



March 29, 2019

Project No. 30401358

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 – 2018
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 Post-Response Action Completion Report (PRACR) for 2018 the above referenced site your review. An electronic version of the PRACR is also provided on the attached compact disk (CD).

If you have any questions or need additional information, please feel free to call me at (512) 671-3434 or email Eric_Matzner@golder.com; or Mr. Kevin Peterburs of UPRR at (414) 267-4164 and email KJPETERB@UP.COM.

Sincerely,

Golder Associates Inc.

A handwritten signature in black ink, appearing to read 'Eric C. Matzner', written over a light blue horizontal line.

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

ECM

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

Attachment Post-Response Action Completion Report – March 29, 2019
j:\1358 - uprr houston preserving works\pracr\2018 pracr\houston, tx - wood preserving works 2018 pracr cover letter 20190328.docm

Golder Associates Inc.
2201 Double Creek Dr, Suite 4004, Round Rock, Texas, USA 78664

T: +1 512 671-3434 F: +1 512 671-3446

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.			

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

Cover Page

Submittal date: March 29, 2019 Regulatory ID No.: SWR 31547 TCEQ Region No.: 12

TCEQ Program (check one)

- Corrective Action (Mail Code 127) Superfund PRP Lead (Mail Code 143)
 Voluntary Cleanup Program (Mail Code 221) Municipal Solid Waste Permits (Mail Code 124)
 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: 77007
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 kipeterb@up.com
Phone: 414-267-4164 Fax: 402-659-1496

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: 3/29/19

PRACR Executive Summary	ID No: SWR No. 31547
	Report Date: March 29, 2019

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

Date of RAP approval: Not Approved, currently under TCEQ review (Rap Rev 3 – June 2017)

Date of RACR approval: Not Approved, currently under TCEQ review (Rap Rev 3 – June 2017)

Length of approved PRAC period (default 30 yrs.): Not Approved, currently under TCEQ review (Rap Rev 3 – June 2017)

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, 2018 End date: December 31, 2018

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:

During the July 2017 quarterly inspection of the capped areas (see Figure 1), a tar-like substance was observed surfacing through the joints and cracks in the concrete and asphalt surfaces in the area of parking slots B100 to B109 shown on the attached Figure 2. Details of the observations were provided in the Post-Response Action Completion Report (PRACR) dated January 15, 2018 (PBW, 2018). Since the initial observation of the tar-like substance at the surface, weekly inspections of the affected area were conducted. The amount of tar surfacing each week varied depending on the ambient temperatures (i.e., greater amounts of the tar-like substance surfaced during warm weather). When significant amounts of the tar-like substance surfaced, a remediation contractor (United States Environmental Services (USES)) was notified to mobilize to the Site to remove and properly dispose of the material.

In October 2018, Golder documented the construction of test pits to evaluate the NAPL in the areas where the seeps were observed. The test pits were conducted within the primary area (slots B100-B109) and other areas (parking slots B13 and B54) (Figure 2). Four test pits were excavated to approximately 2.5 feet wide, 6 feet long and 5 feet deep with a mini-excavator. Based on the test pits conducted in the area of the NAPL seeps and the frequency of the occurrence of surface seepage at the B100 to B110 parking slots, the seeps appear to be a result of the volume of the shallow NAPL within the top 3 feet bgs mobilizing during warm weather and, to relieve subsurface pressure, finding preferential pathways to the surface through the concrete pavement's expansion joints and through the cracks in the asphalt pavement.

Using the information gathered from the test pits, the proposed response action to address the seeps was to install a NAPL collection system by removing a section of asphalt or concrete cover, excavating the underlying soils, backfilling with high permeability fill, installing slotted pipe to allow the accumulation of NAPL and backfilling the remaining few feet with compacted selected fill and reinforced concrete. Preliminary design drawings were provided to the TCEQ with the August 31, 2018 monthly update (Golder, 2018). Based on a phone conversation with the TCEQ on November 20, 2018, TCEQ approval to proceed with the proposed NAPL

PRACR Executive Summary

ID No: SWR No. 31547

Report Date: March 29, 2019

collection system was granted with the understanding that the approach was considered an interim response.

The NAPL collection system was installed in January 2019. Details of the installation are provided in the Response Action Completion Report (RACR) dated March 26, 2019 (Golder, 2019).

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

Quarterly inspections were conducted of the four main cap areas on January 25, April 26, July 5, and October 31, 2018). The following observations were made of the four capped areas:

- Soil Cap –The soil cap area continues to function as designed with minor areas of erosion rills and bare spots noted during the 1st and 2nd Quarterly Inspections. UPRR conducted repairs to the soil cap on June 12 and 13, 2018. The repairs included filling in with topsoil and re-seeding minor erosion rills and revegetating a few bare spots along the slopes of the soil cap. Erosion mats were placed in areas where larger repairs were made. Very small erosion rills along the base of the capped area were noted during the 3rd Quarter Inspection. 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.
- Asphalt Road Cap – The asphalt road cap appeared to be in good condition and functioning as designed. The small oil stain, which was noted during the October 2017 inspection, did not appear to expand in size based on the observations during the quarterly inspections and will continue to be monitored.
- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good shape, with some vegetation growth within the ballast area. 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 for the areas where the tar-like substance has seeped to the surface are currently being evaluated as described in Worksheet 2.0. Weekly inspections of the affected 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 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, 2019

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?	<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?	<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?	<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?	<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.
TCEQ-10329/PRACR February 2005

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 25, April 26, July 5, and October 31, 2018)

Quarterly site inspections of the four cap areas were conducted during the four quarters of 2018. Inspection logs and photographic logs for the quarterly inspections are provided in Attachment A. Results of the site inspections are provided below.

1st Quarter, 2018 – Inspection Date: 01/25/18

• **Soil Cap** -The soil cap area did not appear to have any significant erosion, sloughing, or subsidence. Some minor erosion rills (see Photo Nos. 5 (Lat: 29.78753611, Long: -95.31826667), 6 (Lat: 29.78750556, Long: -95.31805556), 8 (Lat: 29.78758889, Long: -95.31713889) and 15 (Lat: 29.78686111, Long: -95.319502779)) and a few bare spots (Photo No. 12 (Lat: 29.78635278, Long: -95.31948056)) were noted along the slopes of the soil cap, but the cap appeared to be functioning as designed. A few minor depression areas were also noted along the concrete barriers on the south side of the capped area (see Photo Nos. 21 and 22 (Lat: 29.78668333, Long: -95.318627779, Lat: 29.78586944, Long: -95.32038056))

• **Asphalt Road Cap** – The asphalt road cap appeared to be in good condition. A small oil stain (see Photo Nos. 27 and 28 (Lat: 29.78536111, Long: -95.32159444)), which was noted during the October 2017 inspection, did not appear to expand in size based compared to the previous inspection.

• **Railroad Ballast Cap** – The railroad ballast cap area appeared to be in good shape, with some vegetation growth within the ballast area (Photo No. 31 (Lat: 29.787425, Long: -95.31681111)).

• **Concrete Cap (Englewood Intermodal Yard)** – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo No. 52 (Lat: 29.78380556, Long: -95.32174722)). In the area of parking slots B100 to B109, a tar-like substance had been observed in the joints and cracks in the concrete and asphalt surfaces in the area shown on the attached Figure 2, and Photo Nos 39 through 47 (Lat: 29.78418333, Long: -95.3209749)). Since the initial observation of the tar-like substance at the surface, weekly inspections of the affected area have been conducted. The amount of tar which surfaces each week varies. It generally is

influenced by the ambient temperature (i.e., greater amounts of the tar-like substance surfaces during warm weather). When significant amounts of the tar-like substance surfaces, a remediation contractor (United States Environmental Services (USES)) is notified to mobilize to the Site to remove and properly dispose of the material. During the site inspection, there were no active seeps noted.

- Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition and functioning as intended (see Photo Nos. 59 through 63 (Lat: 29.78768611, Long: -95.31675, Lat: 29.78759444, Long: -95.31855)).

2nd Quarter 2018 – Inspection Date: 04/26/18

- Soil Cap -The soil cap area did not appear to have any significant erosion, sloughing, or subsidence. Some minor erosion rills (see Photo Nos. 3 (Lat: 29.78738889, Long: -95.31861111), 4 (Lat:29.78754167, Long: -95.3182) and 11 (Lat: 29.78606111, Long: -95.32106111)) and a few bare spots (Photo No. 2 (Lat: 29.78752778, Long: -95.31797778)) 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. A small oil stain (see Photo Nos. 19 (Lat: 29.78535556, Long: -95.32156389 and 20 (Lat: 29.78551389, Long: -95.31850556)), which was noted during the October 2017 and January 2018 inspections, 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 shape, with some vegetation growth within the ballast area (Photo Nos. 22 (Lat: 29.78655000, Long: -95.31882500)).
- Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo No. 36 (Lat: 29.78383889, Long: -95.32166943)). In the area of parking slots B100 to B109, the tar-like substance was observed during the inspection surfacing through the joints and cracks in the concrete and asphalt surfaces in the area shown in the attached Figure 2 (Photo Nos 27 through 32 (Lat: 29.78413889, Long: -95.32093056)). Weekly inspections and recovery of the tar-like substance continue to be conducted.
- Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition and functioning as intended (see Photo Nos. 42 through 45 (Lat: 29.78413889, Long: -95.32093056)).

3rd Quarter 2018 – Inspection Date: 07/05/18

- Soil Cap - After the 2nd quarter inspection, UPRR conducted repairs to the soil cap on June 12 and 13, 2018. A copy of the monthly update from June 2018 that was submitted to the TCEQ detailing the repairs is provided in Attachment B. The repairs included filling in with topsoil and re-seeding minor erosion rills and revegetating a few bare spots along the slopes of the soil cap. Erosion mats were placed in areas where larger repairs were made (see Photo Nos. 2 through 5). A couple of minor erosional features on the southern edge of the soil cap (along the concrete barrier, north of the asphalt cap - see Photo Nos. 14 (Lat: 29.78715, Long: -95.31744444) and 23 (Lat: 29.78713333, Long: -95.31769444)) were noted, but do not appear to affect the soil cap. Overall, the soil cap area did not appear to have any

areas of significant erosion, sloughing, or subsidence. The cap appeared to be functioning as designed.

