

Texas Commission on Environmental Quality
Remediation Division Correspondence Identification Form

SITE & PROGRAM AREA IDENTIFICATION			
SITE LOCATION		REMEDATION DIVISION PROGRAM AND FACILITY IDENTIFICATION	
Site Name:		Is This Site Being Managed Under A State Lead Contract? Yes No	
Address 1:		Program Area:	
Address 2:		Mail Code:	
City:	State: Texas	Is This A New Site To This Program Area? Yes No	
Zip Code:		County:	Additional Information:
TCEQ Region:		Additional Information:	

DOCUMENT(S) IDENTIFICATION	
PHASE OF REMEDIATION	DOCUMENT NAME
1.	
2.	
3.	
4.	
5.	

CONTACT INFORMATION					
I attest that all work has been done in accordance with TCEQ rules	I certify that I am aware misrepresentation of any claim is a violation.				
RESPONSIBLE PARTY/APPLICANT/CUSTOMER INFORMATION (IF APPLICABLE)					
ENVIRONMENTAL CONSULTANT/REPORT PREPARER/AGENT					
SIGNATURES					

DATABASE CODES			
Document No.	TCEQ Database Term	Document No.	TCEQ Database Term
1.		4.	
2.		5.	
3.			

March 29, 2021

Project No. 19119232

Ms. Maureen Hatfield

Texas Commission on Environmental Quality
MC-127
VCP-CA Section, Team 1, Remediation Division
P.O. Box 13087
Austin, Texas 78711-3087

**RE: POST-RESPONSE ACTION COMPLETION REPORT – 2020
UNION PACIFIC RAILROAD HOUSTON WOOD PRESERVING WORKS, HOUSTON, TEXAS
4910 LIBERTY ROAD, HOUSTON, HARRIS COUNTY, TEXAS
TCEQ SWR NO. 31547; TCEQ PERMIT/COMPLIANCE PLAN NO. 50343EPA ID NO. TXD000820266
CUSTOMER NO. CN600131098; REGULATED ENTITY NO. RN100674613**

Dear Ms. Hatfield:

Golder Associates, Inc. (Golder), on behalf of Union Pacific Railroad Company (UPRR), is pleased to provide the attached electronic version of the Post-Response Action Completion Report (PRACR) for 2020 for the above referenced site for your review. If you have any questions or need additional information, please feel free to call me at (512) 671-3434 or Mr. Kevin Peterburs of UPRR at (414) 267-4164.

Sincerely,

Golder Associates Inc.



Eric C. Matzner, P.G.
Program Leader/ Principal

ECM

CC: Mr. Kevin Peterburs, UPRR – Milwaukee, WI
Ms. Alma Jefferson, Waste Section Manager, TCEQ Region 12 Office,
Houston

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY Post-Response Action Care Report (PRACR)

Cover Page

Submittal date: March 29, 2021 Regulatory ID No.: SWR 31547 TCEQ Region No.: 12

TCEQ Program (check one)

<input checked="" type="checkbox"/>	Corrective Action (Mail Code 127)	<input type="checkbox"/>	Superfund PRP Lead (Mail Code 143)
<input type="checkbox"/>	Voluntary Cleanup Program (Mail Code 221)	<input type="checkbox"/>	Municipal Solid Waste Permits (Mail Code 124)
<input type="checkbox"/>	Petroleum Storage Tank Program (Mail Code 137)		

On-Site Property Information

On-Site Property Name: Union Pacific Railroad Houston Wood Preserving Works Site

Physical Address:

Street no. 4910 Pre dir: Street name Liberty Street type: Rd Post dir:

City: Houston County: Harris County Code: 101 Zip: 77026

Nearest street intersection or location description: Site is located south of Liberty Rd. between Kashmere and Lockwood St., and north of Lee St.

Latitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) North 29.787413

Longitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) West 95.321062

Off-Site Affected Property Information

Off-Site Affected Property Name:

Physical Address:

Street no. Pre dir: Street name: Street type: Post dir:

City: County: County Code: Zip:

Check if no off-site properties affected

Contact Person Information and Acknowledgement

Person (or company) Name: Union Pacific Railroad


Contact Person: Kevin Peterburs Title: Manager, Site Remediation

Mailing Address: 4823 N 119th Street

City: Milwaukee State: WI Zip: 53225 E-mail address kjpeterb@up.com

Phone: 414-267-4164 Fax:

By my signature below, I acknowledge the requirement of 30 TAC §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 civil, criminal, or administrative penalties.

Signature of Person  Name, print: Kevin Peterburs Date: 3/29/21

PRACR Executive Summary	ID No: SWR No. 31547
	Report Date: March 29, 2021

Affected Property Name/Number: UPRR Houston Wood Preserving Works Site

Date of RAP approval: Pending RCRA Permit Renewal approval (RAP Rev 5 submitted August 31, 2020; Rev 6 submitted October 26, 2020; Rev 7 submitted January 15, 2021)

Date of RACR approval: Pending RCRA Permit approval (RAP Rev 5 submitted August 31, 2020; Rev 6 submitted October 26, 2020; Rev 7 submitted January 15, 2021)

Length of approved PRAC period (default 30 yrs.): Pending RCRA Permit Renewal approval

Check if this is the final report
 If this is the final report, provide documentation in Worksheet 4.0 that the applicable provisions of §350.33(i) have been met.

This reporting period: Start date: January 1, 2020 End date: December 31, 2020

On-site land use for basis of RACR approval Residential Commercial/industrial
 Current on-site land use classification: Residential Commercial/industrial

During this reporting period, have there been any unexpected events or new conditions at the affected property that required an additional response action? Yes No

If yes, provide a brief explanation:

Concrete Cap Area – Englewood Intermodal (IM) Yard:
 During weekly inspections, small amounts of tar-like material were noted and recovered in 2020 in the A and B rows. During the week of July 13, 2020, Golder, on behalf of UPRR, coordinated with a remediation contractor (UPRR contractor United States Environmental Services (USES)) to excavate seven test pits in areas where historical NAPL seeps had been observed in the Englewood Intermodal Yard (Test Pits (TP) TP-01 (Slot B108), TP-02 (Slot A098), TP-03 (Slot B096), TP-04 (Slot B057), TP-05 (Slot A021), TP-06 (Slot B013), and TP-07 (Slot A010) (see Figure 1). Each test pit was dug to approximately 4 feet below ground surface and was approximately 5 feet long by 2 feet wide. The objectives for conducting the test pit excavations were to:

- Evaluate the NAPL in the subsurface immediately below where the small NAPL surface seeps are located;
- Evaluate areas where brown water seeps had been observed, and:
- Assess if the NAPL surface seeps return following removal of the NAPL in the shallow subsurface at the test pit locations.

The test pits were excavated, left open for a few hours (or overnight), inspected for mobile NAPL entering into the test pit excavation, and backfilled and covered with a concrete patch. Soil samples were also collected from one of the sidewalls of each test pit. Since the excavation and backfilling of the test pits (July 13-16) through the December 2020 inspection, no NAPL seeps have been observed at the test pits locations. Golder, on behalf of UPRR, will prepare the Englewood IM Yard Test Pit Evaluation Report of the test pit findings including weekly inspections for submittal to the TCEQ following the pilot test period specified in the Response Action Plan (RAP) (August 31, 2020).

Similar to observations made in 2019 in the Englewood IM Yard area, brown staining with

PRACR Executive Summary

ID No: SWR No. 31547

Report Date: March 29, 2021

areas of brown standing water were observed along asphalt joints and cracks in the pavement in A and B rows (predominately in the B090 – B098 area) on March 27, 2020, April 28, 2020, and May 2020. The most extensive staining was observed on May 12, 2020 and May 19, 2020. On May 14, 2020 and May 22, 2020, USES was called to the Site to pressure wash the areas and collect the fluids, which were placed in a tote on site. Little to no water has been observed during weekly inspections since May 2020. UPRR is continuing to evaluate possible sources of the seep water and potential responses to address surfacing of the water.

If physical control inspection occurred during this reporting period, what is the status of the physical control?

Quarterly inspections were conducted of the five main cap areas on January 21, April 28, July 23, and October 15, 2020. The following observations were made of the five capped areas:

- Soil Cap –The soil cap area continues to function as designed with minor bare spots (noted during each Quarterly Inspection). Various vegetation provided good coverage across the soil cap area. UPRR will continue to monitor these areas.
- Concrete Sidewalk Cap – The sidewalk cap area in the City of Houston right-of-way (ROW) appeared to be in good condition during the quarterly inspections and is functioning as intended. The only maintenance that occurred in this area throughout 2020 was routine mowing of vegetation.
- Asphalt Road Cap – The asphalt road cap appeared to be in good condition and functioning as designed. A small oil stain, which was noted during inspections in 2017 through 2020, did not appear to expand in size based compared to the previous inspections.
- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition, with some vegetation growth within the ballast area. Some areas of exposed soils were noted in the 3rd and 4th quarter 2020 which will be addressed during a planned construction project in 2021. UPRR will continue to remove and control the vegetation within the railroad ballast cap area as needed.
- Concrete Cap (Englewood IM Yard) – The concrete cap area in the Englewood IM Yard continues to function as intended. Response actions (i.e., NAPL Collection System and test pits) for the areas where the tar-like substance has seeped to the surface and the brown water surfacing (spring/summer only) are being evaluated. Weekly inspections of these areas within the concrete cap area continue to be conducted.

Have any changes occurred in the person's status during this reporting period to warrant changes in the financial assurance for this affected property? (For example, a change in "small business" status as defined in §350.33(n)(2).)

___ Yes X No

If yes, describe the changes that occurred and the changes in financial assurance that have been or will be taken.

Checklist for Report Completeness

ID No. SWR No. 31547

Report Date: March 29, 2021

Checklist for Report Completeness

Use this checklist to determine the portions of the form that must be submitted for this report. Answer all questions by checking Yes or No. If the answer is Yes, include that portion of the report. If the answer is No, do not complete or submit that portion of the report. All form contents that are marked "Required" must be submitted. Form contents marked with an asterisk (*) are not included in the blank form and are to be provided by the person.

Report Contents

		Required	Cover Page	<input checked="" type="checkbox"/>
		Required	Executive Summary	<input checked="" type="checkbox"/>
		Required	Checklist for Report Completeness	<input checked="" type="checkbox"/>
No <input checked="" type="checkbox"/>	Has COC concentration monitoring been conducted? <i>This PRACR is only for the post-response action for soils.</i>	<input type="checkbox"/> Yes	Worksheet 1.0 Monitoring Activities	<input type="checkbox"/>
			Attachment 1A* Monitoring Locations Map	<input type="checkbox"/>
No <input checked="" type="checkbox"/>	Have groundwater elevation measurements been taken? <i>This PRACR is only for the post-response action for soils.</i>	<input type="checkbox"/> Yes	Attachment 1B* Groundwater Gradient Maps	<input type="checkbox"/>
No <input type="checkbox"/>	Is a physical control present?	<input checked="" type="checkbox"/> Yes	Worksheet 2.0 Physical Control Inspection, Operation, and Maintenance	<input checked="" type="checkbox"/>
No <input checked="" type="checkbox"/>	Is monitoring being performed? <i>This PRACR is only for the post-response action for soils.</i>	<input type="checkbox"/> Yes	Worksheet 3.0 COC Status	<input type="checkbox"/>
			Attachment 3A* Time Series Graphs	<input type="checkbox"/>
			Attachment 3B* Concentration versus Distance Graphs	<input type="checkbox"/>
			Attachment 3C* PCLE Zone Maps and Cross Sections	<input type="checkbox"/>
			Attachment 3D* Data Summary	<input type="checkbox"/>
No <input checked="" type="checkbox"/>	Is this the final report? ¹	<input type="checkbox"/> Yes	Worksheet 4.0 Response Action Objectives	<input type="checkbox"/>
No <input checked="" type="checkbox"/>	Is monitoring being performed? <i>This PRACR is only for the post-response action for soils.</i>	<input type="checkbox"/> Yes	Appendix 1* Analytical Data	<input type="checkbox"/>
			Appendix 2* Disposition of Derived Waste	<input type="checkbox"/>
		Required	Appendix 3* Chronology	<input checked="" type="checkbox"/>

¹ See §350.33(i) to see if conditions are met to justify termination of post-response action care.

Complete this worksheet if a physical control is used as part of the response action.

Provide a detailed description of post-response action care activities during this reporting period related to the inspection, operation, and maintenance of physical controls during this reporting period. Specifically note any differences from the plan documented in the approved RAP and the justification for the variances.

