. However, to compare the HMW PAHs detected in the soil samples to the Eco-SSLs, a dibenzo(a,h)anthracene concentration was conservatively assumed to be equal to the benzo(a)pyrene concentration detected in each sample for calculating the HMW PAH value. The calculated LMW and HMW PAHs values are provided on Table 9A. LMW and HMW PAH values that exceed the Eco-SSLs include SB-84(0-0.5) SB-104(1-2), SB-106(0-0.5), and SB-108(0-2). For each of these samples, the individual PAHs exceeded the human health cPCLs, and thereby will require a response action.

To address the human health PCLE zone for surface soils in this area, the proposed response action will likely be soil removal or an engineered cap, which will be detailed in the RAP. Through this action, the proposed remediation to address human health risk will coincidentally address ecological risk by eliminating the ecological exposure pathways. Therefore, to address the PCLE zone for surface soils in the drainage ditch and AOC 6, no additional ecological risk evaluation will be necessary under the reasoned justification clause (30 TAC §350.77).

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

9.0 Tables

TABLE 9A
SUMMARY OF SURFACE SOIL PAHs IN AOC 6 AND DRAINAGE DITCH
UPRR Houston Wood Preserving Works

			PAH-HMW					PAH-LMW							Total HMW	Total LMW
			Benz(a)anthracene	Benzo(a)pyrene	Chrysene	Fluoranthene	Pyrene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Fluorene	Naphthalene	Phenanthrene		
		RAL	5.6	0.56	560	2,316	1,698	127	1,753	3,045	3,445	2,226	124	1,705	Eco-SSL	Eco-SSL
Well	Depth	cPCL	24	2.4	2,365	24,776	18,582	378	5,235	9,094	10,289	6,648	190	9,282	18	29
SB-79	0-0.5'		0.0487	0.151	0.0764	0.0267	0.0697	<0.00185	<0.00215	0.0525	0.0927	0.0268	0.00879	0.00525 J	0.5235	0.19004
	1.5-2'		1.15	**3.45**	2.13	1.4	3.34	0.0436	0.0419	1.16	1.29	0.0941	0.119	0.22	14.92	2.9686
SB-80	0-0.5'		0.0139	0.0207	<0.0028	0.0217	0.0205	<0.00193	<0.00225	0.00611 J	0.0121	<0.0025	0.00537 J	0.0119	0.1003	0.04212
	1.5-2'		0.215	**1.5**	0.316	0.142	0.216	0.00785	0.0175	0.644	0.703	0.0697	0.019	0.0914	3.889	1.55245
SB-81	0-0.5'		0.0774	0.309	0.139	0.118	0.159	<0.00182	0.00713	0.159	0.159	0.023	0.0052 J	0.0265	1.1114	0.38165
	1.5-2'		0.0225	0.0906	0.0383	0.0188	0.0303	<0.00174	<0.00202	0.0324	0.0343	<0.0022	0.015	0.00789	0.2911	0.09556
SB-82	0-0.5'		0.286	**1.38**	0.465	0.395	0.518	<0.00982	<0.0114	1.16	0.804	0.118	0.0796	0.132	4.424	2.31482
	1.5-2'		0.357	**2.63**	0.878	0.158	0.372	<0.00377	0.0317	1.02	0.577	0.13	0.0216	0.012	7.025	1.79607
SB-83	0-0.5'		0.0379	0.0878	0.0509	0.0388	0.0584	<0.00201	<0.00234	0.0384	0.0443	0.0112	<0.00157	0.00854	0.3616	0.10836
	1.5-2'		0.389	**0.823**	0.524	0.459	0.672	<0.00183	0.00745	0.295	0.252	0.0301	0.00689	0.0291	3.69	0.62237
SB-84	0-0.5'		**20.8**	**25.4**	29.5	21.6	46	0.0944	0.185	10.3	12.8	0.897	0.138	0.879	***168.7***	25.2934
	1.5-2'		2.31	**3.19**	3.69	1.77	5.28	<0.00381	0.0277	0.958	1.26	0.131	0.0291	0.0706	***19.43***	2.48021
SB-100	0-0.5'		0.0103	0.0129	0.0173	0.0207	0.0218	<0.00191	<0.00222	<0.00186	<0.00161	<0.0024	<0.00149	<0.00171	0.0959	0.01324
	1-2'		0.00407 J	0.00576	0.0103	0.0187	0.0154	<0.00187	<0.00217	<0.00182	<0.00157	<0.0024	<0.00145	<0.00167	0.05999	0.01293
SB-101	0-0.5'		0.0466	0.101	0.079	0.154	0.112	<0.00207	0.0109	0.00776	0.0286	0.00974	0.00809	0.0646	0.5936	0.13176
	1-2'		<0.00204	0.00609	<0.00289	0.0072	0.00627 J	<0.00199	<0.00232	<0.00194	<0.00168	<0.0025	<0.00155	<0.00178	0.03058	0.0138
SB-102	0-0.5'		0.338	**0.982**	0.887	0.392	0.471	<0.0232	0.0291	0.108	0.163	<0.0295	<0.018	0.0619	4.052	0.4327
	1-2'		0.00677	0.0108	0.0172	0.0538	0.0344	<0.00186	<0.00217	0.00574 J	0.0071	<0.0024	<0.00145	0.00833	0.13377	0.02903
SB-103	0-0.5'		0.708	**1.77**	1.75	1.35	1.86	<0.0487	<0.0566	0.221	0.269	<0.062	<0.0379	0.127	9.208	0.8222
	1-2'		0.0197	0.0652	0.04	0.0393	0.0449	<0.00198	<0.0023	0.00536 J	0.00719	<0.0025	<0.00154	<0.00177	0.2743	0.02266
SB-104	0-0.5'		<0.0399	0.147	<0.0564	0.151	0.114	<0.0389	<0.0452	<0.0379	<0.0328	<0.0496	<0.0302	<0.0348	0.6553	0.2694
	1-2'		**401**	**13.1**	392	**2,990**	1,610	13.2	949	19.8	669	1,090	1.33	**3,340**	***5419.2***	***6082.33***
	2-3'		0.0185	0.0196	--	--	--	--	--	--	--	--	--	--		
SB-105	0-0.5'		0.0134	0.0149	<0.00308	0.0563	0.0457	<0.00212	<0.00247	<0.00206	<0.00179	0.0047 J	<0.00165	0.0413	0.14828	0.05606
	1-2'		<0.00197	0.0039	<0.00279	0.00962	0.00697	<0.00192	<0.00224	<0.00187	<0.00162	<0.0025	<0.0015	0.00434 J	0.02915	0.01594
SB-106	0-0.5'		5.49	**10.6**	13.5	6.47	17.2	<0.194	<0.225	2.27	<0.163	<0.247	<0.151	<0.173	***63.86***	3.423
	1-2'		0.447	**1.17**	1.11	0.375	0.978	<0.018	<0.021	0.2	<0.0152	<0.023	<0.014	0.0234	5.25	0.3146
SB-107	0-0.5'		0.309	**0.92**	0.563	0.439	0.542	<0.0216	<0.0251	0.163	0.17	<0.0275	<0.0168	0.0746	3.693	0.4986
	1-2'		1.26	**3.6**	2.01	1.3	1.85	0.108	<0.0556	0.392	0.4	<0.061	0.3	0.369	13.62	1.6856
SB-108	0-2'		**15.3**	**23.2**	--	--	--	--	--	--	--	--	--	--		
SB-109	0-2'		0.0585	0.0716	--	--	--	--	--	--	--	--	--	--		
SB-110	0.5-2'		2.17	**2.58**	--	--	--	--	--	--	--	--	--	--		
	0-0.5'		4.3	**5.86**	--	--	--	--	--	--	--	--	--	--		
SB-111	0.5-2'		0.0839	0.0907	--	--	--	--	--	--	--	--	--	--		
	0-0.5		--	**1.65**	--	--	--	--	--	--	--	--	--	--		
	0-0.5'		2.43	--	--	--	--	--	--	--	--	--	--	--		
SB-112	0.5-2'		0.12	0.1	--	0.22	0.21	0.0075 J	0.0086 J	--	--	--	0.0075 J	0.068		
	0-0.5'		0.06	0.069	--	0.13	0.12	0.005 J	0.0061 J	--	--	--	0.0051 J	0.042		
SB-113	0.5-2'		0.26	0.27	--	0.69	0.61	0.03	0.025	--	--	--	0.024	0.48		
	0-0.5'		0.07	0.083	--	0.13	0.15	<0.0066	<0.0066	--	--	--	0.0063 J	0.037		
SB-114	0.5-2'		0.036	0.035	--	0.08	0.066	<0.0066	<0.0066	--	--	--	<0.0066	0.015		
	0-0.5'		0.015	0.019	--	0.025	0.028	<0.0066	<0.0066	--	--	--	<0.0066	0.01		
SB-115	0-0.5'		0.0048 J	0.0056 J	--	0.0072 J	0.0071 J	<0.0066	<0.0066	--	--	--	<0.0066	<0.0066		
	1.5-2'		<0.0066	<0.0066	--	0.0048	0.0047	<0.0066	0.0061	--	--	--	<0.0066	0.011		
SB-116	0-0.5'		0.024	0.028	--	0.061	0.057	<0.0066	<0.0066	--	--	--	<0.0066	0.013		
	1.5-2'		<0.0066	<0.0066	--	<0.0066	<0.0066	<0.0066	<0.0066	--	--	--	<0.0066	<0.0066		
SB-117	0-0.5'		0.038	0.061	--	0.064	0.082	<0.0066	<0.0066	--	--	--	<0.0066	0.018		
	1.5-2'		0.039	0.045	--	0.087	0.092	<0.0066	<0.0066	--	--	--	<0.0066	0.012		