- Asphalt Road Cap – Asphalt road cap appeared to be in good condition. A small oil stain (see Photo Nos. (Photo No. 22 (Lat: 29.47725999, Long: -95.19177100)), which was noted during previous inspections, has not expanded in size based compared to the previous inspections.

- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good shape, with some vegetation growth within the ballast area (Photo No. 19 (Lat: 29.787618889, Long: -95.31963333)).

- Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed. In the area of parking slots B100 to B109, the tar-like substance was observed surfacing during the site inspection through the joints and cracks in the concrete and asphalt surfaces in the area shown in the attached Figure 2 (Photo Nos 24 through 32 (Lat: 29.7842, Long: -95.3209)). Weekly inspections and recovery of the tar-like substance continue to be conducted.

- Concrete Sidewalk Cap - Sidewalk cap area appeared to be in good condition and functioning as intended (see Photo Nos. 38 and 39 (Lat: 29.47154100, Long: -95.19332000)).

4th Quarter 2018 – Inspection Date: 10/31/18, follow up 12/6/18

- Soil Cap – Heavy vegetation observed on the soil cap during the inspection (Photo Nos. 2 (Lat: 29.47505000 Long -95.19231500), 4 (Lat: 29.47126900, Long -95.1946400), and 5 (Lat: 29.47129700, Long: -95.19490999). As a result of the growing season for the pollinator plants, the vegetation is allowed to grow throughout October. Mowing began on October 31, 2018 and was completed in November because of wet weather. See photo 20 (Lat: 29.787579, Long: -95.316503) for cap conditions in December 2018.

- Asphalt Road Cap – Asphalt road cap appeared to be in good condition but heavy vegetation growing under the concrete barrier onto the asphalt roadway (See Photo Nos. 2 (Lat: 29.47505000, Long: -95.19231500) and 4 (Lat: 29.47126900, Long: -95.1946400)).

- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good shape, with minor vegetative growth within the ballast area (Photo No. 3 (Lat: 29.4791600, Long: -95.1913099)).

- Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo Nos. 16 (Lat: 29.47230999, Long: -95.19179299)) and 17 (Lat: 29.472809999, Long: -95.1915289) In the area of parking slots B100 to B109, small amounts of the tar-like substance was observed surfacing through the joints and cracks in the concrete and asphalt surfaces in the area shown in the attached Figure 2 (Photo Nos 12 through 15 (Lat: 29.78413889, Long: -95.32093056)). The filled in test pits that were conducted in October 2018 are shown on Photo Nos. 11, 13, and 14.

- Concrete Sidewalk Cap - Sidewalk cap area appeared to be in good condition and functioning as intended.

Has the physical control proved to be effective in meeting the response objectives during this reporting period? 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 – Following the minor repairs conducted in June 2018, the physical controls appear to be functioning as designed.
- Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition and functioning as intended.
- Asphalt Road Cap – Asphalt road cap appeared to be in good condition and functioning as designed. A small oil stain was noted during the October 2017 inspection, and will continue to be monitored.
- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good shape, with some vegetation growth within the ballast area. 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. The interim response actions (i.e., NAPL collection system) for the areas where the tar-like substance seeps were observed near slots B-100 to B-110 has been implemented. 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.

During the July 2017 quarterly inspection of the capped areas (see Figure 1), a tar-like substance was observed surfacing through the joints and cracks in the concrete and asphalt surfaces in the area of parking slots B100 to B109 shown on the attached Figure 2. Details of the observations were provided in the Post-Response Action Completion Report (PRACR) dated January 15, 2018 (PBW, 2018). Since the initial observation of the tar-like substance at the surface, weekly inspections of the affected area were conducted. The amount of tar surfacing each week varied depending on the ambient temperatures (i.e., greater amounts of the tar-like substance surfaced during warm weather). When significant amounts of the tar-like substance surfaced, a remediation contractor (United States Environmental Services (USES)) was notified to mobilize to the Site to remove and properly dispose of the material.

In October 2018, Golder documented the construction of test pits to evaluate the NAPL in the areas where the seeps were observed. The test pits were conducted within the primary area (slots B100-B109) and other areas (parking slots B13 and B54) (Figure 2). Four test pits were excavated to approximately 2.5 feet wide, 6 feet long and 5 feet deep with a mini-

excavator. Based on the test pits conducted in the area of the NAPL seeps and the frequency of the occurrence of surface seepage at the B100 to B110 parking slots, the seeps appear to be a result of the volume of the shallow NAPL within the top 3 feet bgs mobilizing during warm weather and, to relieve subsurface pressure, finding preferential pathways to the surface through the concrete pavement's expansion joints and through the cracks in the asphalt pavement.

Using the information gathered from the test pits, the proposed response action to address the seeps was to install a NAPL collection system by removing a section of asphalt or concrete cover, excavating the underlying soils, backfilling with high permeability fill, installing slotted pipe to allow the accumulation of NAPL and backfilling the remaining few feet with compacted selected fill and reinforced concrete. Preliminary design drawings were provided to the TCEQ with the August 31, 2018 monthly update (Golder, 2018). Based on a phone conversation with the TCEQ on November 20, 2018, TCEQ approval to proceed with the proposed NAPL collection system was granted with the understanding that the approach was considered an interim response.

The NAPL collection system was installed in January 2019. Details of the installation are provided in the Response Action Completion Report (RACR) dated March 26, 2019 (Golder, 2019).

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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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
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 Associates (Golder, formerly Pastor, Behling & Wheeler, LLC (PBW)) 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 Union Pacific Railroad (UPRR) Englewood Intermodal Yard within the Houston Wood Preserving Works (HWPW) Site.
January 2019	Golder 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).
November 2018	Golder submits the PRACR Monthly Update to the TCEQ (November 30, 2018).
October 2018	Golder 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 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).

APPENDIX 3 CHRONOLOGY

Date	Description
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).
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).

APPENDIX 3
CHRONOLOGY

Date	Description
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
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

**APPENDIX 3
CHRONOLOGY**

Date	Description
	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.
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.

**APPENDIX 3
CHRONOLOGY**

Date	Description
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.
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.

APPENDIX 3 CHRONOLOGY

Date	Description
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
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.

**APPENDIX 3
CHRONOLOGY**

Date	Description
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






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



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\katie\Temp\Drawings\Public_255256_1_Files\Fig 1 - Capped Areas.dwg | Last Edited By: adiamond | Date: 2019-03-29 Time: 9:21:30 AM | Printed By: adiamond | 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

Path: \\user\hans\p\proj\Houston\30401358\UPRR\Wood Preserving\Hous\2019\3\March | File Name: FIG 2 - Englewood Intermodal Yard Capped Area Seeps.dwg | Last Edited By: adamwood | Date: 2019-03-29 | Time: 9:26:21 AM
 Path: \\user\hans\p\proj\Houston\30401358\UPRR\Wood Preserving\Hous\2019\3\March | File Name: FIG 2 - Englewood Intermodal Yard Capped Area Seeps.dwg | Last Edited By: adamwood | Date: 2019-03-29 | Time: 9:26:21 AM



- LEGEND**
- TEST PIT LOCATIONS (6'L x 2.5'W x 5'D)
 - ENVIRONMENTAL SAMPLE BORING LOCATIONS (PBW, 2018)
 - AFFECTED AREA (NAPL SURFACING THROUGH SOME CRACKS AND JOINTS)

REFERENCE(S)
 BASE MAP TAKEN FROM GOOGLE EARTH IMAGE DATED 01-23-2017.

CLIENT
 UNION PACIFIC RAILROAD CO.

PROJECT
 HOUSTON WOOD PRESERVING WORKS

TITLE
 ENGLEWOOD INTERMODAL YARD CAPPED AREA SEEPS

CONSULTANT	YYYY-MM-DD	2019-03-26
DESIGNED	AJD	
PREPARED	AJD	
REVIEWED	ECM	
APPROVED	ECM	



PROJECT NO. 30401358 REV. 0 FIGURE 2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

ATTACHMENT A

2018 QUARTERLY INSPECTION RECORDS AND PHOTOGRAPHIC LOGS

ATTACHMENT A1

**FIRST QUARTER 2018 (JANUARY 25TH) INSPECTION RECORD AND PHOTOGRAPHIC
LOG**

UPRR HWPW - Quarterly Site Inspection Record

Date: 1/25/18

Time Started: 09:15am

Time Ended: 11:00 am


Weather Conditions: Clear, cool (mid 40's), sunny and calm

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		Small rills and erosion areas noted along the northern and southern sides of the soil cap, a few inches deep. Appears just top soil
	Settlement	X			X	Small depression area north of cap along fenceline near wells MW-57A and MW-57B. Area outside of cap, repairs not necessary. Small depression area along concrete barriers, evaluate filling in with topsoil and reseed.
	Animal Damage		X		X	None observed.
	Intrusive Shrubs/Trees		X		X	None observed.
	Vegetation Coverage	X			X	Grass dormant, however, good coverage. Small bare area along southern portion of cap along concrete barriers. Will evaluate reseeding this area.
	Stressed Vegetation		X	X		None observed.
	Monitoring Wells Condition	X			X	Monitoring wells appear to be in good shape.
Asphalt Roadway	Surface Damage		X		X	None observed. A small area of oil or tar noted in middle of asphalt road. Appears similar to conditions in Oct 2017. Will continue to watch this area.
	Signs of ExposedSoils		X		X	None observed.
	Settlement		X		X	None observed.
Ballast Cap	Surface Damage		X		X	None observed.
	Signs of ExposedSoils		X		X	None observed.
	Intrusive Vegetation	X		X		Small areas grass and weeds within the ballast cap area. Vegetation should be removed from the cap.
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X			X	Cracks present in the concrete pavement; however, no signs of exposed soils. Some joints in the "A" row, "B" row, and "C" row are missing joint sealant material. Remnants of the tar-like material noted in the B-Row (B-100 to B-109), however, no active seeps observed during inspection.
	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	None observed.
Other Areas						
Container Storage Area	Valve Position (Closed)	X			X	Closed, currently blocked by carport structure.
	Holding Water		X		X	None observed.
	Sheen/Floating Solids		X		X	None observed.
Security Fence	Damaged Posts or Wire		X		X	None observed.
	Functioning Properly	X			X	

Additional Comments or Observations:

During inspection, marked areas for repair with orange marking paint and met remediation contractor to provide a cost estimate to conduct the necessary repairs.