As detailed in the RAP Worksheet 5.0 (pending TCEQ approval), visual inspections will be performed on a quarterly basis and after all major storms of the capped areas shown on Figure 1. The inspections will focus on the following major issues:

- 1) Erosion of the cap (gullies, rills, or other erosional features on the cap surface or in drainages)
- 2) Sideslope sloughing (slippage)
- 3) Settling/subsidence
- 4) Vegetation deterioration
- 5) Damage from animals (i.e., rodents)
- 6) Groundwater monitoring equipment (wells) (semi-annual basis)

Locations where deficiencies are found shall be marked and repaired as soon as practicable.

Quarterly Site Inspections (January 21, April 28, July 23, and October 15, 2020)

Quarterly site inspections of the four cap areas were conducted during the four quarters of 2020. Inspection logs and photographic logs for the quarterly inspections are provided in Attachment A. Results of the site inspections are provided below.

1st Quarter, 2020 – Inspection Date: 01/21/20

- Soil Cap -The soil cap area did not appear to have any significant erosion, sloughing, or subsidence. A few bare spots (Photo No. 4 and 5 (Attachment A)) were noted along the slopes of the soil cap, but the cap appeared to be functioning as designed. Since the inspection occurred in January, most of the vegetation was dormant.
- Asphalt Road Cap – Asphalt road cap appeared to be in good condition, with minor cracks observed. Additionally, weeds, minor ant hills, and other vegetation was noticed along the edge of the concrete cap under the barriers (see Photo Nos. 8, 10, and 11).
- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition, with vegetation growth within the ballast area (Photo No. 7 and Photo No. 9).
- Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo Nos. 20 through 24). In the area of parking slots B096 to B109, a tar-like substance had previously been observed in the joints and cracks in the concrete and asphalt surfaces in the area shown on the attached Figure 2. However, it was not observed during this quarterly inspection. Weekly inspections and recovery of the tar-like substance (upon reappearance) continue to be conducted. The NAPL Collection System installed in February 2019 continued to be inspected weekly. Each sump of the NAPL Collection System was gaged during the weekly inspection using an interface probe. No NAPL was measured in any of the sumps. No NAPL was recovered from the sumps during the 1st Quarter 2020.
- Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition and functioning as intended. Some areas had significant vegetive growth (Photos 13 and 14).

2nd Quarter 2020 – Inspection Date: 04/28/20

- Soil Cap -The soil cap area did not appear to have any significant erosion, sloughing, or subsidence. Pollinator plants were observed across the soil cap area. A few bare spots (Photo No. 4 and 5) were noted on top and along the slopes of the soil cap, but the cap appeared to be functioning as designed.
- Asphalt Road Cap – Asphalt road cap appeared to be in good condition, with minor cracks observed. Additionally, weeds and other vegetation was noticed along the edge of the concrete cap under the barriers (see Photo Nos. 8, 10, and 11). The small oil stains (see Photo No. 9), which was noted during previous inspections, did not appear to expand in size.
- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition with some areas of possible exposed soil visible (Photo No. 7 and Photo No. 12).
- Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo No. 20 through 23). Small amounts of the tar-like substance were observed during the inspection surfacing through the joints and cracks in some of the B row slots (Photos No. 26, 27 and 32) in the concrete and asphalt surfaces in the area shown in the attached Figure 2. Weekly inspections and recovery of the tar-like substance continue to be conducted. Areas of brown stains (Photo No. 23) on the concrete pavement and evidence of seeps of a dark brown to black water were observed along cracks in the pavement (Photo No. 20) and low-lying areas in the 2nd quarter of 2020. As noted in the Monthly Status Update dated June 2, 2020, UPRR contractor United States Environmental Services (USES) was called to the Site on May 14 and 22, 2020 to pressure wash the areas where the brown water was collecting and collect the fluids in a tote on site. The general area where the brown water seeps were noted in March through April is shown on Figure 2. The NAPL Collection System continued to be inspected weekly. Each sump of the NAPL Collection System was gaged during the weekly inspection using an interface probe. No NAPL was measured in any of the sumps. No NAPL was recovered from the sumps during the 2nd Quarter 2020.
- Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition and functioning as intended (see Photo Nos. 13 and 14).

3rd Quarter 2020 – Inspection Date: 07/23/20

- Soil Cap -The soil cap area (see Photo Nos. 1 through 6) did not appear to have any significant erosion, sloughing, or subsidence. Soil cap with good vegetative coverage (Photo 5). A few bare spots were noted along the slopes of the soil cap and in the northeast portion of the soil cap (Photo No. 3 and 4), but the cap appeared to be functioning as designed.
- Asphalt Road Cap – Asphalt road cap appeared to be in good condition, with minor cracks observed. Additionally, weeds and other vegetation was noticed along the edge of the concrete cap under the barriers (see Photo Nos. 7 through 12). The small tar-like marks (Photo No. 9), which was noted during previous inspections, did not appear to expand in size.
- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition, with some vegetation growth within the ballast area (see Photo Nos. 7, 8, and 10). Some areas of bare soil were observed in the ballast cap near the edge of the asphalt road (Photo No. 10).

- Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo Nos. 20 through 22). Small amounts of the tar-like substance were observed during the inspection surfacing through the joints and cracks in the A Row (slot A022) and B Row (slots B100/101, B102 and B103) (Photo Nos. 21, 22, 23, and 26) in the concrete and asphalt surfaces in the area shown in the attached Figure 2. Weekly inspections and recovery of the tar-like substance continue to be conducted. The NAPL Collection System continued to be inspected weekly. Each sump of the NAPL Collection System was gaged during the weekly inspection using an interface probe. No NAPL was measured in any of the sumps. Less than 0.3 gallons of NAPL were recovered from the sumps during the 3rd Quarter 2020. Some brown staining was noted in the B Row (Photo No. 20).

- Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition and functioning as intended (Photo No. 13 and 14).

4th Quarter 2020 – Inspection Date: 10/15/20

- Soil Cap -The soil cap area (Photo Nos. 1 through 4) did not appear to have any significant erosion, sloughing, or subsidence. Minor erosion rills were difficult to find due to the heavy vegetation. A few bare patches (Photo Nos. 3 and 4) were noted along the slopes of the soil cap, but the cap appeared to be functioning as designed.

- Asphalt Road Cap – Asphalt road cap appeared to be in good condition, with minor cracks observed. Additionally, weeds and other vegetation was noticed along the edge of the concrete cap under the barriers (see Photo Nos. 7, 8, 11, and 12). The small oil stains (Photo No. 9), which was noted during previous inspections, did not appear to expand in size.

- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition, with some vegetation growth within the ballast area (Photo No. 7 and 8). Some areas of bare soil were observed in the ballast cap (Photo No. 10).

- Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo Nos. 20 and 30). Small amounts of the tar-like substance were observed during the inspection surfacing through the joints and cracks in the A Row (slot A022) and B Row (slots B100/101, B102 and B103) (Photo Nos. 21, 22, and 23) in the concrete and asphalt surfaces. Weekly inspections and recovery of the tar-like substance (upon reappearance) continue to be conducted. During the September 30, 2020 weekly inspection, oil staining and absorbents (sand and litter) were noted in the A-Row area (predominately in slots A008-A016). UPRR confirmed that the staining was from hydraulic oil from maintenance activities on a container crane and not related to the NAPL or water seeps. USES was called out to the site and added more absorbents to collect the residual oil. USES then removed the absorbents from the site. Some residual staining is visible on Photo 32. The NAPL Collection System continued to be inspected weekly. Each sump of the NAPL Collection System was gaged during the weekly inspection using an interface probe. No NAPL was measured in any of the sumps. Less than 0.1 gallons of NAPL were recovered from the sumps during the 4th Quarter 2020.

- Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition with minor vegetation in some areas and functioning as intended (see Photo Nos. 13 and 14).

Has the physical control proved to be effective in meeting the response objectives during this reporting period? X Yes No

If yes, explain how it was determined that the physical control is effective. If no, explain the actions taken, or that will be taken, to ensure effectiveness of the physical control.

- Soil Cap –The soil cap area continues to function as designed with minor bare spots (noted during each Quarterly Inspection). Various vegetation provided good coverage across the soil cap area. UPRR will continue to monitor these areas.
- Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition during the quarterly inspections and is functioning as intended. The only maintenance that occurred in this area throughout 2020 was routine removal and mowing of vegetation.
- Asphalt Road Cap – The asphalt road cap appeared to be in good condition and functioning as designed. A small oil stain, which was noted during inspections in 2017 through 2020, did not appear to expand in size based compared to the previous inspections.
- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition, with some vegetation growth within the ballast area. Some areas of exposed soils were noted in the 3rd and 4th quarter 2020 which will be addressed during a planned construction project (North By-Pass Project) in 2021. UPRR will continue to remove and control the vegetation within the railroad ballast cap area as needed.
- Concrete Cap (Englewood Intermodal Yard) – The concrete cap area in the Englewood Intermodal Yard continues to function as intended. Response actions (i.e., NAPL Collection System and test pits) for the areas where the tar-like substance has seeped to the surface and the brown water surfacing (generally noted during spring/summer only) are being evaluated. Weekly inspections of the affected area continue to be conducted.

Discuss any unexpected events or new conditions that developed on-site (and off-site, if applicable) during this reporting period and the resulting responses or modifications made to the monitoring plan. Indicate the date the event or condition occurred, the date discovered, the actions taken, and the dates of those actions. Include this information in the chronology in Appendix 3.

Similar to observations made in 2019, areas of brown staining were observed along asphalt joints and cracks in the pavement in A and B rows (predominately in the B090 – B098 area) on March 27, 2020, April 28, 2020, and May 2020. The most extensive staining was observed in May during inspections conducted on May 12, 2020 and May 19, 2020. On May 14, 2020 and May 22, 2020, UPRR contractor United States Environmental Services (USES) was called to the Site to pressure wash the areas and collect the fluids, which were placed in a tote on site. A copy of the analytical report was provided as an attachment in the July 2020 Monthly Status Update dated August 19, 2020. Little to no water has been observed during weekly inspections since May 2020. UPRR is continuing to evaluate possible sources of the

seep water and potential responses to address surfacing of the water.

During weekly inspections, small amounts of tar-like material were noted and recovered in 2020 in the A and B rows. As part of a pilot test, Golder, on behalf of UPRR, coordinated with USES during the week of July 13, 2020 to excavate seven test pits in areas where historical NAPL seeps had been observed in the Englewood Intermodal Yard (Test Pits (TP) TP-01 (Slot B108), TP-02 (Slot A098), TP-03 (Slot B096), TP-04 (Slot B057), TP-05 (Slot A021), TP-06 (Slot B013), and TP-07 (Slot A010) (see Figure 1). Each test pit was dug to approximately 4 feet below ground surface and was approximately 5 feet long by 2 feet wide. The objectives for conducting the test pit excavations were to:

- Evaluate the NAPL in the subsurface immediately below where the small NAPL surface seeps are located;
- Evaluate areas where brown water seeps had been observed, and:
- Assess if the NAPL surface seeps return following removal of the NAPL in the shallow subsurface at the test pit locations.

The test pits were excavated, left open for a few hours (or overnight), inspected for mobile NAPL and/or water entering into the test pit excavation, and backfilled and covered with a concrete patch. Soil samples were collected from one of the sidewalls of each test pit, and water samples were collected from the test pits where water was encountered (if enough water to sample was present). Since the excavation and backfilling of the test pits (July 13-16) through the December 2020 inspection, no NAPL seeps have been observed at the test pits locations. Golder, on behalf of UPRR, will prepare the Englewood IM Yard Test Pit Evaluation Report of the test pit findings including weekly inspections for submittal to the TCEQ following the pilot test period specified in the Response Action Plan (RAP) (August 31, 2020).

If the physical control is a containment system (e.g., hydraulic containment), what percentage of the time was the system effectively operational?

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FIGURES



HWPW

Englewood
Intermodal Yard

LEGEND

-  UPRR PROPERTY BOUNDARY
-  RAILROAD BALLAST CAP AREA
-  ASPHALT CAP AREA
-  SOIL CAP
-  CONCRETE CAP AREA

REFERENCE(S)

PARCEL BOUNDARIES: CITY OF HOUSTON GEOGRAPHIC INFORMATION & MANAGEMENT SYSTEM (GIMS).
 AERIAL: GOOGLE EARTH, PHOTOGRAPHY DATED 10/28/17.



CLIENT
 UNION PACIFIC RAILROAD CO.

