Texas Commission on Environmental Quality

Remediation Division Correspondence Identification Form

SITE & PROGRAM AREA IDENTIFICATION

SITE LOCATION

Site Name: Union Pacific Railroad Houston Wood Preserving Works

Address 1: 4910 Liberty Road

Address 2:

Houston State: **Texas**

Zip Code: 77026 County: Harris

TCEQ Region: Houston - 12

REMEDIATION DIVISION PROGRAM AND FACILITY IDENTIFICATION

Is This Site Being Managed Under A State Lead Contract? ☐ Yes ☑ No

Program Area: IHW Corrective Action

Mail Code: MC-127 (IHW)

Is This A New Site To This Program Area? ☐ Yes ☑ No

Additional Information: SWR No. 31547

Additional Information: Permit/ Compliance Plan No. 50343

DOCUMENT(S) IDENTIFICATION

PHASE OF REMEDIATION	DOCUMENT NAME
1. Post-Closure	PRACR - Annual Report 2022
2. Please select a phase of remediatic	
3. Please select a phase of remediatic	
4. Please select a phase of remediatic	
5. Please select a phase of remediatic	

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)

Union Pacific Railroad
4823 N 119th Street
Milwaukee, WI 53225

ENVIRONMENTAL CONSULTANT/REPORT PREPARER/AGENT

WSP USA Inc.
1601 S MoPac Expy,
St. 325D, Austin, TX 78746

SIGNATURES

DATABASE CODES

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

March 29, 2023 Project No. GL19119232

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 – 2022
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. 50343 EPA ID NO. TXD000820266
CUSTOMER NO. CN600131098; REGULATED ENTITY NO. RN100674613

Dear Ms. Hatfield:
WSP USA Inc. (which acquired Golder in 2021), on behalf of Union Pacific Railroad Company (UPRR), is pleased to provide the attached electronic version of the Post-Response Action Completion Report (PRACR) for 2022 for the above referenced site for your review. If you have any questions or need additional information, please feel free to call me at (512) 671-3434 or Mr. Kevin Peterburs of UPRR at (414) 267-4164.

Sincerely,

WSP USA Inc.

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

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

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

Cover Page

Submittal date: March 29, 2023 Regulatory ID No.: SWR 31547 TCEQ Region No.: 12

TCEQ Program (check one)

- [X] Corrective Action (Mail Code 127)
- [ ] Voluntary Cleanup Program (Mail Code 221)
- [ ] Petroleum Storage Tank Program (Mail Code 137)
- [ ] Superfund PRP Lead (Mail Code 143)
- [ ] Municipal Solid Waste Permits (Mail Code 124)

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 kjpeterb@up.com

Phone: 414-267-4164 Fax:

By my signature below, I acknowledge the requirement of 30 TAC §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of civil, criminal, or administrative penalties.

Signature of Person Kevin Peterburs Name, print: Kevin Peterburs Date: 3/28/23

PRACR Executive Summary	ID No: SWR No. 31547
	Report Date: March 29, 2023

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

Date of RAP approval: RCRA Part A and Part B Permit Renewal Application with a Major Modification to the Compliance Plan was submitted on December 10, 2014, with revisions dated December 7, 2015, July 29, 2016, June 24, 2017, July 9, 2019, August 31, 2020, October 26, 2020, and January 15, 2021. The TCEQ completed the technical review of the Permit Renewal Application and prepared the Executive Director's Preliminary Decision and Final Draft Permit (May 5, 2021). The public comment period ended June 2022 and the application is currently in the TCEQ response to public comment period.

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

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

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

This reporting period: Start date: January 1, 2022 End date: December 31, 2022

On-site land use for basis of RACR approval ___ Residential X Commercial/industrial
Current on-site land use classification: ___ Residential X 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? **X** Yes ___ No
If yes, provide a brief explanation:

Concrete Cap Area – Englewood Intermodal (IM) Yard:
During weekly inspections, small amounts of tar-like material were noted and recovered in 2022 in the A and B rows. However, the following new seep locations were observed during the 3rd Quarter of 2022:

- A small tar-like material seep was observed July 6, 2022 along the southern edge of the NAPL Collection System in cracks in the cement at the joint of Stall B107, as noted in the Monthly Status Update dated August 15, 2022. This was the first occurrence of the tar-like material seeps being observed at this location since installation of the NAPL Collection System.
- A new tar-like material seep location was observed along the northern side of Track 802 (labeled Track 802 seep) at the edge of the railroad ballast, also noted in the Monthly Status Update dated August 15, 2022.
- During the September 28, 2022 inspection, an additional tar-like material seep was observed within the concrete road area (RD-14) near the existing Track 802 seep location.
- A small amount of tar-like material was observed at TP-03 in stall B096 adjacent to the test pit patch for the first time since the July 2020 test pit was installed, as detailed in the September 2022 Monthly Status Update, dated October 17, 2022. Through December 2022, no NAPL seeps have been observed at the six other test

pit locations (stalls A010, A021, A098, B013, B057, and B108). The test pit patches continue to be monitored during weekly inspections.

Additional measures planned to address the NAPL seeps in the Englewood IM Yard will be summarized in the Interim Measures Work Plan as requested in the TCEQ Comment Letter dated January 26, 2022.

Similar to observations made in 2021, areas of brown staining were observed along asphalt joints and cracks in the pavement in the IM Yard A and B rows (predominately in the B090 – B098 area) in April through June 2022.

- April 2022 - As detailed in the Monthly Status Update dated May 13, 2022, localized brown staining along cracks and a small amount of seep water within the cracks in the paved areas were observed during the inspection on April 20, 2022. UPRR remediation contractor OMI was called out on April 20th to address the brown staining through pressure washing and recovery of the wash water. When OMI arrived onsite April 21, 2022, there was minimal staining visible.
- May 2022 - Residual brown staining along cracks in the paved areas were observed during the inspection on May 4, 2022. On May 11, 2022 brown staining/residue, and a small amount of seep water within the cracks in the paved areas were observed throughout the A and B rows. The heaviest staining was observed in stalls A020-A030, A060-A080, and A090-A110. UPRR remediation contractor OMI arrived onsite on May 13, 2022 to pressure wash and vacuum the affected area. It was noted that as the seep water was being removed, some of the cracks and potholes in the asphalt were refilling with seep water. By the inspection on May 18, 2022, the brown staining, residue, and seep water had returned within the same areas. OMI arrived onsite on May 20, 2022 to pressure wash the affected locations. Wash water from both clean up events was vacuumed and placed into a tote onsite for disposal.
- June 2022 - The brown staining and water returned in June, as detailed in the monthly updated dated July 15, 2022. Brown staining/residue and a small amount of seep water returned along cracks in the paved areas throughout the A and B rows by the June 8, 2022 inspection. The heaviest staining was observed in stalls A020-A030, A060-A080, and A090-A110. UPRR remediation contractor OMI arrived onsite on June 10, 2022 to pressure wash and vacuum the affected area. It was noted that as the seep water was being removed, some of the cracks and potholes in the asphalt were refilling with seep water. By the inspection on June 15, 2022, the brown staining had returned mainly within stalls A060-A100 but to a lesser extent compared to the June 8, 2022 observations. During the June 22, 2022 inspection, widespread staining, residue, and a small amount of standing seep water in the cracks in the pavement was observed throughout the A and B rows. OMI arrived onsite on June 27, 2022 to pressure wash the affected locations. The pressure washing event was completed on June 28, 2022. Again, a small amount of seep water refilled some of the asphalt cracks as it was being removed. Residual staining with a small amount of seep water was noted during the inspection on June 29, 2022. Wash water from the pressure washing events was vacuumed and placed into three totes stored on-site.

A sample of the wash water was collected on June 1, 2022 for waste profiling. OMI picked up the totes for disposal at the Blue Ridge Landfill in Fresno, TX on August 19, 2022. The final waste manifest was provided with the August 2022 monthly update dated September 15, 2022. Little to no water has been observed during weekly inspections since the end of

June 2022. UPRR is continuing to evaluate possible sources of the seep water and potential responses to address surfacing of the water.

For the Soil Cap Area, some minor rutting that was noted along the northeast slope of the soil cap where vegetation had not been reestablished. The area was repaired by UPRR contractor OMI on October 6, 2022 by placing topsoil in the area. During the inspection, the cap repair appeared to be functioning and no erosion was observed. Minor vegetation was observed and removed from the other capped areas.

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

Quarterly inspections were conducted of the five main cap areas on January 27 (1Q), April 27 (2Q), July 22 (3Q), and October 19, 2022 (4Q). The following observations were made of the five capped areas:

- Soil Cap –The soil cap area continues to function as designed with minor bare spots (noted during each Quarterly Inspection). UPRR will continue to monitor these areas. Various vegetation provided good coverage across the soil cap area. Minor rutting was observed along the northeast slope of the soil cap and was repaired by UPRR contractor OMI on October 6, 2022. This repaired area will be monitored for signs of erosion and vegetation growth.

- Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition during the quarterly inspections and is functioning as intended. The only maintenance that occurred in this area throughout 2022 was routine removal of vegetation from the edges of the sidewalk cap and some joints within the sidewalk.

- Asphalt Road Cap – The asphalt road cap appeared to be in good condition and functioning as designed. A small tar-like marks, which were noted during inspections in 2017 through 2022, did not appear to expand in size compared to the previous inspections. Minor cracking was noted where the asphalt roadway meets the new asphalt bump out sections that were constructed as part of the UPRR Engineering North By-Pass construction project. This location will continue to be monitored during the inspections.

- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition, 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. Tar-like material seeps continue to be observed within the Concrete Cap area. The seeps become more active during the warmer months of the year, similar to previous years. Brown water seeps and stating were observed in April through June 2022. The brown staining and seeps were addressed through power washing and recovery of the wash water. The test pits that were conducted in 2020 appear to have addressed the specific tar-like substance seeps that were identified at most of the test pit locations, except for the seep in stall B096 which returned during the 3rd Quarter 2022. UPRR is evaluating additional response actions for the areas where the current tar-like substance seeps

have been observed and will prepare an Interim Measures Work Plan detailing additional responses. Weekly inspections of the affected area will continue to be conducted. Pump downs to remove the accumulated water from the NAPL Collection System sumps were conducted on March 16, 2022, May 4, 2022, July 20, 2022, August 31, 2022, and October 19, 2022.

Have any changes occurred in the person's status during this reporting period to warrant changes in the financial assurance for this affected property? (For example, a change in "small business" status as defined in §350.33(n)(2).) ___ Yes _X_ No

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

Checklist for Report Completeness	ID No. SWR No. 31547
	Report Date: March 29, 2023

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

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

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

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

As detailed in the RAP Worksheet 5.0, 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 27 (1Q), April 27 (2Q), July 22 (3Q), and October 19, 2022 (4Q))

Quarterly site inspections of the five cap areas were conducted during the four quarters of 2022. Inspection logs and photographic logs for the quarterly inspections are provided in Attachment A (A1, A2, A3, & A4 for the quarterly events). Results of the site inspections are provided below.

1st Quarter, 2022 – Inspection Date: 01/27/22 (Photolog provided in Attachment A1)

• Soil Cap -The soil cap area did not appear to have any significant erosion, sloughing, or subsidence. A few minor bare spots (Photo No. 4 and 5 (Attachment A1)) were noted along the slopes of the soil cap, but the cap appeared to be functioning as designed. Since the inspection occurred in January, most of the vegetation was dormant.

• Asphalt Road Cap – Asphalt road cap appeared to be in good condition, with minor cracks observed. Additionally, weeds, minor ant hills, and other vegetation was noted along the edge of the asphalt cap under the barriers (see Photo Nos. 7, 8, and 10 through 12). The small tar-like marks (Photo Nos. 9 and 12), which were noted during previous inspections, did not appear to expand in size compared to previous inspections.

• Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition, with vegetation growth within the ballast area (Photo Nos. 7, 11 and 12).

• Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition and functioning as intended. Some of the concrete joints had minor vegetative growth (Photo Nos. 13 through 15).

• Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo Nos. 17 through 29). Localized residual surficial staining was noted in the IM Yard A and B rows (Photo Nos. 22 and 23). No new tar-like material was observed during the quarterly inspection at the historical seep locations (Figure 2) within the concrete cap area. Weekly inspections of the Concrete Cap area where tar-like material

seeps have been observed continue to be conducted. When tar-like material is noted, the material is scraped and placed in a container within the Container Storage Area (CSA) pending disposal. One drum containing the tar-like material was removed from the Site by UPRR remediation contraction OMI and taken for disposal at Seabreeze Landfill in Angleton, TX on January 17, 2022. The analytical for waste characterization and final waste manifest is provided in Appendix 2. As mentioned in the Monthly Update dated April 13, 2022, a new seep location was observed in stall B056 for the first time on March 13, 2022. Overall, seep activity was infrequent during the 1st Quarter 2022, with an overall volume of approximately one gallon recovered from the pavement areas throughout the quarter.

The NAPL Collection System installed in February 2019 continued to be inspected weekly. One sump pump down event to remove the accumulated water from the NAPL Collection System sumps was conducted by UPRR remediation contractor OMI OMI during the 1st Quarter 2022 on March 16, 2022. Water from the sumps was transported to Delta Water Processing for disposal. The analytical for waste characterization and final waste manifest is provided in Appendix 2. NAPL Collection System sumps were gauged during the weekly inspections using an interface probe, and the bottom of the sumps were scraped with a tool to evaluate the presence of any accumulated NAPL. No NAPL was measured in any of the sumps during the weekly inspections. A small amount of DNAPL (less than 0.5 gal) was recovered from the B107/B108 sump during the 1st Quarter 2022. This DNAPL was recovered on March 16, 2022 during the sump pump down event.

• Groundwater Monitoring Wells – The groundwater monitoring wells were inspected in January 2022 during the first semi-annual groundwater monitoring event. The majority of the wells appeared to be in good condition and functioning as intended, with some minor surface completion repairs needed (non-Solid Waste Management Unit No. 1 (SWMU No. 1) wells). Monitoring well MW-44C was noted as damaged and needs to be replaced.

2nd Quarter 2022 – Inspection Date: 04/27/22 (Photolog provided in Attachment A2)

• Soil Cap -The soil cap area did not appear to have any significant erosion, sloughing, or subsidence. Patches of pollinator plants were observed across the soil cap area (Photo No. 4). A few minor bare spots (Photo Nos. 3 and 5) were noted on top and along the slopes of the soil cap, but the cap appeared to be functioning as designed. Debris from a car wreck that damaged the perimeter fence was noted on the northeastern end of the soil cap (Photo No. 6), no damage to the soil cap was observed.

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

• Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition with some areas of vegetation growth at the boundary with the asphalt road cap (Photo Nos. 7 and 8). Denser areas of vegetation growth within the ballast area were observed on the western side (Photo No. 10).

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

• Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo No. 17 through 23 and 27 through 29). Small amounts of the tar-like substance were observed during the inspection surfacing through the joints and cracks in some of the IM Yard A row (stall A011) (Photo No. 21) and B row (stalls B056 and B102) stalls in the concrete and asphalt surfaces in the area shown in the attached Figure 2. Tar-like material seep activity increased during the 2nd Quarter 2022 compared to the 1st Quarter 2022, with an overall volume of approximately eight gallons recovered from the pavement areas during the weekly inspections throughout the quarter. One drum containing the tar-like material was removed from the Site by OMI and taken for disposal at Blue Ridge Landfill in Fresno, TX on June 14, 2022. The analytical for waste characterization and final waste manifest is provided in Appendix 2.

Areas of brown stains on the concrete pavement and evidence of seeps of a dark brown to black water were observed along cracks in the pavement and low-lying areas during the 2nd Quarter 2022. As detailed in the Monthly Status Update dated May 13, 2022, localized brown staining along cracks and a small amount of seep water within the cracks in the paved areas were observed during the weekly inspection on April 20, 2022. UPRR remediation contractor OMI was called out on April 20th to see the areas and develop a plan to address the brown staining/water seeping events. When OMI arrived onsite April 21, 2022, there was minimal staining visible. The brown staining/water were not observed during the quarterly inspection on April 27, 2022. As noted in the Monthly Status Update dated June 15, 2022, OMI was called to the Site on May 13 and May 20, 2022 to pressure wash the areas where the brown staining and water were observed. The brown staining and water returned in June, as detailed in the Monthly Status Update dated July 15, 2022. OMI pressure washed the seep areas on June 10, 2022 and June 27, 2022. For each event, the wash water was captured and placed in a tote on Site pending disposal. A sample of the wash water was collected on June 1, 2022 for waste profiling. The general area where the brown water seeps were noted in March through May is shown on Figure 2.

The NAPL Collection System continued to be inspected weekly. One sump pump down event to remove the accumulated water from the NAPL Collection System sumps was conducted by OMI during the 2nd Quarter 2022 on May 4, 2022. Water from the sumps was transported to Delta Water Processing for disposal. The analytical for waste characterization and final waste manifest is provided in Appendix 2. NAPL Collection System sumps were gauged during the weekly inspections using an interface probe, and the bottom of the sumps were scraped with a tool to evaluate the presence of any accumulated NAPL. No NAPL was measured using the interface probe in any of the sumps and no NAPL was recovered from the sumps using the scraping tool during the 2nd Quarter 2022.

3rd Quarter 2022 – Inspection Date: 07/22/22(Photolog provided in Attachment A3)

• Soil Cap -The soil cap area (see Photo Nos. 1 through 6) did not appear to have any significant erosion, sloughing, or subsidence. Soil cap appeared to have good vegetative coverage despite dry conditions (Photo Nos. 3 and 4). A few minor bare spots were noted

along the slopes of the soil cap in the northeast portion of the soil cap as well as the northwest corner (Photo No. 5), but the cap appeared to be functioning as designed.

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

• Railroad Ballast Cap – Significant vegetation growth was observed within the ballast cap area, otherwise the ballast cap appeared to be in good condition (see Photo Nos. 7 through 12). UPRR remediation contractor OMI was called out to remove vegetation from the ballast area.

• Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition and functioning as intended with very minimal vegetative growth (Photo Nos. 13 and 14).

• Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo Nos. 18, 20, 21, 23, 27, and 29). During the inspection, and throughout the 3rd Quarter, small amounts of the tar-like material were observed in the joints and cracks in the IM Yard A Row (stalls A011 and A022) and B Row (stalls B056, B057, B101, B102, B105, and B107) as shown on the attached Figure 2. Weekly inspections and recovery of the tar-like substance continue to be conducted. The following new seep locations were observed during the 3rd Quarter of 2022:

- A small tar-like material seep was observed July 6, 2022 along the southern edge of the NAPL Collection System in cracks in the cement at the joint of Stall B107 (Photo 21), as noted in the Monthly Status Update dated August 15, 2022. This was the first occurrence of the tar-like material seeps being observed at this location since installation of the NAPL Collection System.
- A new seep location was observed along the northern side of Track 802 (labeled Track 802 seep) at the edge of the railroad ballast, also noted in the Monthly Status Update dated August 15, 2022.
- During the September 28, 2022 inspection, an additional tar-like material seep was observed within the concrete road area (RD-14) near the existing Track 802 seep location. In addition, a small amount of tar like material was observed in stall B096 for the first time since the July 2020 test pit was installed, near the historical seep location, along the concrete joint at the front of the stall.