Inspector: Eric Matzner
 Inspectors Signature: 

PASTOR, BEHLING & WHEELER, LLC
 2201 Double Creek Dr., Suite 4004
 Round Rock, Texas 78664
 Phone: 512-671-3434 Fax: 512-671-3446

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 1	Date: 01/25/18
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Description:

Soil Cap Area:
 Soil cap facing southwest, vegetation cover in good shape.

Lat: 29.78803889
 Long: -95.31865



Photo No. 2	Date: 01/25/18
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Description:

Soil Cap Area:
 Soil cap, facing northeast, Liberty Rd on left of photo

Lat: 29.78751111
 Long: -95.31829722



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
3

Date:
01/25/18

Description:

Soil Cap Area:

Fence line north of soil cap looking east, Liberty Rd to the left, soil cap area to the right.

Lat: 29.78756389

Long: -95.31835278



Photo No.
4

Date:
01/25/18

Description:

Soil Cap Area:



Fence line north of soil cap looking west, Liberty Rd to the right, soil cap area out of picture to the right.

Lat: 29.78757222

Long: -95.31834444



Client Name: Union Pacific Railroad		Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
Photo No. 5	Date: 01/25/18		
Description: Soil Cap Area: Northern edge of soil cap, looking south, orange paint outlining erosion rill to be repaired. Lat: 29.78753611 Long: -95.31826667			
Photo No. 6	Date: 01/25/18		
Description: Soil Cap Area: Northern edge of soil cap, looking south, orange paint outlining erosion rill to be repaired. Lat: 29.78750556 Long: -95.31805556			

Client Name: Union Pacific Railroad		Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No.: 1358-603
Photo No.: 7	Date: 01/25/18		
Description: Soil Cap Area: North of soil cap, looking east, orange paint outlining depression to be repaired outside of soil cap, monitoring wells MW-57A and MW-57B on right of photo. Lat: 29.78761389 Long: -95.31758056			
Photo No.: 8	Date: 01/25/18		
Description: Soil Cap Area: Northern edge of soil cap, looking west, orange paint outlining erosion rill to be repaired. Lat: 29.78758889 Long: -95.31713889			

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 9	Date: 01/25/18
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Description:

Soil Cap Area:
 Warning sign at northeast corner of soil cap area, looking west

Lat: 29.78753333
 Long: -95.31653611



Photo No. 10	Date: 01/25/18
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Description:

Soil Cap Area:
 Southern edge of soil cap along asphalt road cap, looking southwest, vegetation cover in good shape.

Lat: 29.78733333
 Long: -95.31708611



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 11	Date: 01/25/18
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Description:

Soil Cap Area:
 Soil cap area, looking north, vegetation cover in good shape.

Lat: 29.78646389
 Long: -95.319175



Photo No. 12	Date: 01/25/18
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Description:

Soil Cap Area:
 Bare area on southern portion of soil cap, vegetation starting to cover the area, looking southwest.

Lat: 29.78635278
 Long: -95.31948056



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 13	Date: 01/25/18
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Description:

Soil Cap Area:
Western edge of soil cap, looking east, erosion rill to be repaired.

Lat: 29.78606667
Long: -95.32105278



Photo No. 14	Date: 01/25/18
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Description:

Soil Cap Area:
Western edge of soil cap, looking east.

Lat: 29.78634444
Long: -95.32107499



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 15	Date: 01/25/18
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Description:

Soil Cap Area:
 Northern edge of soil cap, looking southeast, erosion/slough area to be repaired.

Lat: 29.78686111
 Long: -95.319502779



Photo No. 16	Date: 01/25/18
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Description:

Soil Cap Area:
 View of soil cap, looking east, Lockwood Overpass in foreground.

Lat: 29.78675
 Long: -95.31895556



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 17	Date: 01/25/18
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Description:

Soil Cap Area:
 Northern edge of soil cap, looking southwest, erosion/slough area to be repaired.

Lat: 29.78711944
 Long: -95.31865556



Photo No. 18	Date: 01/25/18
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Description:

Soil Cap Area:
 Monitoring well MW-19C within the soil cap area.

Lat: 29.78709722
 Long: -95.318175



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 19	Date: 01/25/18
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Description:

Soil Cap Area:
 Northern edge of soil cap, looking south, orange paint outlining erosion rill to be repaired.

Lat: 29.78761944
 Long: -95.31716111



Photo No. 20	Date: 01/25/18
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Description:

Soil Cap Area:
 Southern edge of soil cap along concrete barriers, looking south, orange paint outlining depression to be repaired.

Lat: 29.78707778
 Long: -95.31752778



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
21

Date:
01/25
/18

Description:

Soil Cap Area:

Southern edge of soil cap along concrete barriers, looking southwest, orange paint outlining depression to be repaired.

Lat: 29.78668333
Long:-95.31862778



Photo No.
22

Date:
01/25
/18

Description:

Soil Cap Area:

Southern edge of soil cap along concrete barriers, looking southwest, orange paint outlining depression to be repaired.

Lat: 29.78586944
Long:-95.32038056



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 23	Date: 01/25/18
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Description:

Asphalt Cap Area:
 View of asphalt road cap, looking southwest, warning sign on left in ballast cap area, soil cap area to the right. Some vegetation within ballast cap area.

Lat: 29.78744444
 Long: -95.31663611



Photo No. 24	Date: 01/25/18
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Description:

Asphalt Cap Area:
 View of asphalt road cap, looking southwest.

Lat: 29.78713333
 Long: -95.31748333



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 25	Date: 01/25/18
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Description:

Asphalt Cap Area:
 View of asphalt road cap, looking northeast.

Lat: 29.78666111
 Long: -95.31863333



Photo No. 26	Date: 01/25/18
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Description:

Asphalt Cap Area:
 View of asphalt road cap, looking southwest, railroad ballast cap area to the left, soil cap area to the right.

Lat: 29.78645
 Long: -95.31913889



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
27

Date:
01/25/18

Description:

Asphalt Cap Area:
View of asphalt cap area, looking southwest. Note small oily stains on pavement, appear the same compared to Oct 2017 inspection.

Lat: 29.78536111
Long: -95.32159444



Photo No.
28

Date:
01/25/18

Description:

Asphalt Cap Area:
View of asphalt cap area. Note small oily stains on pavement, appear the same compared to Oct 2017 inspection.

Lat: 29.78536111
Long: -95.32166389



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 29	Date: 01/25/18
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Description:

Asphalt Cap Area:
 View of asphalt cap area, looking northeast. Note small oily stains on pavement, car key chain for scale.

Lat: 29.78533333
 Long: -95.32170833



Photo No. 30	Date: 01/25/18
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Description:

Ballast Cap Area:
 View of ballast cap area, looking south-southwest.

Lat: 29.78743056
 Long: -95.31681944



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 31	Date: 01/25/18
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Description:

Asphalt Cap/Ballast Cap Area:
 View of ballast cap area, looking southwest. Some vegetation within the ballast area, no soil exposed.

Lat: 29.787425
 Long: -95.31681111

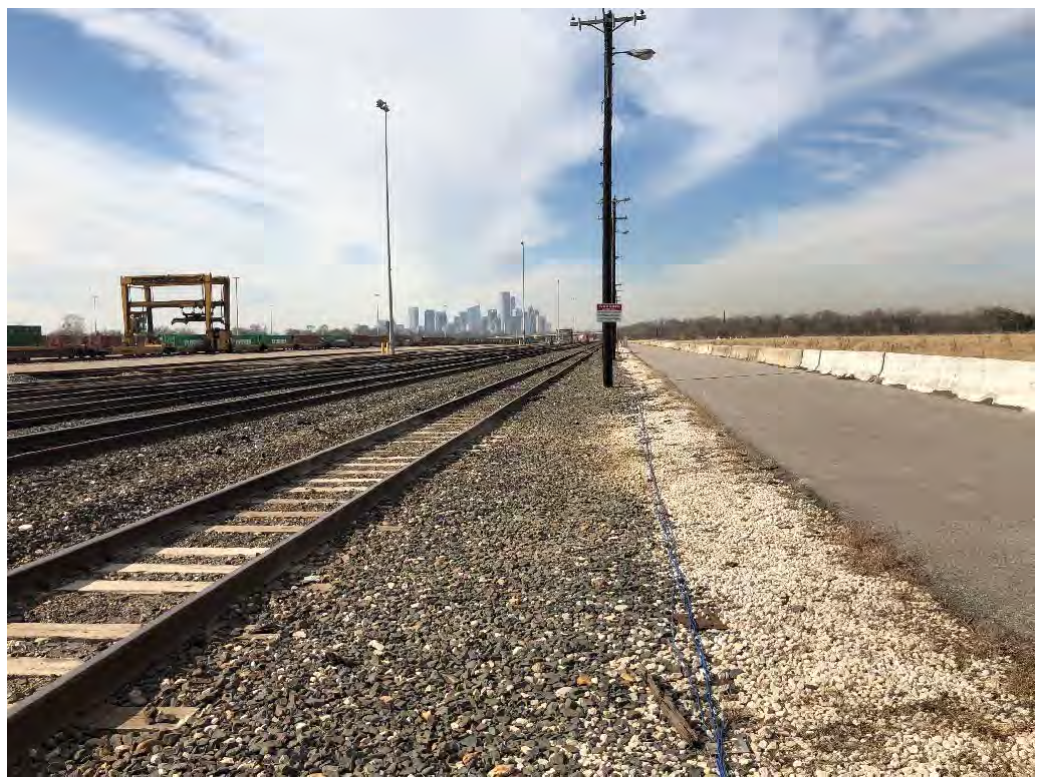


Photo No. 32	Date: 01/25/18
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Description:

Asphalt Cap/Ballast Cap Area:
 View of ballast cap area, looking southwest. Ballast area cover in good shape.