PROJECT
 HOUSTON WOOD PRESERVING WORKS

TITLE
 CAPPED AREAS

CONSULTANT	YYYY-MM-DD	2019-03-29
	DESIGNED	AJD
	PREPARED	AJD
	REVIEWED	ECM
	APPROVED	ECM



Path: C:\Users\jtemp\Desktop\30401358 - Capped Areas.dwg | File Name: FIG 1 - Capped Areas.dwg | Last Edited By: jtemp | Date: 2019-03-29 | Time: 9:21:30 AM | Printed By: jtemp | Date: 2019-03-29 | Time: 9:21:30 AM

1" = 320' IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSIB

APPENDIX 3
CHRONOLOGY

APPENDIX 3 CHRONOLOGY

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

Date	Description
January 2021	Golder Associates Inc (Golder), on behalf of Union Pacific Railroad (UPRR) submits the Post-Response Action Completion Report (PRACR) Monthly Update to the Texas Commission on Environmental Quality (TCEQ) for December 2020 (January 20, 2021); UPRR submits additional information for the TCEQ Initial Draft Permit (IDP) with Response Action Plan (RAP) Revision 7 dated January 15, 2021; UPRR submits to the TCEQ the Corrective Action Monitoring Report: 2020 Second Semi-Annual Event dated January 14, 2020; Golder, on behalf of UPRR, conducts 2020 first semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event.
December 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for November 2020 (December 10, 2020); TCEQ issues IDP on December 7, 2020 via email; A conference call between TCEQ, UPRR, and Golder is held on December 21, 2020 to discuss a planned UPRR engineering railroad project that may disturb portions of the soil, asphalt, and railroad ballast cap areas; UPRR submits comments on IDP on December 22, 2020 with an extension request to submit additional information regarding the engineering project by January 15, 2021.
November 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for October 2020 (November 19, 2020); UPRR submits the 3 rd Quarter 2020 Dense Non-Aqueous Phase Liquid (DNAPL) Recovery Activities Quarterly Report to the TCEQ.
October 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for September 2020 (October 20, 2020); UPRR submits RAP Revision 6 dated October 26, 2020 in response to conference call between TCEQ, UPRR, and Golder on October 12, 2020.
September 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for August 2020 (September 16, 2020).
August 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for July 2020 (August 19, 2020); UPRR submits the RCRA Part A and B Permit Renewal Application with RAP Revision 5 to the TCEQ dated August 31, 2020 in response to the Technical Notice of Deficiency (TNOD) dated April 11, 2019; UPRR submits the 2 nd Quarter 2020 Dense Non-Aqueous Phase Liquid (DNAPL) Recovery Activities Quarterly Report to the TCEQ.
July 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for June 2020 (July 10, 2020); UPRR submits Updated Pentachlorophenol Soil Assessment Interim Report dated July 14, 2020 and Updated Soil Vapor Intrusion Assessment Interim Report dated August 4, 2020 to the TCEQ; UPRR submits to the TCEQ the Corrective Action Monitoring Report: 2020 First Semi-Annual Event dated July 6, 2020; Golder, on behalf of UPRR, conducts 2020 second semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event.

**APPENDIX 3
CHRONOLOGY**

Date	Description
June 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for May 2020 (June 2, 2020); UPRR installs additional soil gas probes to evaluate potential vapor intrusion (VI) pathway and collects additional soil samples for PCP assessment; UPRR submits the 1 st Quarter 2020 DNAPL Recovery Activities Quarterly Report to the TCEQ.
May 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for April 2020 (May 8, 2020); UPRR contractor United States Environmental Services (USES) was called to the concrete cap area to pressure wash areas with brown standing water observed along asphalt joints and cracks in the pavement in A and B rows. USES collected the fluids into a tote which was profiled and disposed of according to federal and state rules and regulations; UPRR submits the non-aqueous phase liquid (NAPL) and total petroleum hydrocarbon (TPH)-NAPL interim report dated May 29, 2020 and prepared by Golder on behalf of UPRR to TCEQ; UPRR submits Bimonthly Status Update of Sampling Activities to TCEQ (May 15, 2020); UPRR submits Response to TCEQ Approval with Comments Letter Dated April 23, 2020 on Soil Vapor Intrusion Assessment Report (May 1, 2020) and Response to TCEQ Approval with Comments Letter Dated April 23, 2020 on Pentachlorophenol Soil Assessment Report (May 8, 2020); Golder, on behalf of UPRR, conducts second sampling event of monitoring wells installed in 2020.
April 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for March 2020 (April 3, 2020); UPRR submits Interim Groundwater Monitoring Report (2019-2020) to TCEQ (April 30, 2020); TCEQ issues Approval with Comments Letters dated April 23, 2020 on Soil Vapor Intrusion Assessment Interim Report dated March 31, 2020 and Pentachlorophenol Soil Assessment Interim Report dated March 30, 2020.
March 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for February 2020 (March 5, 2020); UPRR completes monitoring well installation activities and sampling of newly installed wells after development; UPRR submits Soil Vapor Intrusion Assessment Interim Report dated March 31, 2020 to TCEQ; UPRR submits Pentachlorophenol Soil Assessment Interim Report dated March 30, 2020 to TCEQ; UPRR submits the 4th Quarter 2019 DNAPL Recovery Activities Quarterly Report to the TCEQ
February 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for January 2020 (February 5, 2020); UPRR continues TPH/NAPL assessment activities and vapor intrusion assessment activities; UPRR begins monitoring well installation activities; UPRR conducts soil sampling for pentachlorophenol analysis; UPRR submits extension request letter dated February 7, 2020 to TCEQ; TCEQ grants extension request in letter dated February 21, 2020; UPRR submits Bi-monthly status update of sampling activities to the TCEQ (February 28, 2020)
January 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for December 2019 (January 15, 2020); UPRR continues TPH/NAPL assessment activities and begins vapor intrusion assessment activities; UPRR submits revised vapor intrusion work plan dated January 2, 2020 to the TCEQ which is approved by the TCEQ in a letter dated January 3, 2020; UPRR submits additional revisions to the vapor intrusion work plan on January 31, 2020; UPRR submits to the TCEQ the Corrective Action Monitoring Report: 2019 Second

**APPENDIX 3
CHRONOLOGY**

Date	Description
	Semi-Annual Event dated January 17, 2020; Golder, on behalf of UPRR, conducts 2020 first semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event.
December 2019	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (December 6, 2019); TCEQ issues a comment letter dated December 13, 2019 in response to UPRR Response to TCEQ Additional Comment Letter dated October 23, 2019 and to request a meeting on December 19, 2019; Golder submits the bi-monthly status update of sampling activities to the TCEQ in a letter dated December 13, 2019. Meeting with UPRR, Golder, and TCEQ to discuss TCEQ Additional Comment Letter on December 19, 2019. Based on that meeting, Golder on behalf of UPRR, submitted the Proposed Vapor Intrusion Assessment Work Plan (VI Work Plan) dated December 20, 2019 to the TCEQ for review. The TCEQ issued a comment letter on the Work Plan dated December 23, 2019. A revised VI Work Plan was submitted to the TCEQ on January 2, 2020 and was approved by the TCEQ in a letter dated January 3, 2020.
November 2019	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (November 5, 2019); UPRR submits the 3rd Quarter 2019 DNAPL Recovery Activities Quarterly Report to the TCEQ.
October 2019	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (October 3, 2019); UPRR submits a response letter dated October 23, 2019 to the TCEQ's letter dated September 6, 2019 providing additional comments for the 4 th Technical NOD.
September 2019	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (September 4, 2019); UPRR receives additional comments on the 4th TNOD dated September 6, 2019 from the TCEQ; Meeting with UPRR, Golder, and TCEQ to discuss additional comments on the 4th Technical NOD on September 23, 2019. Golder on behalf of UPRR submits the Waterline Leak Release Response Report for the water leak discussed below dated September 18, 2019 to the TCEQ Region 12.
August 2019	TCEQ issues a comment letter dated August 9, 2019 on the PRACR Monthly Update dated July 31, 2019. On August 9, 2019, a contractor opened a valve to an abandoned water line that is located beneath the Soil Cap at the Site. This led to water emanating from the location of a former fire hydrant that was present prior to the construction of the soil cap. Water flowed through the capped soils, up through the soil cap, and over the soil cap to the south-southeast, across an asphalt road, and then to a ditch along the railroad tracks. The water flowed down the ditch approximately 200 yards to the northeast to Liberty Road and under the Lockwood Drive Bridge. UPRR was notified of the water leak on the morning of August 10, 2019 and emergency response activities were initiated. Once the source of the water was identified, the valve was closed at approximately 10:36 am on August 10, 2019. Because the water may have come into contact with contaminated soils, UPRR promptly reported the incident and subsequent release to the Texas Commission on Environmental Quality (TCEQ) (Spill Report No. 20192773 and NRC Report No. 1254765) upon discovery and began the initial spill response actions on August 10, 2019.

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CHRONOLOGY**

Date	Description
July 2019	UPRR submits the RCRA Part A and B Permit Renewal Application (Revision No. 5) with RAP (Revision No. 4) the TCEQ dated July 10, 2019 in response to the TNOD Letter dated April 11, 2019; Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (July 31, 2019). Golder submits to the TCEQ the Corrective Action Monitoring Report: 2019 First Semi-Annual Event dated July 11, 2019; Golder conducts 2019 second semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event.
June 2019	UPRR receives letter granting extension to July 10, 2019 for submittal of response to 4th TNOD Letter dated April 11, 2019 from the TCEQ; Meeting with UPRR, Golder, and TCEQ to discuss 4th Technical NOD on June 12, 2019; Golder submits the 1st Quarter 2019 Dense Non-Aqueous Phase Liquid (DNAPL) Recovery Activities Quarterly Report to the TCEQ; and Golder submits the Post-Response Action Completion Report (PRACR) Monthly Update to the TCEQ (June 28, 2019).
May 2019	UPRR submits an Extension Request for response to 4th Technical NOD Letter dated April 11, 2019 to TCEQ; UPRR installs additional well as requested in 4 th Technical NOD letter; and Golder submits the PRACR Monthly Update to the TCEQ (May 31, 2019).
April 2019	UPRR receives 4th Technical NOD dated April 11, 2019 from the TCEQ; Meeting with UPRR, Golder and TCEQ to discuss 4 th Technical NOD on April 24, 2019; and Golder submits the PRACR Monthly Update to the TCEQ (April 30, 2019).
March 2019	UPRR submits Response Action Completion Report (RACR) summarizing the NAPL Collection System installation in the Englewood Intermodal Yard with the HWPW Site; and Golder submits the PRACR Monthly Update to the TCEQ (March 29, 2019).
February 2019	Texas Commission on Environmental Quality (TCEQ) issues a comment letter dated February 6, 2019 on the Response to Comments dated January 9, 2019; Golder completes the interim remedial activities by installing the non-aqueous phase liquid (NAPL) collection system; and Golder submits the Post-Response Action Completion Report (PRACR) Monthly Update to the TCEQ (February 28, 2019) that includes a response to TCEQ comment letter dated February 6, 2019. The response includes details on the proposed additional total petroleum hydrocarbon (TPH) assessment in soils at the UPRR Englewood Intermodal Yard within the Houston Wood Preserving Works (HWPW) Site.
January 2019	Golder, on behalf of UPRR, begins the interim remedial excavation activities for the installation of the NAPL collection system at the Englewood Intermodal Yard; Golder submits to the TCEQ the response to comments dated January 9, 2019 responding to TCEQ comment letter dated December 6, 2018 on the October 2018 PRACR Monthly Update; and Golder submits the PRACR Monthly Update to the TCEQ (February 4, 2019). Golder submits to the TCEQ the Corrective Action Monitoring Report: 2018 Second Semi-Annual Event dated January 4, 2019; Golder conducts 2019 first semi-annual groundwater monitoring event for the SWMU No. 1.
December 2018	TCEQ issues a comment letter dated December 6, 2018 on the October 2018 PRACR Monthly Update; and Golder submits the PRACR Monthly Update to the TCEQ (December 31, 2018).