Through the 3rd Quarter 2022, no NAPL seeps were observed at the six other July 2020 test pit locations (stalls A010, A021, A098, B013, B057, and B108). Overall, seep activity increased during the 3rd Quarter 2022 compared to the 2nd Quarter 2022, with an overall volume of approximately nine gallons recovered from the seeps during the weekly inspections throughout the quarter. One drum containing the tar-like material was removed from the Site by OMI and taken for disposal at Blue Ridge Landfill in Fresno, TX on September 7, 2022. The analytical for waste characterization and final waste manifest is provided in Appendix 2.

After the pressure washing event conducted at the end of the 2nd quarter 2022 on June 27, 2022, no new brown staining/residue or seep water was observed during the weekly inspections throughout the 3rd Quarter 2022. OMI picked up the totes containing the wash water from previous clean up events for disposal at the Blue Ridge Landfill in Fresno, TX on

August 19, 2022. The analytical for waste characterization and final waste manifest are provided in Appendix 2.

The NAPL Collection System continued to be inspected weekly. Two sump pump down events to remove the accumulated water from the NAPL Collection System sumps were conducted by OMI during the 3rd Quarter 2022 on July 20, 2022 and August 31, 2022. Water from the sumps was transported to Delta Water Processing for disposal. The analytical for waste characterization and final waste manifest is provided in Appendix 2. A small amount of DNAPL (less than 0.1 gallons) was recovered from the B099/B100 sump during the 3rd Quarter 2022 (Photo No. 24). This DNAPL was recovered during the sump pump down event on July 20, 2022.

• Groundwater Monitoring Wells - The groundwater monitoring wells were inspected in July 2022 during the second semi-annual groundwater monitoring event. The majority of the wells appeared to be in good condition and functioning as intended, with some minor surface completion repairs needed (non- SWMU No. 1 wells). Monitoring well MW-44C was noted as damaged and needs to be replaced. In addition, the total depth of monitoring well MW-49B could not be reached due to an obstruction. The well can be sampled but will need to be replaced as it serves as a DNAPL recovery well.

4th Quarter 2022 – Inspection Date: 10/19/22 (Photolog provided in Attachment A4)

• Soil Cap -The soil cap area (Photo Nos. 1 through 6) did not appear to have any significant erosion, sloughing, or subsidence. Most of the vegetation on the cap is dormant (Photo Nos. 1 and 2), with some areas of new growth observed (Photo No. 3). The cap appeared to be functioning as designed. Some minor rutting that was noted along the northeast slope of the soil cap where vegetation had not been reestablished. This area was repaired by UPRR contractor OMI on October 6, 2022 by placing topsoil in the area. During the inspection, the cap repair appeared to be functioning and no erosion was observed (Photo No. 5). This area will continue to be monitored for signs of erosion and vegetation growth.

• Asphalt Road Cap – Asphalt road cap appeared to be in good condition, with minor cracks observed where the asphalt roadway meets the new asphalt pull out section (Photo No. 11), this spot will continue to be monitored. Additionally, weeds and other vegetation was noticed along the edge of the concrete cap under the barriers (see Photo Nos. 7 and 12). A small residual oil stain (Photo No. 8) from an ongoing construction project was noted.

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

• Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition, vegetative growth within the ballast area appeared to be dead has been removed is some areas (Photo Nos. 7 through 12).

• Concrete Cap (Englewood Intermodal Yard) – Cracks in the pavement were noted, but no soil appeared to be exposed (Photo Nos. 18 through 20, 23, and 27 through 29). Small amounts of the tar-like material were observed surfacing through the joints and cracks in the IM Yard A Row (stalls A011) and B Row (stalls B096, B101, and B102) during the inspections (Photo No. 27) as noted on Figure 2. No new seep locations were observed during the 4th Quarter 2022. Overall, seep activity decreased during the 4th Quarter 2022 compared to the

3rd Quarter 2022, with an overall volume of approximately one gallon recovered from the pavement areas throughout the quarter. One drum containing the tar-like material was removed from the Site by OMI and taken for disposal at Blue Ridge Landfill in Fresno, TX on December 7, 2022. The analytical for waste characterization and final waste manifest is provided in Appendix 2.

The NAPL Collection System continued to be inspected weekly. One sump pump down event to remove the accumulated water from the NAPL Collection System sumps was conducted by OMI during the 4th Quarter 2022 on October 19, 2022. Water from the sumps was transported to Delta Water Processing for disposal. The analytical for waste characterization and final waste manifest is provided in Appendix 2. A small amount of DNAPL (less than 1 gallon total) was recovered from the sumps over the course of the 4th Quarter 2022. Less than 0.1 gallons was recovered the B107/B108 sump during a sump pump down event on October 19, 2022. On November 30, 2022 less than 0.2 gallons of DNAPL was recovered from the B107/B108 sump. During the weekly inspection on December 14, 2022, the dipper tool was replaced with a hoe to aid in the recovery of any DNAPL present in the sumps. Using the hoe on December 14th, less than 0.4 gallons of DNAPL were recovered from the B099/B100 sump and less than 0.1 gal of DNAPL was recovered from the B107/B108 sump.

No brown staining/residue or seep water was observed during the weekly inspections throughout the 4th Quarter 2022.

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

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

- Soil Cap –The soil cap area continues to function as designed with minor bare spots (noted during each Quarterly Inspection). UPRR will continue to monitor these areas. Various vegetation provided good coverage across the soil cap area. Minor rutting was observed along the northeast slope of the soil cap that was repaired by UPRR contractor OMI on October 6, 2022. This repaired area will be monitored for signs of erosion and vegetation growth.

- Concrete Sidewalk Cap – The sidewalk cap area appeared to be in good condition during the quarterly inspections and is functioning as intended. The only maintenance that occurred in this area throughout 2022 was routine removal of vegetation from the edges of the sidewalk cap and some joints within the sidewalk.

- Asphalt Road Cap – The asphalt road cap appeared to be in good condition and functioning as designed. A small tar-like marks, which were noted during inspections in 2017 through 2022, did not appear to expand in size compared to the previous inspections. Minor cracking was noted where the asphalt roadway meets the new asphalt bump out sections that were constructed as part of the UPRR Engineering

North By-Pass construction project. This location will continue to be monitored during the inspections.

- Railroad Ballast Cap – The railroad ballast cap area appeared to be in good condition, 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. Tar-like material seeps continue to be observed within the Concrete Cap area. The seeps become more active during the warmer months of the year, similar to previous years. Brown water seeps and stating were observed in April through June 2022. The brown staining and seeps were addressed through power washing and recovery of the wash water. The test pits that were conducted in 2020 appear to have addressed the specific tar-like substance seeps that were identified at most of the test pit locations, except for the seep in stall B096 which returned during the 3rd Quarter 2022. UPRR is evaluating additional response actions for the areas where the current tar-like substance seeps have been observed and will prepare an Interim Measures Work Plan detailing additional responses. Weekly inspections of the affected area will continue to be conducted. Pump downs to remove the accumulated water from the NAPL Collection System sumps were conducted on March 16, 2022, May 4, 2022, July 20, 2022, August 31, 2022, and October 19, 2022.

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.

Concrete Cap Area – Englewood Intermodal (IM) Yard:
During weekly inspections, small amounts of tar-like material were noted and recovered in 2022 in the A and B rows. However, the following new seep locations were observed during the 3rd Quarter of 2022:

- A small tar-like material seep was observed July 6, 2022 along the southern edge of the NAPL Collection System in cracks in the cement at the joint of Stall B107, as noted in the Monthly Status Update dated August 15, 2022. This was the first occurrence of the tar-like material seeps being observed at this location since installation of the NAPL Collection System.
- A new tar-like material seep location was observed along the northern side of Track 802 (labeled Track 802 seep) at the edge of the railroad ballast, also noted in the Monthly Status Update dated August 15, 2022.
- During the September 28, 2022 inspection, an additional tar-like material seep was observed within the concrete road area (RD-14) near the existing Track 802 seep location.
- A small amount of tar-like material was observed at TP-03 in stall B096 adjacent to the test pit patch for the first time since the July 2020 test pit was installed, as detailed in the September 2022 Monthly Status Update, dated October 17, 2022. Through December 2022, no NAPL seeps have been observed at the six other test

pit locations (stalls A010, A021, A098, B013, B057, and B108). The test pit patches continue to be monitored during weekly inspections.

Additional measures planned to address the NAPL seeps in the Englewood IM Yard will be summarized in the Interim Measures Work Plan as requested in the TCEQ Comment Letter dated January 26, 2022.

Similar to observations made in 2021, areas of brown staining were observed along asphalt joints and cracks in the pavement in the IM Yard A and B rows (predominately in the B090 – B098 area) in April through June 2022.

- April 2022 - As detailed in the Monthly Status Update dated May 13, 2022, localized brown staining along cracks and a small amount of seep water within the cracks in the paved areas were observed during the inspection on April 20, 2022. UPRR remediation contractor OMI was called out on April 20th to address the brown staining through pressure washing and recovery of the wash water. When OMI arrived onsite April 21, 2022, there was minimal staining visible.
- May 2022 - Residual brown staining along cracks in the paved areas were observed during the inspection on May 4, 2022. On May 11, 2022 brown staining/residue, and a small amount of seep water within the cracks in the paved areas were observed throughout the A and B rows. The heaviest staining was observed in stalls A020-A030, A060-A080, and A090-A110. UPRR remediation contractor OMI arrived onsite on May 13, 2022 to pressure wash and vacuum the affected area. It was noted that as the seep water was being removed, some of the cracks and potholes in the asphalt were refilling with seep water. By the inspection on May 18, 2022, the brown staining, residue, and seep water had returned within the same areas. OMI arrived onsite on May 20, 2022 to pressure wash the affected locations. Wash water from both clean up events was vacuumed and placed into a tote onsite for disposal.
- June 2022 - The brown staining and water returned in June, as detailed in the monthly updated dated July 15, 2022. Brown staining/residue and a small amount of seep water returned along cracks in the paved areas throughout the A and B rows by the June 8, 2022 inspection. The heaviest staining was observed in stalls A020-A030, A060-A080, and A090-A110. UPRR remediation contractor OMI arrived onsite on June 10, 2022 to pressure wash and vacuum the affected area. It was noted that as the seep water was being removed, some of the cracks and potholes in the asphalt were refilling with seep water. By the inspection on June 15, 2022, the brown staining had returned mainly within stalls A060-A100 but to a lesser extent compared to the June 8, 2022 observations. During the June 22, 2022 inspection, widespread staining, residue, and a small amount of standing seep water in the cracks in the pavement was observed throughout the A and B rows. OMI arrived onsite on June 27, 2022 to pressure wash the affected locations. The pressure washing event was completed on June 28, 2022. Again, a small amount of seep water refilled some of the asphalt cracks as it was being removed. Residual staining with a small amount of seep water was noted during the inspection on June 29, 2022. Wash water from the pressure washing events was vacuumed and placed into three totes stored on-site.

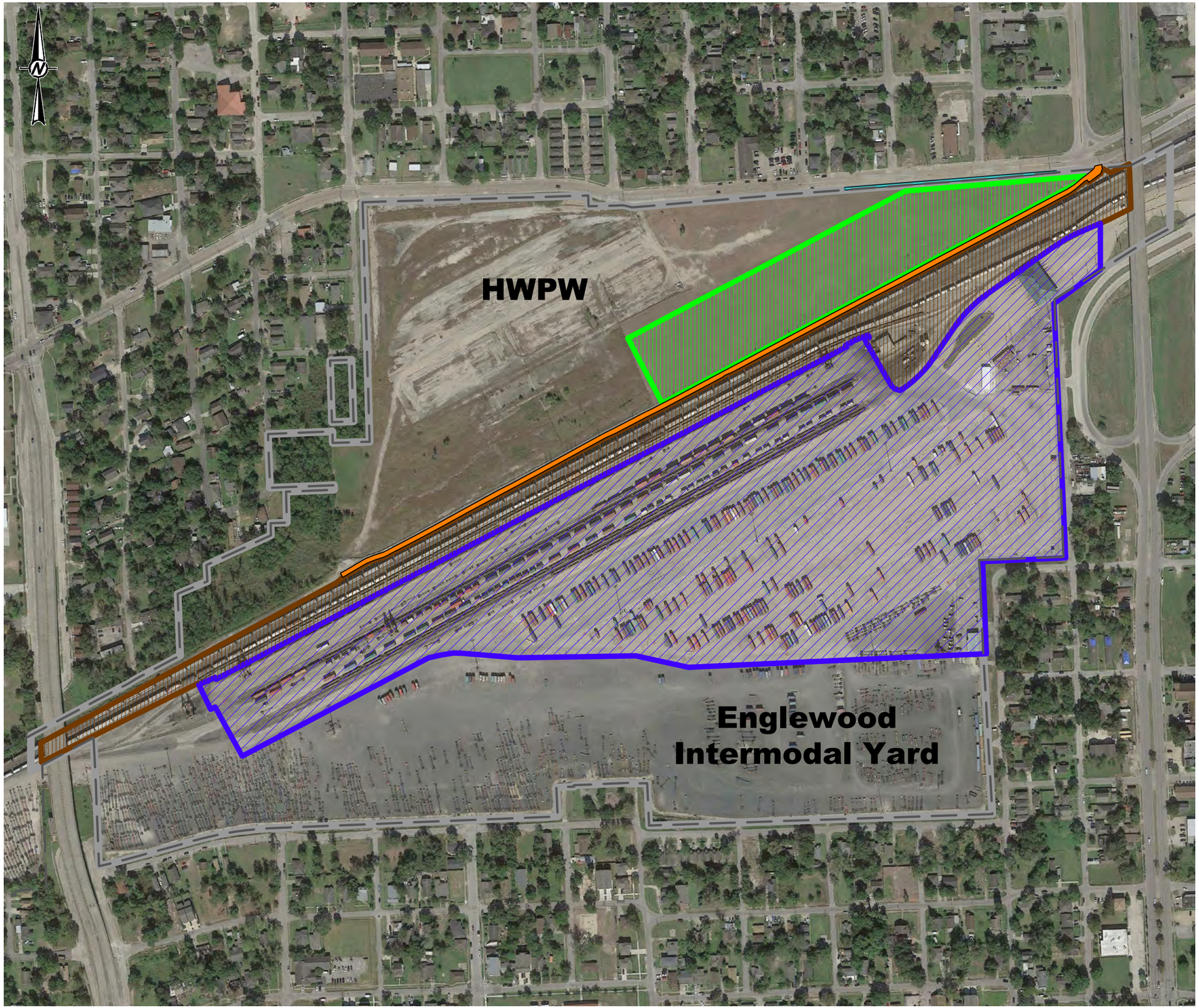
A sample of the wash water was collected on June 1, 2022 for waste profiling. OMI picked up the totes for disposal at the Blue Ridge Landfill in Fresno, TX on August 19, 2022. The analytical for waste characterization and final waste manifest are provided in Appendix 2. Little to no water has been observed during weekly inspections since the end of June 2022.

UPRR is continuing to evaluate possible sources of the seep water and potential responses to address surfacing of the water.

For the Soil Cap Area, some minor rutting that was noted along the northeast slope of the soil cap where vegetation had not been reestablished. The area was repaired by UPRR contractor OMI on October 6, 2022 by placing topsoil in the area. During the inspection, the cap repair appeared to be functioning and no erosion was observed. Minor vegetation was observed and removed from the other capped areas.

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

FIGURES



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.

0 160 320
1" = 320' FEET

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
HOUSTON WOOD PRESERVING WORKS

TITLE
CAPPED AREAS

CONSULTANT
wsp

YYYY-MM-DD	2023-02-06
DESIGNED	AJD
PREPARED	AJD
REVIEWED	ECM
APPROVED	ECM

PROJECT NO. GL19119232 | REV. 0 | FIGURE 1

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

Path: \\gobfer.gds\comp\data\offton\Texarkana\Projects - Round Rock_2019\19119232 - HWPW\2023-01\ | File Name: 1 - Capped Areas.dwg | Last Edited By: usad701305 Date: 2023-02-06 Time:3:11:59 PM | Printed By: USAD701305 Date: 2023-02-06 Time:3:13:49 PM

LEGEND

- EXISTING NAPL COLLECTION SYSTEM (CONSTRUCTED FEB. 2019)
- HISTORICAL LIMIT OF BROWN LIQUID SURFACING (2018 AND 2019)
- HISTORICAL NAPL SEEP AREA (2018 AND 2019)
- HISTORICAL NAPL SEEP LOCATION (2018 AND 2019)
- EXISTING NAPL COLLECTION SUMP
- NEW NAPL SEEP LOCATION (2022)

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, DATED 02-23-2019

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
HOUSTON WOOD PRESERVING WORKS
ENGLEWOOD INTERMODAL YARD

TITLE
ENGLEWOOD INTERMODAL YARD CAPPED AREA

CONSULTANT

YYYY-MM-DD	2023-02-06
DESIGNED	AJD
PREPARED	AJD
REVIEWED	SB
APPROVED	ECM

PROJECT NO. GL19119232 | REV. 0 | FIGURE 2

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

APPENDIX 2

DISPOSITION OF DERIVED WASTE

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

May 17, 2021

Eric Matzner
Golder Associates Inc.
2201 Double Creek Drive
Suite 4004
Round Rock, TX 78664

Work Order: **HS21041584**

Laboratory Results for: **Houston TX-Wood Preserving Works IDWS**

Dear Eric Matzner,

ALS Environmental received 1 sample(s) on Apr 29, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Dane J. Wacasey

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
Work Order: HS21041584

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21041584-01	SO-1620-IDW01-20210428	Solid		28-Apr-2021 15:00	29-Apr-2021 10:27	☐

Client: Golder Associates Inc. **CASE NARRATIVE**
Project: Houston TX-Wood Preserving Works IDWS
Work Order: HS21041584

Work Order Comments

• Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.

The temperature at the time of pH is reported. Please note that all pH results are already normalized to a temperature of 25 °C.

GC Semivolatiles by Method TX1005

Batch ID: 165330

Sample ID: SO-1620-IDW01-20210428 (HS21041584-01)

• The surrogate recoveries could not be determined due to dilution below the calibration range.

GCMS Semivolatiles by Method SW8270

Batch ID: 165358

Sample ID: HS21041685-01MS

• MS and MSD are for an unrelated sample

Sample ID: SO-1620-IDW01-20210428 (HS21041584-01)

• The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

• The surrogate recoveries could not be determined due to dilution below the calibration range.

GCMS Volatiles by Method SW8260

Batch ID: R383079

Sample ID: HS21041632-06MS

• MS and MSD are for an unrelated sample

Sample ID: SO-1620-IDW01-20210428 (HS21041584-01)

• Lowest practical dilution for HS21041584-01 due to sample matrix.