Lat: 29.78655278
 Long: -95.31893889



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 33	Date: 01/25/18
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Description:

Ballast Cap Area:
 View of ballast cap area, looking northeast.

Lat: 29.7865
 Long: -95.31896111



Photo No. 34	Date: 01/25/18
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Description:

Ballast Cap Area:
 View of ballast cap area, looking southwest. Ballast area cover in good shape.

Lat: 29.78649444
 Long: -95.31896111



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 35	Date: 01/25/18
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Description:

Asphalt Cap/Ballast Cap Area:
View of ballast cap area, looking south.
Warning sign for the capped areas.

Lat: 29.78641944
Long: -95.31924444



Photo No. 36	Date: 01/25/18
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Description:

Asphalt Cap/Ballast Cap Area:
View of ballast cap area, looking south.

Lat: 29.78641944
Long: -95.31938889



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 37	Date: 01/25/18
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Description:

Asphalt Cap/Ballast Cap Area:
 View of ballast cap area, looking northeast. Note some vegetation within the ballast area.

Lat: 29.78545278
 Long: -95.32136667



Photo No. 38	Date: 01/25/18
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Description:

Ballast Cap Area:
 View of ballast cap area, looking southeast.

Lat: 29.78545556
 Long: -95.32136667



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
39

Date:
01/25/18

Description:

Concrete Cap Area:
Remnants of tar-like material seeps near B105, no active seeping noted, looking south.

Lat: 29.78407222
Long: -95.32095278



Photo No.
40


Date:
01/25/18

Description:

Concrete Cap Area:
Remnants of tar-like material seeps near B103, no active seeping noted.

Lat: 29.78415556
Long: -95.32089167



Client Name: Union Pacific Railroad		Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
Photo No. 41	Date: 01/25/18		
Description: Concrete Cap Area: Remnants of tar-like material seeps near B105, no active seeping noted. Lat: 29.78418333 Long: -95.32097499			
Photo No. 42	Date: 01/25/18		
Description: Concrete Cap Area: Remnants of tar-like material seeps near B106 through B109, no active seeping noted, looking southwest. Lat: 29.78415556 Long: -95.320938			

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
43

Date:
01/25/18

Description:

Concrete Cap Area:
Remnants of tar-like material seeps near B106, no active seeping noted, looking northeast.

Lat: 29.78411111
Long: -95.321



Photo No.
44

Date:
01/25/18

Description:

Concrete Cap Area:
Remnants of tar-like material seeps near B109, no active seeping noted

Lat: 29.78411667
Long: -95.32109722



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
45

Date:
01/25/18

Description:

Concrete Cap Area:

Remnants of tar-like material seeps near B108, no active seeping noted

Lat: 29.78408333

Long: -95.32103056



Photo No.
46

Date:
01/25/18

Description:

Concrete Cap Area:

Remnants of tar-like material seeps near B107, no active seeping noted

Lat: 29.78408056

Long: -95.32102222



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 47	Date: 01/25/18
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Description:

Concrete Cap Area:
Remnants of tar-like material seeps near B105, no active seeping noted

Lat: 29.78407222
Long: -95.32101389



Photo No. 48	Date: 01/25/18
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Description:

Concrete Cap Area:
Area north of A-Row, concrete appears in good shape, looking southwest.

Lat: 29.78444167
Long: -95.321044439



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 49	Date: 01/25/18
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Description:

Concrete Cap Area:
Area north of A-Row, concrete appears in good shape, looking northeast.

Lat: 29.78448056
Long: -95.32099167



Photo No. 50	Date: 01/25/18
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Description:

Concrete Cap/Ballast Cap Areas:
Rail container box loading/unloading area, looking southwest.

Lat: 29.78455
Long: -95.32105278



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
51

Date:
01/25/18

Description:

Concrete Cap Area:

Area within B-Row, concrete appears in good shape, looking west.

Lat: 29.78401667
Long: -95.321275



Photo No.
52

Date:
01/25/18

Description:

Concrete Cap Area:

Area within B-Row, cracks in the concrete but no exposed soils, looking west.

Lat: 29.78380556
Long: -95.32174722



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
53

Date:
01/25/18

Description:

Concrete Cap Area:
Edge of concrete cap area at the west end of B-Row, concrete appears in good shape with some cracks, looking west.

Lat: 29.78353056
Long: -95.32216667



Photo No.
54

Date:
01/25/18

Description:

Concrete Cap Area:
Edge of concrete cap area at the west end of A and B-Rows, concrete appears in good shape, looking east.

Lat: 29.78341944
Long: -95.322647219



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
55

Date:
01/25/18

Description:

Concrete Cap Area:
Edge of concrete cap area at the west end of A and B-Rows, concrete appears in good shape, looking north.

Lat: 29.78343056
Long: -95.32265556



Photo No.
56

Date:
01/25/18

Description:

Concrete Cap Area:
Area within A-Row, concrete appears in good shape, looking south.

Lat: 29.78416111
Long: -95.32152499



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No.: 1358-603
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Photo No.: 57	Date: 01/25/18
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Description:

Concrete Cap Area:
Area within A-Row, concrete appears in good shape, looking east.

Lat: 29.78480833
Long: -95.320008329



Photo No.: 58	Date: 01/25/18
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Description:

Concrete Cap Area:
Area east of A-Row, concrete appears in good shape, looking south.

Lat: 29.78548889
Long: -95.31844443



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
59

Date:
01/25/18

Description:

**Perimeter Fence/
Concrete Sidewalk
Cap Area:**

View of the sidewalk
cap area, looking west
along Liberty Road.

Lat: 29.78768611

Long: -95.31675



Photo No.
60

Date:
01/25/18

Description:

**Perimeter Fence/
Concrete Sidewalk
Cap Area:**

View of the sidewalk
cap area, looking west
along Liberty Road

Lat: 29.78768056

Long: -95.31694167



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
61

Date:
01/25/18

Description:

**Perimeter Fence/
Concrete Sidewalk
Cap Area:**

View of the sidewalk cap area, looking southwest along Liberty Road, small areas where water has seeped through.

Lat: 29.78764444

Long: -95.31736667



Photo No.
62

Date:
01/25/18

Description:

**Perimeter Fence/
Concrete Sidewalk
Cap Area:**

View of the sidewalk cap area, looking west along Liberty Road.

Lat: 29.78764167

Long: -95.317802779



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
63

Date:
01/25/18

Description:

**Perimeter Fence/
Concrete Sidewalk
Cap Area:**

View of the sidewalk
cap area, looking east
along Liberty Road.

Lat: 29.78759444
Long: -95.31855



Photo No.
64

Date:
01/25/18

Description:

**Perimeter Fence/
Concrete Sidewalk
Cap Area:**

Warning sign on the
northern perimeter
fence.

Lat: 29.78762778
Long: -95.318397219



ATTACHMENT A2

SECOND QUARTER 2018 (APRIL 26TH) INSPECTION RECORD AND PHOTOGRAPHIC LOG

UPRR HWPW - Quarterly Site Inspection Record

Date: 4/26/18

Time Started: 11:50

Time Ended: 15:20

Weather Conditions: Clear, warm (mid 70's to low 80's), calm

Observations/Comments: Trash present in cap, along the asphalt roadway and concrete barriers, in the ballast cap, and on and around the sidewalk. Furniture and other debris outside the main entrance gate. Standing water present near western toe of the cap and approximately 200' west of the main entrance gate. Ant mounds of various sizes present in the cap, along the sidewalk, along the concrete barriers, and in the asphalt cap.

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		Rills (range from 2' x 2' to 5' by 10' in length, with depths of 2" to 6") present along the northern toe from 200' to 600' east of the main entrance.
	Settlement	X			X	Settlement present along western toe of cap.
	Animal Damage	X			X	Ant mounds present throughout cap.
	Intrusive Shrubs/Trees		X		X	None observed.
	Vegetation Coverage	X			X	Satisfactory, flowers and pollinator plants are abundant across the capped area.
	Stressed Vegetation		X	X		Some bare areas along the northern and western toe of cap. The larger ones could be reseeded.
	Monitoring Wells Condition	X			X	Most wells have an appropriate vegetation height around them, however, a couple have large shrubs growing on them.
Asphalt Roadway	Surface Damage		X		X	None observed.
	Signs of ExposedSoils	X			X	Some exposed soils and ant mounds along the concrete barricades.
	Settlement		X		X	None observed.
Ballast Cap	Surface Damage		X		X	None observed.
	Signs of ExposedSoils		X		X	Some ant mounds present in the ballast cap.
	Intrusive Vegetation	X		X		Grass and weeds present throughout the ballast cap. Vegetation should be removed from the cap.
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X			X	Cracking present throughout the yard in both the parking spaces and in the main driveways. Some joints in the "A" row, "B" row, and "C" row are missing joint sealant material.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation	X		X		Vegetation present in the joints that are missing joint sealant.
Concrete Cap (Sidewalk)	Surface Damage		X		X	None observed.
	Signs of Exposed Soils		X		X	None observed.
	Intrusive Vegetation		X		X	None observed.