APPENDIX 3 CHRONOLOGY

Date	Description
November 2018	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (November 30, 2018).
October 2018	Golder, on behalf of UPRR, conducts test pits in the Englewood Intermodal Yard to evaluate the NAPL seeps observed in the primary area (slots B100-B109) and other areas (parking slots B13 and B54). Golder submits the PRACR Monthly Update to the TCEQ (October 31, 2018) detailing the results of the test pit evaluation.
September 2018	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (September 28, 2018).
August 2018	UPRR submits the response to TCEQ comment and request for groundwater information letter dated November 29, 2017 – UPRR Groundwater Monitoring Data (included groundwater data from the three site-wide sampling events conducted from January – July 2018) , August 13, 2018; TCEQ issues a comment letter dated August 22, 2018 on the June 2018 PRACR Monthly Update; and Golder submits the PRACR Monthly Update to the TCEQ (August 31, 2018), including a response to the TCEQ August 22, 2018 comment letter. Response includes preliminary design for the NAPL collection system.
July 2018	Golder submits to the TCEQ the Corrective Action Monitoring Report: 2018 First Semi-Annual Event dated July 20, 2018; Golder conducts 2018 second semi-annual groundwater monitoring event for the SWMU No. 1.; Golder submits the PRACR Monthly Update to the TCEQ (July 20, 2018).
June 2018	Golder conducts a site-wide groundwater sampling event (May-June 2018) in response to TCEQ letter dated November 27, 2017; and conducts repairs to the soil cap (June 12-13, 2018). Golder submits the PRACR Monthly Update to the TCEQ (June 21, 2018).
May 2018	Pastor, Behling & Wheeler, LLC (PBW) (now Golder) submits the PRACR Monthly Update to the TCEQ (May 21, 2018).
April 2018	PBW conducts a site-wide groundwater sampling event (March - April 2018) in response to TCEQ letter dated November 27, 2017; and submits the PRACR Monthly Update to the TCEQ (April 20, 2018).
March 2018	TCEQ issues comment letter on the Updated PRACR requesting monthly updates on the soil and concrete cap repairs (March 20, 2018).
January 2018	PBW submits to the TCEQ the Corrective Action Monitoring Report: 2017 Second Semi-Annual Event dated January 18, 2018; PBW conducts 2018 first semi-annual groundwater monitoring event for the SWMU No. 1. PBW also submits the Updated PRACR (post-Hurricane Harvey) and response to TCEQ comment letter dated October 20, 2017 on January 17, 2018.
	PBW begins installing the additional alternate point of exposure (APOE) wells and monitoring/replacement wells (MW-22A, MW-22B, MW-82B, MW-83B, MW-83C, MW-84B, MW-85C, MW-86C, MW-87C, and MW-89C) as requested by the TCEQ in the letter dated November 28, 2017. The site-wide groundwater sampling event was also conducted (through February 2018).

**APPENDIX 3
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Date	Description
November 2017	Meeting with UPRR, PBW, Baker-Wotring and the TCEQ (Corrective Action and Law Division) at the TCEQ offices in Austin on November 29, 2017. TCEQ issues letter dated November 28, 2017 requesting UPRR to install additional APOE wells and conduct additional groundwater sampling of the site-wide wells.
October 2017	TCEQ issues a comment letter dated October 20, 2017 on the post- Hurricane Harvey assessment of the capped areas PRACR.
September 2017	PBW submits the PRACR as part of the post- Hurricane Harvey assessment of the capped areas. The soil cap area did not appear to have any significant damage (a few minor erosion rills were noted) as a result of the tropical storm and associated flooding.
August 2017	PBW conducts a site inspection of the soil cap following the major storm event associated with Hurricane Harvey (Aug 25 – 29, 2017).
July 2017	PBW submits to the Texas Commission on Environmental Quality (TCEQ) the Corrective Action Monitoring Report: 2017 First Semi-Annual Event dated July 12, 2017; PBW conducts 2017 second semi-annual groundwater monitoring event for the SWMU No. 1
June 2017	Union Pacific Railroad (UPRR) submits the RCRA Part A and B Permit Renewal Application (Revision No. 4) with RAP (Revision No. 3) to the TCEQ dated July 2016 in response to the Technical NOD Letter dated June 2, 2016. This includes submitting the Response Action Completion Report (RACR) (Revision No. 1).
May 2017	Meeting with UPRR, PBW, Baker-Wotring and the TCEQ (Corrective Action and Law Division) on May 31, 2017 discussing the 3 rd Technical Notice of Deficiency (NOD) Letter dated April 10, 2017 on the RCRA Part A and B Permit Renewal Application and Response Action Plan (RAP), specifically for issues regarding the restrictive covenants/deed notices for the off-site properties.
April 2017	UPRR receives the 3 rd Technical NOD Letter dated April 10, 2017 on the RCRA Part A and B Permit Renewal Application (Revision No. 3) and RAP (Revision 2) from the TCEQ.
February 2017	Meeting with UPRR, PBW, Baker-Wotring and the TCEQ (Corrective Action and Law Division) on February 16, 2017 discussing the draft comments on the RAP (Revision 2) and restrictive covenants for the off-site properties.
January 2017	PBW submits to the TCEQ the Corrective Action Monitoring Report: 2016 Second Semi-Annual Event dated January 17, 2017; PBW conducts 2017 first semi-annual groundwater monitoring event for the SWMU No. 1
July 2016	UPRR submits the RCRA Part A and B Permit Renewal Application (Revision No. 3) with RAP (Revision No. 2) to the TCEQ dated July 2016 in response to the Technical NOD Letter dated June 2, 2016. This includes submitting the Response Action Completion Report (RACR). PBW submits to the TCEQ the Corrective Action Monitoring Report: 2016 First Semi-Annual Event dated July 12, 2016; PBW conducts 2016 second semi-annual groundwater monitoring event for the SWMU No. 1

APPENDIX 3
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Date	Description
June 2016	UPRR receives Technical NOD Letter dated June 2, 2016 on the RCRA Part A and B Permit Renewal Application and Response Action Plan from the TCEQ.
May 2016	UPRR completes the response actions authorized under the Area of Contamination to address the surface and subsurface soil Protective Concentration Level Exceedance (PCLE) Zones as detailed in the updated Response Action Plan (RAP) dated December 7, 2015.
February 2016	TCEQ approves the request to extend the termination date for the Area of Contamination from February 15, 2016 to March 7, 2016 in a letter dated February 22, 2016
January 2016	Begin response actions (excavation/placement and cap construction) activities to address surface soil PCLE Zones. PBW conducts 2016 first semi-annual groundwater monitoring event for the Solid Waste Management Unit (SWMU) 1. PBW submits on behalf of UPRR a request to extend the termination date from February 15, 2015 to March 7, 2016 for the Area of Contamination set by the TCEQ.
December 2015	Union Pacific Railroad (UPRR) submits the RCRA Part A and B Permit Renewal Application (Revision No. 2) with Response Action Plan (RAP) (Revision No. 1) to the TCEQ dated December 7, 2015. Remediation contractor begins site preparation for response actions under the Area of Contamination.
November 2015	Union Pacific Railroad (UPRR) receives the Texas Commission on Environmental Quality (TCEQ) letter dated November 5, 2015 detailing the agency's review of the September 18, 2015 submittal titled Additional Information for Clean Closure Equivalence Demonstration. The TCEQ Industrial and Hazardous Waste (I&HW) Permits Section was unable to accept the request for discontinuing post-closure care of the former surface impoundment, Solid Waste Management Unit (SWMU) 1.
November 2015	Meeting with UPRR, Pastor, Behling & Wheeler (PBW), and the TCEQ on November 4, 2015 discussing the October 23, 2015 technical comment letter from the TCEQ.
October 2015	UPRR receives additional technical comments from the TCEQ in a letter dated October 23, 2015 on the Response Action Plan (RAP) regarding the Plume Management Zones and Technical Impracticability Demonstration provided in the Response Action Plan.
September 2015	PBW submits to the TCEQ the Additional Information for Clean Closure Equivalence Demonstration dated September 18, 2015 that included historical data and letters from 1983, 1984, and 1991 to demonstrate clean closure of the soils under the former surface impoundment (SWMU 1). The letter also included a request to cease the post-closure care for SWMU 1.
August 2015	UPRR receives Technical Notice of Deficiency (NOD) Letter dated August 5, 2015 on the RCRA Part A and B Permit Renewal Application and Response Action Plan from the TCEQ.

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Date	Description
July 2015	PBW submits to the TCEQ the Corrective Action Monitoring Report: 2015 First Semi-Annual Event dated July 16, 2015; PBW conducts 2015 second semi-annual groundwater monitoring event for the SWMU No. 1.
April 2015	PBW submits to the TCEQ newspaper tear sheets and affidavits that public notice was published in English and Spanish in the <i>Houston Chronicle</i> on April 2 and <i>La Subasta</i> on March 31, respectively as required once the RCRA Permit Renewal/Compliance Plan with Major Amendment was administratively complete.
March 2015	TCEQ issues a letter dated March 13, 2015 declaring the RCRA Permit Renewal/Compliance Plan with Major Amendment was administratively complete on March 13, 2015.
February 2015	PBW submits a response letter to the TCEQ dated February 13, 2015 for the TCEQ Administrative NOD on the RCRA Part A and B Permit Renewal Application.
January 2015	PBW submits to the TCEQ the Corrective Action Monitoring Report: 2014 Second Semi-Annual Event dated January 15, 2015; PBW conducts 2015 first semi-annual groundwater monitoring event for the SWMU No. 1.
December 2014	UPRR submits the RCRA Part A and B Permit Renewal Application with Response Action Plan (RAP) to the TCEQ dated December 10, 2014. UPRR receives the TCEQ Administrative NOD Letter dated December 17, 2014.
November 2014	RCRA Permit Pre-Application Meeting with UPRR, PBW, and TCEQ dated November 6, 2014.
September 2014	UPRR holds public meeting with residents near the Site to detail institutional controls for off-site groundwater Plume Management Zone (PMZ).
July/August 2014	PBW conducts site-wide groundwater sampling event.
May 2014	PBW oversees installation of seven new monitoring wells (MW-51C, MW-76C, MW-77A, MW-78A, MW-79A, MW-80B, and MW-81B) in the Englewood Intermodal Yard to evaluate DNAPL extent and extent of chemicals of concern (COCs) in the B-CZ unit to the southeast, and one replacement well MW-34CR to replace MW-34C. Soil samples also collected from City of Houston right of way (ROW) along north perimeter of the Site.
January 2014	PBW conducts site-wide groundwater sampling event.
July 2013	PBW conducts site-wide groundwater sampling event.
February/March 2013	PBW conducts cone penetrometer testing (CPT)/rapid optical screening tool (ROST) and soil investigation at the Englewood Intermodal Yard adjacent to the UPRR Houston Wood Preserving Works (HWPW) site.

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Date	Description
January/February 2013	PBW conducts site-wide groundwater sampling event (95 wells). PBW submits Proposed DNAPL Recovery Pilot Test letter to TCEQ dated February 5, 2013, and initiates monthly DNAPL recovery from on-site and off-site wells (10-12 wells) (planned for 24 months).
November 2012	Meet with TCEQ regarding proposed CPT/ROST investigation of Englewood Intermodal Yard based on DNAPL detected from the December 2011 investigation.
July 2012	PBW conducts site-wide groundwater sampling event.
January 2012	PBW conducts site-wide groundwater sampling event.
July 2012	PBW conducts site-wide groundwater sampling event.
December 2011	PBW installs additional monitoring wells in the cohesive zone B-CZ to evaluate extent of DNAPL in the B-CZ.
July 2011	PBW conducts site-wide groundwater sampling event.
April 2011	TCEQ approves the Affected Property Assessment Report (APAR) (including updates and addendums).
March 2011	PBW submits the Revised Updated APAR Addendum to the TCEQ. UPRR repairs fence around site.
January 2011	PBW conducts site-wide groundwater sampling event.
December 2010/ January 2011	UPRR/PBW submits Off-Site Notification Letters to off-site properties indicating Notice of Information Availability for the site, as required with the submittal of the Updated APAR Addendum (Oct 2012) .
October 22, 2010	PBW submits the Updated APAR Addendum to the TCEQ.
June/July 2010	PBW conducts additional soil (along northeast portion of Site) and groundwater investigation (A-TZ, B-CZ, C-TZ and D-TZ wells); including site-wide groundwater monitoring event.
February 16, 2010	UPRR Response to TCEQ Comment Letter dated November 18, 2009.
January 2010	PBW conducts site-wide groundwater sampling event; selected wells are analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8620.
November 18, 2009	TCEQ Comment Letter on Revised APAR.
July 2009	PBW submits APAR Addendum to TCEQ.
January 2009	PBW conducts additional soil and groundwater investigation.
July 2008	PBW conducts additional CPT-ROST and groundwater investigation
January 2007	PBW conducts additional soil and groundwater investigation