Metals by Method SW1311/6020

Batch ID: 165746

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A

Batch ID: 165487

Sample ID: HS21041427-09MS

• MS and MSD are for an unrelated sample

Metals by Method SW7471B

Batch ID: 165431

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
Work Order: HS21041584

CASE NARRATIVE

WetChemistry by Method SW1030

Batch ID: R383028

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9045D

Batch ID: R382951

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
Sample ID: SO-1620-IDW01-20210428
Collection Date: 28-Apr-2021 15:00

ANALYTICAL REPORT
WorkOrder:HS21041584
Lab ID:HS21041584-01
Matrix:Solid

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C	**Method:SW8260**						Analyst: WLR
1,1,1-Trichloroethane	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
1,1,2,2-Tetrachloroethane	U		0.040	0.25	mg/Kg	50	06-May-2021 13:51
1,1,2-Trichloroethane	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
1,1-Dichloroethane	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
1,1-Dichloroethene	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
1,2-Dichlorobenzene	U		0.050	0.25	mg/Kg	50	06-May-2021 13:51
1,2-Dichloroethane	U		0.030	0.25	mg/Kg	50	06-May-2021 13:51
1,2-Dichloropropane	U		0.040	0.25	mg/Kg	50	06-May-2021 13:51
1,3-Dichlorobenzene	U		0.050	0.25	mg/Kg	50	06-May-2021 13:51
1,4-Dichlorobenzene	U		0.050	0.25	mg/Kg	50	06-May-2021 13:51
2-Butanone	U		0.065	0.50	mg/Kg	50	06-May-2021 13:51
2-Hexanone	U		0.070	0.50	mg/Kg	50	06-May-2021 13:51
4-Methyl-2-pentanone	U		0.10	0.50	mg/Kg	50	06-May-2021 13:51
Acetone	U		0.10	1.0	mg/Kg	50	06-May-2021 13:51
Benzene	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
Bromochloromethane	U		0.045	0.25	mg/Kg	50	06-May-2021 13:51
Bromodichloromethane	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
Bromoform	U		0.030	0.25	mg/Kg	50	06-May-2021 13:51
Bromomethane	U		0.050	0.50	mg/Kg	50	06-May-2021 13:51
Carbon disulfide	U		0.030	0.50	mg/Kg	50	06-May-2021 13:51
Carbon tetrachloride	U		0.030	0.25	mg/Kg	50	06-May-2021 13:51
Chlorobenzene	U		0.030	0.25	mg/Kg	50	06-May-2021 13:51
Chloroethane	U		0.040	0.50	mg/Kg	50	06-May-2021 13:51
Chloroform	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
Chloromethane	U		0.025	0.50	mg/Kg	50	06-May-2021 13:51
cis-1,2-Dichloroethene	U		0.040	0.25	mg/Kg	50	06-May-2021 13:51
cis-1,3-Dichloropropene	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
Dibromochloromethane	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
Ethylbenzene	**0.85**		**0.035**	**0.25**	**mg/Kg**	50	06-May-2021 13:51
m,p-Xylene	**0.27**	J	**0.080**	**0.50**	**mg/Kg**	50	06-May-2021 13:51
Methylene chloride	U		0.050	0.50	mg/Kg	50	06-May-2021 13:51
o-Xylene	**0.48**		**0.050**	**0.25**	**mg/Kg**	50	06-May-2021 13:51
Styrene	U		0.035	0.25	mg/Kg	50	06-May-2021 13:51
Tetrachloroethene	U		0.035	0.25	mg/Kg	50	06-May-2021 13:51
Toluene	**0.056**	J	**0.030**	**0.25**	**mg/Kg**	50	06-May-2021 13:51
trans-1,2-Dichloroethene	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
trans-1,3-Dichloropropene	U		0.030	0.25	mg/Kg	50	06-May-2021 13:51
Trichloroethene	U		0.030	0.25	mg/Kg	50	06-May-2021 13:51
Vinyl acetate	U		0.050	0.50	mg/Kg	50	06-May-2021 13:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
ANALYTICAL REPORT
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder:HS21041584
Sample ID: SO-1620-IDW01-20210428
Lab ID:HS21041584-01
Collection Date: 28-Apr-2021 15:00
Matrix:Solid

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		**Method:SW8260**					Analyst: WLR
Vinyl chloride	U		0.040	0.10	mg/Kg	50	06-May-2021 13:51
Xylenes, Total	**0.75**		**0.050**	**0.25**	**mg/Kg**	50	06-May-2021 13:51
1,2-Dichloroethene, Total	U		0.025	0.25	mg/Kg	50	06-May-2021 13:51
Surr: 1,2-Dichloroethane-d4	*102*			*70-126*	*%REC*	*50*	*06-May-2021 13:51*
Surr: 4-Bromofluorobenzene	*97.3*			*70-130*	*%REC*	*50*	*06-May-2021 13:51*
Surr: Dibromofluoromethane	*94.1*			*70-130*	*%REC*	*50*	*06-May-2021 13:51*
Surr: Toluene-d8	*99.8*			*70-130*	*%REC*	*50*	*06-May-2021 13:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
Sample ID: SO-1620-IDW01-20210428
Collection Date: 28-Apr-2021 15:00

ANALYTICAL REPORT
WorkOrder:HS21041584
Lab ID:HS21041584-01
Matrix:Solid

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D	**Method:SW8270**				Prep:SW3541 / 04-May-2021		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.36	2.0	mg/Kg	10	06-May-2021 21:59
2,4,5-Trichlorophenol	U		0.75	2.0	mg/Kg	10	06-May-2021 21:59
2,4,6-Trichlorophenol	U		0.51	2.0	mg/Kg	10	06-May-2021 21:59
2,4-Dichlorophenol	U		0.39	2.0	mg/Kg	10	06-May-2021 21:59
2,4-Dimethylphenol	U		0.99	2.0	mg/Kg	10	06-May-2021 21:59
2,4-Dinitrophenol	U		1.3	3.9	mg/Kg	10	06-May-2021 21:59
2,4-Dinitrotoluene	U		0.27	2.0	mg/Kg	10	06-May-2021 21:59
2,6-Dinitrotoluene	U		0.99	2.0	mg/Kg	10	06-May-2021 21:59
2-Chloronaphthalene	U		0.39	2.0	mg/Kg	10	06-May-2021 21:59
2-Chlorophenol	U		0.39	2.0	mg/Kg	10	06-May-2021 21:59
2-Methylnaphthalene	**39**		**0.15**	**0.99**	**mg/Kg**	10	06-May-2021 21:59
2-Methylphenol	U		0.33	2.0	mg/Kg	10	06-May-2021 21:59
2-Nitroaniline	U		0.57	2.0	mg/Kg	10	06-May-2021 21:59
2-Nitrophenol	U		0.75	2.0	mg/Kg	10	06-May-2021 21:59
3&4-Methylphenol	**1.5**	J	**0.30**	**2.0**	**mg/Kg**	10	06-May-2021 21:59
3,3´-Dichlorobenzidine	U		0.75	2.0	mg/Kg	10	06-May-2021 21:59
3-Nitroaniline	U		0.57	2.0	mg/Kg	10	06-May-2021 21:59
4,6-Dinitro-2-methylphenol	U		0.63	2.0	mg/Kg	10	06-May-2021 21:59
4-Bromophenyl phenyl ether	U		0.48	2.0	mg/Kg	10	06-May-2021 21:59
4-Chloro-3-methylphenol	U		0.21	2.0	mg/Kg	10	06-May-2021 21:59
4-Chloroaniline	U		0.33	2.0	mg/Kg	10	06-May-2021 21:59
4-Chlorophenyl phenyl ether	U		0.45	2.0	mg/Kg	10	06-May-2021 21:59
4-Nitroaniline	U		0.66	2.0	mg/Kg	10	06-May-2021 21:59
4-Nitrophenol	U		0.57	3.9	mg/Kg	10	06-May-2021 21:59
Acenaphthene	**370**		**1.5**	**9.9**	**mg/Kg**	100	10-May-2021 21:34
Acenaphthylene	**22**		**0.30**	**0.99**	**mg/Kg**	10	06-May-2021 21:59
Anthracene	**410**		**1.5**	**9.9**	**mg/Kg**	100	10-May-2021 21:34
Benz(a)anthracene	**480**		**4.8**	**9.9**	**mg/Kg**	100	10-May-2021 21:34
Benzidine	U		0.42	2.0	mg/Kg	10	06-May-2021 21:59
Benzo(a)pyrene	**230**		**3.0**	**9.9**	**mg/Kg**	100	10-May-2021 21:34
Benzo(b)fluoranthene	**350**		**3.6**	**9.9**	**mg/Kg**	100	10-May-2021 21:34
Benzo(g,h,i)perylene	**47**		**0.21**	**0.99**	**mg/Kg**	10	06-May-2021 21:59
Benzo(k)fluoranthene	**240**		**2.7**	**9.9**	**mg/Kg**	100	10-May-2021 21:34
Benzyl alcohol	U		0.21	2.0	mg/Kg	10	06-May-2021 21:59
Bis(2-chloroethoxy)methane	U		0.27	2.0	mg/Kg	10	06-May-2021 21:59
Bis(2-chloroethyl)ether	U		0.33	2.0	mg/Kg	10	06-May-2021 21:59
Bis(2-chloroisopropyl)ether	U		0.42	2.0	mg/Kg	10	06-May-2021 21:59
Bis(2-ethylhexyl)phthalate	U		0.51	2.0	mg/Kg	10	06-May-2021 21:59
Butyl benzyl phthalate	U		0.39	2.0	mg/Kg	10	06-May-2021 21:59

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
Sample ID: SO-1620-IDW01-20210428
Collection Date: 28-Apr-2021 15:00

ANALYTICAL REPORT
WorkOrder:HS21041584
Lab ID:HS21041584-01
Matrix:Solid

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D	**Method:SW8270**				Prep:SW3541 / 04-May-2021		Analyst: GEY
Carbazole	**11**		**0.36**	**2.0**	**mg/Kg**	10	06-May-2021 21:59
Chrysene	**420**		**2.4**	**9.9**	**mg/Kg**	100	10-May-2021 21:34
Di-n-butyl phthalate	U		0.36	2.0	mg/Kg	10	06-May-2021 21:59
Di-n-octyl phthalate	U		0.27	2.0	mg/Kg	10	06-May-2021 21:59
Dibenz(a,h)anthracene	**21**		**0.48**	**0.99**	**mg/Kg**	10	06-May-2021 21:59
Dibenzofuran	**210**		**2.1**	**9.9**	**mg/Kg**	100	10-May-2021 21:34
Diethyl phthalate	U		0.30	2.0	mg/Kg	10	06-May-2021 21:59
Dimethyl phthalate	U		0.24	2.0	mg/Kg	10	06-May-2021 21:59
Fluoranthene	**3,600**		**33**	**99**	**mg/Kg**	1000	10-May-2021 14:55
Fluorene	**600**		**3.3**	**9.9**	**mg/Kg**	100	10-May-2021 21:34
Hexachlorobenzene	U		0.27	2.0	mg/Kg	10	06-May-2021 21:59
Hexachlorobutadiene	U		0.36	2.0	mg/Kg	10	06-May-2021 21:59
Hexachlorocyclopentadiene	U		0.24	2.0	mg/Kg	10	06-May-2021 21:59
Hexachloroethane	U		0.45	2.0	mg/Kg	10	06-May-2021 21:59
Indeno(1,2,3-cd)pyrene	**47**		**0.24**	**0.99**	**mg/Kg**	10	06-May-2021 21:59
Isophorone	U		0.24	2.0	mg/Kg	10	06-May-2021 21:59
N-Nitrosodi-n-propylamine	U		0.33	2.0	mg/Kg	10	06-May-2021 21:59
N-Nitrosodimethylamine	U		0.36	2.0	mg/Kg	10	06-May-2021 21:59
N-Nitrosodiphenylamine	U		0.21	2.0	mg/Kg	10	06-May-2021 21:59
Naphthalene	**35**		**0.18**	**0.99**	**mg/Kg**	10	06-May-2021 21:59
Nitrobenzene	U		0.27	2.0	mg/Kg	10	06-May-2021 21:59
Pentachlorophenol	U		0.99	2.0	mg/Kg	10	06-May-2021 21:59
Phenanthrene	**2,200**		**45**	**99**	**mg/Kg**	1000	10-May-2021 14:55
Phenol	**0.49**	J	**0.33**	**2.0**	**mg/Kg**	10	06-May-2021 21:59
Pyrene	**2,000**		**18**	**99**	**mg/Kg**	1000	10-May-2021 14:55
Pyridine	U		0.27	2.0	mg/Kg	10	06-May-2021 21:59
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*1000*	*10-May-2021 14:55*
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*100*	*10-May-2021 21:34*
Surr: 2,4,6-Tribromophenol	*67.5*			*36-126*	*%REC*	*10*	*06-May-2021 21:59*
Surr: 2-Fluorobiphenyl	*87.5*			*43-125*	*%REC*	*10*	*06-May-2021 21:59*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*1000*	*10-May-2021 14:55*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*100*	*10-May-2021 21:34*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*1000*	*10-May-2021 14:55*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*100*	*10-May-2021 21:34*
Surr: 2-Fluorophenol	*56.0*			*37-125*	*%REC*	*10*	*06-May-2021 21:59*
Surr: 4-Terphenyl-d14	*59.6*			*32-125*	*%REC*	*10*	*06-May-2021 21:59*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*100*	*10-May-2021 21:34*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*1000*	*10-May-2021 14:55*
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*1000*	*10-May-2021 14:55*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
Sample ID: SO-1620-IDW01-20210428
Collection Date: 28-Apr-2021 15:00

ANALYTICAL REPORT
WorkOrder:HS21041584
Lab ID:HS21041584-01
Matrix:Solid

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 04-May-2021		Analyst: GEY
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*100*	*10-May-2021 21:34*
Surr: Nitrobenzene-d5	*66.0*			*37-125*	*%REC*	*10*	*06-May-2021 21:59*
Surr: Phenol-d6	*75.2*			*40-125*	*%REC*	*10*	*06-May-2021 21:59*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*1000*	*10-May-2021 14:55*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*100*	*10-May-2021 21:34*
TEXAS TPH BY TX1005		**Method:TX1005**			Prep:TX1005PR / 03-May-2021		Analyst: MBG
nC6 to nC12	U		6900	47000	mg/Kg	100	03-May-2021 20:10
>nC12 to nC28	**120,000**		**9100**	**47000**	**mg/Kg**	100	03-May-2021 20:10
>nC28 to nC35	**20,000**	J	**9100**	**47000**	**mg/Kg**	100	03-May-2021 20:10
Total Petroleum Hydrocarbon	**140,000**		**6900**	**47000**	**mg/Kg**	100	03-May-2021 20:10
Surr: 2-Fluorobiphenyl	*0*	*S*		*70-130*	*%REC*	*100*	*03-May-2021 20:10*
Surr: Trifluoromethyl benzene	*0*	*S*		*70-130*	*%REC*	*100*	*03-May-2021 20:10*
TCLP METALS BY SW6020A		**Method:SW1311/6020**		Leache:SW1311 / 12-May-2021	Prep:SW3010A / 13-May-2021		Analyst: JHD
Lead	**0.0735**		**0.00600**	**0.0500**	**mg/L**	1	13-May-2021 20:36
METALS BY SW6020A		**Method:SW6020A**			Prep:SW3050B / 07-May-2021		Analyst: JC
Antimony	**0.341**	J	**0.0639**	**0.492**	**mg/Kg**	1	07-May-2021 18:39
Arsenic	**1.42**		**0.0689**	**0.492**	**mg/Kg**	1	07-May-2021 18:39
Barium	**31.2**		**0.0295**	**0.492**	**mg/Kg**	1	07-May-2021 18:39
Beryllium	**0.0241**	J	**0.0207**	**0.492**	**mg/Kg**	1	07-May-2021 18:39
Cadmium	**0.814**		**0.0266**	**0.492**	**mg/Kg**	1	07-May-2021 18:39
Chromium	**5.47**		**0.0226**	**0.492**	**mg/Kg**	1	07-May-2021 18:39
Lead	**66.5**		**0.0128**	**0.492**	**mg/Kg**	1	07-May-2021 18:39
Nickel	**9.60**		**0.0472**	**0.492**	**mg/Kg**	1	07-May-2021 18:39
Selenium	**0.168**	J	**0.0895**	**0.492**	**mg/Kg**	1	07-May-2021 18:39
Silver	**0.117**	J	**0.0148**	**0.492**	**mg/Kg**	1	07-May-2021 18:39
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 06-May-2021		Analyst: MSC
Mercury	**0.103**		**0.000482**	**0.00341**	**mg/Kg**	1	06-May-2021 12:46
BURN RATE BY METHOD SW1030		**Method:SW1030**					Analyst: TH
Ignitability, Solid	**0**		**0**	**0**	**Burn Rate, mm/sec**	1	05-May-2021 09:00
PH SOIL BY SW9045D		**Method:SW9045D**					Analyst: KVL
pH	**7.94**	H	**0.100**	**0.100**	**pH Units**	1	04-May-2021 14:30
Temp Deg C @pH	**21.8**	H	**0**	**0**	**°C**	1	04-May-2021 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

Batch ID: 4259 **Start Date:** 05 May 2021 11:33 **End Date:** 05 May 2021 11:33
Method: VOLATILES BY SW8260C

Sample ID	Container	Sample Wt/Vol	Final Volume	Weight Factor	Container Type
HS21041584-01	1	4.976 (g)	5 (mL)	1	Bulk (5030B)

Batch ID: 165330 **Start Date:** 03 May 2021 11:00 **End Date:** 03 May 2021 13:30
Method: TX 1005 PREP **Prep Code:** TX 1005_S PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21041584-01	1	1.07 (g)	10 (mL)	9.346	2-oz glass, Neat

Batch ID: 165358 **Start Date:** 04 May 2021 08:00 **End Date:** 04 May 2021 11:30
Method: SV SOXHLET EXTRACT-LOWLEVEL-SW3541 **Prep Code:** 3541_B_LOW

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21041584-01	1	5.02 (g)	5 (mL)	0.996	8-oz glass, Neat

Batch ID: 165431 **Start Date:** 06 May 2021 08:30 **End Date:** 06 May 2021 11:30
Method: MERCURY PREP - SOLID - 7471B **Prep Code:** HG_S_LOWPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21041584-01		0.5845 (grams)	40 (mL)	68.43	8-oz glass, Neat

Batch ID: 165487 **Start Date:** 07 May 2021 08:30 **End Date:** 07 May 2021 14:30
Method: METALS PREP - SOLIDS - SW3050B **Prep Code:** 3050_I_LOW

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21041584-01		0.5083 (g)	50 (mL)	98.37	8-oz glass, Neat

Batch ID: 165657 **Start Date:** 11 May 2021 17:00 **End Date:** 12 May 2021 10:00
Method: TCLP METALS EXTRACTION BY SW1311 **Prep Code:** 1311LM EXT

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21041584-01		100 (grams)	2000 (mL)	20	8-oz glass, Neat

Batch ID: 165746 **Start Date:** 13 May 2021 09:00 **End Date:** 13 May 2021 13:00
Method: TCLP LEACHATE DIGESTION BY SW3010A **Prep Code:** 3010A_TCLP

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21041584-01		1 (mL)	10 (mL)	10	8-oz glass, Neat