Other Areas

Container Storage Area	Valve Position (Closed)	X			X	Closed, currently blocked by carport structure.
	Holding Water		X		X	None observed.
	Sheen/Floating Solids		X		X	None observed.
Security Fence	Damaged Posts or Wire	X		X		Missing 2 posts 150' west of entrance. Missing 2 posts and chain link is damaged (pushed inward into the yard) 400' west of main entrance. Missing 3 posts and chain link is damaged (pushed inward into the site) 500' west of main entrance. It looks like all damage is vehicle damage. Replacing the chain link and posts would remediate the issue.
	Functioning Properly	X		X		The fence is still functioning as intended, however it has been damaged at the areas noted above.

Additional Comments or Observations:

Inspector: Jacob Geesin Inspectors Signature: 	PASTOR, BEHLING & WHEELER, LLC 2201 Double Creek Dr., Suite 4004 Round Rock, Texas 78664 Phone: 512-671-3434 Fax: 512-671-3446
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Client Name:
Union Pacific Railroad

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

Project No.
 1358-603

Photo No.
1

Date:
 04/26/18

Description:

Soil Cap Area:

Soil cap facing southwest,
 vegetation cover in good
 shape.

Lat: 29.78683889

Long: -95.31981666



Photo No.
2

Date:
 04/26/18

Description:

Soil Cap Area:

Soil cap, facing northeast,
 Liberty Rd on left of photo.
 Small bare area in foreground
 of photo.

Lat: 29.78752778

Long: -95.31797778



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
3

Date:
04/26/18

Description:

Soil Cap Area:

Northern edge of soil cap,
looking south, stake near
erosion rill to be repaired

Lat: 29.78738889
Long: -95.31861111



Photo No.
4

Date:
04/26/18

Description:

Soil Cap Area:

Northern edge of soil cap,
looking south, bare area and
erosion rill to be repaired

Lat: 29.78754167
Long: -95.3182



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 5	Date: 04/26/18
Description: Soil Cap Area: Monitoring well near entrance gate with heavy vegetation, looking east. Lat: 29.787375 Long: -95.32080833000002	



Photo No. 6	Date: 04/26/18
Description: Soil Cap Area: Flowering plants at southern edge of cap in full bloom, looking northwest. Lat: 29.78573056 Long: -95.32070832999999	



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No.: 1358-603
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Photo No.: 7	Date: 04/26/18
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Description:

Soil Cap Area:
Warning sign at northeast corner of soil cap area, looking west

Lat: 29.78761111
Long: -95.31645833



Photo No.: 8	Date: 04/26/18
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Description:

Soil Cap Area:
Southern edge of soil cap along asphalt road cap, looking southwest, vegetation cover in good shape, weeds growing along the concrete barriers.

Lat: 29.78963611
Long: -95.31637499999999



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 9	Date: 04/26/18
Description: Soil Cap Area: Soil cap area, looking north, vegetation cover in good shape. Lat: 29.78663889 Long: -95.31975556	



Photo No. 10	Date: 04/26/18
Description: Soil Cap Area: Healthy vegetation cover on southeastern portion of soil cap, looking southwest. Lat: 29.78706111 Long: -95.31761943999999	



Client Name: Union Pacific Railroad		Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
Photo No. 11	Date: 04/26/18		
Description: Soil Cap Area: Western edge of soil cap, looking east, erosion rill to be repaired. Lat: 29.78606111 Long: -95.32106111			
Photo No. 12	Date: 04/26/18		
Description: Soil Cap Area: Western edge of soil cap, looking east. Lat: 29.78706111 Long: -95.31761943999999			

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 13	Date: 04/26/18	
Description: <u>Soil Cap Area:</u> View of soil cap, looking east, Lockwood Overpass in background. Lat: 29.78664167 Long: -95.31975556		

Photo No. 14	Date: 04/26/18	
Description: <u>Soil Cap Area:</u> Monitoring well MW-19C within the soil cap area. Vegetation around the well needs to be trimmed. Lat: 29.78867222 Long: -95.31671944000001		

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 15	Date: 04/26/18
Description: Asphalt Cap Area: View of asphalt road cap, looking southwest, warning sign on left in ballast cap area, soil cap area to the right. Some vegetation within ballast cap area. Lat: 29.787475 Long: -95.31654999999999	



Photo No. 16	Date: 04/26/18
Description: Asphalt Cap Area: View of asphalt road cap, looking southwest. Vegetation growing beneath the concrete barriers Lat: 29.78735833 Long: -95.31691111000001	



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 17	Date: 04/26/18
Description: Asphalt Cap Area: View of asphalt road cap, looking northeast. Lat: 29.78578056 Long: -95.32058056	



Photo No. 18	Date: 04/26/18
Description: Asphalt Cap Area: View of asphalt road cap, looking southwest, railroad ballast cap area to the left, soil cap area to the right. Flowering plants in soil cap appear healthy. Lat: 29.787275 Long: -95.31714722	



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 19	Date: 04/26/18
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Description:

Asphalt Cap Area:
 View of asphalt cap area, looking southwest. Note small oily stains on pavement, appear the same compared to Jan 2018 inspection.

Lat: 29.78535556
 Long: -95.32156389



Photo No. 20	Date: 04/26/18
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Description:

Asphalt Cap Area:
 View of asphalt cap area. Note small oily stains on pavement, appear the same compared to Jan 2018 inspection. Pen for scale.

Lat: 29.78551389
 Long: -95.31850556

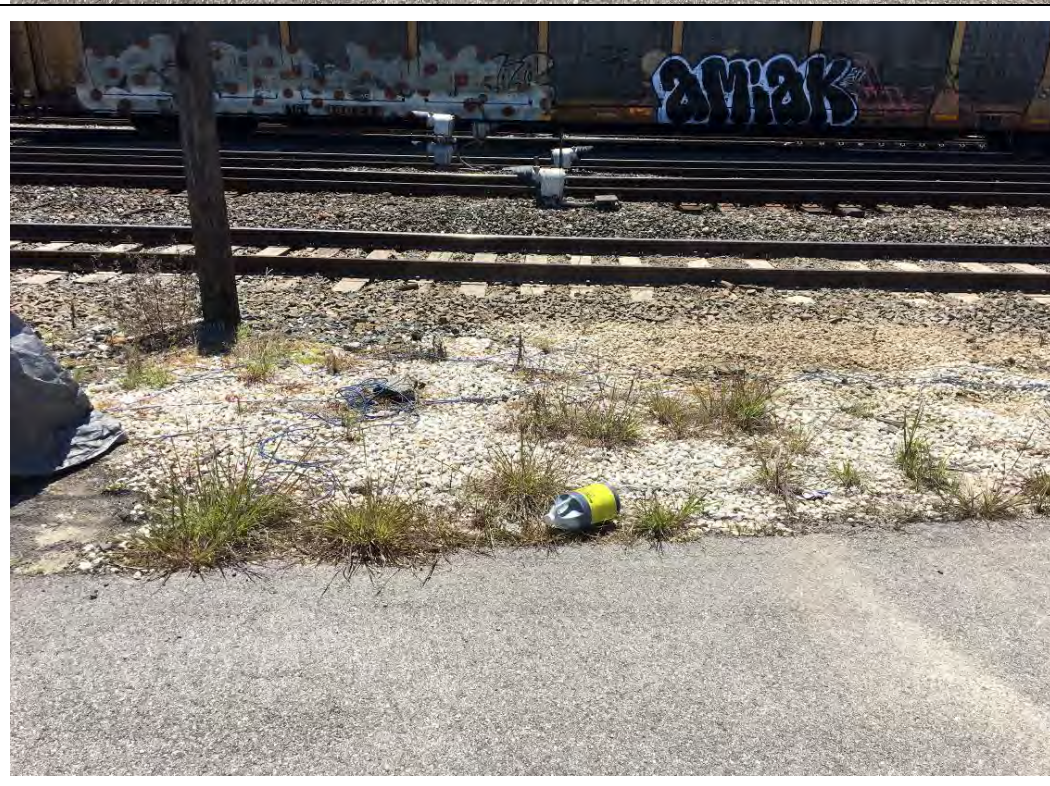


Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 21	Date: 04/26/18
Description: Asphalt Cap Area: View of asphalt cap area, looking northwest. Note ant mounds and soil runoff on asphalt road. Lat: 29.78636667 Long: -95.31923611000001	



Photo No. 22	Date: 04/26/18
Description: Ballast Cap Area: View of ballast cap area, looking south-southwest. Trash and vegetation present. Lat: 29.78655 Long: -95.318825	



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 23	Date: 04/26/18
Description: Asphalt Cap/Ballast Cap Area: View of ballast cap area, looking southwest. Some vegetation within the ballast area, no soil exposed. Lat: 29.78685278 Long: -95.31810833	



Photo No. 24	Date: 04/26/18
Description: Asphalt Cap/Ballast Cap Area: View of ballast cap area, looking southeast. Ballast area cover in good shape. Some vegetation in ballast cap. Lat: 29.78682778 Long: -95.3181	



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
25

Date:
04/26/18

Description:

Ballast Cap Area:

Damaged warning sign in ballast cap area. Looking west.

Lat: 29.78516111

Long: -95.32197500000001



Photo No.
26

Date:
04/26/18

Description:

Ballast Cap Area:

Damaged warning sign in ballast cap area. Looking west.

Lat: 29.78515833

Long: -95.32197500



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 27	Date: 04/26/18
Description: Concrete Cap Area: Active tar-like seeps in the joint at B096. Lat: 29.4733999999999434 Long: -95.191430999999977	



Photo No. 28	Date: 04/26/18
Description: Concrete Cap Area: Fresh tar-like product in a crack in parking spot B101. Lat: 29.47350999 Long: -95.19148300	



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
29

Date:
04/26/18

Description:

Concrete Cap Area:

Fresh tar-like product in the joint at B101. Tape measure for scale.

Lat: 29.47299000

Long: -95.19151799



Photo No.
30

Date:
04/26/18

Description:

Concrete Cap Area:

Fresh tar like product in the joint near parking spot B106. Tape measure for scale.