APPENDIX 3 CHRONOLOGY

Date	Description
August 2006	ERM-Southwest, Inc. (ERM) conducted additional soil and groundwater investigation
April 2006	ERM conducted additional soil and groundwater investigation
September 6, 2005	UPRR Response to TCEQ Response Letter dated August 1, 2005
August 2005	TCEQ Response to UPRR Response Letter dated June 9, 2005
June 9, 2005	UPRR Response to TCEQ Letter dated April 15, 2005
April 15, 2005	TCEQ Response to UPRR Response Letter dated November 19, 2004
November 19, 2004	UPRR Response to October 8, 2004 TCEQ Letter
October 8, 2004	TCEQ Comment Letter on Revised APAR
June 10, 2004	Revised APAR submitted to the TCEQ by ERM, Inc. on behalf of UPRR
November 7, 2001	Texas Natural Resources Conservation Commission (TNRCC) provides comments to July 5, 2001 response letter.
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.
January 9, 2001	Initial response to November 6, 2000 TNRCC comments.
November 6, 2000	TNRCC provides comments to On-Site APAR.
July 10, 2000	Affected Property Assessment Report for On-Site Property (On-Site APAR) 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
September 10, 1999	Phase 2-B RFI/EOC Investigation Report submitted to TNRCC on behalf of UPRR by ERM
April 27, 1998	Interim Stabilization Measures Report – Southern Drainage Ditch, submitted to TNRCC on behalf of UPRR by ERM.
February 13, 1998	Phase 2-A RFI/EOC Investigation Report submitted to TNRCC on behalf of UPRR by ERM.
January 13, 1997	RFI portion of the Phase 1 RFI/EOC Investigation Report approved by TNRCC
November 26, 1996	EOC portion of the Phase 1 RFI/EOC Investigation Report approved by TNRCC
May 23, 1996	Phase 1 RFI/EOC Report submitted on behalf of Southern Pacific Transportation Company (SPTCo) by Terranext
October 16, 1995	RFI Work Plan approved by TNRCC
September 29, 1995	EOC Work Plan approved by TNRCC
January 10, 1995	Operation and Maintenance Plan approved by TNRCC
November 3, 1994	Revised Compliance Schedule approved by TNRCC
October 14, 1994	RCRA Facility Investigation (RFI) Work Plan submitted on behalf of SPTCo
September 16, 1994	Extent of Contamination (EOC) Work Plan submitted on behalf of SPTCo
September 7, 1994	Revised Compliance Schedule submitted on behalf of SPTCo
August 19, 1994	Operation and Maintenance Plan and Compliance Schedule submitted on behalf of SPTCo
June 20, 1994	Permit No. HW-50343-000 and Compliance Plan CP-50343-000 issued by TNRCC.
October 1993	RCRA Facility Assessment completed on behalf of U.S. EPA by PRC Environmental Management, Inc.
May 13, 1991	RCRA Permit Application submitted by SPTCo

**APPENDIX 3
CHRONOLOGY**

Date	Description
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Note: Not all groundwater sampling events are listed in the chronology

ATTACHMENT A

2020 QUARTERLY INSPECTION RECORDS AND PHOTOGRAPHIC LOGS

ATTACHMENT A1

**FIRST QUARTER 2020 (JANUARY 21ST) INSPECTION RECORD AND PHOTOGRAPHIC
LOG**

UPRR HWPW - Quarterly Site Inspection Record

Date: January 21, 2020

Time Started: 9:00

Time Ended: 12:15

Weather Conditions: clear, sunny

Observations/Comments:

CAPPED AREA	ITEM	Evidence Observed?		Improvements Necessary		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Yes	No	Yes	No	
Soil Cap	Erosion (gullies, rills)	X		X		Difficult to inspect due to heavy brush and other vegetation, no major rills observed. Some bald areas observed due to trucks/rigs driving over.
	Settlement		X		X	Difficult to inspect due to heavy brush and other vegetation, none visible.
	Animal Damage		X		X	Difficult to inspect due to heavy brush and other vegetation.
	Intrusive Shrubs/Trees		X		X	None observed.
	Vegetation Coverage	X			X	Dense, lots of wildflower and brush vegetation. Some bald areas where rigs/trucks have driven over.
	Stressed Vegetation		X		X	None observed.
	Monitoring Wells Condition	X			X	In use wells generally in good condition. Most surrounded by shrubbery.
Asphalt Roadway	Surface Damage		X		X	Minor cracks observed.
	Signs of Exposed Soils	X			X	Some areas along concrete barriers where anthills have formed and are leaking into roadway.
	Settlement	X			X	Some cracks/low spots where water/soil could make its way through the concrete divider onto the roadway.
Ballast Cap	Surface Damage		X		X	None observed.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation	X			X	Heavy vegetation observed in some areas.
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X		X		Localized cracking along parking stall rows. Joint sealant missing in several locations. Routine evidence of NAPL seepage in some parking row B stalls. * UPRR has a concrete pavement inspection/maintenance program.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation		X		X	None observed.
Concrete Cap (Sidewalk)	Surface Damage		X		X	Minor cracks observed.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation	X		X		Heavy vegetation noted in some areas, needs mowing.
Other Areas						
Container Storage Area	Valve Position (Closed)	X			X	Valve in closed position.
	Holding Water	X			X	Minor amount of water at time of inspection.
	Sheen/Floating Solids		X		X	None observed.
Security Fence	Damaged Posts or Wire	X		X		Main Entrance Gate: barbed wire damaged/tacked down along sides; NW Corner: Hole in fence; ~400' east of main entrance gate: Hole in fence; ~20' east of main gate: Damage from vehicle running into fence
	Functioning Properly	X		X		Fence is still functioning as intended, but requires attentions at the above noted areas.

Additional Comments or Observations: Mowing for site and sidewalk suggested, repairs to fence suggested in listed areas, possibly reseed areas of bare vegetation due to rigs and trucks driving over.

Inspector: Blake Sokora

Inspectors Signature: *Blake Sokora*

Golder Associates, Inc.

14950 Heathrow Forest Pkwy, Suite 280

Houston, Texas 77032

Phone: 281-821-6868 Fax: 281-821-6870



GOLDER



PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
1

Date:
01/21/2020

Description:

HWPW Yard Area and Soil Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. No major rills observed during inspection. Facing northeast.

Lat: 29.787224

Long: -95.319605



Photo No.
2

Date:
01/21/2020

Description:

HWPW Yard Area and Soil Cap:

Vegetative growth (brushes and grasses in particular) can be observed along the length of the soil cap, preventing future erosion. Facing west.

Lat: 29.787255

Long: -95.318039





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
3

Date:
01/21/2020

Description:

HWPW Yard Area and Soil
Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. No major rills observed during inspection. Facing west.

Lat: 29.787255
Long: -95.318039



Photo No.
4

Date:
01/21/2020

Description:

HWPW Yard Area and Soil
Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. Some damage to cap and slope due to trucks and rigs driving on it. Possible resodding needed in some areas. Facing east.

Lat: 29.787511
Long: -95.318076





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
5

Date:
01/21/2020

Description:

HWPW Yard Area and Soil

Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. Some damage to cap and slope due to trucks and rigs driving on it. Possible resodding needed in some areas. Facing west.

Lat: 29.787449

Long: -95.318313



Photo No.
6

Date:
01/21/2020

Description:

Monitoring Wells:

Vegetative growth around monitoring wells. The majority of monitoring wells have comparable vegetative growth to this one. Facing northwest.

Lat: 29.787513

Long: -95.316671





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
7

Date:
01/21/2020

Description:

**Ballast Cap, Asphalt Roadway,
and Soil Cap Vegetative
Cover:**

Asphalt roadway in good condition, free of major cracking/damage. Some areas of significant vegetative growth in ballast cap can be observed. Facing southwest.

Lat: 29.786906
Long: -95.317985



Photo No.
8

Date:
01/21/2020

Description:

Asphalt Roadway Cap:

Weeds and vegetation can be observed growing under the concrete barriers. Facing west.

Lat: 29.785496
Long: -95.321352





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
9

Date:
01/21/2020

Description:

Ballast Cap and Asphalt Roadway:

Asphalt roadway in good condition, free of major cracking/damage. Some areas of significant vegetative growth in ballast cap can be observed. Facing southwest.

Lat: 29.787370
Long: -95.316891



Photo No.
10

Date:
01/21/2020

Description:

Asphalt Roadway and Soil Cap Vegetative Cover:

Some minor gaps noted between soil cap and roadway. Facing west.

Lat: 29.786752
Long: -95.318409





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
11

Date:
01/21/2020

Description:

Asphalt Roadway and Soil Cap
Vegetative Cover:

Anthills and small mounds of dirt can be observed on asphalt roadway between concrete barriers. Facing northwest.

Lat: 29.787038
Long: -95.317699



Photo No.
12

Date:
01/21/2020

Description:

Asphalt Roadway and Soil Cap
Vegetative Cover:

Anthills and small mounds of dirt can be observed on asphalt roadway between concrete barriers. Facing southeast.

Lat: 29.787070
Long: -95.317716





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
13

Date:
01/21/2020

Description:

Security Fence/Sidewalk Area:
Sidewalk outside security fence in good condition. Some areas have significant vegetative growth and require mowing event. Facing west.

Lat: 29.787585
Long: -95.318268



Photo No.
14

Date:
01/21/2020

Description:

Security Fence/Sidewalk Area:
Sidewalk outside security fence in good condition. Some areas have significant vegetative growth and require mowing event. Facing west.

Lat: 29.787663
Long: -95.316771





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
15

Date:
01/21/2020

Description:

Security Fence:

Security fence in good condition. Small hole in fence can be observed. Facing southwest.

Lat: 29.787535
Long: -95.320190



Photo No.
16

Date:
01/21/2020

Description:

Security Fence:

Security fence in good condition. Fence damage from vehicle can be observed here, approximately 20' east of the main entrance gate. Facing west.

Lat: 29.787480
Long: -95.320872





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
17

Date:
01/21/2020

Description:

Security Fence (Entrance Gate):

Front gate and signage in good condition. Facing south.

Lat: 29.787463

Long: -95.321002



Photo No.
18

Date:
01/21/2020

Description:

Security Fence (Entrance Gate):

Barbed wire atop security fence tacked down on west side of entrance area. Barbed wire is broken on east side of fence as well. Facing southeast.

Lat: 29.787406

Long: -95.321114





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
19

Date:
01/21/2020

Description:

Security Fence:
Hole in security fence in northwest corner of yard at intersection of Liberty Rd and Kashmere St. Facing northwest.

Lat: 29.787488
Long: -95.323855



Photo No.
20

Date:
01/21/2020

Description:

Concrete Cap Area (Englewood Yard):
Some mild cracking/cratering in the pavement can be observed in the B Row of the Englewood Yard area. No visible vegetation or exposed soil was observed. Facing northeast.

Lat: 29.784767
Long: -95.319582





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
21

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard):

B057 stall. Evidence of minor cracking/cratering, which can also be found in certain B row stalls. Facing northwest.

Lat: 29.784764
Long: -95.319562



Photo No.
22

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard):

B057 stall. Evidence of minor cracking, sometimes producing NAPL seeps. Facing northwest.

Lat: 29.784781
Long: -95.319577





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
23

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard):

Some cracking/cratering and brown water staining in the pavement can be observed in the B Row of the Englewood Yard area. No visible vegetation or exposed soil was observed. Facing southwest.

Lat: 29.784319
Long: -95.320681



Photo No.
24

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B099/B100. NAPL Collection System in stalls B099-B110 in good condition with little evidence of cracking, stains, etc. Facing west.

Lat: 29.784275
Long: -95.320762





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
25

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B099/B100. Sump almost totally filled with water (brown in color, but with no sheen or odor). Facing north.

Lat: 29.784267
Long: -95.320773



Photo No.
26

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard):

B100/101 stalls. Evidence of minor cracking and recent tar-like substance seepage (in asphalt), though none was present at time of inspection. Facing northeast.

Lat: 29.784273
Long: -95.320816





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
27

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard):

B102 stall. Evidence of minor cracking and recent tar-like substance seepage (in joint), though none was present at time of inspection. Facing northwest.

Lat: 29.784193
Long: -95.320811



Photo No.
28

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard):

Some cracking with mild brown water staining can be observed in the pavement along the back of B Row in the Englewood Yard area. No visible vegetation or exposed soil was observed. Facing northeast.

Lat: 29.784286
Long: -95.320891





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
29

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

B103 stall. Evidence of minor cracking and recent tar-like substance seepage (in asphalt) on edge of NAPL Collection system, though none was present at time of inspection. Facing northwest.