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 165330 (0)	**Test Name :** TEXAS TPH BY TX1005				**Matrix:** Solid	
HS21041584-01	SO-1620-IDW01-20210428	28 Apr 2021 15:00		03 May 2021 11:00	03 May 2021 20:10	100
Batch ID: 165358 (0)	**Test Name :** LOW-LEVEL SEMIVOLATILES BY 8270D				**Matrix:** Solid	
HS21041584-01	SO-1620-IDW01-20210428	28 Apr 2021 15:00		04 May 2021 08:00	10 May 2021 21:34	100
HS21041584-01	SO-1620-IDW01-20210428	28 Apr 2021 15:00		04 May 2021 08:00	10 May 2021 14:55	1000
HS21041584-01	SO-1620-IDW01-20210428	28 Apr 2021 15:00		04 May 2021 08:00	06 May 2021 21:59	10
Batch ID: 165431 (0)	**Test Name :** MERCURY BY SW7471B				**Matrix:** Solid	
HS21041584-01	SO-1620-IDW01-20210428	28 Apr 2021 15:00		06 May 2021 10:30	06 May 2021 12:46	1
Batch ID: 165487 (0)	**Test Name :** METALS BY SW6020A				**Matrix:** Solid	
HS21041584-01	SO-1620-IDW01-20210428	28 Apr 2021 15:00		07 May 2021 14:30	07 May 2021 18:39	1
Batch ID: 165746 (0)	**Test Name :** TCLP METALS BY SW6020A				**Matrix:** Solid	
HS21041584-01	SO-1620-IDW01-20210428	28 Apr 2021 15:00	12 May 2021 10:00	13 May 2021 13:00	13 May 2021 20:36	1
Batch ID: R382951 (0)	**Test Name :** PH SOIL BY SW9045D				**Matrix:** Solid	
HS21041584-01	SO-1620-IDW01-20210428	28 Apr 2021 15:00			04 May 2021 14:30	1
Batch ID: R383028 (0)	**Test Name :** BURN RATE BY METHOD SW1030				**Matrix:** Solid	
HS21041584-01	SO-1620-IDW01-20210428	28 Apr 2021 15:00			05 May 2021 09:00	1
Batch ID: R383079 (0)	**Test Name :** VOLATILES BY SW8260C				**Matrix:** Solid	
HS21041584-01	SO-1620-IDW01-20210428	28 Apr 2021 15:00			06 May 2021 13:51	50

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165330 (0) **Instrument: FID-13** **Method: TEXAS TPH BY TX1005**

MBLK Sample ID: **MBLK-165330** Units: **mg/Kg** Analysis Date: **03-May-2021 17:14**
Client ID: Run ID: **FID-13_383083** SeqNo: **6078047** PrepDate: **03-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	U	50								
>nC12 to nC28	U	50								
>nC28 to nC35	U	50								
Total Petroleum Hydrocarbon	U	50								
Surr: 2-Fluorobiphenyl	*24.13*	*0*	*25*	*0*	*96.5*	*70 - 130*				
Surr: Trifluoromethyl benzene	*28.75*	*0*	*25*	*0*	*115*	*70 - 130*				

LCS Sample ID: **LCS-165330** Units: **mg/Kg** Analysis Date: **03-May-2021 17:43**
Client ID: Run ID: **FID-13_383083** SeqNo: **6078048** PrepDate: **03-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	285.9	50	250	0	114	75 - 125				
>nC12 to nC28	292.8	50	250	0	117	75 - 125				
Surr: 2-Fluorobiphenyl	*30.01*	*0*	*25*	*0*	*120*	*70 - 130*				
Surr: Trifluoromethyl benzene	*30.84*	*0*	*25*	*0*	*123*	*70 - 130*				

LCSD Sample ID: **LCSD-165330** Units: **mg/Kg** Analysis Date: **03-May-2021 18:13**
Client ID: Run ID: **FID-13_383083** SeqNo: **6078049** PrepDate: **03-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	270.6	50	250	0	108	75 - 125	285.9	5.49	20	
>nC12 to nC28	271.3	50	250	0	109	75 - 125	292.8	7.61	20	
Surr: 2-Fluorobiphenyl	*28.01*	*0*	*25*	*0*	*112*	*70 - 130*	*30.01*	*6.89*	*20*	
Surr: Trifluoromethyl benzene	*28.49*	*0*	*25*	*0*	*114*	*70 - 130*	*30.84*	*7.93*	*20*	

MS Sample ID: **HS21041613-02MS** Units: **mg/Kg** Analysis Date: **03-May-2021 19:12**
Client ID: Run ID: **FID-13_383083** SeqNo: **6078051** PrepDate: **03-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	299.5	49	246.8	2.941	120	75 - 125				
>nC12 to nC28	291.2	49	246.8	0	118	75 - 125				
Surr: 2-Fluorobiphenyl	*30.95*	*0*	*24.68*	*0*	*125*	*70 - 130*				
Surr: Trifluoromethyl benzene	*30.75*	*0*	*24.68*	*0*	*125*	*70 - 130*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165330 (0) **Instrument: FID-13** **Method: TEXAS TPH BY TX1005**

MSD Sample ID: **HS21041613-02MSD** Units: **mg/Kg** Analysis Date: **03-May-2021 19:41**
Client ID: Run ID: **FID-13_383083** SeqNo: **6078052** PrepDate: **03-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	303	50	247.5	2.941	121	75 - 125	299.5	1.17	20	
>nC12 to nC28	301.3	50	247.5	0	122	75 - 125	291.2	3.41	20	
Surr: 2-Fluorobiphenyl	*30.86*	*0*	*24.75*	*0*	*125*	*70 - 130*	*30.95*	*0.282*	*20*	
Surr: Trifluoromethyl benzene	*30.61*	*0*	*24.75*	*0*	*124*	*70 - 130*	*30.75*	*0.443*	*20*	

The following samples were analyzed in this batch: HS21041584-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165431 (0) **Instrument: HG03** **Method: MERCURY BY SW7471B**

MBLK Sample ID: **MBLK-165431** Units: **ug/Kg** Analysis Date: **06-May-2021 12:24**
Client ID: Run ID: **HG03_383104** SeqNo: **6078623** PrepDate: **06-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.45								

LCS Sample ID: **LCS-165431** Units: **ug/Kg** Analysis Date: **06-May-2021 12:26**
Client ID: Run ID: **HG03_383104** SeqNo: **6078624** PrepDate: **06-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	377.2	3.40	340.4	0	111	80 - 120				

MS Sample ID: **HS21040813-06MS** Units: **ug/Kg** Analysis Date: **06-May-2021 12:29**
Client ID: Run ID: **HG03_383104** SeqNo: **6078626** PrepDate: **06-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	373.1	3.50	350.7	-3.91	108	80 - 120				

MSD Sample ID: **HS21040813-06MSD** Units: **ug/Kg** Analysis Date: **06-May-2021 12:31**
Client ID: Run ID: **HG03_383104** SeqNo: **6078627** PrepDate: **06-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	372.2	3.47	347.8	-3.91	108	80 - 120	373.1	0.258	20	

The following samples were analyzed in this batch: HS21041584-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165487 (0) **Instrument: ICPMS05** **Method: METALS BY SW6020A**

MBLK Sample ID: **MBLK-165487** Units: **mg/Kg** Analysis Date: **07-May-2021 17:30**
Client ID: Run ID: **ICPMS05_383196** SeqNo: **6081470** PrepDate: **07-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	U	0.496								
Arsenic	U	0.496								
Barium	U	0.496								
Beryllium	U	0.496								
Cadmium	U	0.496								
Chromium	U	0.496								
Lead	U	0.496								
Nickel	U	0.496								
Selenium	U	0.496								
Silver	U	0.496								

LCS Sample ID: **LCS-165487** Units: **mg/Kg** Analysis Date: **07-May-2021 17:32**
Client ID: Run ID: **ICPMS05_383196** SeqNo: **6081471** PrepDate: **07-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	9.24	0.491	9.829	0	94.0	80 - 120				
Arsenic	9.401	0.491	9.829	0	95.6	80 - 120				
Barium	9.449	0.491	9.829	0	96.1	80 - 120				
Beryllium	8.955	0.491	9.829	0	91.1	80 - 120				
Cadmium	9.753	0.491	9.829	0	99.2	80 - 120				
Chromium	9.332	0.491	9.829	0	94.9	80 - 120				
Lead	9.19	0.491	9.829	0	93.5	80 - 120				
Nickel	9.49	0.491	9.829	0	96.6	80 - 120				
Selenium	9.011	0.491	9.829	0	91.7	80 - 120				
Silver	9.539	0.491	9.829	0	97.0	80 - 120				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165487 (0) **Instrument: ICPMS05** **Method: METALS BY SW6020A**

MS Sample ID: **HS21041427-09MS** Units: **mg/Kg** Analysis Date: **07-May-2021 17:38**
Client ID: Run ID: **ICPMS05_383196** SeqNo: **6081474** PrepDate: **07-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	2.224	0.473	9.468	0.2098	21.3	75 - 125				S
Arsenic	14.18	0.473	9.468	4.716	100.0	75 - 125				
Barium	135.5	0.473	9.468	119.8	165	75 - 125				SO
Beryllium	9.823	0.473	9.468	0.6911	96.5	75 - 125				
Cadmium	9.436	0.473	9.468	0.07837	98.8	75 - 125				
Chromium	19.59	0.473	9.468	10.95	91.2	75 - 125				
Lead	14.55	0.473	9.468	5.134	99.4	75 - 125				
Nickel	16.72	0.473	9.468	8.637	85.4	75 - 125				
Selenium	8.92	0.473	9.468	0.4906	89.0	75 - 125				
Silver	8.984	0.473	9.468	0.02713	94.6	75 - 125				

MSD Sample ID: **HS21041427-09MSD** Units: **mg/Kg** Analysis Date: **07-May-2021 17:40**
Client ID: Run ID: **ICPMS05_383196** SeqNo: **6081475** PrepDate: **07-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	2.465	0.484	9.679	0.2098	23.3	75 - 125	2.224	10.3	20	S
Arsenic	14.16	0.484	9.679	4.716	97.5	75 - 125	14.18	0.187	20	
Barium	110.1	0.484	9.679	119.8	-100	75 - 125	135.5	20.7	20	SRO
Beryllium	9.823	0.484	9.679	0.6911	94.3	75 - 125	9.823	0.00365	20	
Cadmium	9.417	0.484	9.679	0.07837	96.5	75 - 125	9.436	0.194	20	
Chromium	19.49	0.484	9.679	10.95	88.2	75 - 125	19.59	0.484	20	
Lead	14.23	0.484	9.679	5.134	94.0	75 - 125	14.55	2.21	20	
Nickel	16.56	0.484	9.679	8.637	81.9	75 - 125	16.72	0.931	20	
Selenium	9.301	0.484	9.679	0.4906	91.0	75 - 125	8.92	4.19	20	
Silver	8.903	0.484	9.679	0.02713	91.7	75 - 125	8.984	0.907	20	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165487 (0) **Instrument: ICPMS05** **Method: METALS BY SW6020A**

PDS Sample ID: **HS21041427-09PDS** Units: **mg/Kg** Analysis Date: **07-May-2021 17:42**
Client ID: Run ID: **ICPMS05_383196** SeqNo: **6081476** PrepDate: **07-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	9.203	0.471	9.42	0.2098	95.5	75 - 125				
Arsenic	14.36	0.471	9.42	4.716	102	75 - 125				
Barium	127.9	0.471	9.42	119.8	86.2	75 - 125				O
Beryllium	10.26	0.471	9.42	0.6911	102	75 - 125				
Cadmium	9.998	0.471	9.42	0.07837	105	75 - 125				
Chromium	20.42	0.471	9.42	10.95	101	75 - 125				
Lead	14.75	0.471	9.42	5.134	102	75 - 125				
Nickel	17.75	0.471	9.42	8.637	96.7	75 - 125				
Selenium	10.08	0.471	9.42	0.4906	102	75 - 125				
Silver	8.282	0.471	9.42	0.02713	87.6	75 - 125				

SD Sample ID: **HS21041427-09SD** Units: **mg/Kg** Analysis Date: **07-May-2021 17:36**
Client ID: Run ID: **ICPMS05_383196** SeqNo: **6081473** PrepDate: **07-May-2021** DF: **5**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	0.3523	2.35					0.2098	0	10	J
Arsenic	4.856	2.35					4.716	2.97	10	
Barium	111.8	2.35					119.8	6.68	10	
Beryllium	0.6686	2.35					0.6911	0	10	J
Cadmium	U	2.35					0.07837	0	10	
Chromium	11.21	2.35					10.95	2.35	10	
Lead	4.977	2.35					5.134	3.05	10	
Nickel	9.032	2.35					8.637	4.57	10	
Selenium	0.5494	2.35					0.4906	0	10	J
Silver	U	2.35					0.02713	0	10	

The following samples were analyzed in this batch: HS21041584-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165746 (0) **Instrument: ICPMS06** **Method: TCLP METALS BY SW6020A**

MBLK Sample ID: **MBLKT2-165746** Units: **mg/L** Analysis Date: **13-May-2021 20:01**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091062** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.0500								

MBLK Sample ID: **MBLKT4-165746** Units: **mg/L** Analysis Date: **13-May-2021 20:05**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091064** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.0500								

MBLK Sample ID: **MBLKT6-165746** Units: **mg/L** Analysis Date: **13-May-2021 20:09**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091066** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.0500								

MBLK Sample ID: **MBLKT8-165746** Units: **mg/L** Analysis Date: **14-May-2021 15:12**
Client ID: Run ID: **ICPMS06_383639** SeqNo: **6092895** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.00500								

MBLK Sample ID: **MBLKT7-165746** Units: **mg/L** Analysis Date: **13-May-2021 20:11**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091067** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.0500								

MBLK Sample ID: **MBLKT5-165746** Units: **mg/L** Analysis Date: **13-May-2021 20:07**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091065** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.0500								

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165746 (0) **Instrument: ICPMS06** **Method: TCLP METALS BY SW6020A**

MBLK Sample ID: **MBLKT3-165746** Units: **mg/L** Analysis Date: **13-May-2021 20:03**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091063** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.0500								

MBLK Sample ID: **MBLKT1-165746** Units: **mg/L** Analysis Date: **13-May-2021 19:59**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091061** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.0500								

MBLK Sample ID: **MBLK-165746** Units: **mg/L** Analysis Date: **13-May-2021 19:57**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091060** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.00500								

LCS Sample ID: **LCS-165746** Units: **mg/L** Analysis Date: **13-May-2021 20:14**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091068** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.05145	0.00500	0.05	0	103	80 - 120				

MS Sample ID: **HS21050049-01MS** Units: **mg/L** Analysis Date: **13-May-2021 20:24**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091073** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.5376	0.0500	0.5	0.00103	107	80 - 120				

MSD Sample ID: **HS21050049-01MSD** Units: **mg/L** Analysis Date: **13-May-2021 20:26**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091074** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.5205	0.0500	0.5	0.00103	104	80 - 120	0.5376	3.23	20	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165746 (0) **Instrument: ICPMS06** **Method: TCLP METALS BY SW6020A**

PDS Sample ID: **HS21050049-01PDS** Units: **mg/L** Analysis Date: **13-May-2021 20:28**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091075** PrepDate: **13-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	1.048	0.0500	1	0.00103	105	75 - 125				

SD Sample ID: **HS21050049-01SD** Units: **mg/L** Analysis Date: **13-May-2021 20:22**
Client ID: Run ID: **ICPMS06_383557** SeqNo: **6091072** PrepDate: **13-May-2021** DF: **5**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Lead	U	0.250					0.00103	0	10	

The following samples were analyzed in this batch: HS21041584-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-165358** Units: **ug/Kg** Analysis Date: **05-May-2021 11:28**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078077** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	6.6								
2,4,5-Trichlorophenol	U	6.6								
2,4,6-Trichlorophenol	U	6.6								
2,4-Dichlorophenol	U	6.6								
2,4-Dimethylphenol	U	6.6								
2,4-Dinitrophenol	U	13								
2,4-Dinitrotoluene	U	6.6								
2,6-Dinitrotoluene	U	6.6								
2-Chloronaphthalene	U	6.6								
2-Chlorophenol	U	6.6								
2-Methylnaphthalene	U	3.3								
2-Methylphenol	U	6.6								
2-Nitroaniline	U	6.6								
2-Nitrophenol	U	6.6								
3&4-Methylphenol	U	6.6								
3,3´-Dichlorobenzidine	U	6.6								
3-Nitroaniline	U	6.6								
4,6-Dinitro-2-methylphenol	U	6.6								
4-Bromophenyl phenyl ether	U	6.6								
4-Chloro-3-methylphenol	U	6.6								
4-Chloroaniline	U	6.6								
4-Chlorophenyl phenyl ether	U	6.6								
4-Nitroaniline	U	6.6								
4-Nitrophenol	U	13								
Acenaphthene	U	3.3								
Acenaphthylene	U	3.3								
Anthracene	U	3.3								
Benz(a)anthracene	U	3.3								
Benzidine	U	6.6								
Benzo(a)pyrene	U	3.3								
Benzo(b)fluoranthene	U	3.3								
Benzo(g,h,i)perylene	U	3.3								
Benzo(k)fluoranthene	U	3.3								
Benzyl alcohol	U	6.6								