Lat: 29.47280999

Long: -95.19154600



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
31

Date:
04/26/18

Description:

Concrete Cap Area:
Fresh tar-like material and staining around parking spot B109. Looking west.

Lat: 29.4728300000000186
Long: -95.1915460000000210



Photo No.
32

Date:
04/26/18

Description:

Concrete Cap Area:
Fresh tar-like product in parking spot B100. Tape measure for scale.

Lat: 29.47341000
Long: -95.19147500



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 33	Date: 04/26/18
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Description:

Concrete Cap Area:
Area of B-Row and C-Row concrete appears in good shape, some vegetation growing in the joint, looking south.

Lat: 29.78490278
Long: -95.31868611



Photo No. 34	Date: 04/26/18
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Description:

Concrete Cap/Ballast Cap Areas:
Vegetation growing in a joint in the A-Row.

Lat: 29.78528889
Long: -95.31830555



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No.: 1358-603
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Photo No.: 35	Date: 04/26/18
Description: Concrete Cap Area: Area between B and C row. Concrete in good condition, with minor cracking. Lat: 29.78591667 Long: -95.3169416	




Photo No.: 36	Date: 04/26/18
Description: Concrete Cap Area: Area within B-Row, cracks in the concrete but no exposed soils, looking west. Lat: 29.78383889 Long: -95.32166943	



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 37	Date: 04/26/18	
Description: <u>Concrete Cap Area:</u> Edge of concrete cap area at the west end of B-Row, concrete appears in good shape with some cracks, looking west. Lat: 29.78368333 Long: -95.32174722000001		

Photo No. 38	Date: 04/26/18	
Description: <u>Concrete Cap Area:</u> North edge of concrete cap near A-Row, some cracking in concrete cap, looking east. Lat: 29.78605278 Long: -95.32102222		

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No.: 1358-603
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Photo No. 39	Date: 04/26/18
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Description:

Concrete Cap Area:
Cracking in concrete near A-Row spot A048, looking east.

Lat: 29.78503889
Long: -95.31953333



Photo No. 40	Date: 04/26/18
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Description:

Concrete Cap Area:
Oily staining on concrete in A-Row spot A012, looking southeast.

Lat: 29.78551389
Long: -95.31850556000001



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
41

Date:
04/26/18

Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:

View of the sidewalk cap area, looking east along Liberty Road. Note how trash has built up along the sidewalk.

Lat: 29.78765556

Long: -95.31676389



Photo No.
42

Date:
04/26/18

Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:

View of the sidewalk cap area, looking west along Liberty Road. Trash left along sidewalk.

Lat: 29.78766111

Long: -95.31675833000001



Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
43

Date:
04/26/18

Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:

View of the sidewalk cap area, looking southwest along Liberty Road, small areas where debris has built up along sidewalk.

Lat: 29.78765

Long: -95.31720832999999



Photo No.
44

Date:
04/26/18

Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:

View of the sidewalk cap area, looking west along Liberty Road.

Lat: 29.78766111

Long: -95.31700832999999



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 45	Date: 04/26/18
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Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:
View of the sidewalk cap area, looking east along Liberty Road.

Lat: 29.78763889
Long: -95.31740556



Photo No. 46	Date: 04/26/18
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Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:
Warning sign on the northern perimeter fence.

Lat: 29.78763333
Long: -95.31751389



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 47	Date: 04/26/18
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Description:

Perimeter Fence:
 Perimeter fence with sagging mesh and two missing posts. Looking northwest.

Lat: 29.78749722
 Long: -95.32154167



Photo No. 48	Date: 04/26/18
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Description:

Perimeter Fence:
 Perimeter fence with missing posts and damaged mesh. Fence appears to have been impacted by a vehicle. Looking northwest.

Lat: 29.78756111
 Long: -95.32219722000001



Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 49	Date: 04/26/18
Description: <u>Perimeter Fence:</u> Perimeter fence with missing posts and damaged mesh. Fence appears to have been impacted by a vehicle. Looking northwest. Lat: 29.78755278 Long: -95.32243333	



Photo No. 50	Date: 04/26/18
Description: <u>Perimeter Fence:</u> Perimeter fence bending outward at point of collision. Looking east Lat: 29.7876 Long: -95.32228056000001	



ATTACHMENT A3

THIRD QUARTER 2018 (JULY 5TH) INSPECTION RECORD AND PHOTOGRAPHIC LOGS

UPRR HWPW - Quarterly Site Inspection Record

Date: 07/05/2018

Time Started: 12:45

Time Ended: 15:00

Weather Conditions: Clear, hot (Upper 80s to Low 90s), calm

Observations/Comments: Trash present in cap, along the asphalt roadway and concrete barriers, and on and around the sidewalk. Small debris is located outside the main entrance gate. Standing water present near western toe of the cap and approximately 200' west of the main entrance gate. Small ant mounds are present in the cap, and along the concrete barriers.

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	Minor rills (range from 4" x 8" to 2' x 2' in length, with depths of 0.2" to 0.5") present along the northern toe adjacent to the intersections of Liberty Rd and Fontinot St and Liberty Rd and Erastus.
	Settlement		X		X	Settlement present along western toe of cap.
	Animal Damage	X			X	Small and minor ant mounds present throughout cap.
	Intrusive Shrubs/Trees	X		X		Approximately 50' of heavy brush adjacent to Liberty Rd. located 75' west of the main entrance. Also located along the asphalt road.
	Vegetation Coverage	X			X	Satisfactory, flowers and pollinator plants are abundant across the capped area.
	Stressed Vegetation		X		X	None observed.
	Monitoring Wells Condition	X		X		Most wells have very large shrubs growing on and around them, with heavy vegetation.
Asphalt Roadway	Surface Damage		X		X	None observed.
	Signs of ExposedSoils	X			X	Some exposed soils and ant mounds along the concrete barricades.
	Settlement		X		X	None observed.
Ballast Cap	Surface Damage		X		X	None observed.
	Signs of ExposedSoils		X		X	None observed.
	Intrusive Vegetation	X		X		Grass and weeds present throughout the ballast cap. Vegetation should be removed from the cap.
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X			X	Cracking present throughout the yard in both the parking spaces and in the main driveways. Some joints in the "A" row, "B" row, and "C" row are missing joint sealant material. Parking row B (B100-B109) evidence of tar-like substance seeping to surface.
	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	None observed.
Other Areas						
Container Storage Area	Valve Position (Closed)	X			X	Valve in closed position and functioning. See Photo 33.
	Holding Water		X		X	None observed.
	Sheen/Floating Solids		X		X	None observed.
Security Fence	Damaged Posts or Wire	X		X		Missing 2 posts 150' west of entrance. Missing 2 posts and chain link is damaged (pushed inward into the yard) 400' west of main entrance. Missing 3 posts and chain link is damaged (pushed inward into the site) 500' west of main entrance. It looks like all damage is vehicle damage. Replacing the chain link and posts would remediate the issue.
	Functioning Properly	X		X		The fence is still functioning as intended, however it has been damaged at the areas noted above.

Additional Comments or Observations:

In some areas, the erosion control fabric is being uplifted - and does not appear to have damage yet.

There are 2 exposed manholes with high surrounding vegetation which poses a safety danger, as the manholes are not readily visible (1. Adjacent to Charity

Baptist Church along north side of cap and 2. ~200' east of 1.)

Inspector: Kelsey Worley & Bryan Luper	PASTOR, BEHLING & WHEELER, LLC
Inspectors Signature: <i>Kelsey Worley</i>	2201 Double Creek Dr., Suite 4004 Round Rock, Texas 78664 Phone: 512-671-3434 Fax: 512-671-3446



PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 1	Date: 07/05/18
Description: Soil Cap Area: Soil cap facing southeast, vegetation cover in good shape Lat: 29.7879 Long: -95.31986111	



Photo No. 2	Date: 07/05/18
Description: Soil Cap Area: Soil cap, facing southeast. Repair intact, vegetation and pollinator plants are growing as intended. Lat: 29.78175556 Long: -95.31781110999998	





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
3

Date:
07/05/18

Description:

Soil Cap Area:

Soil cap, facing southeast.
Repair intact, vegetation and
pollinator plants are growing
as intended

Lat: 29.787525

Long: -95.31819167



Photo No.
4

Date:
07/05/18

Description:

Soil Cap Area:

Soil cap, facing southeast.
Repair intact, vegetation and
pollinator plants are growing
as intended

Lat: 29.78715833

Long: -95.31925833000001





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
5

Date:
07/05/18

Description:

Soil Cap Area:

Soil cap, facing southwest.
Repair intact, vegetation and
pollinator plants are growing
as intended.

Lat: 29.78746389

Long: -95.31864167000001



Photo No.
6

Date:
07/05/18

Description:

Soil Cap Area:

Monitoring well near Liberty
Rd and Erastus St intersection
with heavy vegetation, looking
north.

Lat: 29.78761111

Long: -95.31752778000001





PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 7	Date: 07/05/18	
Description: Soil Cap Area: Soil cap, facing southwest. Repair intact, vegetation and pollinator plants are growing as intended. Lat: 29.78778611 Long: -95.31663611000001		

Photo No. 8	Date: 07/05/18	
Description: Soil Cap Area: Manhole without a cover surrounded by heavy vegetation near Liberty Rd and Erastus St intersection, looking north. Lat: 29.78761389 Long: -95.31784167000002		



PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad		Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas		Project No. 1358-603	
Photo No. 9	Date: 07/05/18				
Description: Soil Cap Area: Warning sign at northeast corner of soil cap area, looking west. Lat: 29.78764444 Long: -95.31646667					
Photo No. 10	Date: 07/05/18				
Description: Soil / Asphalt Cap Area: Southern edge of soil cap along asphalt road cap, looking southwest, vegetation cover in good shape, weeds growing along the concrete barriers and on ballast. Lat: 29.78755 Long: -95.31657500000001					



PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
11

Date:
07/05/18

Description:

Soil Cap Area:

Soil cap area, looking north,
vegetation cover in good
shape.