Notes:

1. Sampling locations shown on Figure 9A.
2. Concentrations > RAL are **bold** type.
3. Concentrations > cPCL are highlighted.
4. Non-detected concentrations > RAL of cPCL are **bold** type.
5. TRRP PCLs (30 TAC §350, Tables 1, 2, and 3), last updated on March 25, 2009.
6. RAL = Residential Assessment Level, C/I = Commercial/Industrial
7. J = Estimated Value, < = Compound not detected at the specified detection limit.
8. Eco_SSL: Ecological Soil Screening Level (EPA, 2007).
9. Total PAH-HMW value includes a surrogate value for dibenzo(a,h)anthracene by using the benzo(a)pyrene concentration from each sample.

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

9.0 Figures

EXPLANATION

UPRR Property

Surface Soil Sample Location

N

Approx. Scale in Feet

0 60 120

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 9A

SURFACE SOIL BORING LOCATIONS-AOC 6 AND DRAINAGE DITCH

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

UPRR Property

Surface Soil Sample Location

N

Approx. Scale in Feet

0 75 150

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 9B

DRAINAGE DITCH SOUTHWEST OF SITE

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

SECTION 10.0 COC SCREENING

COC screening of the sampled media collected prior to 2004 was detailed in the Revised APAR (Appendix F) (ERM, 2004). The COC list for the Site consists of 34 site-specific COCs established in the RFI Work Plan (IC, 1994). However, in response to the presence of LNAPL in the A-TZ (TW-02) in 2007, UPRR analyzed selected soil and groundwater samples from source areas for a comprehensive list of constituents by EPA Methods 8260 for VOCs and 8270 for SVOCs.

For the purposes of screening COCs, the 34 site-specific COCs were retained for PCL development, and are listed in Table 10A A total of 44 additional potential COCs (30 VOCs and 14 SVOCs) were evaluated in soil and groundwater samples collected in 2007 near former source areas (i.e., TW-01, TW-02, MW-52A). As shown on Table 10A, 15 of the VOCs and 9 of the SVOCs were screened from further PCL development because the COC was not detected or was detected in at least one sample and the detected concentrations and reporting limits or SDLs was less than the RAL for that COC in the medium and all other sampled media. Fourteen COCs, all VOCs, had elevated SDLs above the applicable PCLs but not detected above the SDL in the groundwater sample collected from TW-02, which had LNAPL present in the well. These COCs are highlighted on Table 10A. For these potential COCs, groundwater samples from monitoring wells near TW-02 will be sampled for these COCs to ensure they are not present in the A-TZ groundwater at concentrations that exceed TRRP PCLs. A discussion of COCs screened from further PCL evaluation is provided in the following sections.

Section 10.1 Frequency of Detection

No COCs were removed from PCL evaluation based on the frequency of detection.

Section 10.2 Lab Contaminant or Blank Contaminant

Of the site-specific COCs evaluated, bis(2-ethylhexyl)phthalate concentrations detected at the Site are not a result of current or historical industrial activities conducted at the Site, but rather a result of sampling bias or lab contaminant. Bis(2-ethylhexyl)phthalate is the most commonly used of a group of related chemicals called phthalates or phthalic acid esters (EPA, 2006). This chemical is used as a plasticizer for polyvinylchloride (PVC) and other polymers including rubber, cellulose and styrene. Bis(2-

ethylhexyl)phthalate is also a common laboratory contaminant as detailed in 30 TAC§350.71(k)(2)(B) and TCEQ TRRP-14 Guidance Document.

When released to soil, bis(2-ethylhexyl)phthalate will neither evaporate nor leach into groundwater. It has a strong tendency to adsorb to soil and sediments, with calculated log Koc listed in the TCEQ TRRP chemical properties table of 5.8. Experimental evidence demonstrates strong partitioning to clays and sediments. (EPA Web Site, http://www.epa.gov/safewater/dwh/t-soc/dehp.html, 2006). Of the 210 soil samples analyzed for bis(2-ethylhexyl)phthalate from the Site, 34 samples had detectable concentrations of bis(2-ethylhexyl)phthalate (16 percent), with the highest concentration at SB-104(0-0.5) at 0.888 mg/Kg. The TRRP Tier 2 soil to groundwater leaching $^{GW}Soil_{Ing}$ PCL for bis(2-ethylhexly)phthalate is 1,226 mg/kg, over 1,000 times higher than the highest concentration detected on the Site.

Bis(2-ethylhexyl)phthalate was detected above the $^{GW}GW_{Ing}$ PCL in one groundwater sample from D-TZ (MW-66D)) at 0.0064 mg/L above the RAL (0.006 mg/L). Bis(2-ethylhexl)phthalate concentrations were detected in the shallower GWBUs, but none of the samples from the wells in the source area had concentrations above the PCL.

Since concentrations detected in soils on Site were well below the PCL for potential leaching from soil to groundwater, bis(2-ethylhexyl)phthalate preferably adsorbs to soil rather than leaching to groundwater, no concentrations were detected above the groundwater PCL in the A-TZ near the source area, and that bis(2-ethylhexyl)phthalate is a common laboratory contaminant or sampling contaminant (from well materials or sample tubing), the weight-of-evidence suggest that this COC is not related to the Site.

Section 10.3 COC Not Sourced On-Site

No COCs were screened from further PCL development as a result of COCs not sourced on-site.

Section 10.4 Appropriate Sample Quantitation Limits

The reporting limits, or SDLs, for the COCs that were screened from further PCL evaluation were evaluated to ensure the SDL for non-detected COCs were less than the RAL or critical PCL. Of the target COCs listed on Table 10A, the SDLs were less than the applicable RAL except where noted. Fourteen COCs (that are not site-specific COCs) had elevated SDLs as a result of dilution from the groundwater sample collected from TW-02, which had LNAPL in the piezometer. These COCs included 1,1,2,2-

tetrachloroethane, 1,1,2-trichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, 1,2-dichloropropane, bromodichloromethane, bromomethane, carbon tetrachloride, cis-1,3-dichloropropane, dibromochloromethane, dichloromethane, tetrachloroethene, trans-1,3-dichloropropane, trichloroethene, and vinyl chloride (Table 10A). Groundwater samples will be collected from monitoring wells in the vicinity of SWMU No. 8 (i.e., MW-57A, MW-58A, TW-56A) and analyzed for these COCs to confirm if the COCs are present at concentrations greater than PCLs.

Bis(2-chloroethyl)ether was analyzed in four soil samples (TW-01(10-12), TW-02(10-12), and TW-03(2-5) TW-03(11-15)), with no detections above the SDLs. However, two of the samples (TW-03(2-5) and TW(11-15)) had elevated SDLs above the RAL because of sample dilution. Since bis(2-chloroethyl)ether concentrations were not detected in the other two samples, which were collected in the Original and Recent Process Areas (SWMU No. 5 and 4), the appropriate SDL was used for this potential COC and this COC is screened from further evaluation.