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-165358** Units: **ug/Kg** Analysis Date: **05-May-2021 11:28**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078077** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	U	6.6								
Bis(2-chloroethyl)ether	U	6.6								
Bis(2-chloroisopropyl)ether	U	6.6								
Bis(2-ethylhexyl)phthalate	U	6.6								
Butyl benzyl phthalate	U	6.6								
Carbazole	U	6.6								
Chrysene	U	3.3								
Dibenz(a,h)anthracene	U	3.3								
Dibenzofuran	U	3.3								
Diethyl phthalate	U	6.6								
Dimethyl phthalate	U	6.6								
Di-n-butyl phthalate	U	6.6								
Di-n-octyl phthalate	U	6.6								
Fluoranthene	U	3.3								
Fluorene	U	3.3								
Hexachlorobenzene	U	6.6								
Hexachlorobutadiene	U	6.6								
Hexachlorocyclopentadiene	U	6.6								
Hexachloroethane	U	6.6								
Indeno(1,2,3-cd)pyrene	U	3.3								
Isophorone	U	6.6								
Naphthalene	U	3.3								
Nitrobenzene	U	6.6								
N-Nitrosodimethylamine	U	6.6								
N-Nitrosodi-n-propylamine	U	6.6								
N-Nitrosodiphenylamine	U	6.6								
Pentachlorophenol	U	6.6								
Phenanthrene	U	3.3								
Phenol	U	6.6								
Pyrene	U	3.3								
Pyridine	U	6.6								
Surr: 2,4,6-Tribromophenol	*129.4*	*0*	*167*	*0*	*77.5*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*145.2*	*0*	*167*	*0*	*86.9*	*43 - 125*				
Surr: 2-Fluorophenol	*124.2*	*0*	*167*	*0*	*74.4*	*37 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-165358** Units: **ug/Kg** Analysis Date: **05-May-2021 11:28**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078077** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*144.5*	*0*	*167*	*0*	*86.5*	*32 - 125*				
Surr: Nitrobenzene-d5	*104.4*	*0*	*167*	*0*	*62.5*	*37 - 125*				
Surr: Phenol-d6	*125.2*	*0*	*167*	*0*	*75.0*	*40 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-165358** Units: **ug/Kg** Analysis Date: **05-May-2021 11:46**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078078** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	145.9	6.6	167	0	87.4	50 - 120				
2,4,5-Trichlorophenol	145.3	6.6	167	0	87.0	45 - 127				
2,4,6-Trichlorophenol	137.6	6.6	167	0	82.4	45 - 130				
2,4-Dichlorophenol	137.6	6.6	167	0	82.4	45 - 125				
2,4-Dimethylphenol	116.3	6.6	167	0	69.6	45 - 120				
2,4-Dinitrophenol	164.9	13	167	0	98.7	10 - 126				
2,4-Dinitrotoluene	148.8	6.6	167	0	89.1	50 - 130				
2,6-Dinitrotoluene	151.5	6.6	167	0	90.7	50 - 125				
2-Chloronaphthalene	147.6	6.6	167	0	88.4	50 - 145				
2-Chlorophenol	133	6.6	167	0	79.6	45 - 120				
2-Methylnaphthalene	142.5	3.3	167	0	85.3	50 - 120				
2-Methylphenol	115.8	6.6	167	0	69.4	45 - 120				
2-Nitroaniline	129.1	6.6	167	0	77.3	45 - 138				
2-Nitrophenol	132.2	6.6	167	0	79.2	45 - 125				
3&4-Methylphenol	122	6.6	167	0	73.1	45 - 120				
3,3´-Dichlorobenzidine	173.5	6.6	167	0	104	15 - 120				
3-Nitroaniline	141.1	6.6	167	0	84.5	40 - 120				
4,6-Dinitro-2-methylphenol	147.3	6.6	167	0	88.2	15 - 135				
4-Bromophenyl phenyl ether	145.8	6.6	167	0	87.3	50 - 125				
4-Chloro-3-methylphenol	129.5	6.6	167	0	77.5	45 - 130				
4-Chloroaniline	130.1	6.6	167	0	77.9	20 - 120				
4-Chlorophenyl phenyl ether	152	6.6	167	0	91.0	50 - 120				
4-Nitroaniline	157.8	6.6	167	0	94.5	50 - 127				
4-Nitrophenol	156.7	13	167	0	93.8	40 - 147				
Acenaphthene	136.3	3.3	167	0	81.6	50 - 120				
Acenaphthylene	146.7	3.3	167	0	87.9	50 - 120				
Anthracene	144	3.3	167	0	86.2	50 - 123				
Benz(a)anthracene	147.6	3.3	167	0	88.4	50 - 131				
Benzidine	30.81	6.6	167	0	18.4	10 - 120				
Benzo(a)pyrene	153.1	3.3	167	0	91.7	50 - 130				
Benzo(b)fluoranthene	142.7	3.3	167	0	85.5	50 - 137				
Benzo(g,h,i)perylene	149.5	3.3	167	0	89.5	50 - 130				
Benzo(k)fluoranthene	170.4	3.3	167	0	102	50 - 143				
Benzyl alcohol	118.4	6.6	167	0	70.9	40 - 143				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-165358** Units: **ug/Kg** Analysis Date: **05-May-2021 11:46**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078078** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	119.1	6.6	167	0	71.3	50 - 120				
Bis(2-chloroethyl)ether	111.4	6.6	167	0	66.7	45 - 127				
Bis(2-chloroisopropyl)ether	128.1	6.6	167	0	76.7	50 - 120				
Bis(2-ethylhexyl)phthalate	150.5	6.6	167	0	90.1	21 - 148				
Butyl benzyl phthalate	145.4	6.6	167	0	87.0	50 - 136				
Carbazole	128.9	6.6	167	0	77.2	50 - 143				
Chrysene	140.5	3.3	167	0	84.1	50 - 130				
Dibenz(a,h)anthracene	158.5	3.3	167	0	94.9	50 - 130				
Dibenzofuran	145.7	3.3	167	0	87.3	50 - 125				
Diethyl phthalate	148.4	6.6	167	0	88.9	50 - 125				
Dimethyl phthalate	146.8	6.6	167	0	87.9	50 - 125				
Di-n-butyl phthalate	149.7	6.6	167	0	89.7	50 - 140				
Di-n-octyl phthalate	132.6	6.6	167	0	79.4	50 - 140				
Fluoranthene	151.2	3.3	167	0	90.6	50 - 131				
Fluorene	148	3.3	167	0	88.6	50 - 125				
Hexachlorobenzene	162.9	6.6	167	0	97.6	50 - 124				
Hexachlorobutadiene	145.8	6.6	167	0	87.3	50 - 125				
Hexachlorocyclopentadiene	134.9	6.6	167	0	80.8	45 - 135				
Hexachloroethane	121.1	6.6	167	0	72.5	45 - 125				
Indeno(1,2,3-cd)pyrene	166	3.3	167	0	99.4	45 - 139				
Isophorone	105.6	6.6	167	0	63.3	45 - 130				
Naphthalene	136.9	3.3	167	0	82.0	50 - 125				
Nitrobenzene	107.2	6.6	167	0	64.2	50 - 125				
N-Nitrosodimethylamine	154.5	6.6	167	0	92.5	20 - 140				
N-Nitrosodi-n-propylamine	108.7	6.6	167	0	65.1	45 - 120				
N-Nitrosodiphenylamine	132.5	6.6	167	0	79.3	50 - 130				
Pentachlorophenol	181.6	6.6	167	0	109	23 - 136				
Phenanthrene	142.9	3.3	167	0	85.6	50 - 125				
Phenol	120.7	6.6	167	0	72.3	45 - 130				
Pyrene	140.6	3.3	167	0	84.2	45 - 130				
Pyridine	129.5	6.6	167	0	77.6	15 - 120				
Surr: 2,4,6-Tribromophenol	*137.8*	*0*	*167*	*0*	*82.5*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*146.1*	*0*	*167*	*0*	*87.5*	*43 - 125*				
Surr: 2-Fluorophenol	*127.4*	*0*	*167*	*0*	*76.3*	*37 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-165358** Units: **ug/Kg** Analysis Date: **05-May-2021 11:46**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078078** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*147.3*	*0*	*167*	*0*	*88.2*	*32 - 125*				
Surr: Nitrobenzene-d5	*102.7*	*0*	*167*	*0*	*61.5*	*37 - 125*				
Surr: Phenol-d6	*124.1*	*0*	*167*	*0*	*74.3*	*40 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS21041685-01MS** Units: **ug/Kg** Analysis Date: **05-May-2021 13:02**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078082** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	161.4	6.6	166.8	0	96.8	50 - 120				
2,4,5-Trichlorophenol	159.2	6.6	166.8	0	95.5	45 - 127				
2,4,6-Trichlorophenol	145.7	6.6	166.8	0	87.4	45 - 130				
2,4-Dichlorophenol	157.3	6.6	166.8	0	94.3	45 - 125				
2,4-Dimethylphenol	136.7	6.6	166.8	0	82.0	45 - 120				
2,4-Dinitrophenol	158.7	13	166.8	0	95.1	10 - 126				
2,4-Dinitrotoluene	153.9	6.6	166.8	0	92.3	50 - 130				
2,6-Dinitrotoluene	164	6.6	166.8	0	98.3	50 - 125				
2-Chloronaphthalene	156.2	6.6	166.8	0	93.6	50 - 145				
2-Chlorophenol	143.9	6.6	166.8	0	86.3	45 - 120				
2-Methylnaphthalene	153.7	3.3	166.8	0	92.1	50 - 120				
2-Methylphenol	131.6	6.6	166.8	0	78.9	45 - 120				
2-Nitroaniline	138.4	6.6	166.8	0	83.0	45 - 138				
2-Nitrophenol	141	6.6	166.8	0	84.5	45 - 125				
3&4-Methylphenol	133.2	6.6	166.8	0	79.9	45 - 120				
3,3´-Dichlorobenzidine	150.7	6.6	166.8	0	90.3	15 - 120				
3-Nitroaniline	80.33	6.6	166.8	0	48.2	40 - 120				
4,6-Dinitro-2-methylphenol	163.4	6.6	166.8	0	98.0	15 - 135				
4-Bromophenyl phenyl ether	161.2	6.6	166.8	0	96.6	50 - 125				
4-Chloro-3-methylphenol	142.9	6.6	166.8	0	85.7	45 - 130				
4-Chloroaniline	79.64	6.6	166.8	0	47.8	20 - 120				
4-Chlorophenyl phenyl ether	163.1	6.6	166.8	0	97.8	50 - 120				
4-Nitroaniline	97.42	6.6	166.8	0	58.4	50 - 127				
4-Nitrophenol	126.5	13	166.8	0	75.8	40 - 147				
Acenaphthene	146.1	3.3	166.8	0	87.6	50 - 120				
Acenaphthylene	155.4	3.3	166.8	0	93.2	50 - 120				
Anthracene	159.3	3.3	166.8	0	95.5	50 - 123				
Benz(a)anthracene	170.5	3.3	166.8	0	102	50 - 131				
Benzidine	20.46	6.6	166.8	0	12.3	10 - 120				
Benzo(a)pyrene	154.8	3.3	166.8	0	92.8	50 - 130				
Benzo(b)fluoranthene	159.8	3.3	166.8	0	95.8	50 - 137				
Benzo(g,h,i)perylene	158.6	3.3	166.8	0	95.1	50 - 130				
Benzo(k)fluoranthene	170.7	3.3	166.8	0	102	50 - 143				
Benzyl alcohol	130.7	6.6	166.8	0	78.4	40 - 143				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS21041685-01MS** Units: **ug/Kg** Analysis Date: **05-May-2021 13:02**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078082** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	130.4	6.6	166.8	0	78.2	50 - 120				
Bis(2-chloroethyl)ether	119.7	6.6	166.8	0	71.8	45 - 127				
Bis(2-chloroisopropyl)ether	140.1	6.6	166.8	0	84.0	50 - 120				
Bis(2-ethylhexyl)phthalate	172.8	6.6	166.8	0	104	21 - 148				
Butyl benzyl phthalate	159.3	6.6	166.8	0	95.5	50 - 136				
Carbazole	169.3	6.6	166.8	0	102	50 - 143				
Chrysene	156.5	3.3	166.8	0	93.8	50 - 130				
Dibenz(a,h)anthracene	168	3.3	166.8	0	101	50 - 130				
Dibenzofuran	149.1	3.3	166.8	0	89.4	50 - 125				
Diethyl phthalate	154.8	6.6	166.8	0	92.8	50 - 125				
Dimethyl phthalate	152.6	6.6	166.8	0	91.5	50 - 125				
Di-n-butyl phthalate	158.2	6.6	166.8	0	94.8	50 - 140				
Di-n-octyl phthalate	135.2	6.6	166.8	0	81.1	50 - 140				
Fluoranthene	166	3.3	166.8	0	99.6	50 - 131				
Fluorene	155.6	3.3	166.8	0	93.3	50 - 125				
Hexachlorobenzene	198.9	6.6	166.8	8.961	114	50 - 124				
Hexachlorobutadiene	156.8	6.6	166.8	0	94.0	50 - 125				
Hexachlorocyclopentadiene	53.75	6.6	166.8	0	32.2	45 - 135				S
Hexachloroethane	123.7	6.6	166.8	0	74.2	45 - 125				
Indeno(1,2,3-cd)pyrene	174.2	3.3	166.8	0	104	45 - 139				
Isophorone	117.9	6.6	166.8	0	70.7	45 - 130				
Naphthalene	151.9	3.3	166.8	2.244	89.7	50 - 125				
Nitrobenzene	113.2	6.6	166.8	0	67.9	50 - 125				
N-Nitrosodimethylamine	132.7	6.6	166.8	0	79.6	20 - 140				
N-Nitrosodi-n-propylamine	112.3	6.6	166.8	0	67.3	45 - 120				
N-Nitrosodiphenylamine	154.6	6.6	166.8	0	92.7	50 - 130				
Pentachlorophenol	145	6.6	166.8	0	86.9	23 - 136				
Phenanthrene	159.6	3.3	166.8	1.727	94.7	50 - 125				
Phenol	143.3	6.6	166.8	0	85.9	45 - 130				
Pyrene	157.8	3.3	166.8	0	94.6	45 - 130				
Pyridine	246.4	6.6	166.8	0	148	15 - 120				S
Surr: 2,4,6-Tribromophenol	*163.8*	*0*	*166.8*	*0*	*98.2*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*152.6*	*0*	*166.8*	*0*	*91.5*	*43 - 125*				
Surr: 2-Fluorophenol	*146.2*	*0*	*166.8*	*0*	*87.7*	*37 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS21041685-01MS** Units: **ug/Kg** Analysis Date: **05-May-2021 13:02**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078082** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*164*	*0*	*166.8*	*0*	*98.3*	*32 - 125*				
Surr: Nitrobenzene-d5	*105.9*	*0*	*166.8*	*0*	*63.5*	*37 - 125*				
Surr: Phenol-d6	*129.6*	*0*	*166.8*	*0*	*77.7*	*40 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS21041685-01MSD** Units: **ug/Kg** Analysis Date: **05-May-2021 13:21**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078083** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	161.1	6.6	166.6	0	96.7	50 - 120	161.4	0.22	30	
2,4,5-Trichlorophenol	130	6.6	166.6	0	78.0	45 - 127	159.2	20.2	30	
2,4,6-Trichlorophenol	132.8	6.6	166.6	0	79.7	45 - 130	145.7	9.28	30	
2,4-Dichlorophenol	149.2	6.6	166.6	0	89.6	45 - 125	157.3	5.24	30	
2,4-Dimethylphenol	129.2	6.6	166.6	0	77.5	45 - 120	136.7	5.67	30	
2,4-Dinitrophenol	148.5	13	166.6	0	89.1	10 - 126	158.7	6.61	30	
2,4-Dinitrotoluene	145.3	6.6	166.6	0	87.2	50 - 130	153.9	5.79	30	
2,6-Dinitrotoluene	155.3	6.6	166.6	0	93.2	50 - 125	164	5.43	30	
2-Chloronaphthalene	145.6	6.6	166.6	0	87.4	50 - 145	156.2	6.99	30	
2-Chlorophenol	141.1	6.6	166.6	0	84.7	45 - 120	143.9	1.96	30	
2-Methylnaphthalene	151.8	3.3	166.6	0	91.1	50 - 120	153.7	1.2	30	
2-Methylphenol	120.9	6.6	166.6	0	72.6	45 - 120	131.6	8.45	30	
2-Nitroaniline	128.5	6.6	166.6	0	77.1	45 - 138	138.4	7.37	30	
2-Nitrophenol	140.2	6.6	166.6	0	84.1	45 - 125	141	0.578	30	
3&4-Methylphenol	128.8	6.6	166.6	0	77.3	45 - 120	133.2	3.4	30	
3,3´-Dichlorobenzidine	142.4	6.6	166.6	0	85.5	15 - 120	150.7	5.61	30	
3-Nitroaniline	109.1	6.6	166.6	0	65.5	40 - 120	80.33	30.4	30	R
4,6-Dinitro-2-methylphenol	155.9	6.6	166.6	0	93.6	15 - 135	163.4	4.71	30	
4-Bromophenyl phenyl ether	165.3	6.6	166.6	0	99.2	50 - 125	161.2	2.53	30	
4-Chloro-3-methylphenol	138.6	6.6	166.6	0	83.2	45 - 130	142.9	3.02	30	
4-Chloroaniline	102.1	6.6	166.6	0	61.3	20 - 120	79.64	24.7	30	
4-Chlorophenyl phenyl ether	162.4	6.6	166.6	0	97.5	50 - 120	163.1	0.415	30	
4-Nitroaniline	130	6.6	166.6	0	78.0	50 - 127	97.42	28.7	30	
4-Nitrophenol	167.7	13	166.6	0	101	40 - 147	126.5	28	30	
Acenaphthene	140.1	3.3	166.6	0	84.1	50 - 120	146.1	4.21	30	
Acenaphthylene	150.3	3.3	166.6	0	90.2	50 - 120	155.4	3.37	30	
Anthracene	160.9	3.3	166.6	0	96.6	50 - 123	159.3	1.02	30	
Benz(a)anthracene	156.7	3.3	166.6	0	94.1	50 - 131	170.5	8.43	30	
Benzidine	13.48	6.6	166.6	0	8.09	10 - 120	20.46	41.1	30	SR
Benzo(a)pyrene	159.7	3.3	166.6	0	95.9	50 - 130	154.8	3.13	30	
Benzo(b)fluoranthene	157.8	3.3	166.6	0	94.7	50 - 137	159.8	1.28	30	
Benzo(g,h,i)perylene	162.1	3.3	166.6	0	97.3	50 - 130	158.6	2.18	30	
Benzo(k)fluoranthene	172.3	3.3	166.6	0	103	50 - 143	170.7	0.919	30	
Benzyl alcohol	127.9	6.6	166.6	0	76.8	40 - 143	130.7	2.15	30	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS21041685-01MSD** Units: **ug/Kg** Analysis Date: **05-May-2021 13:21**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078083** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	127.8	6.6	166.6	0	76.7	50 - 120	130.4	2.05	30	
Bis(2-chloroethyl)ether	124.8	6.6	166.6	0	74.9	45 - 127	119.7	4.11	30	
Bis(2-chloroisopropyl)ether	140.7	6.6	166.6	0	84.4	50 - 120	140.1	0.404	30	
Bis(2-ethylhexyl)phthalate	157.3	6.6	166.6	0	94.4	21 - 148	172.8	9.45	30	
Butyl benzyl phthalate	147.1	6.6	166.6	0	88.3	50 - 136	159.3	7.99	30	
Carbazole	181.6	6.6	166.6	0	109	50 - 143	169.3	7.03	30	
Chrysene	143.4	3.3	166.6	0	86.0	50 - 130	156.5	8.74	30	
Dibenz(a,h)anthracene	169.8	3.3	166.6	0	102	50 - 130	168	1.08	30	
Dibenzofuran	147.8	3.3	166.6	0	88.7	50 - 125	149.1	0.891	30	
Diethyl phthalate	147.4	6.6	166.6	0	88.5	50 - 125	154.8	4.91	30	
Dimethyl phthalate	149.7	6.6	166.6	0	89.9	50 - 125	152.6	1.87	30	
Di-n-butyl phthalate	159.4	6.6	166.6	0	95.7	50 - 140	158.2	0.788	30	
Di-n-octyl phthalate	136.2	6.6	166.6	0	81.8	50 - 140	135.2	0.734	30	
Fluoranthene	175.8	3.3	166.6	0	106	50 - 131	166	5.72	30	
Fluorene	151.7	3.3	166.6	0	91.0	50 - 125	155.6	2.54	30	
Hexachlorobenzene	188.6	6.6	166.6	8.961	108	50 - 124	198.9	5.27	30	
Hexachlorobutadiene	161.2	6.6	166.6	0	96.7	50 - 125	156.8	2.74	30	
Hexachlorocyclopentadiene	49.79	6.6	166.6	0	29.9	45 - 135	53.75	7.65	30	S
Hexachloroethane	125.1	6.6	166.6	0	75.1	45 - 125	123.7	1.09	30	
Indeno(1,2,3-cd)pyrene	174.9	3.3	166.6	0	105	45 - 139	174.2	0.387	30	
Isophorone	119.8	6.6	166.6	0	71.9	45 - 130	117.9	1.56	30	
Naphthalene	152.2	3.3	166.6	2.244	90.0	50 - 125	151.9	0.181	30	
Nitrobenzene	116.1	6.6	166.6	0	69.7	50 - 125	113.2	2.54	30	
N-Nitrosodimethylamine	138.2	6.6	166.6	0	82.9	20 - 140	132.7	4.03	30	
N-Nitrosodi-n-propylamine	114.5	6.6	166.6	0	68.7	45 - 120	112.3	1.99	30	
N-Nitrosodiphenylamine	149	6.6	166.6	0	89.4	50 - 130	154.6	3.68	30	
Pentachlorophenol	105.5	6.6	166.6	0	63.3	23 - 136	145	31.6	30	R
Phenanthrene	155.1	3.3	166.6	1.727	92.0	50 - 125	159.6	2.88	30	
Phenol	143.6	6.6	166.6	0	86.2	45 - 130	143.3	0.266	30	
Pyrene	145.4	3.3	166.6	0	87.2	45 - 130	157.8	8.2	30	
Pyridine	247.1	6.6	166.6	0	148	15 - 120	246.4	0.269	30	S
Surr: 2,4,6-Tribromophenol	*119.1*	*0*	*166.6*	*0*	*71.5*	*36 - 126*	*163.8*	*31.6*	*30*	R
Surr: 2-Fluorobiphenyl	*146.9*	*0*	*166.6*	*0*	*88.2*	*43 - 125*	*152.6*	*3.81*	*30*	
Surr: 2-Fluorophenol	*133.4*	*0*	*166.6*	*0*	*80.1*	*37 - 125*	*146.2*	*9.17*	*30*	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: 165358 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS21041685-01MSD** Units: **ug/Kg** Analysis Date: **05-May-2021 13:21**
Client ID: Run ID: **SV-7_383084** SeqNo: **6078083** PrepDate: **04-May-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*150.2*	*0*	*166.6*	*0*	*90.2*	*32 - 125*	*164*	*8.77*	*30*	
Surr: Nitrobenzene-d5	*109.3*	*0*	*166.6*	*0*	*65.6*	*37 - 125*	*105.9*	*3.18*	*30*	
Surr: Phenol-d6	*127.1*	*0*	*166.6*	*0*	*76.3*	*40 - 125*	*129.6*	*2*	*30*	