Lat: 29.784218
Long: -95.320865



Photo No.
30

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B107/B108. NAPL Collection System in stalls B099-B110 in good condition with little evidence of cracking, stains, etc. Facing west.

Lat: 29.784163
Long: -95.320998





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
31

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B107/B108. Sump half-filled with water (some observable sheen on surface). Sump B103/B104 is filled similarly (but with no visible sheen). Facing north.

Lat: 29.784171
Long: -95.320985

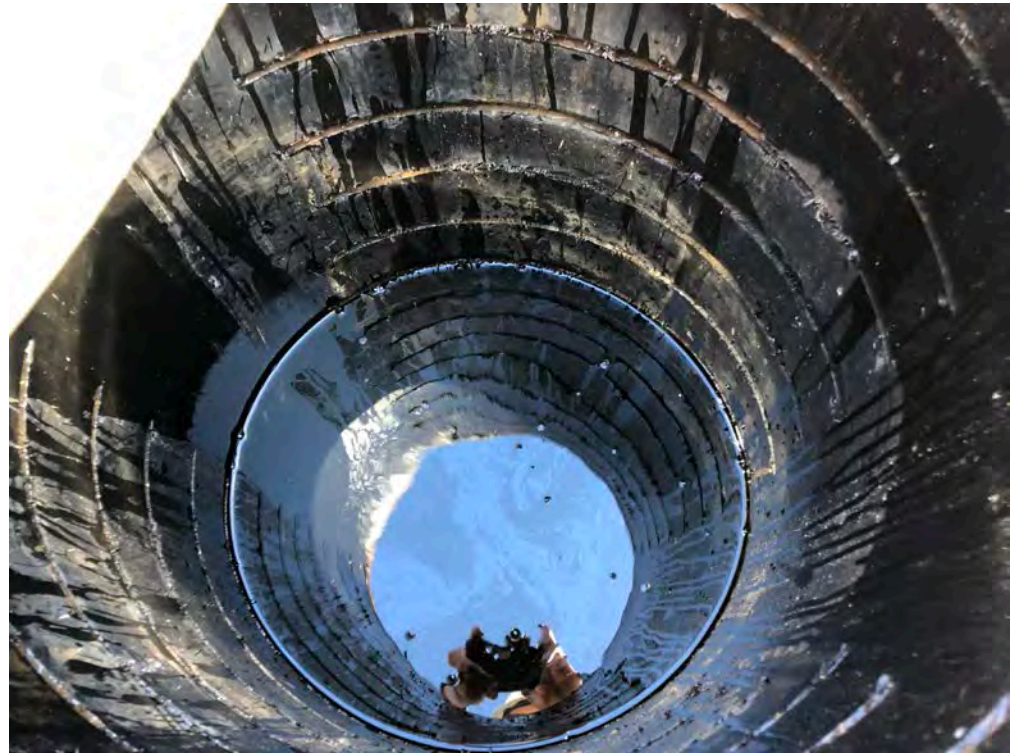


Photo No.
32

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard):

B108 stall. Evidence of minor cracking and recent tar-like substance seepage (in asphalt), though none was present at time of inspection. Facing northeast.

Lat: 29.784173
Long: -95.321036





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
33

Date:
01/21/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

B109 stall. NAPL seep remediation system in good condition. No major cracks/stains, issues with concrete, sumps, or asphalt area. Facing northwest.

Lat: 29.784111
Long: -95.321027

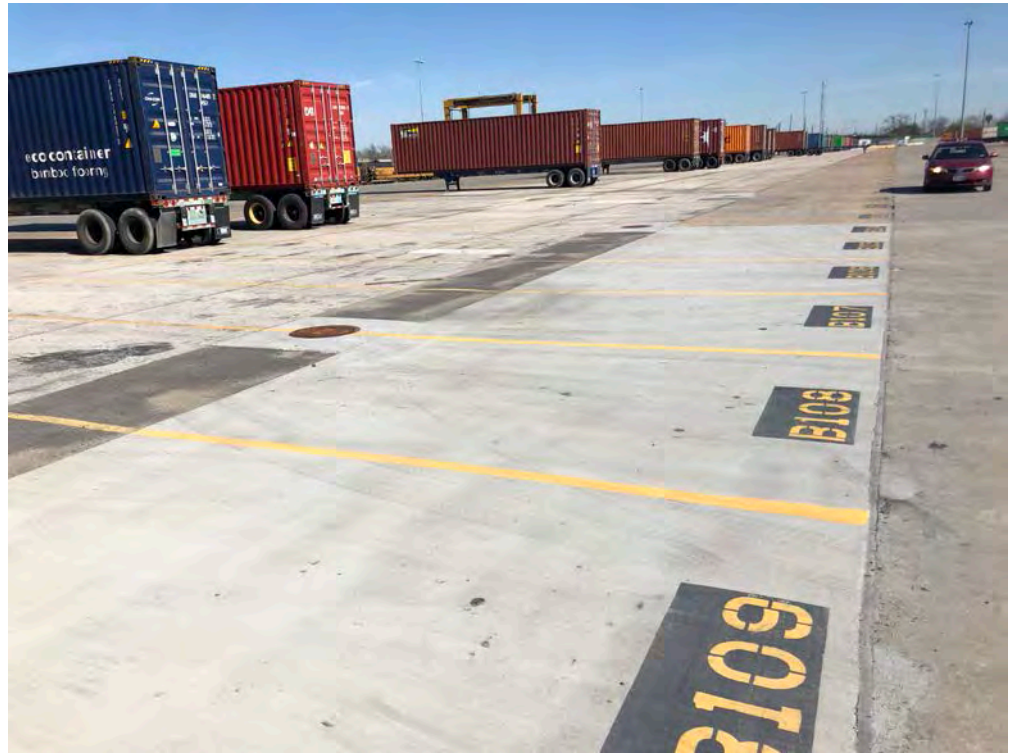


Photo No.
34

Date:
01/21/2020

Description:

Container Storage Area:
Valve in closed position and functioning within the container storage area. CSA in good condition, free of major dents and other damage. Minor water on floor. Facing southeast.

Lat: 29.786801
Long: -95.320645



ATTACHMENT A2

SECOND QUARTER 2020 (APRIL 28TH) INSPECTION RECORD AND PHOTOGRAPHIC LOG

UPRR HWPW - Quarterly Site Inspection Record

Date: April 28, 2020

Time Started: 7:10

Time Ended: 10:30

Weather Conditions: partly cloudy

Observations/Comments:

CAPPED AREA	ITEM	Evidence Observed?		Improvements Necessary		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Yes	No	Yes	No	
Soil Cap	Erosion (gullies, rills)	X		X		No major rills observed. Some bald areas observed due to trucks/rigs driving over.
	Settlement		X		X	None observed.
	Animal Damage	X			X	Some anthills noted throughout area.
	Intrusive Shrubs/Trees		X		X	None observed.
	Vegetation Coverage	X			X	Dense, lots of brush vegetation. Some bald areas where rigs/trucks have driven over.
	Stressed Vegetation		X		X	None observed.
	Monitoring Wells Condition		X		X	In use wells generally in good condition. Most surrounded by shrubbery of reasonable height.
Asphalt Roadway	Surface Damage		X		X	Minor cracks observed.
	Signs of Exposed Soils	X			X	Some areas along concrete barriers where anthills have formed and are leaking into roadway.
	Settlement	X			X	Some cracks/low spots where water/soil could make its way through the concrete divider onto the roadway.
Ballast Cap	Surface Damage		X		X	None observed.
	Signs of Exposed Soils	X		X		Some exposed soils observed, particularly from equipment driving on ballast.
	Intrusive Vegetation	X			X	Vegetation observed in some areas.
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X		X		Localized cracking along parking stall rows. Joint sealant missing in several locations. Routine evidence of NAPL seepage in some parking row B stalls. * UPRR has a concrete pavement inspection/maintenance program.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation		X		X	None observed.
Concrete Cap (Sidewalk)	Surface Damage		X		X	None observed.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation	X			X	Reasonable vegetation noted in some areas.
Other Areas						
Container Storage Area	Valve Position (Closed)	X			X	Valve in closed position.
	Holding Water		X		X	None observed.
	Sheen/Floating Solids		X		X	None observed.
Security Fence	Damaged Posts or Wire	X		X		Main Entrance Gate: barbed wire damaged/tacked down along sides; NW Corner: Hole in fence; ~400' east of main entrance gate: Hole in fence; ~20' east of main gate: Damage from vehicle running into fence
	Functioning Properly	X		X		Fence is still functioning as intended, but requires attention at the above noted areas.

Additional Comments or Observations: Repairs to fence suggested in listed areas, possibly reseed areas of bare vegetation, put more gravel down on ballast in areas where soil is exposed.

Inspector: Blake Sokora
 Inspectors Signature: *Blake Sokora*

Golder Associates, Inc.
 14950 Heathrow Forest Pkwy, Suite 280
 Houston, Texas 77032
 Phone: 281-821-6868 Fax: 281-821-6870





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
1

Date:
04/28/2020

Description:

HWPW Yard Area and Soil
Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. No major rills observed during inspection. Facing west.

Lat: 29.787194

Long: -95.317878



Photo No.
2

Date:
04/28/2020

Description:

HWPW Yard Area and Soil
Cap:

Vegetative growth (brushes and grasses in particular) can be observed along the length of the soil cap, preventing future erosion. Some anthills formed within cap area. Facing southeast.

Lat: 29.786456

Long: -95.320856





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
3

Date:
04/28/2020

Description:

HWPW Yard Area and Soil
Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. No major rills observed during inspection. Some wildflower growth observed. Facing west.

Lat: 29.786289
Long: -95.320144



Photo No.
4

Date:
04/28/2020

Description:

HWPW Yard Area and Soil
Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. Some damage to cap and slope due to trucks and rigs driving on it. Possible resodding needed in some areas. Facing east.

Lat: 29.787383
Long: -95.318694





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
5

Date:
04/28/2020

Description:

HWPW Yard Area and Soil
Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. Some damage to cap and slope due to trucks and rigs driving on it. Possible resodding needed in some areas. Facing southeast.

Lat: 29.787578
Long: -95.316911



Photo No.
6

Date:
04/28/2020

Description:

Monitoring Wells:

Vegetative growth around monitoring wells. The majority of monitoring wells have comparable vegetative growth to this one. Facing southeast.

Lat: 29.787458
Long: -95.320808





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
7

Date:
04/28/2020

Description:

Ballast Cap and Asphalt Roadway:

Asphalt roadway in good condition, free of major cracking/damage. Some areas of exposed soil in ballast cap can be observed. Facing southwest.

Lat: 29.786547
Long: -95.318847



Photo No.
8

Date:
04/28/2020

Description:

Asphalt Roadway:

Weeds and vegetation can be observed growing under the concrete barriers. Facing west.

Lat: 29.785442
Long: -95.321397





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
9

Date:
04/28/2020

Description:

Soil Cap Vegetative Cover and Asphalt Roadway:

Asphalt roadway in good condition, free of major cracking/damage. Tar-like marks on road do not appear to have changed in size. Facing south.

Lat: 29.785347
Long: -95.321647



Photo No.
10

Date:
04/28/2020

Description:

Asphalt Roadway and Soil Cap Vegetative Cover:

Some minor gaps noted between soil cap and roadway. Facing northwest.

Lat: 29.785875
Long: -95.320503





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
11

Date:
04/28/2020

Description:

Asphalt Roadway and Soil Cap
Vegetative Cover:

Anthills and small mounds of dirt observed on asphalt roadway between concrete barriers. Facing northwest.

Lat: 29.785694
Long: -95.320825



Photo No.
12

Date:
04/28/2020

Description:

Asphalt Roadway and Ballast
Cap:

Exposed soil visible in ballast cap, likely brought up by equipment used on ballast. Facing southwest.

Lat: 29.785147
Long: -95.322089





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
13

Date:
04/28/2020

Description:

Security Fence/Sidewalk Area:
Sidewalk outside security fence in good condition. Some areas have minor vegetative growth. Facing west.

Lat: 29.787658
Long: -95.316872



Photo No.
14

Date:
04/28/2020

Description:

Security Fence/Sidewalk Area:
Sidewalk outside security fence in good condition. Some areas of vegetative growth can be observed. Facing southwest.

Lat: 29.787647
Long: -95.317047





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
15

Date:
04/28/2020

Description:

Security Fence:
Some garbage and debris can be observed outside fence. Facing southwest.