Section 10.5 Screened COCs Expected to be Present Dropped from Future Sampling

At this time, no screened COCs that are expected to be present at the Site will be removed from the COC list for future sampling activities.

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

10.0 Tables

Table 10A COC Screening Summary Table

TABLE 10A
COC SCREENING SUMMARY TABLE
UPRR Houston Wood Preserving Works

1	2	3	4	5	6	7	8	SQL Justifications	
								9	10
Chemical of Concern	All detected concentrations and SQLs < residential assessment level in all sampled media	COC not detected in any sample in the medium	Frequency of detects <5% of the >20 samples in this medium	Common lab contaminant	Blank contaminant	Max conc < background	COC not sourced on-site	All SQLs < RAL	SQL > RAL but justified
	§350.71(k)(1)	§350.71(k)(3)	§350.71(k)(2)	§350.71(k)(2)(B)	§350.71(k)(2)(C)	§350.71(k)(2)(D)	§350.71(k)(2)(E)	§350.71(k)(3)(A)	§350.71(k)(3)(B)
			(A)(i) through (iii)						
Site-Specific COCs									
Volatile Organic Compounds (VOCs)									
1,2-Dichloroethane	No - GW, Soil 0-5 ft, Soil >5 ft							No - GW (TW-02); SB - several locations	
Benzene	No - GW, Soil 0-5 ft, Soil >5 ft							All Media	
Chlorobenzene		GW, Soil 0-5 ft, Soil >5 ft						All Media	
Ethylbenzene	No - GW; Yes - Soil 0-5 ft, Soil >5 ft							All Media	
Methylene Chloride	No - GW, Soil 0-5 ft, Soil >5 ft							No - GW (TW-02); No - SB - several locations	
Toluene	No - GW; Yes - Soil 0-5 ft, Soil >5 ft							All Media	
Xylene (total)	No -GW; Yes - Soil 0-5 ft, Soil >5 ft							All Media	
Semi-Volatile Organic Compounds (SVOCs)									
1,2-Diphenylhydrazine	No - Soil 0-5 ft, Soil >5 ft	GW						No - SB - several locations	
2,4-Dimethylphenol	No - GW, Soil 0-5 ft, Soil >5 ft							No - SB - several locations	
2,4-Dinitrotoluene	No - Soil 0-5 ft, Soil >5 ft	GW						No - SB - several locations	
2,6-Dinitrotoluene	No - Soil 0-5 ft, Soil >5 ft	GW						No - SB - several locations	
2-Chloronaphthalene	Yes - Soil 0-5 ft, Soil >5 ft	GW						All Media	
2-Methylnaphthalene	No - GW, Soil 0-5 ft, Soil >5 ft							All Media	
4,6-Dinitro-o-cresol	Yes - Soil 0-5 ft, Soil >5 ft	GW						All Media	
4-Nitrophenol	No - Soil 0-5 ft, Soil >5 ft	GW						No - SB - several locations	
Acenaphthene	No - GW; Yes - Soil 0-5 ft, Soil >5 ft							All Media	
Acenaphthylene	Yes - GW, Soil 0-5 ft, Soil >5 ft							All Media	
Anthracene	Yes - GW, Soil 0-5 ft, Soil >5 ft							All Media	
Benzo(a)anthracene	No - GW, Soil 0-5 ft, Soil >5 ft							No - SB - several locations	
Benzo(a)pyrene	No - GW, Soil 0-5 ft, Soil >5 ft							No - SB - several locations	

TABLE 10A
COC SCREENING SUMMARY TABLE
UPRR Houston Wood Preserving Works

1	2	3	4	5	6	7	8	SQL Justifications	
								9	10
Chemical of Concern	All detected concentrations and SQLs < residential assessment level in all sampled media	COC not detected in any sample in the medium	Frequency of detects <5% of the >20 samples in this medium	Common lab contaminant	Blank contaminant	Max conc < background	COC not sourced on-site	All SQLs < RAL	SQL > RAL but justified
	§350.71(k)(1)	§350.71(k)(3)	§350.71(k)(2)	§350.71(k)(2)(B)	§350.71(k)(2)(C)	§350.71(k)(2)(D)	§350.71(k)(2)(E)	§350.71(k)(3)(A)	§350.71(k)(3)(B)
			(A)(i) through (iii)						
Semi-Volatile Organic Compounds (SVOCs) (cont)									
bis(2-Chloroethoxy)methane	No - Soil 0-5 ft, Soil >5 ft; Yes - GW							No - SB - several locations	
bis(2-Ethylhexyl)phthalate	No - GW, Soil 0-5 ft	Soil >5 ft						No - SB - several locations	
Chrysene	No - GW; Yes - Soil 0-5 ft	Soil >5 ft						All Media	
Dibenzofuran	No - GW, Soil 0-5 ft, Soil >5 ft							All Media	
Di-n-butyl phthalate	Yes - GW, Soil 0-5 ft, Soil >5 ft							All Media	
Fluoranthene	No - GW, Soil 0-5 ft; Yes - Soil >5 ft							All Media	
Fluorene	No - GW; Yes - Soil 0-5 ft, Soil >5 ft							All Media	
Naphthalene	No - GW, Soil 0-5 ft, Soil >5 ft							All Media	
Nitrobenzene	No - Soil 0-5 ft; Yes - Soil >5 ft	GW						No - SB - several locations	
N-Nitrosodi-n-propylamine	No - GW, Soil 0-5 ft; Yes - Soil >5 ft							No - SB - several locations	
N-Nitrosodiphenylamine	No - Soil 0-5 ft; Yes - Soil >5 ft	GW						No - SB - several locations	
Pentachlorophenol	No - Soil 0-5 ft; Yes - Soil >5 ft; Yes - GW							No - SB - several locations	
Phenanthrene	No - GW, Soil 0-5 ft; Yes - Soil >5 ft								
Phenol	No - Soil 0-5 ft; Yes - Soil >5 ft; Yes - GW							No - SB - several locations	
Pyrene	No - GW; Yes - Soil 0-5 ft	Soil >5 ft							
Additional Potential COCs									
Volatile Organic Compounds (VOCs)									
1,1,1-Trichloroethane		GW, Soil 0-5 ft, Soil >5 ft						All Media	
1,1,2,2-Tetrachloroethane	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
1,1,2-Trichloroethane	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
1,1-Dichloroethane		GW, Soil 0-5 ft, Soil >5 ft						All Media	
1,1-Dichloroethene	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
1,2-Dichloroethene (total)	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	

TABLE 10A
COC SCREENING SUMMARY TABLE
UPRR Houston Wood Preserving Works

1	2	3	4	5	6	7	8	SQL Justifications	
								9	10
Chemical of Concern	All detected concentrations and SQLs < residential assessment level in all sampled media	COC not detected in any sample in the medium	Frequency of detects <5% of the >20 samples in this medium	Common lab contaminant	Blank contaminant	Max conc < background	COC not sourced on-site	All SQLs < RAL	SQL > RAL but justified
	§350.71(k)(1)	§350.71(k)(3)	§350.71(k)(2)	§350.71(k)(2)(B)	§350.71(k)(2)(C)	§350.71(k)(2)(D)	§350.71(k)(2)(E)	§350.71(k)(3)(A)	§350.71(k)(3)(B)
			(A)(i) through (iii)						
Volatile Organic Compounds (VOCs) (cont)									
1,2-Dichloropropane	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
1,4-Dichlorobenzene		GW, Soil 0-5 ft, Soil >5 ft						All Media	
2-Butanone		GW, Soil 0-5 ft, Soil >5 ft						All Media	
2-Hexanone		GW, Soil 0-5 ft, Soil >5 ft						All Media	
4-Methyl-2-pentanone (MIBK)		GW, Soil 0-5 ft, Soil >5 ft						All Media	
Acetone	Yes - GW, Soil 0-5 ft, Soil >5 ft							All Media	
Bromodichloromethane	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
Bromoform		GW, Soil 0-5 ft, Soil >5 ft						All Media	
Bromomethane	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
Carbon Disulfide		GW, Soil 0-5 ft, Soil >5 ft						All Media	
Carbon Tetrachloride	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
Chloroethane		GW, Soil 0-5 ft, Soil >5 ft						All Media	
Chloroform		GW, Soil 0-5 ft, Soil >5 ft						All Media	
Chloromethane		GW, Soil 0-5 ft, Soil >5 ft						All Media	
cis-1,2-Dichloroethene		GW, Soil 0-5 ft, Soil >5 ft						All Media	
cis-1,3-Dichloropropene	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
Dibromochloromethane	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
Dichloromethane	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						All Media	
Styrene	Yes - Soil >5 ft	GW, Soil 0-5 ft						All Media	
Tetrachloroethene	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
trans-1,2-Dichloroethene		GW, Soil 0-5 ft, Soil >5 ft						All Media	
trans-1,3-Dichloropropene	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
Trichloroethene	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
Vinyl Chloride	No - GW (SQL>RAL)	Soil 0-5 ft, Soil >5 ft						No - GW (TW-02)	
Semi-Volatile Organic Compounds (SVOCs)									
1,2,4-Trichlorobenzene		GW, Soil 0-5 ft, Soil >5 ft						All Media	
2,4,6-Trichlorophenol	Yes - Soil 0-5 ft, Soil >5 ft	GW						All Media	
2-Nitroaniline	Yes - Soil 0-5 ft, Soil >5 ft	GW						All Media	