Lat: 29.78739444

Long: -95.31687221999999



Photo No.
12

Date:
07/05/18

Description:

Soil Cap Area:

Healthy vegetation cover on
southeastern portion of soil
cap, looking northwest.

Lat: 29.78729722

Long: -95.31706111






PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 13	Date: 07/05/18	
Description: Asphalt Cap Area: Southern edge of soil cap, looking west, weeds growing along the concrete barriers. Lat: 29.78735278 Long: -95.31695556		

Photo No. 14	Date: 07/05/18	
Description: Soil Cap Area: Southern edge of soil cap, viewing washout of soil beneath concrete barrier Lat: 29.78715 Long: -95.31744444		



PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
15

Date:
07/05/18

Description:

Soil Cap Area:

View of soil cap, looking northeast.

Lat: 29.78697222

Long: -95.31796944



Photo No.
16

Date:
07/05/18

Description:

Soil Cap Area:

View of soil cap, looking west.

Lat: 29.78648056

Long: -95.31903888999999





PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 17	Date: 07/05/18	
Description: <u>Asphalt / Ballast Cap Area:</u> View of asphalt road cap, looking west, ballast cap area to the left, and the soil cap area to the right. Some vegetation within ballast cap area and weeds along the concrete barrier. Lat: 29.78734722 Long: -95.31696943999999		

Photo No. 18	Date: 07/05/18	
Description: <u>Asphalt Cap Area:</u> View of small ant hill and trash between two concrete barriers along the south side of the cap. Lat: 29.78735278 Long: -95.31783333		



PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
19

Date:
07/05/18

Description:

Asphalt / Ballast Cap Area:

View of signal wires laying within the ballast cap, looking southeast.

Lat: 29.78618889

Long: -95.31963333

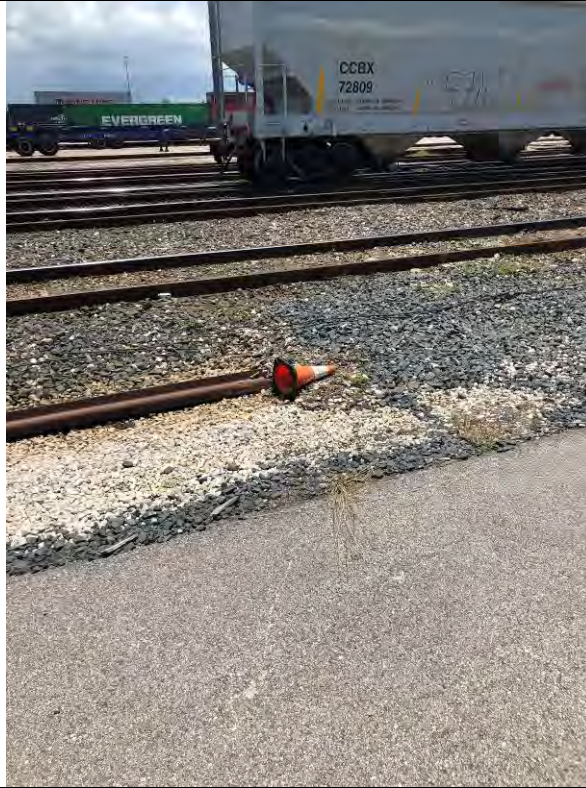


Photo No.
20

Date:
07/05/18

Description:

Asphalt / Ballast Cap Area:

View of asphalt road cap, looking southwest, railroad ballast cap area to the left hosting a pile of ballast with a warning sign posted in the background.

Lat: 29.78651667

Long: -95.31896944





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
21

Date:
07/05/18

Description:

Soil Cap Area:

View of soil cap area, looking east with the Lockwood Overpass in the background. Vegetative cover appears in good condition

Lat: 29.78658056

Long: -95.31996943999999



Photo No.
22

Date:
07/05/18

Description:

Asphalt Cap Area:

View of asphalt cap area. Note small oily stains on pavement, appear similar to the April 2018 inspection. Tape measure for scale

Lat: 29.47725999

Long: -95.19177100





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
23

Date:
07/05/18

Description:

Soil / Asphalt Cap Area:

View of small erosional feature along concrete barrier, north of asphalt cap, viewing to the east.

Lat: 29.78713333

Long: -95.31769444000001



Photo No.
24

Date:
07/05/18

Description:

Concrete Cap Area:

Active tar-like seeps in the joint at B109 and B108

Lat: 29.78418

Long: -95.321





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
25

Date:
07/05/18

Description:

Concrete Cap Area:
Active tar-like seeps in
the joint at B108

Lat: 29.78412
Long: -95.321



Photo No.
26

Date:
07/05/18

Description:

Concrete Cap Area:
Active tar-like seeps in
the joint at B106

Lat: 29.78414
Long: -95.3209





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
27

Date:
07/05/18

Description:

Concrete Cap Area:
Active tar-like seeps in
the joint at B105

Lat: 29.78419
Long: -95.3209



Photo No.
28

Date:
07/05/18

Description:

Concrete Cap Area:
Active tar-like seeps in
the joint at B105

Lat: 29.78416
Long: -95.3209





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
29

Date:
07/05/18

Description:

Concrete Cap Area:
Active tar-like seeps in
the joint at B105 and
B104

Lat: 29.7842
Long: -95.3209



Photo No.
30

Date:
07/05/18

Description:



Concrete Cap Area:
Fresh tar-like product in
a crack in parking spot
B101

Lat: 29.78428
Long: -95.3208







PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad		Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
Photo No. 31	Date: 07/05/18		
Description: Concrete Cap Area: Fresh tar-like product in the joint at B100. Tape measure for scale Lat: 29.78434 Long: -95.3208			
Photo No. 32	Date: 07/05/18		
Description: Concrete Cap Area: Fresh tar like product residue in B Row Lat: 29.78384 Long: -95.3213			



PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad		Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
Photo No. 33	Date: 07/05/18		
Description: Container Storage Area: Valve in closed position and functioning within the container storage area Lat: 29.78861944 Long: -95.32327222			
Photo No. 34	Date: 07/05/18		
Description: Container Storage Area: View of the contents within the container storage area Lat: 29.78701111 Long: -95.32112222			



PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No.: 1358-603
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Photo No. 35	Date: 07/05/18
Description: Container Storage Area: View of the contents within the container storage area Lat: 29.78678889 Long: -95.32067222	



Photo No. 36	Date: 07/05/18
Description: Container Storage Area: Close up view of the two drums with labels within the container storage area Lat: 29.78734722 Long: -95.3211222	





PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 37	Date: 07/12/18
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Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:
View of the sidewalk cap area, looking west along Liberty Road. Note the trash that is accumulating along the sidewalk.

Lat: 29.78764
Long: -95.31648



Photo No. 38	Date: 07/12/18
-------------------------------	--------------------------

Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:
View of the sidewalk cap area, looking southeast along Liberty Road, small areas where debris has built up along sidewalk.

Lat: 29.47154100
Long: -95.19332000





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
39

Date:
07/12/18

Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:

View of the sidewalk cap area, looking southwest along Liberty Road toward the soil cap.

Lat: 29.47154600
Long: -95.19361999



Photo No.
40

Date:
07/12/18

Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:

Warning sign on the northern perimeter fence.

Lat: 29.47156699
Long: -95.18595599





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
41

Date:
07/05/18

Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:
Furniture, trash, and broken glass dumped at entrance of the soil cap.

Lat: 29.78735

Long: -95.32100556



Photo No.
42

Date:
07/12/18

Description:

Perimeter Fence/ Concrete Sidewalk Cap Area:
Perimeter fence with sagging mesh and two missing posts. Looking northeast.

Lat: 29.471511999

Long: -95.19178800



ATTACHMENT A4

**FOURTH QUARTER 2018 (OCTOBER 31ST) INSPECTION RECORD AND PHOTOGRAPHIC
LOG**

UPRR HWPW - Quarterly Site Inspection Record

Date: 10/31/2018

Time Started: 7:30 am; 4:10 pm

Time Ended: 9:15 am; 4:40 pm

Weather Conditions: Morning - Partly cloudy, cool Afternoon - Cloudy, heavy rain, cool

Observations/Comments: Due to inclement weather, the mowing contractor unable to complete mowing before completion of inspection.

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)					Unable to inspect due to presence of heavy vegetation. Mowing in progress during inspection.
	Settlement					Unable to inspect due to presence of heavy vegetation. Mowing in progress during inspection.
	Animal Damage					Unable to inspect due to presence of heavy vegetation. Mowing in progress during inspection.
	Intrusive Shrubs/Trees		X		X	None observed.
	Vegetation Coverage	X		X		Mowing in progress during inspection.
	Stressed Vegetation		X		X	None observed.
	Monitoring Wells Condition	X		X		Some wells have large shrubs growing on and around them.
Asphalt Roadway	Surface Damage		X		X	Some minor cracking observed in one location along concrete barriers.
	Signs of ExposedSoils		X		X	None observed.
	Settlement		X		X	None observed.
Ballast Cap	Surface Damage		X		X	None observed.
	Signs of ExposedSoils		X		X	None observed.
	Intrusive Vegetation	X		X		Heavy vegetation present in several locations.
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X		X*	X	Localized cracking along parking stall rows. Joint sealant missing in several locations. Evidence of NAPL seepage in some parking row B stalls (B100-B110 & B57). * UPRR has a concrete pavement maintenance 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	None observed.
Other Areas						
Container Storage Area	Valve Position (Closed)	X			X	Valve in closed position.
	Holding Water		X		X	Minor amount of ponding water (less than 1/2" over a small portion of the floor) from past heavy rainfall events.
	Sheen/Floating Solids		X		X	None observed.
Security Fence	Damaged Posts or Wire	X		X		Main Entrance - Loose Barbed Wire; 150' west of Main Entrance - Missing posts and damaged chain link; 400' west of Main Entrance - Missing posts damaged chain link; 500' west of main entrance - Missing posts and damaged chain link; NW corner along Liberty Road - Bend cross bar; West Fence along Kashmere St - Heavy vegetation (including trees) growing through fence; West fence along Amboy Street - fallen cross bar and heavy vegetation growing around fence
	Functioning Properly	X		X		The fence is still functioning as intended, but requires attention at the areas noted above.