Lat: 29.787594
Long: -95.319053



Photo No.
16

Date:
04/28/2020

Description:

Security Fence:
Fence damage from vehicle can be observed here, approximately 20' east of the main entrance gate. Facing west.

Lat: 29.787519
Long: -95.320856





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
17

Date:
04/28/2020

Description:

Security Fence (Entrance Gate):

Front gate and signage in good condition. Facing south.

Lat: 29.787467

Long: -95.321014



Photo No.
18

Date:
04/28/2020

Description:

Security Fence (Entrance Gate):

Barbed wire atop security fence partially cut on east side of entrance area. Barbed wire is tacked down on west side of fence as well. Facing northwest.

Lat: 29.787386

Long: -95.320914





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
19

Date:
04/28/2020

Description:

Security Fence:

Hole in security fence in northwest corner of yard at intersection of Liberty Rd and Kashmere St. Facing west.

Lat: 29.787503

Long: -95.323836



Photo No.
20

Date:
04/28/2020

Description:

Concrete Cap Area (Englewood Yard):

Some mild cracking/cratering in the pavement can be observed in the B Row of the Englewood Yard area. No visible vegetation or exposed soil was observed. Some brown water staining is also visible. Facing northeast.

Lat: 29.784378

Long: -95.320686





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
21

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard):

B057 stall. Evidence of minor cracking/cratering, which can also be found in certain B row stalls. Facing northwest.

Lat: 29.784747

Long: -95.319550



Photo No.
22

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard):

B057 stall. Evidence of minor cracking, sometimes producing tar-like seeps. Minor amount removed during inspection. Facing northwest.

Lat: 29.784747

Long: -95.319594





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
23

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard):

Some cracking/cratering and brown water staining in the pavement can be observed in the B Row of the Englewood Yard area. No visible vegetation or exposed soil was observed. Facing south.

Lat: 29.784297
Long: -95.320594



Photo No.
24

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B099/B100. NAPL Collection System in stalls B099-B110 in good condition with little evidence of cracking, stains, etc. Facing southwest.

Lat: 29.784247
Long: -95.320778





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
25

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B099/B100. Sump almost totally filled with water (brown in color, but with no sheen or odor). Facing north.

Lat: 29.784269
Long: -95.320794



Photo No.
26

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard):

B100/101 stalls. Evidence of minor cracking and recent tar-like seepage (in asphalt), some present at time of inspection. Facing north.

Lat: 29.784269
Long: -95.320831





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
27

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard):

B102 stall. Evidence of minor cracking and recent tar-like seepage (in joint), some present at time of inspection. Facing west.

Lat: 29.784189
Long: -95.320825



Photo No.
28

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

NAPL recovery system in B Row in good condition, free from major marking, cracking, or other issues. No visible vegetation or exposed soil was observed. Facing east.

Lat: 29.784083
Long: -95.321053





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
29

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

B103 stall. Evidence of minor cracking and recent tar-like seepage (in asphalt) on edge of NAPL Collection system, though none was present at time of inspection. Facing northwest.

Lat: 29.784219
Long: -95.320847



Photo No.
30

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B107/B108. NAPL Collection System in stalls B099-B110 in good condition with little evidence of cracking, stains, etc. Facing southwest.

Lat: 29.784133
Long: -95.321000





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
31

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B107/B108. Sump half-filled with water (no observable sheen on surface). Sump B103/B104 is filled similarly (but with no visible sheen). Facing northeast.

Lat: 29.784158
Long: -95.321014



Photo No.
32

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard):

B108 stall. Evidence of minor cracking and recent tar-like seepage (in asphalt), some present at time of inspection. Facing southwest.

Lat: 29.784142
Long: -95.321044





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
33

Date:
04/28/2020

Description:

Concrete Cap Area
(Englewood Yard):

Roadway between B and C rows. Roadways within yard are generally in good condition, free of major cracks, staining, etc. Facing south.

Lat: 29.785433
Long: -95.317903



Photo No.
34

Date:
04/28/2020

Description:

Container Storage Area:

Valve in closed position and functioning within the container storage area. CSA in good condition, free of major dents and other damage. Minor water on floor. Facing southeast.

Lat: 29.786789
Long: -95.320733



ATTACHMENT A3

THIRD QUARTER 2020 (JULY 23RD) INSPECTION RECORD AND PHOTOGRAPHIC LOGS

UPRR HWPW - Quarterly Site Inspection Record

Date: July 23, 2020

Time Started: 9:20

Time Ended: 14:30

Weather Conditions: partly cloudy

Observations/Comments:

CAPPED AREA	ITEM	Evidence Observed?		Improvements Necessary		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Yes	No	Yes	No	
Soil Cap	Erosion (gullies, rills)	X			X	No major rills observed. Bald areas previously observed seem to be regrowing.
	Settlement		X		X	None observed.
	Animal Damage	X			X	Some anthills noted throughout area.
	Intrusive Shrubs/Trees		X		X	None observed.
	Vegetation Coverage	X			X	Dense, lots of brush vegetation. Some previously bald areas in process of regrowth.
	Stressed Vegetation		X		X	None observed.
	Monitoring Wells Condition		X		X	In use wells generally in good condition. Most surrounded by shrubbery of reasonable height.
Asphalt Roadway	Surface Damage		X		X	Minor cracks observed.
	Signs of Exposed Soils	X			X	Some areas along concrete barriers where anthills have formed and are leaking into roadway.
	Settlement	X			X	Some cracks/low spots where water/soil could make its way through the concrete divider onto the roadway.
Ballast Cap	Surface Damage		X		X	None observed.
	Signs of Exposed Soils	X		X		Some minor areas of exposed soils observed.
	Intrusive Vegetation	X			X	Vegetation observed in some areas along edge of cap by roadway.
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X		X		Localized cracking along parking stall rows. Joint sealant missing in several locations. Routine evidence of NAPL seepage in some parking row B stalls. * UPRR has a concrete pavement inspection/maintenance program.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation		X		X	None observed.
Concrete Cap (Sidewalk)	Surface Damage		X		X	None observed.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation	X			X	Reasonable vegetation noted in some areas.
Other Areas						
Container Storage Area	Valve Position (Closed)	X			X	Valve in closed position.
	Holding Water		X		X	None observed.
	Sheen/Floating Solids		X		X	None observed.
Security Fence	Damaged Posts or Wire	X		X		Main Entrance Gate: barbed wire damaged/tacked down along sides; NW Corner: Hole in fence; ~400' east of main entrance gate: Hole in fence; ~20' east of main gate: Damage from vehicle running into fence
	Functioning Properly	X		X		Fence is still functioning as intended, but requires attention at the above noted areas.

Additional Comments or Observations: Repairs to fence suggested in listed areas, possibly reseed areas of bare vegetation, put more gravel down on ballast in areas where soil is exposed.

Inspector: Blake Sokora
 Inspectors Signature: *Blake Sokora*

Golder Associates, Inc.
 14950 Heathrow Forest Pkwy, Suite 280
 Houston, Texas 77032
 Phone: 281-821-6868 Fax: 281-821-6870





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
1

Date:
07/23/2020

Description:

HWPW Yard Area and Soil
Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. No major rills observed during inspection. Facing west.

Lat: 29.787300

Long: -95.317764



Photo No.
2

Date:
07/23/2020

Description:

HWPW Yard Area and Soil
Cap:

Vegetative growth can be observed along the length of the soil cap, preventing future erosion. Some anthills formed within cap area. Facing west.

Lat: 29.786100

Long: -95.320106





PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 19119232
--	--	--------------------------------

Photo No. 3	Date: 07/23/2020	
Description: <u>HWPW Yard Area and Soil Cap:</u> Soil cap well-vegetated in most areas with a low risk of erosion. No major rills observed during inspection. Some minor bald patches noted. Facing west. Lat: 29.787150 Long: -95.318292		

Photo No. 4	Date: 07/23/2020	
Description: <u>HWPW Yard Area and Soil Cap:</u> Soil cap well-vegetated in most areas with a low risk of erosion. Some minor bare spots noted. Facing east. Lat: 29.787561 Long: -95.317131		



PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
5

Date:
07/23/2020

Description:

HWPW Yard Area and Soil
Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. Variety of plant species observed. Facing east.

Lat: 29.786264

Long: -95.320525



Photo No.
6

Date:
07/23/2020

Description:

Monitoring Wells:

Vegetative growth around monitoring wells. The majority of monitoring wells have comparable vegetative growth to these. Facing southeast.

Lat: 29.787414

Long: -95.320817





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
7

Date:
07/23/2020

Description:

Ballast Cap and Asphalt Roadway:

Asphalt roadway in good condition, free of major cracking/damage. Some vegetation can be noted growing within the ballast cap. Facing southwest.

Lat: 29.787272
Long: -95.317078



Photo No.
8

Date:
07/23/2020

Description:

Asphalt Roadway and Soil Cap Vegetative Cover:

Weeds and vegetation can be observed growing under the concrete barriers. Soil cap's vegetative cover in good shape. Facing southwest.

Lat: 29.786722
Long: -95.318322





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
9

Date:
07/23/2020

Description:

Asphalt Roadway:

Asphalt roadway in good condition, free of major cracking/damage. Tar-like marks on road do not appear to have changed in size. Facing north.

Lat: 29.785347

Long: -95.321647



Photo No.
10

Date:
07/23/2020

Description:

Ballast Cap:

Some areas of bare soil can be observed in the ballast cap. Facing south.

Lat: 29.785933

Long: -95.320244





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
11

Date:
07/23/2020

Description:

Asphalt Roadway and Soil Cap
Vegetative Cover:

Anthills and small mounds of dirt observed on asphalt roadway between concrete barriers. Facing northwest.

Lat: 29.786897
Long: -95.317978



Photo No.
12

Date:
07/23/2020

Description:

Asphalt Roadway:

Weeds and vegetation can be observed growing under the concrete barriers. Facing west.

Lat: 29.785233
Long: -95.321878





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
13

Date:
07/23/2020

Description:

Security Fence/Sidewalk Area:

Sidewalk outside security fence in good condition. Some areas have minor vegetative growth. Facing west.

Lat: 29.787644
Long: -95.316789



Photo No.
14

Date:
07/23/2020

Description:

Security Fence/Sidewalk Area:

Sidewalk outside security fence in good condition. Facing west.

Lat: 29.787611
Long: -95.317153





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
15

Date:
07/23/2020

Description:

Security Fence:

Fence in good condition. Some garbage and debris can be observed outside fence. Facing southwest.

Lat: 29.787558
Long: -95.319511



Photo No.
16

Date:
07/23/2020

Description:

Security Fence:

Fence damage from vehicle can be observed here, approximately 20' east of the main entrance gate. Facing east.

Lat: 29.787483
Long: -95.320961





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
17

Date:
07/23/2020

Description:

Security Fence (Entrance Gate):

Front gate and signage in good condition. Facing south.

Lat: 29.787467

Long: -95.321014



Photo No.
18

Date:
07/23/2020

Description:

Security Fence (Entrance Gate):

Barbed wire atop security fence partially cut on east side of entrance area. Barbed wire is tacked down on west side of fence as well. Facing northwest.

Lat: 29.787378

Long: -95.320892





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
19

Date:
07/23/2020

Description:

Security Fence:

Hole in security fence in northwest corner of yard at intersection of Liberty Rd and Kashmere St. Facing west.

Lat: 29.787503

Long: -95.323836



Photo No.
20

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard):

Some mild cracking/cratering in the pavement can be observed in the B Row of the Englewood Yard area. No visible vegetation or exposed soil was observed. Some brown staining is also visible. Facing northwest.

Lat: 29.784333

Long: -95.320633





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
21

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard):

B102 stall. Evidence of recent tar-like substance seeping in joint. Routine in nearby B-Row stalls. Facing northwest.

Lat: 29.784156
Long: -95.320825



Photo No.
22

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard):

B103 stall. Evidence of recent tar-like substance seeping in joint. Routine in nearby B-Row stalls. Facing northwest.

Lat: 29.784261
Long: -95.320922





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
23

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard):

Stall A022. Evidence of recent tar-like substance surfacing evident in several spots in A and B rows. Facing southeast.

Lat: 29.785331
Long: -95.318611



Photo No.
24

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B099/B100. NAPL Collection System in stalls B099-B110 in good condition with little evidence of cracking, stains, etc. Facing northwest.

Lat: 29.784156
Long: -95.320975





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
25

Date:
07/23/2020

Description:

**Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:**

Sump B099/B100. Sump almost totally filled with water (brown in color, but with no sheen or odor). Facing north.