TABLE 10A
COC SCREENING SUMMARY TABLE
UPRR Houston Wood Preserving Works

1	2	3	4	5	6	7	8	SQL Justifications	
								9	10
Chemical of Concern	All detected concentrations and SQLs < residential assessment level in all sampled media	COC not detected in any sample in the medium	Frequency of detects <5% of the >20 samples in this medium	Common lab contaminant	Blank contaminant	Max conc < background	COC not sourced on-site	All SQLs < RAL	SQL > RAL but justified
	§350.71(k)(1)	§350.71(k)(3)	§350.71(k)(2)	§350.71(k)(2)(B)	§350.71(k)(2)(C)	§350.71(k)(2)(D)	§350.71(k)(2)(E)	§350.71(k)(3)(A)	§350.71(k)(3)(B)
			(A)(i) through (iii)						
Semi-Volatile Organic Compounds (SVOCs) (cont)									
4-Nitroaniline	Yes - Soil 0-5 ft, Soil >5 ft	GW						All Media	
Benzo(b)fluoranthene	No - GW; Yes - Soil 0-5 ft, Soil >5 ft							All Media	
Benzo(g,h,i)perylene	Yes - GW, Soil >5 ft	Soil 0-5 ft						All Media	
Benzo(k)fluoranthene	No - GW; Yes - Soil 0-5 ft, Soil >5 ft							All Media	
bis(2-Chloroethyl)ether	No - Soil 0-5 ft, Soil >5 ft	GW						No - SB - several locations	Used applicable method
bis(2-Chloroisopropyl)ether	Yes - Soil 0-5 ft, Soil >5 ft	GW						All Media	
Carbazole	No - GW; Yes - Soil >5 ft	Soil 0-5ft						All Media	
Dibenzo(a,h)anthracene	No - GW; Yes - Soil 0-5 ft, Soil >5 ft							All Media	
Di-n-octylphthalate	Yes - Soil 0-5 ft	Soil >5 ft						All Media	
Hexachlorobutadiene	Yes - Soil 0-5 ft, Soil >5 ft	GW						All Media	
Indeno(1,2,3-cd)pyrene	No - GW; Yes - Soil >5 ft	Soil 0-5 ft						All Media	

SECTION 11.0 SOIL CRITICAL PCL DEVELOPMENT

The current land use of the Site is commercial/industrial, and will likely remain commercial/industrial land use for the foreseeable future. The off-site adjacent properties consist of residential and commercial/industrial. Therefore, the critical PCL evaluation was conducted using the TCEQ Commercial/Industrial PCLs for both soil and groundwater pathways on site and Residential PCLs for pathways off site. Below is a discussion of the soil critical PCL development.

Section 11.1 Tier 2 or 3 PCL Development and Non-Default Parameters

Tier 2 and 3 Development

Tier 2 ^{GW}Soil PCLs were calculated for COCs in soils in accordance with the Soil-to-Groundwater PCL equations presented in Figure 30 TAC §350.75(b)(1). Tier 2 PCL equations consider the soil leachate to groundwater as the exposure pathway, surface and subsurface soils as the source medium, and groundwater as the exposure medium. Site-specific data (i.e., total fraction organic carbon (foc), bulk density, volumetric water content, volumetric air content, and pH) were collected from soil boring SB-14(5) as discussed in the Revised APAR (ERM, 2004) to evaluate the site-specific soil attenuation model and develop Tier 2 PCLs. The Revised APAR included Tier 2 calculations; however, the site-specific data used for the calculations (i.e. fraction organic carbon) included soil samples collected below the GWBUs. The Tier 2 calculations in this APAR Addendum uses only site-specific data collected from the unsaturated zone rather than data collected from or below the saturated zone.

The thickness of affected soil (L1) and depth from top of affected soil to groundwater (L2) were conservatively assumed to be the same value given the depth of the COCs that exceeded PCLs were detected in some soil samples near the top of the saturated zone. Non-default parameters, default parameters, and Tier 2 PCL calculations are provided in Appendix 9.

Section 11.2 Soil PCL Adjustments

Soil PCL adjustments in accordance with 30 TAC §350.71(k) were evaluated in the Revised APAR (ERM, 2004). Based on that evaluation, no Soil PCL adjustments were necessary for the COCs identified.

Section 11.3 Soil Critical PCLs

The soil critical PCLs were established for the Site by using the lower commercial/industrial PCLs for on-site soils and residential PCLs for off-site soils for the following pathways:

- $^{Tot}Soil_{Comb}$;
- $^{Air}Soil_{Inh\text{-}V}$ (Tier 1 or 2); and
- $^{GW}Soil_{Ing}$ (Tier 1 or 2).

Comparing the maximum surface and subsurface soil analytical data to the critical commercial/industrial PCLs for on-site and residential PCLs for off-site, concentrations of the following COCs exceeded their respective critical PCLs (with the figure showing the distribution of the COC):

On-Site

Surface Soils
- 1,2-Diphenylhydrazine (Figure 4A-1)
- 2,4-Dinitrotoluene (Figure 4A-2)
- 2-Methylnaphthalene (Figure 4A-3)
- Benzene (Figure 4A-4)
- Benzo(a)anthracene (Figure 4A-5)
- Benzo(a)pyrene (Figure 4A-6)
- Dibenzofuran (Figure 4A-7)
- Naphthalene (Figure 4A-9)
- Pentachlorophenol (Figure 4A-10)

Subsurface Soils
- 2-Methylnaphthalene (Figure 4B-2)
- Benzene (Figure 4B-3)
- Naphthalene (Figure 4B-6)
- Pentachlorophenol (Figure 4B-7)

Off-Site

Surface Soils
- Benzo(a)anthracene (Figure 4A-5)
- Benzo(a)pyrene (Figure 4A-6)

Subsurface Soils
- None

Tables 11A-1 and 11A-2 summarize the critical PCL evaluation for surface soils on-site and off-site, respectfully, and Tables 11B-1 and 11B-2 summarize the critical PCL evaluation for subsurface soils on-site and off-site, respectfully. Figures 11A and 11B presents the spatial distribution of the PCLE zone for surface and subsurface soils, respectively. Soil cross sections were prepared showing the PCLE zones (Figures 11C-1 and 11C-2). Figures showing the individual COC PCLE Zones are indicated next to each COC listed above.

The surface soil PCLE zone extends across the Original Process Area (SWMU No. 5) and Recent Process Area (SWMU No. 4), down the SDD (SWMU No. 2), and across the Former Inactive Wastewater Lagoon (AOC No. 6) (Figure 11A). The PCLE zone includes the COCs listed above, with benzo(a)anthracene (Figure 4A-5), benzo(a)pyrene (Figure 4A-6), naphthalene (Figure 4A-9), and pentachlorophenol (Figure 4A-10) being the primary COCs defining the surface soil PCLE zone. Additional sampling will be necessary to delineate the surface soil PCLE zone north of the Site near SB-60 and SB-61.

For subsurface soils, the PCLE zones for 2-methylnaphthalene, naphthalene (more mobile COCs in soils), and pentachlorophenol were extrapolated using available subsurface soil data and applying the surface PCLE zone for those two COCs to the subsurface. By using the surface PCLE zone, this assumes the PCLE zone extends from the surface to the top of the uppermost GWBU (i.e. A-TZ). However, for pentachlorophenol, none of the groundwater samples from the 2009 groundwater monitoring event detected pentachlorophenol concentrations above the RAL, suggesting the concentrations in surface and subsurface soils are protective of groundwater.