Additional Comments or Observations: Unable to inspect exposed manholes due to heavy vegetation.

Inspector: R Bryan Luper

Inspectors Signature:




Golder Associates, Inc.

2201 Double Creek Dr., Suite 4004

Round Rock, Texas 78664

Phone: 512-671-3434 Fax: 512-671-3446



PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
1

Date:
10/31/18

Description:

Asphalt Roadway:

Cracks in the asphalt roadway along concrete barrier (only location of significant cracking). Facing east.

Lat: 29.47902999
Long: -95.19138900



Photo No.
2

Date:
10/31/18

Description:

Ballast Cap, Asphalt Road, and Soil Cap Vegetative Cover:

Weeds growing under the concrete barriers and along the edge of the ballast cap. Soil Cap's vegetative cover in good shape, facing east. Facing east.

Lat: 29.47505000
Long -95.19231500





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
3

Date:
10/31/18

Description:

Ballast Cap and Asphalt Roadway:

Ballast cap area in good condition. Vegetation growing under the concrete barricades. Asphalt roadway in good condition. Facing west.

Lat: 29.4791600
Long -95.1913099



Photo No.
4

Date:
10/31/18

Description:

Ballast Cap, Asphalt Road, and Soil Cap Vegetative Cover:

Weeds growing under the concrete barriers and in the ballast cap. Soil Cap's vegetative cover in good shape, facing west. Facing west.

Lat: 29.47126900
Long -95.1946400





PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 5	Date: 10/31/18
Description: <u>Ballast Cap, Asphalt Road, and Soil Cap Vegetative Cover:</u> Weeds growing under the concrete barriers and in the ballast cap. Soil Cap's vegetative cover in good shape. Facing west. Lat:29.47129700 Long: -95.19490999	



Photo No. 6	Date: 10/31/18
Description: <u>Container Storage Area:</u> Valve in closed position and functioning within the container storage area. Lat: 29.47205999999999761 Long: -95.19433900000000139	





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
7

Date:
10/31/18

Description:

Container Storage Area and Soil Cap Signage:

Signage clearly visible on the container storage area fencing and on the soil cap in background of picture. Drummed soil cuttings from investigation activities on left of photo. Facing southeast.

Lat: 29.4712449999999972
Long: -95.1914690000000022



Photo No.
8

Date:
10/31/18

Description:

Security Fence:

1 of 2 knocked over post and damaged chain link. 150' west of main entrance. Facing northeast.

Lat: 29.47152100000000065
Long: -95.19178499999999767





PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 9	Date: 10/31/18
Description: Ballast Cap: Ballast cap area, with some vegetation growing within the gravel. Facing east. Lat: 29.4791600 Long -95.1913099	



Photo No. 10	Date: 10/31/18
Description: Monitoring Well: Vegetation growth around monitoring well. Facing northeast (mowing in progress during inspection). Lat: 29.47972999999999601 Long: -95.19257000000000115	





PHOTOGRAPHIC LOG

Client Name: Union Pacific Railroad	Site Location: Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas	Project No. 1358-603
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Photo No. 11	Date: 10/31/18
Description: <u>Concrete Cap Area</u> <u>(Englewood Yard):</u> B13 Stall & Test Pit. No evidence of recent NAPL seepage. Facing north. Lat: 29.47713000000000477 Long: -95.19567999999999308	



Photo No. 12	Date: 10/31/18
Description: <u>Concrete Cap Area</u> <u>(Englewood Yard):</u> B57 Stall. Evidence of pavement structural deterioration and past NAPL seepage. No evidence of recent seepage. Facing east. Lat: 29.474850000000000582 Long: -95.191032000000000707	





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
13

Date:
10/31/18

Description:

**Concrete Cap Area
(Englewood Yard):**
B105 Stall & Test Pit. No
evidence of recent NAPL
seepage. Facing north.

Lat: 29.47325000000000002
Long: 95.19155100000000092



Photo No.
14

Date:
10/31/18

Description:

**Concrete Cap Area
(Englewood Yard):**
B105 Stall & Test Pit. Evidence
of recent minor NAPL
seepage
through the road base. Facing
south.

Lat: 29.47336000000000069
Long: -95.19155100000000092





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
15

Date:
10/31/18

Description:

Concrete Cap Area
(Englewood Yard):

B13 Stall & Test Pit. Evidence of recent NAPL seepage.

Lat: 29.4730500000000276

Long: -95.1915400000000232



Photo No.
16

Date:
10/31/18

Description:

Concrete Cap Area
(Englewood Yard):

Heavy cracking in A Row strip. Facing west.

Lat: 29.47230999

Long: -95.19179299





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
17

Date:
10/31/18

Description:

Concrete Cap Area
(Englewood Yard):

Heavy cracking in A Row strip.
Facing east.

Lat: 29.47280999
Long: -95.1915289



Photo No.
18

Date:
10/31/18

Description:

Soil Cap Area:

Clear drainage through concrete
barrier during heavy rain event.
Flow coming from soil cap area.



Facing northeast.

Lat: 29.47880000000000308
Long: -95.1914659999999744





PHOTOGRAPHIC LOG

Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
19

Date:
10/31/18

Description:

Soil Cap Area:

Cap area and area west of soil cap partially mowed, mowing ceased with rainfall event. Facing east.

Lat: 29.47148200000000068
Long: -95.19154600000000210



Photo No.
20

Date:
12/06/2018

Description:

Soil Cap Area:

Cap area fully mowed. Facing west.

Lat: 29.787579
Long: -95.316503



ATTACHMENT B



June 21, 2018

Project No. 30401358

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: MONTHLY STATUS UPDATE – SOIL CAP AND CONCRETE CAP REPAIRS
UNION PACIFIC RAILROAD HOUSTON WOOD PRESERVING WORKS FACILITY
4910 LIBERTY ROAD FACILITY, HOUSTON, TEXAS
POST-CLOSURE CARE PERMIT NO. HW-50343; INDUSTRIAL SWR NO. 31547**

Dear Ms. Hatfield:

Golder Associates, Inc. (Golder), formerly Pastor, Behling & Wheeler, LLC (PBW), on behalf of Union Pacific Railroad Company, is pleased to provide this monthly status update for the implementation of the cap repairs identified in the Updated Post-Response Action Care Report (PRACR) dated January 16, 2018 for the UPRR Houston Wood Preserving Works Facility (the Site). Monthly status updates were requested by the Texas Commission on Environmental Quality (TCEQ) in a letter dated March 20, 2018.

A brief description of the need repairs discussed in the Updated PRACR and the current status of the repairs is provided below:

- Soil Cap – Repairs to the soil cap were conducted on June 12 and 13, 2018. The repairs included filling in with topsoil and re-seeding minor erosion rills and revegetating a few bare spots along the slopes of the soil cap. Erosion mats were placed in areas where larger repairs were made. A photographic log of the soil cap repairs is provided in Attachment A.
- Concrete Cap (Englewood Intermodal Yard) – Repairs to the concrete cap include addressing the seep area within parking slots B100 to B109 where a tar-like substance was observed surfacing through the joints and cracks in the concrete and asphalt surfaces. Golder continues to conduct weekly inspections of the affected area. When significant amounts of the tar-like substance surfaces, a remediation contractor (United States Environmental Services (USES)) is notified to mobilize to the Site to remove and properly dispose of the material. Golder has finalized a response action design to address future surfacing of the tar-like substance. We plan to submit request for bids from potential

contractors by the end of June to implement the design. Depending on the selected contractor's schedule, the concrete cap repairs will likely be conducted in July 2018 or August depending on contractor's schedule.

Once the repairs to the concrete cap have been completed, UPRR will submit an Updated PRACR summarizing the repairs to both caps.

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.
Senior Consultant / Associate

ECM

CC: Mr. Kevin Peterburs, UPRR – Milwaukee, WI

Attachments: Attachment A – Photographic Log

j:\1358 - uprr houston preserving works\pracr\ceq comment letter\houston, tx - wood preserving works - swr 31547 - monthly status update - cap repairs
20180621.docx

ATTACHMENT A

Soil Cap Repair Photographic Log



Client Name:
Union Pacific Railroad

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

Project No.
 1358-603

Photo No.
1

Date:
 06/12/18

Description:

Soil Cap Area:

Repairs to the soil cap facing southwest, after placement of topsoil and erosion mats.

Lat: 29.78783208,
 Long: -95.31881189



Photo No.
2

Date:
 06/12/18

Description:

Soil Cap Area:

Soil cap, facing northeast, view of repaired area, topsoil and erosion mat.

Lat: 29.78783208,
 Long: -95.31881189





Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
3

Date:
06/13/18

Description:

Soil Cap Area:

Soil cap, facing east, view of repaired area, topsoil and erosion mat, Liberty Rd to the left, soil cap area to the right.

Lat: 29.78829978,
Long: -95.31786008



Photo No.
4

Date:
06/13/18

Description:

Soil Cap Area:

Repairs to soil cap, facing west, view of area being repaired, placing topsoil and erosion mat, Liberty Rd to the right.

Lat: 29.78752364,
Long: -95.31833703





Client Name:
Union Pacific Railroad

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

Project No.
1358-603

Photo No.
5

Date:
06/13/18

Description:

Soil Cap Area:

Repairs to the west side of the soil cap facing north, after placement of topsoil.

Lat: 29.78597686,
Long: -95.32099756



Photo No.
6

Date:
06/13/18

Description:

Soil Cap Area:

Placement of topsoil in areas of settlement along the concrete barriers, facing east-southeast.

Lat: 29.78695886,
Long: -95.31757222