Lat: 29.784269
Long: -95.320794



Photo No.
26

Date:
07/23/2020

Description:

**Concrete Cap Area
(Englewood Yard):**

B100/101 stalls. Evidence of minor cracking and recent tar-like substance seepage (in asphalt), some present at time of inspection. Facing west.

Lat: 29.784272
Long: -95.320764





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
27

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard):

B104 stall. NAPL collection system in good condition for most part, with minimal stains, scrapes, etc. Facing northwest.

Lat: 29.784178

Long: -95.320914



Photo No.
28

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard):

Concrete cap within yard in good condition, with minimal cracks/potential for soil exposure. Facing southeast.

Lat: 29.785397

Long: -95.317842





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
29

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard):

Concrete cap within yard in good condition, with minimal cracks/potential for soil exposure. Facing southeast.

Lat: 29.785708

Long: -95.318092



Photo No.
30

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard):

Concrete cap within yard in good condition, with minimal cracks/potential for soil exposure. Facing northeast.

Lat: 29.783592

Long: -95.321969





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
31

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B107/B108. Sump half-filled with water (no observable sheen on surface). Sump B103/B104 is filled similarly. Facing northeast.

Lat: 29.784158
Long: -95.321014



Photo No.
32

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard):

NAPL removed from B107/B108 sump. Sump produces similar amounts of NAPL on occasion. Facing southwest.

Lat: 29.784159
Long: -95.321017





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
33

Date:
07/23/2020

Description:

Concrete Cap Area
(Englewood Yard):

Signs and related warnings in concrete cap area in good condition. Facing south.

Lat: 29.787973

Long: -95.332695



Photo No.
34

Date:
07/23/2020

Description:

Container Storage Area:

Valve in closed position and functioning within the container storage area. CSA in good condition, free of major dents and other damage. Minor water on floor. Facing southwest.

Lat: 29.786789

Long: -95.320733



ATTACHMENT A4

**FOURTH QUARTER 2020 (OCTOBER 15TH) INSPECTION RECORD AND PHOTOGRAPHIC
LOG**

UPRR HWPW - Quarterly Site Inspection Record

Date: October 15, 2020

Time Started: 9:20

Time Ended: 13:30

Weather Conditions: partly cloudy


Observations/Comments:

CAPPED AREA	ITEM	Evidence Observed?		Improvements Necessary		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Yes	No	Yes	No	
Soil Cap	Erosion (gullies, rills)	X			X	No major rills observed. Some bald patches observed, none major.
	Settlement		X		X	None observed.
	Animal Damage	X			X	Some anthills noted throughout area.
	Intrusive Shrubs/Trees		X		X	None observed.
	Vegetation Coverage	X			X	Dense, lots of brush vegetation. Some bald patches observed, none major.
	Stressed Vegetation		X		X	None observed.
	Monitoring Wells Condition		X		X	In use wells generally in good condition. Most surrounded by shrubbery of reasonable height.
Asphalt Roadway	Surface Damage		X		X	Minor cracks observed.
	Signs of Exposed Soils	X			X	Some areas along concrete barriers where anthills have formed and are leaking into roadway.
	Settlement	X			X	Some cracks/low spots where water/soil could make its way through the concrete divider onto the roadway.
Ballast Cap	Surface Damage		X		X	None observed.
	Signs of Exposed Soils	X		X		Some minor areas of exposed soils observed, particularly at the eastern end.
	Intrusive Vegetation	X			X	Vegetation observed in several areas along edge of cap by roadway.
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X		X		Localized cracking along parking stall rows. Joint sealant missing in several locations. Routine evidence of NAPL seepage in some parking row B stalls. Some minor areas of exposed soil noted along edges of stalls/joint lines. * UPRR has a concrete pavement inspection/maintenance program.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation		X		X	None observed.
Concrete Cap (Sidewalk)	Surface Damage		X		X	None observed.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation	X			X	Reasonable vegetation noted in some areas.
Other Areas						
Container Storage Area	Valve Position (Closed)	X			X	Valve in closed position.
	Holding Water		X		X	None observed.
	Sheen/Floating Solids		X		X	None observed.
Security Fence	Damaged Posts or Wire	X		X		Main Entrance Gate: barbed wire damaged/tacked down along sides; NW Corner: Hole in fence; ~400' east of main entrance gate: Hole in fence; ~20' east of main gate: Damage from vehicle running into fence
	Functioning Properly	X		X		Fence is still functioning as intended, but requires attention at the above noted areas.

Additional Comments or Observations: Repairs to fence suggested in listed areas, possibly reseed areas of bare vegetation, put more gravel down on ballast in areas where soil is exposed, examine areas of exposure within intermodal yard.

Inspector: Blake Sokora
 Inspectors Signature: *Blake Sokora*

Golder Associates, Inc.
 14950 Heathrow Forest Pkwy, Suite 280
 Houston, Texas 77032
 Phone: 281-821-6868 Fax: 281-821-6870





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
1

Date:
10/15/2020

Description:

HWPW Yard Area and Soil Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. No major rills observed during inspection. Facing east.

Lat: 29.786839

Long: -95.319411



Photo No.
2

Date:
10/15/2020

Description:

HWPW Yard Area and Soil Cap:

Vegetative growth can be observed along the length of the soil cap, preventing future erosion. Facing west.

Lat: 29.787519

Long: -95.316933





PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 19119232
--	--	--------------------------------

Photo No. 3	Date: 10/15/2020	
Description: <u>HWPW Yard Area and Soil</u> <u>Cap:</u> Soil cap well-vegetated in most areas with a low risk of erosion. No major rills observed during inspection. Some minor bald patches noted. Facing southwest. Lat: 29.787394 Long: -95.316933		

Photo No. 4	Date: 10/15/2020	
Description: <u>HWPW Yard Area and Soil</u> <u>Cap:</u> Soil cap well-vegetated in most areas with a low risk of erosion. Some minor bare patches noted. Facing east. Lat: 29.787419 Long: -95.317664		



PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
5

Date:
10/15/2020

Description:

HWPW Yard Area and Soil Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. Variety of plant species observed. Facing southwest.

Lat: 29.787381

Long: -95.318703



Photo No.
6

Date:
10/15/2020

Description:

Monitoring Wells:

Vegetative growth around monitoring wells. The majority of monitoring wells have comparable vegetative growth to these. Facing south.

Lat: 29.787497

Long: -95.319244





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
7

Date:
10/15/2020

Description:

**Ballast Cap, Soil Cap
Vegetative Cover, and Asphalt
Roadway:**

Asphalt roadway in good condition, free of major cracking/damage. Some vegetation can be noted growing within the ballast cap, and under the concrete barriers. Facing southwest.

Lat: 29.787383
Long: -95.316794



Photo No.
8

Date:
10/15/2020

Description:

**Ballast Cap and Asphalt
Roadway:**

Weeds and vegetation can be observed growing within the ballast cap. Facing southwest.

Lat: 29.785714
Long: -95.320678





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
9

Date:
10/15/2020

Description:

Asphalt Roadway:

Asphalt roadway in good condition, free of major cracking/damage. Tar-like marks on road do not appear to have changed in size. Facing north.

Lat: 29.785347

Long: -95.321647



Photo No.
10

Date:
10/15/2020

Description:

Ballast Cap:

Some areas of bare soil can be observed in the ballast cap. Facing east.

Lat: 29.787544

Long: -95.316581





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
11

Date:
10/15/2020

Description:

Asphalt Roadway and Soil Cap
Vegetative Cover:

Anthills and small mounds of dirt observed on asphalt roadway between concrete barriers. Facing north.

Lat: 29.787089
Long: -95.317519



Photo No.
12

Date:
10/15/2020

Description:

Asphalt Roadway:

Weeds and vegetation can be observed growing under the concrete barriers. Facing west.

Lat: 29.785296
Long: -95.321778





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
13

Date:
10/15/2020

Description:

Security Fence/Sidewalk Area:
Sidewalk outside security fence in good condition. Some areas have minor vegetative growth. Facing east.

Lat: 29.787656
Long: -95.317078



Photo No.
14

Date:
10/15/2020

Description:

Security Fence/Sidewalk Area:
Sidewalk outside security fence in good condition. Some areas have minor vegetative growth. Facing east.

Lat: 29.787611
Long: -95.317153





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
15

Date:
10/15/2020

Description:

Security Fence:
Security fence in good condition. Some garbage and debris can be observed outside fenced area. Facing east.

Lat: 29.787553
Long: -95.319969



Photo No.
16

Date:
10/15/2020

Description:

Security Fence:
Prior fence damage from vehicle has been repaired, approximately 20' east of the main entrance gate. Facing east.

Lat: 29.787483
Long: -95.320961





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
17

Date:
10/15/2020

Description:

Security Fence (Entrance Gate):

Front gate and signage in good condition. Facing south.

Lat: 29.787419

Long: -95.321004



Photo No.
18

Date:
10/15/2020

Description:

Security Fence (Entrance Gate):

Barbed wire atop security fence partially cut on east side of entrance area. Barbed wire is tacked down on west side of fence as well. Facing northwest.

Lat: 29.787378

Long: -95.320892





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
19

Date:
10/15/2020

Description:

Security Fence:

Hole in security fence in northwest corner of yard at intersection of Liberty Rd and Kashmere St. Facing west.

Lat: 29.787503

Long: -95.323836



Photo No.
20

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard):

Minor cracking can be noted throughout the A and B rows in the concrete cap area, with some soil exposure evident. Facing northwest.

Lat: 29.784303

Long: -95.320750





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
21

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard):

Stall A022. Evidence of recent tar-like substance surfacing evident in several spots in A and B rows. Facing southeast.

Lat: 29.785377

Long: -95.318688



Photo No.
22

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard):

Stall B101. Evidence of recent tar-like substance surfacing evident in several spots in A and B rows. Facing southwest.

Lat: 29.784275

Long: -95.320801





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
23

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard):

Stall B102. Evidence of recent tar-like substance surfacing evident in several spots in A and B rows. Facing northwest.

Lat: 29.784213

Long: -95.320760



Photo No.
24

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

NAPL Collection System in stalls B099-B110 in good condition with little evidence of cracking, stains, etc. Facing west.

Lat: 29.784197

Long: -95.320839





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
25

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

Sump B099/B100. Sump almost totally filled with water (brown in color, but with no sheen or odor). Facing northwest.

Lat: 29.784288
Long: -95.320748



Photo No.
26

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard):

Sump B107/B108. This sump has historically not exhibited any LNAPL, other an occasional light sheen. Facing north.

Lat: 29.784190
Long: -95.320977





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
27

Date:
10/15/2020

Description:

**Concrete Cap Area
(Englewood Yard):**
NAPL removed from Sump
B107/B108. Facing northwest.

Lat: 29.784193
Long: -95.320978



Photo No.
28

Date:
10/15/2020

Description:

**Concrete Cap Area
(Englewood Yard):**
Some cracking evident within
concrete cap area, exposing
some fill/soil, particularly in the A
and B rows. No vegetation noted
anywhere in yard. Facing
southeast.

Lat: 29.785497
Long: -95.318419





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
29

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard)/NAPL
Collection System:

NAPL Collection System in stalls B099-B110 in good condition with little evidence of cracking, stains, etc. Facing east.

Lat: 29.784123

Long: -95.321008



Photo No.
30

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard):

Concrete cap within yard in good condition, with minimal cracks/potential for soil exposure. Some cracking evident in B row, but with no evidence of vegetation growth. Facing west.

Lat: 29.784394

Long: -95.320671





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
31

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard):

Concrete cap within yard in good condition, with minimal cracks/potential for soil exposure Facing northeast.

Lat: 29.783729

Long: -95.322232



Photo No.
32

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard):

Concrete cap within yard in good condition, with minimal cracks/potential for soil exposure. Some surficial stains evident in A and B rows primarily. Facing west.

Lat: 29.785229

Long: -95.318551





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

Site Location:
Houston Wood Preserving Works, 4910 Liberty Road,
Houston, Texas

Project No.
19119232

Photo No.
33

Date:
10/15/2020

Description:

Concrete Cap Area
(Englewood Yard):

Signs and related warnings in concrete cap area and in HWPW area in good condition. Facing south.

Lat: 29.787973

Long: -95.332695



Photo No.
34

Date:
10/15/2020

Description:

Container Storage Area:

Valve in closed position and functioning within the container storage area. CSA in good condition, free of major dents and other damage. Minor water on floor. Facing southwest.

Lat: 29.786789

Long: -95.320733