The following samples were analyzed in this batch: HS21041584-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: R383079 (0) **Instrument: VOA8** **Method: VOLATILES BY SW8260C**

MBLK Sample ID: **MBLKW1-050621** Units: **ug/Kg** Analysis Date: **06-May-2021 08:51**
Client ID: Run ID: **VOA8_383079** SeqNo: **6077899** PrepDate: DF: **50**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	250								
1,1,2,2-Tetrachloroethane	U	250								
1,1,2-Trichloroethane	U	250								
1,1-Dichloroethane	U	250								
1,1-Dichloroethene	U	250								
1,2-Dichlorobenzene	U	250								
1,2-Dichloroethane	U	250								
1,2-Dichloropropane	U	250								
1,3-Dichlorobenzene	U	250								
1,4-Dichlorobenzene	U	250								
2-Butanone	U	500								
2-Hexanone	U	500								
4-Methyl-2-pentanone	U	500								
Acetone	U	1000								
Benzene	U	250								
Bromochloromethane	U	250								
Bromodichloromethane	U	250								
Bromoform	U	250								
Bromomethane	U	500								
Carbon disulfide	U	500								
Carbon tetrachloride	U	250								
Chlorobenzene	U	250								
Chloroethane	U	500								
Chloroform	U	250								
Chloromethane	U	500								
cis-1,2-Dichloroethene	U	250								
cis-1,3-Dichloropropene	U	250								
Dibromochloromethane	U	250								
Ethylbenzene	U	250								
m,p-Xylene	U	500								
Methylene chloride	U	500								
o-Xylene	U	250								
Styrene	U	250								
Tetrachloroethene	U	250								

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: R383079 (0) **Instrument: VOA8** **Method: VOLATILES BY SW8260C**

MBLK Sample ID: **MBLKW1-050621** Units: **ug/Kg** Analysis Date: **06-May-2021 08:51**
Client ID: Run ID: **VOA8_383079** SeqNo: **6077899** PrepDate: DF: **50**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	U	250								
trans-1,2-Dichloroethene	U	250								
trans-1,3-Dichloropropene	U	250								
Trichloroethene	U	250								
Vinyl acetate	U	500								
Vinyl chloride	U	100								
Xylenes, Total	U	250								
1,2-Dichloroethene, Total	U	250								
Surr: 1,2-Dichloroethane-d4	*2586*	*0*	*2500*	*0*	*103*	*76 - 125*				
Surr: 4-Bromofluorobenzene	*2484*	*0*	*2500*	*0*	*99.3*	*80 - 120*				
Surr: Dibromofluoromethane	*2484*	*0*	*2500*	*0*	*99.4*	*80 - 119*				
Surr: Toluene-d8	*2572*	*0*	*2500*	*0*	*103*	*81 - 118*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: R383079 (0) **Instrument: VOA8** **Method: VOLATILES BY SW8260C**

LCS Sample ID: **VLCSW1-050621** Units: **ug/Kg** Analysis Date: **06-May-2021 08:01**
Client ID: Run ID: **VOA8_383079** SeqNo: **6077898** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	56.36	5.0	50	0	113	72 - 130				
1,1,2,2-Tetrachloroethane	52.43	5.0	50	0	105	71 - 124				
1,1,2-Trichloroethane	52.65	5.0	50	0	105	78 - 117				
1,1-Dichloroethane	51.75	5.0	50	0	103	76 - 128				
1,1-Dichloroethene	54.37	5.0	50	0	109	72 - 130				
1,2-Dichlorobenzene	52.47	5.0	50	0	105	79 - 121				
1,2-Dichloroethane	52.83	5.0	50	0	106	77 - 120				
1,2-Dichloropropane	54.75	5.0	50	0	109	77 - 121				
1,3-Dichlorobenzene	52.49	5.0	50	0	105	78 - 121				
1,4-Dichlorobenzene	52	5.0	50	0	104	78 - 120				
2-Butanone	106.7	10	100	0	107	70 - 128				
2-Hexanone	105.9	10	100	0	106	72 - 127				
4-Methyl-2-pentanone	101.6	10	100	0	102	70 - 128				
Acetone	102.6	20	100	0	103	70 - 130				
Benzene	53.12	5.0	50	0	106	75 - 124				
Bromochloromethane	56.15	5.0	50	0	112	74 - 124				
Bromodichloromethane	54.28	5.0	50	0	109	78 - 122				
Bromoform	48.13	5.0	50	0	96.3	74 - 120				
Bromomethane	49.29	10	50	0	98.6	70 - 130				
Carbon disulfide	110.2	10	100	0	110	70 - 122				
Carbon tetrachloride	50.18	5.0	50	0	100	72 - 128				
Chlorobenzene	52.9	5.0	50	0	106	78 - 122				
Chloroethane	49.87	10	50	0	99.7	70 - 130				
Chloroform	55.61	5.0	50	0	111	73 - 127				
Chloromethane	50.67	10	50	0	101	70 - 130				
cis-1,2-Dichloroethene	54.38	5.0	50	0	109	77 - 125				
cis-1,3-Dichloropropene	49.11	5.0	50	0	98.2	78 - 122				
Dibromochloromethane	53.84	5.0	50	0	108	78 - 120				
Ethylbenzene	53.22	5.0	50	0	106	70 - 123				
m,p-Xylene	106.4	10	100	0	106	77 - 125				
Methylene chloride	53.7	10	50	0	107	71 - 125				
o-Xylene	53.53	5.0	50	0	107	78 - 122				
Styrene	54.76	5.0	50	0	110	80 - 123				
Tetrachloroethene	53.64	5.0	50	0	107	70 - 130				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: R383079 (0) **Instrument: VOA8** **Method: VOLATILES BY SW8260C**

LCS Sample ID: **VLCSW1-050621** Units: **ug/Kg** Analysis Date: **06-May-2021 08:01**
Client ID: Run ID: **VOA8_383079** SeqNo: **6077898** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	52.95	5.0	50	0	106	76 - 122				
trans-1,2-Dichloroethene	54.12	5.0	50	0	108	75 - 128				
trans-1,3-Dichloropropene	48.52	5.0	50	0	97.0	75 - 123				
Trichloroethene	53.53	5.0	50	0	107	78 - 125				
Vinyl acetate	100.8	10	100	0	101	70 - 130				
Vinyl chloride	54.03	2.0	50	0	108	70 - 130				
Xylenes, Total	159.9	5.0	150	0	107	77 - 128				
1,2-Dichloroethene, Total	108.5	5.0	100	0	109	75 - 128				
Surr: 1,2-Dichloroethane-d4	*51.12*	*0*	*50*	*0*	*102*	*76 - 125*				
Surr: 4-Bromofluorobenzene	*49.29*	*0*	*50*	*0*	*98.6*	*80 - 120*				
Surr: Dibromofluoromethane	*51.3*	*0*	*50*	*0*	*103*	*80 - 119*				
Surr: Toluene-d8	*49.41*	*0*	*50*	*0*	*98.8*	*81 - 118*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: R383079 (0) **Instrument: VOA8** **Method: VOLATILES BY SW8260C**

MS Sample ID: **HS21041632-06MS** Units: **ug/Kg** Analysis Date: **06-May-2021 11:46**
Client ID: Run ID: **VOA8_383079** SeqNo: **6078544** PrepDate: DF: **500**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	23770	1900	19250	0	124	70 - 130				
1,1,2,2-Tetrachloroethane	22120	1900	19250	0	115	70 - 130				
1,1,2-Trichloroethane	23930	1900	19250	0	124	70 - 130				
1,1-Dichloroethane	23830	1900	19250	0	124	70 - 130				
1,1-Dichloroethene	22990	1900	19250	0	119	70 - 130				
1,2-Dichlorobenzene	22840	1900	19250	0	119	70 - 130				
1,2-Dichloroethane	23580	1900	19250	0	122	70 - 130				
1,2-Dichloropropane	23710	1900	19250	0	123	70 - 130				
1,3-Dichlorobenzene	22670	1900	19250	0	118	70 - 130				
1,4-Dichlorobenzene	22500	1900	19250	0	117	70 - 130				
2-Butanone	40560	3800	38500	0	105	70 - 130				
2-Hexanone	40660	3800	38500	0	106	70 - 130				
4-Methyl-2-pentanone	67240	3800	38500	0	175	70 - 128				S
Acetone	45450	7700	38500	0	118	70 - 130				
Benzene	72180	1900	19250	49080	120	70 - 130				
Bromochloromethane	22870	1900	19250	0	119	70 - 130				
Bromodichloromethane	23300	1900	19250	0	121	70 - 130				
Bromoform	19360	1900	19250	0	101	70 - 130				
Bromomethane	15350	3800	19250	0	79.7	70 - 130				
Carbon disulfide	47190	3800	38500	0	123	70 - 130				
Carbon tetrachloride	20860	1900	19250	0	108	70 - 130				
Chlorobenzene	23230	1900	19250	0	121	70 - 130				
Chloroethane	22220	3800	19250	0	115	70 - 130				
Chloroform	24220	1900	19250	0	126	70 - 130				
Chloromethane	21620	3800	19250	0	112	70 - 130				
cis-1,2-Dichloroethene	23140	1900	19250	0	120	70 - 130				
cis-1,3-Dichloropropene	20860	1900	19250	0	108	70 - 130				
Dibromochloromethane	21800	1900	19250	0	113	70 - 130				
Ethylbenzene	96920	1900	19250	0	503	70 - 130				SE
m,p-Xylene	303800	3800	38500	0	789	70 - 130				SE
Methylene chloride	21500	3800	19250	0	112	70 - 130				
o-Xylene	119400	1900	19250	0	621	70 - 130				SE
Styrene	38980	1900	19250	0	202	70 - 130				S
Tetrachloroethene	23480	1900	19250	0	122	70 - 130				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: R383079 (0) **Instrument: VOA8** **Method: VOLATILES BY SW8260C**

MS Sample ID: **HS21041632-06MS** Units: **ug/Kg** Analysis Date: **06-May-2021 11:46**
Client ID: Run ID: **VOA8_383079** SeqNo: **6078544** PrepDate: DF: **500**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	240300	1900	19250	0	1250	70 - 130				SE
trans-1,2-Dichloroethene	23690	1900	19250	0	123	70 - 130				
trans-1,3-Dichloropropene	20360	1900	19250	0	106	70 - 130				
Trichloroethene	23820	1900	19250	0	124	70 - 130				
Vinyl acetate	43920	3800	38500	0	114	70 - 130				
Vinyl chloride	24070	770	19250	0	125	70 - 130				
Xylenes, Total	423200	1900	57750	0	733	70 - 130				SE
1,2-Dichloroethene, Total	46830	1900	38500	0	122	70 - 130				
Surr: 1,2-Dichloroethane-d4	*18170*	*0*	*19250*	*0*	*94.4*	*70 - 126*				
Surr: 4-Bromofluorobenzene	*19180*	*0*	*19250*	*0*	*99.7*	*70 - 130*				
Surr: Dibromofluoromethane	*18910*	*0*	*19250*	*0*	*98.2*	*70 - 130*				
Surr: Toluene-d8	*19110*	*0*	*19250*	*0*	*99.3*	*70 - 130*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: R383079 (0) **Instrument: VOA8** **Method: VOLATILES BY SW8260C**

MSD Sample ID: **HS21041632-06MSD** Units: **ug/Kg** Analysis Date: **06-May-2021 12:11**
Client ID: Run ID: **VOA8_383079** SeqNo: **6078545** PrepDate: DF: **500**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	26750	1900	19250	0	139	70 - 130	23770	11.8	30	S
1,1,2,2-Tetrachloroethane	24860	1900	19250	0	129	70 - 130	22120	11.6	30	
1,1,2-Trichloroethane	26710	1900	19250	0	139	70 - 130	23930	11	30	S
1,1-Dichloroethane	26640	1900	19250	0	138	70 - 130	23830	11.1	30	S
1,1-Dichloroethene	26070	1900	19250	0	135	70 - 130	22990	12.5	30	S
1,2-Dichlorobenzene	25590	1900	19250	0	133	70 - 130	22840	11.3	30	S
1,2-Dichloroethane	26310	1900	19250	0	137	70 - 130	23580	11	30	S
1,2-Dichloropropane	27070	1900	19250	0	141	70 - 130	23710	13.2	30	S
1,3-Dichlorobenzene	25470	1900	19250	0	132	70 - 130	22670	11.6	30	S
1,4-Dichlorobenzene	25520	1900	19250	0	133	70 - 130	22500	12.5	30	S
2-Butanone	46430	3800	38500	0	121	70 - 130	40560	13.5	30	
2-Hexanone	44270	3800	38500	0	115	70 - 130	40660	8.51	30	
4-Methyl-2-pentanone	72170	3800	38500	0	187	70 - 128	67240	7.07	30	S
Acetone	48450	7700	38500	0	126	70 - 130	45450	6.39	30	
Benzene	77360	1900	19250	49080	147	70 - 130	72180	6.93	30	SE
Bromochloromethane	25650	1900	19250	0	133	70 - 130	22870	11.5	30	S
Bromodichloromethane	26170	1900	19250	0	136	70 - 130	23300	11.6	30	S
Bromoform	21450	1900	19250	0	111	70 - 130	19360	10.3	30	
Bromomethane	16400	3800	19250	0	85.2	70 - 130	15350	6.65	30	
Carbon disulfide	53580	3800	38500	0	139	70 - 130	47190	12.7	30	S
Carbon tetrachloride	23710	1900	19250	0	123	70 - 130	20860	12.8	30	
Chlorobenzene	25790	1900	19250	0	134	70 - 130	23230	10.4	30	S
Chloroethane	24740	3800	19250	0	129	70 - 130	22220	10.7	30	
Chloroform	27640	1900	19250	0	144	70 - 130	24220	13.2	30	S
Chloromethane	24290	3800	19250	0	126	70 - 130	21620	11.6	30	
cis-1,2-Dichloroethene	26020	1900	19250	0	135	70 - 130	23140	11.7	30	S
cis-1,3-Dichloropropene	23510	1900	19250	0	122	70 - 130	20860	11.9	30	
Dibromochloromethane	24360	1900	19250	0	127	70 - 130	21800	11.1	30	
Ethylbenzene	102500	1900	19250	0	533	70 - 130	96920	5.63	30	SE
m,p-Xylene	319000	3800	38500	0	829	70 - 130	303800	4.9	30	SE
Methylene chloride	23890	3800	19250	0	124	70 - 130	21500	10.5	30	
o-Xylene	125100	1900	19250	0	650	70 - 130	119400	4.62	30	SE
Styrene	42270	1900	19250	0	220	70 - 130	38980	8.1	30	S
Tetrachloroethene	26010	1900	19250	0	135	70 - 130	23480	10.2	30	S

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: R383079 (0) **Instrument: VOA8** **Method: VOLATILES BY SW8260C**

MSD Sample ID: **HS21041632-06MSD** Units: **ug/Kg** Analysis Date: **06-May-2021 12:11**
Client ID: Run ID: **VOA8_383079** SeqNo: **6078545** PrepDate: DF: **500**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	250800	1900	19250	0	1300	70 - 130	240300	4.29	30	SE
trans-1,2-Dichloroethene	26280	1900	19250	0	137	70 - 130	23690	10.4	30	S
trans-1,3-Dichloropropene	22870	1900	19250	0	119	70 - 130	20360	11.6	30	
Trichloroethene	26760	1900	19250	0	139	70 - 130	23820	11.6	30	S
Vinyl acetate	50740	3800	38500	0	132	70 - 130	43920	14.4	30	S
Vinyl chloride	27220	770	19250	0	141	70 - 130	24070	12.3	30	S
Xylenes, Total	444100	1900	57750	0	769	70 - 130	423200	4.82	30	SE
1,2-Dichloroethene, Total	52310	1900	38500	0	136	70 - 130	46830	11	30	S
Surr: 1,2-Dichloroethane-d4	*18340*	*0*	*19250*	*0*	*95.3*	*70 - 126*	*18170*	*0.92*	*30*	
Surr: 4-Bromofluorobenzene	*19710*	*0*	*19250*	*0*	*102*	*70 - 130*	*19180*	*2.73*	*30*	
Surr: Dibromofluoromethane	*19160*	*0*	*19250*	*0*	*99.5*	*70 - 130*	*18910*	*1.3*	*30*	
Surr: Toluene-d8	*19070*	*0*	*19250*	*0*	*99.1*	*70 - 130*	*19110*	*0.177*	*30*	

The following samples were analyzed in this batch: HS21041584-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: R382951 (0) **Instrument: WetChem_HS** **Method: PH SOIL BY SW9045D**

DUP Sample ID: **HS21041673-09DUP** Units: **pH Units** Analysis Date: **04-May-2021 14:30**
Client ID: Run ID: **WetChem_HS_382951** SeqNo: **6074855** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.86	0.100					7.94	1.01	10	
Temp Deg C @pH	21.7	0					21.7	0	10	

The following samples were analyzed in this batch: HS21041584-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: HS21041584

QC BATCH REPORT

Batch ID: R383028 (0) **Instrument: WetChem_HS** **Method: BURN RATE BY METHOD SW1030**

DUP Sample ID: **HS21041613-02DUP** Units: **Burn Rate, mm/sec** Analysis Date: **05-May-2021 09:00**
Client ID: Run ID: **WetChem_HS_383028** SeqNo: **6076653** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability, Solid	0	0					0	0	25	

The following samples were analyzed in this batch: HS21041584-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDWS
WorkOrder: **HS21041584**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
Date	
mg/Kg-dry	Milligrams per Kilogram- Dry weight corrected
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2021	31-Dec-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-21-27	30-Apr-2022