The subsurface PCLE zone is confined to the area around the Original and Recent Process Areas (Figure 11B). Prior to any potential response action, additional subsurface samples may be collected to refine the PCLE zone at the Site.

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

11.0 Tables

TABLE 11A-1

SURFACE SOIL CRITICAL PCLS - ON-SITE
UPRR HOUSTON WOOD PRESERVING WORKS

On-Site Surface Soil Critical PCLs

Land use for purpose of critical PCL development: Commercial/industrial

Date of the Tier 1 PCL tables used in the determination of PCLs: March 25, 2009

COC	CAS No.	Source area size (acres)	$^{Tot}Soil_{comb}$ PCL[1]		$^{GW}Soil_{Ing}$ PCL[2]		Ecological PCL		MQL (mg/kg)	Texas-specific Background	SWSoil (mg/Kg)	SedSoil (mg/Kg)	Concentration		Remedy or NFA
			mg/Kg	Tier	(mg/kg)	Tier	0-0.5 ft (mg/Kg)	0.5-5.0 ft (mg/Kg)					Max (mg/Kg)	Rep	
1,2-Diphenylhydrazine	122-66-7	30	2.0E+01	1	5.1E-01	2	NA	NA		NA	NA	NA	1.84	NA	Remedy
2,4-Dinitrophenol	51-28-5	30	1.4E+03	1	1.3E-01	2	NA	NA		NA	NA	NA	<0.0678U	NA	NFA
2,4-Dinitrotoluene	121-14-2	30	2.1E+01	1	4.9E-02	2	NA	NA		NA	NA	NA	0.162	NA	Remedy
2-Methylnaphthalene	91-57-6	30	2.5E+03	1	3.8E+02	2	NA	NA		NA	NA	NA	1300	NA	Remedy
Benzene	71-43-2	30	1.1E+02	1	1.0E-01	2	NA	NA		NA	NA	NA	0.206	NA	Remedy
Benzo(a)anthracene	56-55-3	30	2.4E+01	1	3.0E+02	2	NA	NA		NA	NA	NA	401	NA	Remedy
Benzo(a)pyrene	50-32-8	30	2.4E+00	1	5.7E+01	2	NA	NA		NA	NA	NA	70.62	NA	Remedy
bis(2-Ethylhexyl)phthalate	117-81-7	30	5.6E+02	1	1.2E+03	2	NA	NA		NA	NA	NA	<165U	NA	NFA
Dibenzofuran	132-64-9	30	2.7E+03	1	7.4E+02	2	NA	NA		NA	NA	NA	1100	NA	Remedy
Fluoranthene	206-44-0	30	2.5E+04	1	4.3E+04	2	NA	NA		NA	NA	NA	2990	NA	NFA
Naphthalene	91-20-3	30	1.9E+02	1	6.8E+02	2	NA	NA		NA	NA	NA	3900	NA	Remedy
Pentachlorophenol	87-86-5	30	1.1E+02	1	1.2E-01	2	NA	NA		NA	NA	NA	3.13	NA	Remedy
Phenanthrene	85-01-8	30	1.9E+04	1	9.3E+03	2	NA	NA		NA	NA	NA	4100	NA	NFA

Notes:

1. Critical PCL =
2. Maximum surface soil concentration exceeding critical PCL =
3. No affected off-site surface soil.
4. NFA = No further action. NA = Not applicable.
5. Surface soil is defined under TRRP as 0-5 ft bgs for industrial land use.

TABLE 11A-2

SURFACE SOIL CRITICAL PCLS - OFF-SITE
UPRR HOUSTON WOOD PRESERVING WORKS

Off-Site Surface Soil Critical PCLs

Land use for purpose of critical PCL development: Residential

Date of the Tier 1 PCL tables used in the determination of PCLs: March 25, 2009

COC	CAS No.	Source area size (acres)	$^{Tot}Soil_{comb}$ PCL[1]		$^{GW}Soil_{Ing}$ PCL[2]		Ecological PCL		MQL (mg/kg)	Texas-specific Background	SWSoil (mg/Kg)	SedSoil (mg/Kg)	Concentration		Remedy or NFA
			mg/Kg	Tier	(mg/kg)	Tier	0-0.5 ft (mg/Kg)	0.5-5.0 ft (mg/Kg)					Max (mg/Kg)	Rep	
Benzo(a)anthracene	56-55-3	30	5.6E+00	1	1.3E+02	2	NA	NA		NA	NA	NA	15.3	NA	Remedy
Benzo(a)pyrene	50-32-8	30	5.6E-01	1	5.7E+01	2	NA	NA		NA	NA	NA	23.2	NA	Remedy
Pentachlorophenol	87-86-5	30	2.4E+00	1	1.2E-01	2	NA	NA		NA	NA	NA	0.037	NA	NFA

Notes:

1. Critical PCL =
2. Maximum surface soil concentration exceeding critical PCL =
3. No affected off-site surface soil.
4. NFA = No further action. NA = Not applicable.
5. Surface soil is defined under TRRP as 0-15 ft bgs for residential land use.

TABLE 11B-1

SUBSURFACE SOIL CRITICAL PCLS - ON-SITE
UPRR HOUSTON PRESERVING WORKS, HOUSTON, TEXAS

On-Site Subsurface Soil Critical PCLs

Land use for purpose of critical PCL development: Commercial/industrial

Date of the Tier 1 PCL tables used in the determination of PCLs: March 25, 2009

Chemical of Concern	CAS No.	$^{Air}Soil_{Inh-V}$ PCL (mg/kg)	Tier	Source area size (acres)	$^{GW}SOIL_{Ing}$ PCL (mg/kg)	Tier	Source area size (acres)	Laboratory MQL (mg/kg)	Texas-specific Background (mg/kg)	Maximum Concentration (mg/kg)	Remedy or NFA
2,4-Dimethylphenol	105-67-9	3.6E+03	1	30	5.3E+01	2	30		NA	25	NFA
2-Methylnaphthalene	91-57-6	---	1	30	3.8E+02	2	30		NA	1,700	Remedy
Benzene	71-43-2	1.4E+02	1	30	1.0E-01	2	30		NA	1.1	Remedy
Benzo(a)pyrene	50-32-8	7.3E+02	1	30	5.7E+01	2	30		NA	6.27	NFA
Dibenzofuran	132-64-9	---	1	30	7.4E+02	2	30		NA	270	NFA
Naphthalene	91-20-3	1.9E+02	1	30	6.8E+02	2	30		NA	17,000	Remedy
Pentachlorophenol	87-86-5	2.3E+02	1	30	1.2E-01	2	30		NA	0.25	Remedy

Notes:

1. Critical PCL =
2. Maximum subsurface soil concentration exceeding critical PCL =
3. No affected off-site subsurface soil.
4. NFA = No further action. NA = Not applicable.
5. Subsurface soil is defined under TRRP as >5 ft bgs to the top of the uppermost water-bearing unit (A-TZ).

TABLE 11B-2

SUBSURFACE SOIL CRITICAL PCLS - OFF-SITE
UPRR HOUSTON PRESERVING WORKS, HOUSTON, TEXAS

Off-Site Subsurface Soil Critical PCLs

Land use for purpose of critical PCL development: Residential

Date of the Tier 1 PCL tables used in the determination of PCLs: March 25, 2009

Chemical of Concern	CAS No.	$^{Air}Soil_{Inh-V}$ PCL (mg/kg)	Tier	Source area size (acres)	$^{GW}SOIL_{Ing}$ PCL (mg/kg)	Tier	Source area size (acres)	Laboratory MQL (mg/kg)	Texas-specific Background (mg/kg)	Maximum Concentration (mg/kg)	Remedy or NFA
2,4-Dimethylphenol	105-67-9	2.6E+03	1	30	5.3E+01	2	30	0.031	NA	<0.031U	NFA
2-Methylnaphthalene	91-57-6	---	1	30	3.8E+02	2	30	0.022	NA	<0.022U	NFA
Benzene	71-43-2	8.4E+01	1	30	1.0E-01	2	30	0.006	NA	<0.006	NFA
Benzo(a)pyrene	50-32-8	4.4E+02	1	30	5.7E+01	2	30	0.009	NA	<0.009U	NFA
Dibenzofuran	132-64-9	---	1	30	7.4E+02	2	30	0.019	NA	<0.019U	NFA
Naphthalene	91-20-3	1.4E+02	1	30	6.8E+02	2	30	0.002	NA	0.0252	NFA

Notes:

1. Critical PCL =
2. Maximum subsurface soil concentration exceeding critical PCL =
3. No affected off-site subsurface soil.
4. NFA = No further action. NA = Not applicable.
5. Subsurface soil is defined under TRRP as >5 ft bgs to the top of the uppermost water-bearing unit (A-TZ).