Sample Receipt Checklist

Work Order ID: HS21041584 **Date/Time Received:** **29-Apr-2021 10:27**

Client Name: PBW **Received by:** **Si Ma**

Completed By:	/S/ Pablo Marinez	29-Apr-2021 16:58	**Reviewed by:**	/S/ Dane J. Wacasey	30-Apr-2021 08:27
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **SOLID** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☑	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:237024
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.0°C UC/C	IR 31	
Cooler(s)/Kit(s):	45762		
Date/Time sample(s) sent to storage:	4/29/21 17:05		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070

Chain of Custody Form

Page ____ of ____

COC ID: 237024

HS21041584 NV

Golder Associates Inc.
Houston TX-Wood Preserving Works IDWS

Customer Information		Project Information		ALS Project Manager:
Purchase Order	UPRR/Kevin Peterburs	Project Name	Houston TX-Wood Preserving Works IDWS	
Work Order		Project Number	1620-15-Rev0 SR 92688	
Company Name	Golder Associates Inc.	Bill To Company	Union Pacific Railroad- A/P	
Send Report To	Eric Matzner	Invoice Attn	Accounts Payable	
Address	2201 Double Creek Drive Suite 4004	Address	1400 Douglas Street Stop 0750	
City/State/Zip	Round Rock, TX 78664	City/State/Zip	Omaha NE 681790750	
Phone	(512) 671-3434	Phone		
Fax	(512) 671-3446	Fax		
e-Mail Address	Eric_Matzner@golder.com	e-Mail Address		

A	8260_S (5632528 Volatile Organics (IDWS))
B	TX1005_S_REV3 (5643233 TPH TX1005)
C	8270_LOW_S (5632532 SVOC (IDWS))
D	RCRA 8 Metals Plus Sb, Be & Ni (5652643 5652646)
E	PH_S (5652651 pH - RCI)
F	IGN_S 1030 (5652637 Ignitability - RCI)
G	CONTINGENCY (Hold for TCLP Metals)
H	
I	
J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SO-1620-IDW-20210428	4-28-21	1500	Solid	8	3	X	X	X	X	X	X	X				
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: T. McSpadden

Shipment Method: Delivered

Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☒ 7 Wk Days

Results Due Date:

Relinquished by: Date: 4/29/21 Time: 10:27 Received by:

Relinquished by: Date: Time: Received by (Laboratory): SM 04/29/21 10:27

Logged by (Laboratory): Date: Time: Checked by (Laboratory):

Notes: UPRR HWPW 1620-15 WR#004444

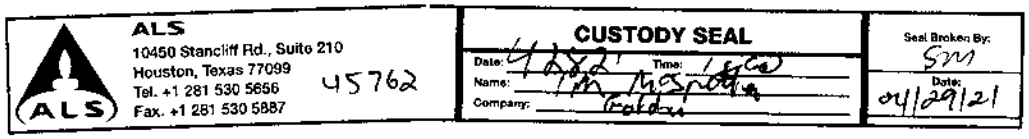
Cooler ID	Cooler Temp.
45762	1.0 °C

QC Package: (Check One Box Below)

☒ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other
☐ TRRP Checklist
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.



45762 APR 29 2021

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
TXD988022266	1	832-977-7267	023784004 JJK

GENERATOR

5. Generator's Name and Mailing Address
Waste Control Specialists LLC GRD Services, Inc.
6320 Campbell Road
Dallas, TX 75248
Generator's Phone: (972) 267-4100

Generator's Site Address (if different than mailing address)
Waste Control Specialists LLC
4100 E. Loop 286
Andrews, TX 79714

6. Transporter 1 Company Name
EQ Environmental Services

U.S. EPA ID Number
TXR000142711

7. Transporter 2 Company Name
US Ecology

U.S. EPA ID Number
TXD988552374

8. Designated Facility Name and Site Address
Waste Control Specialists LLC
10588 FM 529
Andrews, TX 79714

U.S. EPA ID Number

Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. Non DOT Regulated Material (Tank Sediment Soil)	1	DM	220	P	WW22	WW01	
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
WCS: 005352
Profile #: SB-21-358

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: [illegible] Parker — Signature: [signature] — Month: 01 Day: 17 Year: 22

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Luis Castillo — Signature: [signature] — Month: 01 Day: 17 Year: 22

Transporter 2 Printed/Typed Name: Trinidad Gomez — Signature: [signature] — Month: 01 Day: 28 Year: 22

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name — Signature — Month Day Year

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

TRANSPORTER COPY

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

June 07, 2022

Eric Matzner
WSP Golder
1601 S. MoPac Expressway
Suite 325D
Austin, TX 78746

Work Order: **HS22060148**

Laboratory Results for: **Houston TX-Wood Preserving Works IDW**

Dear Eric Matzner,

ALS Environmental received 1 sample(s) on Jun 02, 2022 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Dane J. Wacasey

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
Work Order: HS22060148

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22060148-01	SO-1620-WR008351-20220602	Solid		02-Jun-2022 13:30	02-Jun-2022 14:36	☐

Client: WSP Golder **CASE NARRATIVE**
Project: Houston TX-Wood Preserving Works IDW
Work Order: HS22060148

Work Order Comments

• Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.

The temperature at the time of pH is reported. Please note that all pH results are already normalized to a temperature of 25 °C.

GC Semivolatiles by Method TX1005

Batch ID: 179496

Sample ID: HS22060117-01MS

• MS and MSD are for an unrelated sample

Sample ID: SO-1620-WR008351-20220602 (HS22060148-01)

• The surrogate recoveries could not be determined due to dilution below the calibration range.

GCMS Semivolatiles by Method SW8270

Batch ID: 179558

Sample ID: HS22060154-01MS

• MS and MSD are for an unrelated sample

Sample ID: SO-1620-WR008351-20220602 (HS22060148-01)

• Low area counts for 1, 4-Dichlorobenzene, Naphthalene-d8, Chrysene-d12 and Perylene-d12 due to matrix effect. They were recovered in the dilution.

• The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

• The surrogate recoveries could not be determined due to dilution below the calibration range.

GCMS Volatiles by Method SW8260

Batch ID: R410085

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A

Batch ID: 179513

Sample ID: HS22051326-01MS

• MS and MSD are for an unrelated sample

Metals by Method SW7471B

Batch ID: 179394

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW7.3.3.2

Batch ID: R410059

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: WSP Golder **CASE NARRATIVE**
Project: Houston TX-Wood Preserving Works IDW
Work Order: HS22060148

WetChemistry by Method SW7.3.4.2

Batch ID: R410054

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW1030

Batch ID: R410051

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9045D

Batch ID: R409965

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
Sample ID: SO-1620-WR008351-20220602
Collection Date: 02-Jun-2022 13:30

ANALYTICAL REPORT
WorkOrder:HS22060148
Lab ID:HS22060148-01
Matrix:Solid

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C	**Method:SW8260**						Analyst: ZQM
1,1,1-Trichloroethane	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
1,1,2,2-Tetrachloroethane	< 0.038		0.038	0.24	mg/Kg	50	06-Jun-2022 17:22
1,1,2-Trichloroethane	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
1,1-Dichloroethane	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
1,1-Dichloroethene	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
1,2-Dichlorobenzene	< 0.048		0.048	0.24	mg/Kg	50	06-Jun-2022 17:22
1,2-Dichloroethane	< 0.029		0.029	0.24	mg/Kg	50	06-Jun-2022 17:22
1,2-Dichloropropane	< 0.038		0.038	0.24	mg/Kg	50	06-Jun-2022 17:22
1,3-Dichlorobenzene	< 0.048		0.048	0.24	mg/Kg	50	06-Jun-2022 17:22
1,4-Dichlorobenzene	< 0.048		0.048	0.24	mg/Kg	50	06-Jun-2022 17:22
2-Butanone	**0.28**	J	**0.062**	**0.48**	**mg/Kg**	50	06-Jun-2022 17:22
2-Hexanone	< 0.067		0.067	0.48	mg/Kg	50	06-Jun-2022 17:22
4-Methyl-2-pentanone	< 0.096		0.096	0.48	mg/Kg	50	06-Jun-2022 17:22
Acetone	**0.33**	J	**0.096**	**0.96**	**mg/Kg**	50	06-Jun-2022 17:22
Benzene	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
Bromochloromethane	< 0.043		0.043	0.24	mg/Kg	50	06-Jun-2022 17:22
Bromodichloromethane	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
Bromoform	< 0.029		0.029	0.24	mg/Kg	50	06-Jun-2022 17:22
Bromomethane	< 0.048		0.048	0.48	mg/Kg	50	06-Jun-2022 17:22
Carbon disulfide	< 0.029		0.029	0.48	mg/Kg	50	06-Jun-2022 17:22
Carbon tetrachloride	< 0.029		0.029	0.24	mg/Kg	50	06-Jun-2022 17:22
Chlorobenzene	< 0.029		0.029	0.24	mg/Kg	50	06-Jun-2022 17:22
Chloroethane	< 0.038		0.038	0.48	mg/Kg	50	06-Jun-2022 17:22
Chloroform	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
Chloromethane	< 0.024		0.024	0.48	mg/Kg	50	06-Jun-2022 17:22
cis-1,2-Dichloroethene	< 0.038		0.038	0.24	mg/Kg	50	06-Jun-2022 17:22
cis-1,3-Dichloropropene	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
Dibromochloromethane	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
Ethylbenzene	**1.1**		**0.034**	**0.24**	**mg/Kg**	50	06-Jun-2022 17:22
m,p-Xylene	**0.31**	J	**0.077**	**0.48**	**mg/Kg**	50	06-Jun-2022 17:22
Methylene chloride	< 0.048		0.048	0.48	mg/Kg	50	06-Jun-2022 17:22
o-Xylene	**0.60**		**0.048**	**0.24**	**mg/Kg**	50	06-Jun-2022 17:22
Styrene	< 0.034		0.034	0.24	mg/Kg	50	06-Jun-2022 17:22
Tetrachloroethene	< 0.034		0.034	0.24	mg/Kg	50	06-Jun-2022 17:22
Toluene	**0.12**	J	**0.029**	**0.24**	**mg/Kg**	50	06-Jun-2022 17:22
trans-1,2-Dichloroethene	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
trans-1,3-Dichloropropene	< 0.029		0.029	0.24	mg/Kg	50	06-Jun-2022 17:22
Trichloroethene	< 0.029		0.029	0.24	mg/Kg	50	06-Jun-2022 17:22
Vinyl acetate	< 0.048		0.048	0.48	mg/Kg	50	06-Jun-2022 17:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: WSP Golder
ANALYTICAL REPORT
Project: Houston TX-Wood Preserving Works IDW
WorkOrder:HS22060148
Sample ID: SO-1620-WR008351-20220602
Lab ID:HS22060148-01
Collection Date: 02-Jun-2022 13:30
Matrix:Solid

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C	**Method:SW8260**						Analyst: ZQM
Vinyl chloride	< 0.038		0.038	0.096	mg/Kg	50	06-Jun-2022 17:22
Xylenes, Total	**0.91**		**0.048**	**0.24**	**mg/Kg**	50	06-Jun-2022 17:22
1,2-Dichloroethene, Total	< 0.024		0.024	0.24	mg/Kg	50	06-Jun-2022 17:22
Surr: 1,2-Dichloroethane-d4	*98.0*			*70-126*	*%REC*	*50*	*06-Jun-2022 17:22*
Surr: 4-Bromofluorobenzene	*104*			*70-130*	*%REC*	*50*	*06-Jun-2022 17:22*
Surr: Dibromofluoromethane	*92.9*			*70-130*	*%REC*	*50*	*06-Jun-2022 17:22*
Surr: Toluene-d8	*100.0*			*70-130*	*%REC*	*50*	*06-Jun-2022 17:22*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
Sample ID: SO-1620-WR008351-20220602
Collection Date: 02-Jun-2022 13:30

ANALYTICAL REPORT
WorkOrder:HS22060148
Lab ID:HS22060148-01
Matrix:Solid

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D	**Method:SW8270**				Prep:SW3541 / 03-Jun-2022		Analyst: GEY
1,2,4-Trichlorobenzene	< 0.12		0.12	0.65	mg/Kg	100	06-Jun-2022 14:07
2,4,5-Trichlorophenol	< 0.25		0.25	0.65	mg/Kg	100	06-Jun-2022 14:07
2,4,6-Trichlorophenol	< 0.17		0.17	0.65	mg/Kg	100	06-Jun-2022 14:07
2,4-Dichlorophenol	< 0.13		0.13	0.65	mg/Kg	100	06-Jun-2022 14:07
2,4-Dimethylphenol	< 0.33		0.33	0.65	mg/Kg	100	06-Jun-2022 14:07
2,4-Dinitrophenol	< 0.45		0.45	1.3	mg/Kg	100	06-Jun-2022 14:07
2,4-Dinitrotoluene	< 0.089		0.089	0.65	mg/Kg	100	06-Jun-2022 14:07
2,6-Dinitrotoluene	< 0.33		0.33	0.65	mg/Kg	100	06-Jun-2022 14:07
2-Chloronaphthalene	< 0.13		0.13	0.65	mg/Kg	100	06-Jun-2022 14:07
2-Chlorophenol	< 0.13		0.13	0.65	mg/Kg	100	06-Jun-2022 14:07
2-Methylnaphthalene	**5.0**		**0.050**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
2-Methylphenol	< 0.11		0.11	0.65	mg/Kg	100	06-Jun-2022 14:07
2-Nitroaniline	< 0.19		0.19	0.65	mg/Kg	100	06-Jun-2022 14:07
2-Nitrophenol	< 0.25		0.25	0.65	mg/Kg	100	06-Jun-2022 14:07
3&4-Methylphenol	< 0.099		0.099	0.65	mg/Kg	100	06-Jun-2022 14:07
3,3´-Dichlorobenzidine	< 0.25		0.25	0.65	mg/Kg	100	06-Jun-2022 14:07
3-Nitroaniline	< 0.19		0.19	0.65	mg/Kg	100	06-Jun-2022 14:07
4,6-Dinitro-2-methylphenol	< 0.21		0.21	0.65	mg/Kg	100	06-Jun-2022 14:07
4-Bromophenyl phenyl ether	< 0.16		0.16	0.65	mg/Kg	100	06-Jun-2022 14:07
4-Chloro-3-methylphenol	< 0.069		0.069	0.65	mg/Kg	100	06-Jun-2022 14:07
4-Chloroaniline	< 0.11		0.11	0.65	mg/Kg	100	06-Jun-2022 14:07
4-Chlorophenyl phenyl ether	< 0.15		0.15	0.65	mg/Kg	100	06-Jun-2022 14:07
4-Nitroaniline	< 0.22		0.22	0.65	mg/Kg	100	06-Jun-2022 14:07
4-Nitrophenol	< 0.19		0.19	1.3	mg/Kg	100	06-Jun-2022 14:07
Acenaphthene	**14**		**0.050**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Acenaphthylene	**0.65**		**0.099**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Anthracene	**19**		**0.050**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Benz(a)anthracene	**17**		**0.16**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Benzidine	< 0.14		0.14	0.65	mg/Kg	100	06-Jun-2022 14:07
Benzo(a)pyrene	**6.5**		**0.099**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Benzo(b)fluoranthene	**12**		**0.12**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Benzo(g,h,i)perylene	**2.2**		**0.069**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Benzo(k)fluoranthene	**5.8**		**0.089**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Benzyl alcohol	< 0.069		0.069	0.65	mg/Kg	100	06-Jun-2022 14:07
Bis(2-chloroethoxy)methane	< 0.089		0.089	0.65	mg/Kg	100	06-Jun-2022 14:07
Bis(2-chloroethyl)ether	< 0.11		0.11	0.65	mg/Kg	100	06-Jun-2022 14:07
Bis(2-chloroisopropyl)ether	< 0.14		0.14	0.65	mg/Kg	100	06-Jun-2022 14:07
Bis(2-ethylhexyl)phthalate	< 0.17		0.17	0.65	mg/Kg	100	06-Jun-2022 14:07
Butyl benzyl phthalate	< 0.13		0.13	0.65	mg/Kg	100	06-Jun-2022 14:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
Sample ID: SO-1620-WR008351-20220602
Collection Date: 02-Jun-2022 13:30

ANALYTICAL REPORT
WorkOrder:HS22060148
Lab ID:HS22060148-01
Matrix:Solid

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D	**Method:SW8270**				Prep:SW3541 / 03-Jun-2022		Analyst: GEY
Carbazole	< 0.12		0.12	0.65	mg/Kg	100	06-Jun-2022 14:07
Chrysene	**18**		**0.079**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Di-n-butyl phthalate	< 0.12		0.12	0.65	mg/Kg	100	06-Jun-2022 14:07
Di-n-octyl phthalate	< 0.089		0.089	0.65	mg/Kg	100	06-Jun-2022 14:07
Dibenz(a,h)anthracene	< 0.16		0.16	0.33	mg/Kg	100	06-Jun-2022 14:07
Dibenzofuran	**10**		**0.069**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Diethyl phthalate	< 0.099		0.099	0.65	mg/Kg	100	06-Jun-2022 14:07
Dimethyl phthalate	< 0.079		0.079	0.65	mg/Kg	100	06-Jun-2022 14:07
Fluoranthene	**120**		**1.1**	**3.3**	**mg/Kg**	1000	06-Jun-2022 15:10
Fluorene	**26**		**0.11**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Hexachlorobenzene	< 0.089		0.089	0.65	mg/Kg	100	06-Jun-2022 14:07
Hexachlorobutadiene	< 0.12		0.12	0.65	mg/Kg	100	06-Jun-2022 14:07
Hexachlorocyclopentadiene	< 0.079		0.079	0.65	mg/Kg	100	06-Jun-2022 14:07
Hexachloroethane	< 0.15		0.15	0.65	mg/Kg	100	06-Jun-2022 14:07
Indeno(1,2,3-cd)pyrene	**2.3**		**0.079**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Isophorone	< 0.079		0.079	0.65	mg/Kg	100	06-Jun-2022 14:07
N-Nitrosodi-n-propylamine	< 0.11		0.11	0.65	mg/Kg	100	06-Jun-2022 14:07
N-Nitrosodimethylamine	< 0.12		0.12	0.65	mg/Kg	100	06-Jun-2022 14:07
N-Nitrosodiphenylamine	< 0.069		0.069	0.65	mg/Kg	100	06-Jun-2022 14:07
Naphthalene	**2.6**		**0.059**	**0.33**	**mg/Kg**	100	06-Jun-2022 14:07
Nitrobenzene	< 0.089		0.089	0.65	mg/Kg	100	06-Jun-2022 14:07
Pentachlorophenol	< 0.33		0.33	0.65	mg/Kg	100	06-Jun-2022 14:07
Phenanthrene	**97**		**1.5**	**3.3**	**mg/Kg**	1000	06-Jun-2022 15:10
Phenol	< 0.11		0.11	0.65	mg/Kg	100	06-Jun-2022 14:07
Pyrene	**71**		**0.59**	**3.3**	**mg/Kg**	1000	06-Jun-2022 15:10
Pyridine	< 0.089		0.089	0.65	mg/Kg	100	06-Jun-2022 14:07
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*100*	*06-Jun-2022 14:07*
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*1000*	*06-Jun-2022 15:10*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*100*	*06-Jun-2022 14:07*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*1000*	*06-Jun-2022 15:10*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*1000*	*06-Jun-2022 15:10*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*100*	*06-Jun-2022 14:07*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*100*	*06-Jun-2022 14:07*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*1000*	*06-Jun-2022 15:10*
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*1000*	*06-Jun-2022 15:10*
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*100*	*06-Jun-2022 14:07*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*100*	*06-Jun-2022 14:07*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*1000*	*06-Jun-2022 15:10*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
Sample ID: SO-1620-WR008351-20220602
Collection Date: 02-Jun-2022 13:30