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

UPRR Houston Wood Preserving Works
Houston, Texas

11.0 Figures

EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- A-TZ Monitoring Well Location
- B-TZ Monitoring Well Location
- C-TZ Monitoring Well Location
- D-TZ Monitoring Well Location
- A-TZ Temporary Monitoring Well Location
- CPT with Rost Location
- CPT Location
- Hydropunch Sample Location
- Soil Boring Location
- A A' Soil Cross Section Location (Figures 11C-1 and 11C-2)
- Surface Affected Property
- Surface PCLE Zone

Note:
* Soil analytical data rejected by validator.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No, 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

N

Scale in Feet
0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 11A

SURFACE SOIL COC PCLE ZONE MAP

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

- UPRR Property Boundary
- Historic Structure and Feature
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- A-TZ Monitoring Well Location
- B-TZ Monitoring Well Location
- C-TZ Monitoring Well Location
- D-TZ Monitoring Well Location
- A-TZ Temporary Monitoring Well Location
- CPT with Rost Location
- CPT Location
- Hydropunch Sample Location
- Soil Boring Location
- A A' Soil Cross Section Location (Figures 11C-1 and 11C-2)
- Subsurface Affected Property
- Subsurface PCLE Zone

Note:
* Soil analytical data rejected by validator.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
SWMU 2	Northern and Southern Drainage Ditches
SWMU 4	Recent Process Area
SWMU 5	Orignal 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 Former UST No, 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No, 44-023-21

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

N

Scale in Feet
0 200 400

SOURCE:
Base map from ERM-Southwest, Inc APAR Addendum, Fig 3-1, dated June 2004.

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 11B

SUBSURFACE SOIL COC PCLE ZONE MAP

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

EXPLANATION

Transmissive Zone (TZ): Sand & Silty Sand

Cohesive Zone (CZ): Clay, Silty Clay & Silt

Surface PCLs

Parameter	RAL (mg/Kg)	cPCL (mg/Kg)
1,2-Dichloroethane	0.105	0.105
2,4-Dimethylphenol	0.022	0.049
2-Methylnaphthalene	127	378
Benzene	0.105	0.105
Benzo(a)anthracene	5.645	23.6
Benzo(a)pyrene	0.564	2.368
Dibenzofuran	249	744
Naphthalene	124	190
Pentachlorophenol	0.124	0.124
Phenanthrene	1705	9282

Subsurface PCLs

Parameter	RAL (mg/Kg)	cPCL (mg/Kg)
2,4-Dimethylphenol	17.7	52.7
2-Methylnaphthalene	126.65	378
Benzene	0.105	0.105
Benzo(a)pyrene	57.3	57.3
Dibenzofuran	249	744
Naphthalene	138	193

Surface and Subsurface Soils Affected Property/ PCLE Zone

Notes:
1. Topography is estimated.
2. See Figure 11A and 11B for cross section location.
3. Concentration are in mg/Kg.
4. Highlighted concentrations exceed RALs.
5. Utility locations based on drawings provided by the City of Houston Department of Public Works & Engineering.
6. Vertical datum based on City of Houston Monument System (HVD), Ft HVD.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21

Vertical Exaggeration 8X

80 0 80 80

scale in feet

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

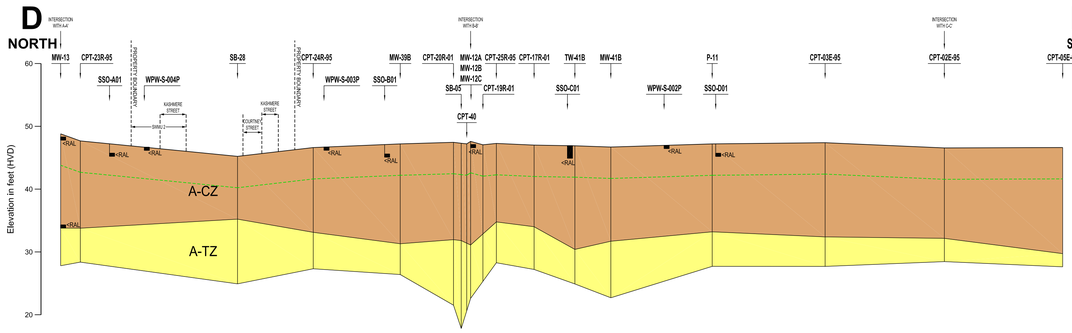
Figure 11C-1

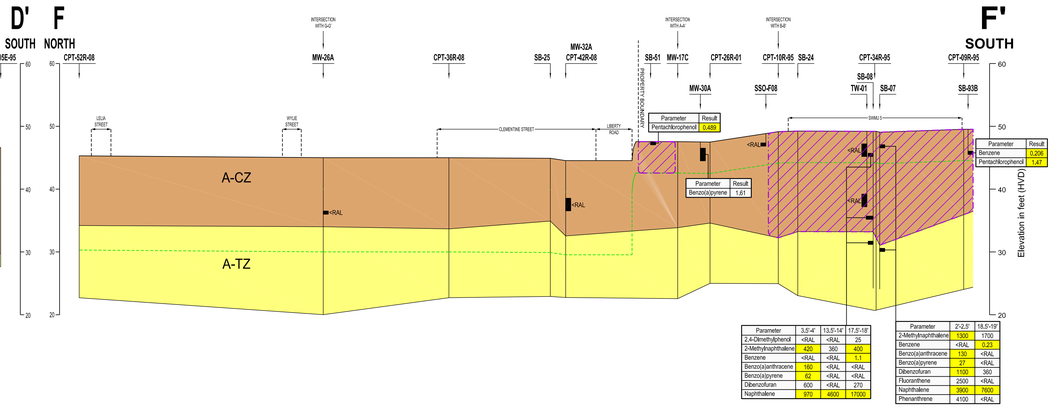
SOIL CROSS SECTIONS A-A', B-B' & C-C'

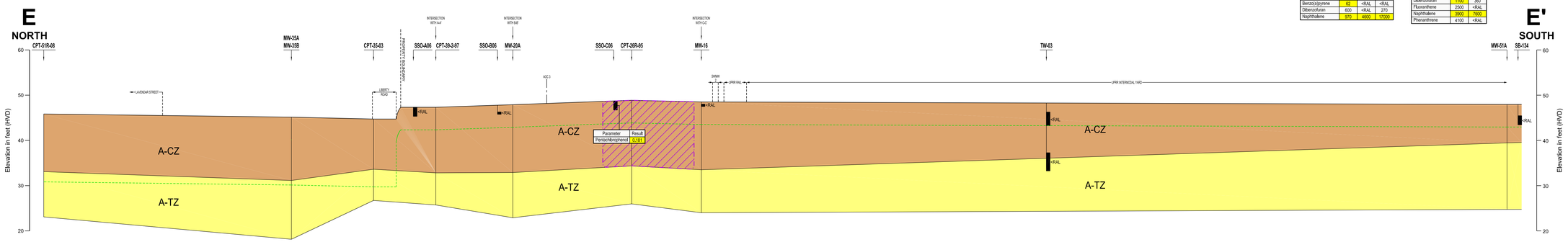
PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

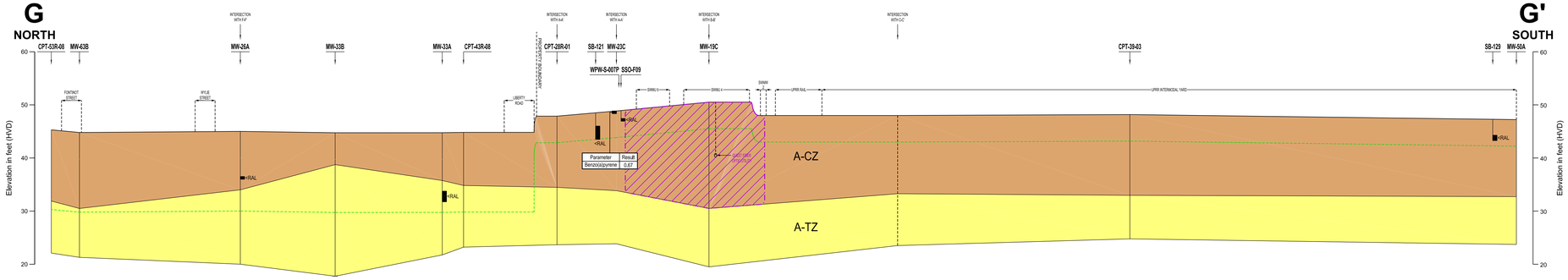
PASTOR, BEHLING & WHEELER, LLC

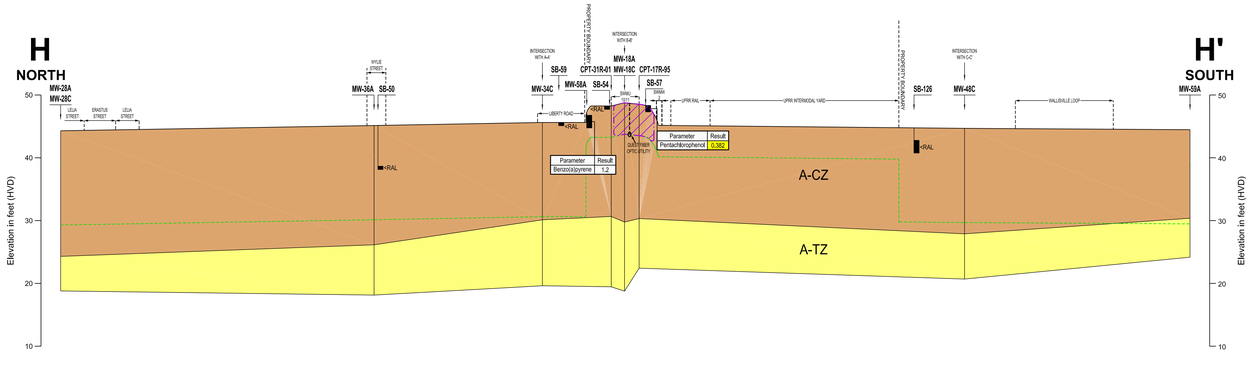
CONSULTING ENGINEERS AND SCIENTISTS











EXPLANATION

Transmissive Zone (TZ): Sand & Silty Sand

Cohesive Zone (CZ): Clay, Silty Clay & Silt

Surface PCLs

Parameter	RAL (mg/Kg)	cPCL (mg/Kg)
1,2-Dichloroethane	0.105	0.105
2,4-Dimethylphenol	0.022	0.549
2-Methylnaphthalene	127	378
Benzene	0.105	0.105
Benzo(a)anthracene	0.645	23.6
Benzo(a)pyrene	0.564	2.368
Dibenzofuran	249	744
Naphthalene	124	160
Pentachlorophenol	0.124	0.124
Phenanthrene	1705	9282

Subsurface PCLs

Parameter	RAL (mg/Kg)	cPCL (mg/Kg)
2,4-Dimethylphenol	17.7	32.7
2-Methylnaphthalene	126.65	378
Benzene	0.105	0.105
Benzo(a)pyrene	57.3	57.3
Dibenzofuran	249	744
Naphthalene	138	193

Surface and Subsurface Soils Affected Property/ PCLE Zone

Notes:
1. Topography is estimated.
2. See Figure 11A and 11B for cross section location.
3. Concentration are in mg/Kg.
4. Highlighted concentrations exceed RALs.
5. Utility locations based on drawings provided by the City of Houston Department of Public Works & Engineering.
6. Vertical datum based on City of Houston Monument System (HVD), Ft HVD.

SWMU/AOC AREAS

No.	Description
SWMU 1	Closed Surface Impoundment
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 Former UST No, 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No, 44-023-21

Vertical Exaggeration 8X

80 0 80 160

scale in feet

UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Figure 11C-2

SOIL CROSS SECTIONS D-D', E-E', F-F', G-G, & H-H'

PROJECT: 1358	BY: ZGK	REVISIONS
DATE: JUNE, 2009	CHECKED: ECM	

PASTOR, BEHLING & WHEELER, LLC

CONSULTING ENGINEERS AND SCIENTISTS

SECTION 12.0 GROUNDWATER CRITICAL PCL DEVELOPMENT

The land use is and will likely remain commercial/industrial for the foreseeable future. However, with residential properties around the Site and apparent groundwater impacts above PCLs off-site, the critical PCL evaluation was conducted using the more conservative TCEQ Residential PCLs for groundwater pathways. Response actions, which will be detailed in the RAP, will be designed to address PCLE zones based on land use (i.e., commercial/industrial PCLs for on-site PCLE zone). A discussion of the groundwater critical PCL development is presented below.

Section 12.1 Tier 2 or 3 PCL Development and Non-Default Parameters

No Tier 2 or 3 PCLs were developed for groundwater at this Site, and no non-default affected property parameters were used for the groundwater evaluation of this Site.

Section 12.2 Groundwater PCL Adjustments

Using the January-February 2009 groundwater data and data from the test well TW-02, 21 groundwater COCs that were not screened from further PCL evaluation (detailed in Section 10.0) were detected above RALs. These RAL exceedances included nine noncarcinogenic COCs, six carcinogenic COCs, and six COCs with EPA Maximum Contaminant Levels (MCLs) (Table 12A). In accordance with 30 TAC §350.72(b)(1), COCs with MCLs are excluded from the cumulative evaluation. Therefore, since less than 10 noncarcinogenic and 10 carcinogenic COCs were detected above RALs, no cumulative adjustment is necessary for PCL development for groundwater pathways.

Section 12.3 Groundwater Critical PCLs

Groundwater analytical data were compared to the TCEQ TRRP Residential Groundwater PCLs, dated March 2009, assuming the source area greater than 0.5 acre in size (30-acre source area). Critical PCLs were established as the lesser value between residential $^{GW}GW_{Ing}$ and $^{Air}GW_{Inh\text{-}V}$ PCLs. The January-February 2009 groundwater analytical data and CPT Hydropunch groundwater data collected in August 2008 were

evaluated for establishing the groundwater PCLE zone. These analytical data are the most representative groundwater data for the Site. Of the site-specific COCs analyzed in groundwater, concentrations of 17 target COCs exceeded their respective critical PCLs (cPCLs):

VOCs
- Benzene
- Dichloromethane
- Toluene

SVOCs
- 2,4-Dimethylphenol
- 2-Methylnaphthalene
- Acenaphthene
- Benz(a)anthracene
- Benzo(a)pyrene
- Bis(2-ethylhexyl)phthalate
- Chrysene
- Dibenzofuran
- Fluoranthene
- Fluorene
- Naphthalene
- Pentachlorophenol
- Phenanthrene
- Pyrene

The list of COCs that exceed their respective critical PCLs is provided on Table 12A. None of the COCs exceeding the critical PCLs that were not screened out (Section 10) were detected in D-TZ above the critical PCL, except for bis(2-ethylhexyl)phthalate, which is a common laboratory contaminant. The spatial distribution of the PCLE zones in A-TZ, B-TZ, C-TZ, and D-TZ are presented on Figures 5B-1 through 5B-4, respectively, and cross sections showing the PCLE zones are provided on Figures 4C-1 through 4C-4, respectively. The PCLE zone for each transmissive zone is discussed below.

Transmissive Zone A-TZ

Site-related COCs that exceed cPCLs in the A-TZ are defined by monitoring wells MW-13 and MW-38A to the west; MW-13, MW-35A, MW-26A, MW-33A, MW-36A, MW-44A, and MW-25A to the north (off-site); MW-59A, MW-60A, and MW-61A to the east (off-site); and MW-50A, MW-51A to the south (on site) (Figure 5B-1). The primary COCs in the A-TZ that define the PCLE zone include benzene, PAHs (naphthalene, 2-methylnaphthalene), and dibenzofuran. Other COCs are present within the PCLE zone, but not as prevalent as those listed. The highest COC concentrations are generally near the Original Process Area (SWMU No. 5) and Recent Process Area (SWMU No. 4), as well as the AST Area (SMWNU No. 8), where LNAPL was observed (TW-02).

The PCLE zone extends off site to the north at MW-32A, where DNAPL is present. This well may be completed across the thin fracture zone or carbonate nodule zone within the B-CZ, where MW-33B and MW-35B are completed. Seven additional A-TZ monitoring wells located in the residential area north of the Site show COC concentrations below RALs and cPCLs. The PCLE zone extends downgradient to the Lockwood Street overpass on the east end of the Site. COCs do not appear to extend beyond the City of Houston ROW for Lockwood Street (Figure 5B-1).

There are no RAL exceedances near the SWMU No. 1 in the A-TZ. Downgradient monitoring wells MW-22A, MW-64A, and MW-24AR had COC concentrations less than RALs, indicating that previous contamination observed near SWMU No. 1 has attenuated to levels protective of human health.

Transmissive Zone B-TZ/Cohesive Zone B-CZ

There are two PCLE zones within the B-TZ and B-CZ (Figure 5B-2): 1) one near the west end of the Site within the B-TZ centered around monitoring wells MW-12B, MW-40B, and MW-41B, and defined by MW-14, MW-38B, MW-39B, and P-11; and 2) a PCLE zone within the B-CZ around wells MW-33B (GW_{Class3}) and MW-35B, and defined by hydropunch samples CPT-50R-08, CPT-51R-08, MW-63B (GW_{Class3}), and MW-49B (GW_{Class3}). As discussed in Section 2.5, the B-CZ where monitoring wells MW-33B, MW-49B, and MW-63B are installed was classified as a Class 3 groundwater resource.

The B-TZ PCLE zone appears to be a result of the DNAPL in and around MW-12B and MW-41B. However, dissolved-phase COCs from the DNAPL attenuates within 50 to 100 feet of wells containing DNAPL. As noted in Section 5.2, the DNAPL evaluated from MW-12B contained more heavy carbon fractions (C_{15}-C-$_{28}$) compared to other DNAPL evaluated at the Site. In addition, the viscosity of the DNAPL from MW-12B was 192 centipoises, indicating a relatively thick fluid. These properties likely limit the migration potential for the DNAPL in the area, as supported by the monitoring well data.

The PCLE zone within the B-CZ is based on $^{GW}GW_{Ing}$ PCLs for Class 2 groundwater at MW-35B, and $^{GW}GW_{Class3}$ PCLs for Class 3 groundwater at MW-33B, MW-63, and MW-49B (details discussed in Section 2.5). As shown on Figure 5B-2, the highest concentrations in the B-CZ are centered around off-site monitoring well MW-33B where DNAPL was encountered. COCs detected in these wells are similar to the wells completed in the transmissive zones, with 2-methylnaphthalene, benzene, dibenzofuran, and naphthalene being the main COCs exceeding cPCLs. Concentrations observed in these wells do not exceed

the $^{Air}GW_{Inh-V}$ pathway; therefore, with no users of this zone for groundwater, there is no complete pathway to this PCLE zone.

Transmissive Zone C-TZ

The C-TZ PCLE zone extends off-site to the northeast from MW-54C to the southwest on site at MW-17C; and is defined by wells MW-27C upgradient, MW-28C, MW-53C and CPT-54R-08 to the north, MW-19C, MW-47C and MW-48C to the south, and MW-15C and MW-21C downgradient to the southwest (Figure 5B-3). The highest COC concentrations detected in the C-TZ are at MW-18C and MW-21C, where along with MW-25C, MW-34C, MW-44C, MW-45C, and MW-46C (off-site wells), DNAPL was present during the February 2009 sampling event.

Transmissive Zone D-TZ

The only COC that exceeded a cPCL in the D-TZ was bis(2-ethylhexyl)phthalate at a concentrations of 0.0064 mg/L (cPCL is 0.006 mg/L). As discussed in Section 10.0, bis(2-ethylhexyl)phthalate is a common laboratory contaminant, and has a high absorption coefficient. It is highly unlikely that the concentration detected in MW-66D is a result of groundwater migration, but rather a false positive from a sampling or laboratory bias.

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UPRR Houston Wood Preserving Works
Houston, Texas

12.0 Tables

TABLE 12A

GROUNDWATER CRITICAL PCLS - FULL PLUME POE

UPRR Houston Wood Preserving Works, Houston, TX

Land use for purpose of critical PCL development: Residential

Date of the Tier 1 PCL tables used in the determination of PCLs: March 25, 2009

Chemical of Concern	CAS No.	$^{GW}GW_{Ing}$ PCL		$^{Air}GW_{Inh-V}$ PCL		Ecological PCL for Groundwater		Laboratory MQL	Background	Maximum Concentration	Remedy or NFA
		(mg/L)	Tier	(mg/L)	Tier	(mg/L)	Tier	(mg/L)	(mg/L)	(mg/L)	
2,4-Dimethylphenol	105-67-9	4.9E-01	1	2.1E+04	1	NA	NA		NA	6.8	Remedy
2-Methylnaphthalene	91-57-6	9.8E-02	1	---	1	NA	NA		NA	2.6	Remedy
Acenaphthene	83-32-9	1.5E+00	1	---	1	NA	NA		NA	3.4	Remedy
Benz(a)anthracene	56-55-3	1.3E-03	1	2.6E+02	1	NA	NA		NA	0.31	Remedy
Benzene	71-43-2	5.0E-03	1	2.3E+01	1	NA	NA		NA	2.4	Remedy
Benzo(a)pyrene	50-32-8	2.0E-04	1	5.0E+01	1	NA	NA		NA	0.072	Remedy
Bis(2-ethylhexyl)phthalate	117-81-7	6.0E-03	1	---	1	NA	NA		NA	0.0064*	NFA
Chrysene	218-01-9	1.3E-01	1	7.5E+04	1	NA	NA		NA	0.28	Remedy
Dibenzofuran	132-64-9	9.8E-02	1	---	1	NA	NA		NA	3.5	Remedy
Dichloromethane	75-09-2	5.0E-03	1	1.6E+02	1	NA	NA		NA	0.0096	Remedy
Fluoranthene	206-44-0	9.8E-01	1	---	1	NA	NA		NA	3	Remedy
Fluorene	86-73-7	9.8E-01	1	---	1	NA	NA		NA	2.5	Remedy
Naphthalene	91-20-3	4.9E-01	1	4.1E+01	1	NA	NA		NA	21	Remedy
Pentachlorophenol	87-86-5	1.0E-03	1	1.7E+03	1	NA	NA		NA	0.026	Remedy
Phenanthrene	85-01-8	7.3E-01	1	---	1	NA	NA		NA	8.8	Remedy
Pyrene	129-00-0	7.3E-01	1	---	1	NA	NA		NA	1.6	Remedy
Toluene	108-88-3	1.0E+00	1	8.2E+03	1	NA	NA		NA	1.1	Remedy

Notes:

1. Critical PCL =
2. Maximum groundwater concentration exceeding critical PCL =
3. NFA = No further action. NA = Not applicable.
4. * - Suspected laboratory contaminant

APPENDICES

AFFECTED PROPERTY ASSESSMENT REPORT ADDENDUM

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Houston, Texas

Appendices

APPENDIX 2
BORING LOGS AND MONITORING WELL COMPLETION DETAILS

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Boring Logs and Monitoring Well Completion Details

APPENDIX 3
MONITOR WELL DEVELOPMENT AND PURGING DATA

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APPENDIX 5
WATER WELL RECORDS

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APPENDIX 6
MONITORING WELL RECORDS

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APPENDIX 7
AQUIFER TESTING DATA

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APPENDIX 9
DEVELOPMENT OF NON-DEFAULT RBELS AND PCLS

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APPENDIX 10
LABORATORY DATA PACKAGES AND DATA USABILITY SUMMARY

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APPENDIX 11
MISCELLANEOUS ASSESSMENT

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Appendix 11

RCRA Facility Assessment Report, October 1993 (PRC, 1993)

NAPL Fluid Property Testing Results (2007, 2008)

APPENDIX 12
WASTE CHARACTERIZATION AND DISPOSITION DOCUMENTATION

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APPENDIX 13
PHOTOGRAPHIC DOCUMENTATION

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APPENDIX 16
REFERENCE LIST

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