ANALYTICAL REPORT
WorkOrder:HS22060148
Lab ID:HS22060148-01
Matrix:Solid

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TEXAS TPH BY TX1005		**Method:TX1005**			Prep:TX1005PR / 02-Jun-2022		Analyst: SAM
nC6 to nC12	< 880		880	6000	mg/Kg	100	03-Jun-2022 03:12
>nC12 to nC28	**32,000**		**1200**	**6000**	**mg/Kg**	100	03-Jun-2022 03:12
>nC28 to nC35	**19,000**		**1200**	**6000**	**mg/Kg**	100	03-Jun-2022 03:12
Total Petroleum Hydrocarbon	**51,000**		**880**	**6000**	**mg/Kg**	100	03-Jun-2022 03:12
Surr: 2-Fluorobiphenyl	*0*	*S*		*70-130*	*%REC*	*100*	*03-Jun-2022 03:12*
Surr: Trifluoromethyl benzene	*0*	*S*		*70-130*	*%REC*	*100*	*03-Jun-2022 03:12*
METALS BY SW6020A		**Method:SW6020A**			Prep:SW3050B / 03-Jun-2022		Analyst: JHD
Antimony	**0.282**	J	**0.0614**	**0.473**	**mg/Kg**	1	04-Jun-2022 00:45
Arsenic	**0.923**		**0.0662**	**0.473**	**mg/Kg**	1	04-Jun-2022 00:45
Barium	**23.4**		**0.0284**	**0.473**	**mg/Kg**	1	04-Jun-2022 00:45
Beryllium	**0.0241**	J	**0.0198**	**0.473**	**mg/Kg**	1	04-Jun-2022 00:45
Cadmium	**0.567**		**0.0255**	**0.473**	**mg/Kg**	1	04-Jun-2022 00:45
Chromium	**5.83**		**0.0217**	**0.473**	**mg/Kg**	1	04-Jun-2022 00:45
Lead	**45.2**		**0.0123**	**0.473**	**mg/Kg**	1	04-Jun-2022 00:45
Nickel	**7.11**		**0.0454**	**0.473**	**mg/Kg**	1	04-Jun-2022 00:45
Selenium	**0.0884**	J	**0.0860**	**0.473**	**mg/Kg**	1	04-Jun-2022 00:45
Silver	**0.111**	J	**0.0142**	**0.473**	**mg/Kg**	1	04-Jun-2022 00:45
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 03-Jun-2022		Analyst: MSC
Mercury	**0.0429**		**0.000498**	**0.00352**	**mg/Kg**	1	03-Jun-2022 11:57
BURN RATE BY METHOD SW1030		**Method:SW1030**					Analyst: TH
Ignitability, Solid	**0**		**0**	**0**	**Burn Rate, mm/sec**	1	06-Jun-2022 11:00
REACTIVE CYANIDE		**Method:SW7.3.3.2**					Analyst: MZD
Reactive Cyanide	< 100	n	100	100	mg/Kg	1	06-Jun-2022 14:10
REACTIVE SULFIDE		**Method:SW7.3.4.2**					Analyst: MZD
Reactive Sulfide	< 100	n	100	100	mg/Kg	1	06-Jun-2022 12:30
PH SOIL BY SW9045D		**Method:SW9045D**					Analyst: SB
pH	**9.09**	H	**0.100**	**0.100**	**pH Units**	1	03-Jun-2022 14:48
Temp Deg C @pH	**21.5**	H	**0**	**0**	**°C**	1	03-Jun-2022 14:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

Batch ID: 5087 **Start Date:** 01 Jun 2022 10:12 **End Date:** 01 Jun 2022 10:12
Method: VOLATILES BY SW8260C

Sample ID	Container	Sample Wt/Vol	Final Volume	Weight Factor	Container Type
HS22060148-01	1	5.229 (g)	5 (mL)	0.96	Bulk (5030B)

Batch ID: 179394 **Start Date:** 03 Jun 2022 08:30 **End Date:** 03 Jun 2022 10:30
Method: MERCURY PREP - SOLID - 7471B **Prep Code:** HG_S_LOWPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22060148-01		0.5665 (grams)	40 (mL)	70.61	4-oz glass, Neat

Batch ID: 179496 **Start Date:** 02 Jun 2022 13:00 **End Date:** 02 Jun 2022 14:50
Method: TX 1005 PREP **Prep Code:** TX 1005_S PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22060148-01	1	8.39 (g)	10 (mL)	1.192	4-oz glass, Neat

Batch ID: 179513 **Start Date:** 03 Jun 2022 07:30 **End Date:** 03 Jun 2022 13:30
Method: METALS PREP - SOLIDS - SW3050B **Prep Code:** 3050_I_LOW

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22060148-01		0.5291 (g)	50 (mL)	94.5	4-oz glass, Neat

Batch ID: 179558 **Start Date:** 03 Jun 2022 13:00 **End Date:** 03 Jun 2022 17:00
Method: SV SOXHLET EXTRACT-LOWLEVEL-SW3541 **Prep Code:** 3541_B_LOW

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22060148-01		30.28 (g)	1 (mL)	0.03303	4-oz glass, Neat

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 179394 (0)	**Test Name :** MERCURY BY SW7471B				**Matrix:** Solid	
HS22060148-01	SO-1620-WR008351-20220602	02 Jun 2022 13:30		03 Jun 2022 08:30	03 Jun 2022 11:57	1
Batch ID: 179496 (0)	**Test Name :** TEXAS TPH BY TX1005				**Matrix:** Solid	
HS22060148-01	SO-1620-WR008351-20220602	02 Jun 2022 13:30		02 Jun 2022 13:00	03 Jun 2022 03:12	100
Batch ID: 179513 (0)	**Test Name :** METALS BY SW6020A				**Matrix:** Solid	
HS22060148-01	SO-1620-WR008351-20220602	02 Jun 2022 13:30		03 Jun 2022 07:30	04 Jun 2022 00:45	1
Batch ID: 179558 (0)	**Test Name :** LOW-LEVEL SEMIVOLATILES BY 8270D				**Matrix:** Solid	
HS22060148-01	SO-1620-WR008351-20220602	02 Jun 2022 13:30		03 Jun 2022 13:00	06 Jun 2022 15:10	1000
HS22060148-01	SO-1620-WR008351-20220602	02 Jun 2022 13:30		03 Jun 2022 13:00	06 Jun 2022 14:07	100
Batch ID: R409965 (0)	**Test Name :** PH SOIL BY SW9045D				**Matrix:** Solid	
HS22060148-01	SO-1620-WR008351-20220602	02 Jun 2022 13:30			03 Jun 2022 14:48	1
Batch ID: R410051 (0)	**Test Name :** BURN RATE BY METHOD SW1030				**Matrix:** Solid	
HS22060148-01	SO-1620-WR008351-20220602	02 Jun 2022 13:30			06 Jun 2022 11:00	1
Batch ID: R410054 (0)	**Test Name :** REACTIVE SULFIDE				**Matrix:** Solid	
HS22060148-01	SO-1620-WR008351-20220602	02 Jun 2022 13:30			06 Jun 2022 12:30	1
Batch ID: R410059 (0)	**Test Name :** REACTIVE CYANIDE				**Matrix:** Solid	
HS22060148-01	SO-1620-WR008351-20220602	02 Jun 2022 13:30			06 Jun 2022 14:10	1
Batch ID: R410085 (0)	**Test Name :** VOLATILES BY SW8260C				**Matrix:** Solid	
HS22060148-01	SO-1620-WR008351-20220602	02 Jun 2022 13:30			06 Jun 2022 17:22	50

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179496 (0) **Instrument: FID-10** **Method: TEXAS TPH BY TX1005**

MBLK Sample ID: **MBLK-179496** Units: **mg/Kg** Analysis Date: **02-Jun-2022 17:24**
Client ID: Run ID: **FID-10_409901** SeqNo: **6676233** PrepDate: **02-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	< 7.4	50								
>nC12 to nC28	< 9.8	50								
>nC28 to nC35	< 9.8	50								
Total Petroleum Hydrocarbon	< 7.4	50								
Surr: 2-Fluorobiphenyl	*22.54*	*0*	*25*	*0*	*90.2*	*70 - 130*				
Surr: Trifluoromethyl benzene	*26.7*	*0*	*25*	*0*	*107*	*70 - 130*				

LCS Sample ID: **LCS-179496** Units: **mg/Kg** Analysis Date: **02-Jun-2022 17:54**
Client ID: Run ID: **FID-10_409901** SeqNo: **6676234** PrepDate: **02-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	264.6	50	250	0	106	75 - 125				
>nC12 to nC28	262.1	50	250	0	105	75 - 125				
Surr: 2-Fluorobiphenyl	*22.4*	*0*	*25*	*0*	*89.6*	*70 - 130*				
Surr: Trifluoromethyl benzene	*23.64*	*0*	*25*	*0*	*94.6*	*70 - 130*				

LCSD Sample ID: **LCSD-179496** Units: **mg/Kg** Analysis Date: **02-Jun-2022 18:23**
Client ID: Run ID: **FID-10_409901** SeqNo: **6676235** PrepDate: **02-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	258.7	50	250	0	103	75 - 125	264.6	2.26	20	
>nC12 to nC28	253.5	50	250	0	101	75 - 125	262.1	3.34	20	
Surr: 2-Fluorobiphenyl	*22.26*	*0*	*25*	*0*	*89.0*	*70 - 130*	*22.4*	*0.605*	*20*	
Surr: Trifluoromethyl benzene	*23.53*	*0*	*25*	*0*	*94.1*	*70 - 130*	*23.64*	*0.474*	*20*	

MS Sample ID: **HS22060117-01MS** Units: **mg/Kg** Analysis Date: **02-Jun-2022 19:25**
Client ID: Run ID: **FID-10_409901** SeqNo: **6676237** PrepDate: **02-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	315.2	47	234.3	26.6	123	75 - 125				
>nC12 to nC28	505.9	47	234.3	133.2	159	75 - 125				S
Surr: 2-Fluorobiphenyl	*23.57*	*0*	*23.43*	*0*	*101*	*70 - 130*				
Surr: Trifluoromethyl benzene	*24.08*	*0*	*23.43*	*0*	*103*	*70 - 130*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179496 (0) **Instrument: FID-10** **Method: TEXAS TPH BY TX1005**

MSD Sample ID: **HS22060117-01MSD** Units: **mg/Kg** Analysis Date: **02-Jun-2022 19:55**
Client ID: Run ID: **FID-10_409901** SeqNo: **6676238** PrepDate: **02-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	326.3	47	235	26.6	128	75 - 125	315.2	3.46	20	S
>nC12 to nC28	517.7	47	235	133.2	164	75 - 125	505.9	2.31	20	S
Surr: 2-Fluorobiphenyl	*25.14*	*0*	*23.5*	*0*	*107*	*70 - 130*	*23.57*	*6.45*	*20*	
Surr: Trifluoromethyl benzene	*24.05*	*0*	*23.5*	*0*	*102*	*70 - 130*	*24.08*	*0.13*	*20*	

The following samples were analyzed in this batch: HS22060148-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179394 (0) **Instrument: HG03** **Method: MERCURY BY SW7471B**

MBLK Sample ID: **MBLK-179394** Units: **ug/Kg** Analysis Date: **03-Jun-2022 11:19**
Client ID: Run ID: **HG03_409940** SeqNo: **6676986** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	1.069	3.33								J

LCS Sample ID: **LCS-179394** Units: **ug/Kg** Analysis Date: **03-Jun-2022 11:21**
Client ID: Run ID: **HG03_409940** SeqNo: **6676987** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	352.1	3.50	350.7	0	100	80 - 120				

MS Sample ID: **HS22051335-01MS** Units: **ug/Kg** Analysis Date: **03-Jun-2022 11:24**
Client ID: Run ID: **HG03_409940** SeqNo: **6676989** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	376.3	3.59	359.8	4.089	103	80 - 120				

MSD Sample ID: **HS22051335-01MSD** Units: **ug/Kg** Analysis Date: **03-Jun-2022 11:26**
Client ID: Run ID: **HG03_409940** SeqNo: **6676990** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	378.2	3.56	356.8	4.089	105	80 - 120	376.3	0.505	20	

The following samples were analyzed in this batch: HS22060148-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179513 (0) **Instrument: ICPMS05** **Method: METALS BY SW6020A**

MBLK Sample ID: **MBLK-179513** Units: **mg/Kg** Analysis Date: **03-Jun-2022 23:45**
Client ID: Run ID: **ICPMS05_409953** SeqNo: **6678866** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	< 0.0648	0.499								
Arsenic	< 0.0698	0.499								
Barium	< 0.0299	0.499								
Beryllium	< 0.0209	0.499								
Cadmium	< 0.0269	0.499								
Chromium	< 0.0229	0.499								
Lead	< 0.0130	0.499								
Nickel	< 0.0479	0.499								
Selenium	< 0.0907	0.499								
Silver	< 0.0150	0.499								

LCS Sample ID: **LCS-179513** Units: **mg/Kg** Analysis Date: **03-Jun-2022 23:48**
Client ID: Run ID: **ICPMS05_409953** SeqNo: **6678867** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	9.514	0.496	9.915	0	96.0	80 - 120				
Arsenic	10.3	0.496	9.915	0	104	80 - 120				
Barium	10.07	0.496	9.915	0	102	80 - 120				
Beryllium	9.462	0.496	9.915	0	95.4	80 - 120				
Cadmium	10.1	0.496	9.915	0	102	80 - 120				
Chromium	10.4	0.496	9.915	0	105	80 - 120				
Lead	10.37	0.496	9.915	0	105	80 - 120				
Nickel	10.55	0.496	9.915	0	106	80 - 120				
Selenium	10.12	0.496	9.915	0	102	80 - 120				
Silver	10.06	0.496	9.915	0	101	80 - 120				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179513 (0) **Instrument: ICPMS05** **Method: METALS BY SW6020A**

MS Sample ID: **HS22051326-01MS** Units: **mg/Kg** Analysis Date: **06-Jun-2022 14:36**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679655** PrepDate: **03-Jun-2022** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	3.066	2.42	9.682	0.2372	29.2	75 - 125				S
Arsenic	16.03	2.42	9.682	6.038	103	75 - 125				
Barium	37.34	2.42	9.682	30.05	75.3	75 - 125				
Beryllium	9.592	2.42	9.682	0.3896	95.0	75 - 125				
Cadmium	9.931	2.42	9.682	0.09009	102	75 - 125				
Chromium	22.21	2.42	9.682	11.69	109	75 - 125				
Lead	15.42	2.42	9.682	5.888	98.4	75 - 125				
Nickel	16.38	2.42	9.682	6.742	99.5	75 - 125				
Selenium	10.49	2.42	9.682	0.9424	98.6	75 - 125				
Silver	9.249	2.42	9.682	0.02717	95.2	75 - 125				

MSD Sample ID: **HS22051326-01MSD** Units: **mg/Kg** Analysis Date: **06-Jun-2022 14:38**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679656** PrepDate: **03-Jun-2022** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	2.352	2.44	9.747	0.2372	21.7	75 - 125	3.066	0	20	JS
Arsenic	16.07	2.44	9.747	6.038	103	75 - 125	16.03	0.235	20	
Barium	36.5	2.44	9.747	30.05	66.2	75 - 125	37.34	2.28	20	S
Beryllium	9.936	2.44	9.747	0.3896	97.9	75 - 125	9.592	3.52	20	
Cadmium	9.801	2.44	9.747	0.09009	99.6	75 - 125	9.931	1.32	20	
Chromium	21.52	2.44	9.747	11.69	101	75 - 125	22.21	3.18	20	
Lead	15.38	2.44	9.747	5.888	97.3	75 - 125	15.42	0.273	20	
Nickel	16.46	2.44	9.747	6.742	99.7	75 - 125	16.38	0.511	20	
Selenium	10.29	2.44	9.747	0.9424	95.9	75 - 125	10.49	1.89	20	
Silver	9.261	2.44	9.747	0.02717	94.7	75 - 125	9.249	0.132	20	

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179513 (0) **Instrument: ICPMS05** **Method: METALS BY SW6020A**

PDS Sample ID: **HS22051326-01PDS** Units: **mg/Kg** Analysis Date: **06-Jun-2022 14:40**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679657** PrepDate: **03-Jun-2022** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	35.46	2.33	46.68	0	76.0	75 - 125				
Arsenic	42.14	2.33	46.68	6.038	77.3	75 - 125				
Barium	70.26	2.33	46.68	30.05	86.1	75 - 125				
Cadmium	35.35	2.33	46.68	0	75.7	75 - 125				
Chromium	47.64	2.33	46.68	11.69	77.0	75 - 125				
Lead	43.47	2.33	46.68	5.888	80.5	75 - 125				

SD Sample ID: **HS22051326-01SD** Units: **mg/Kg** Analysis Date: **06-Jun-2022 14:34**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679654** PrepDate: **03-Jun-2022** DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	< 1.52	11.7					0.2372	0	10	
Arsenic	5.808	11.7					6.038	0	10	J
Barium	30.26	11.7					30.05	0.696	10	
Beryllium	< 0.490	11.7					0.3896	0	10	
Cadmium	< 0.630	11.7					0.09009	0	10	
Chromium	11.13	11.7					11.69	4.76	10	J
Lead	5.737	11.7					5.888	0	10	J
Nickel	6.764	11.7					6.742	0	10	J
Selenium	2.317	11.7					0.9424	0	10	J
Silver	< 0.350	11.7					0.02717	0	10	

The following samples were analyzed in this batch: HS22060148-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-179558** Units: **ug/Kg** Analysis Date: **06-Jun-2022 10:37**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679577** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	< 1.2	6.6								
2,4,5-Trichlorophenol	< 2.5	6.6								
2,4,6-Trichlorophenol	< 1.7	6.6								
2,4-Dichlorophenol	< 1.3	6.6								
2,4-Dimethylphenol	< 3.3	6.6								
2,4-Dinitrophenol	< 4.5	13								
2,4-Dinitrotoluene	< 0.90	6.6								
2,6-Dinitrotoluene	< 3.3	6.6								
2-Chloronaphthalene	< 1.3	6.6								
2-Chlorophenol	< 1.3	6.6								
2-Methylnaphthalene	< 0.50	3.3								
2-Methylphenol	< 1.1	6.6								
2-Nitroaniline	< 1.9	6.6								
2-Nitrophenol	< 2.5	6.6								
3&4-Methylphenol	< 1.0	6.6								
3,3´-Dichlorobenzidine	< 2.5	6.6								
3-Nitroaniline	< 1.9	6.6								
4,6-Dinitro-2-methylphenol	< 2.1	6.6								
4-Bromophenyl phenyl ether	< 1.6	6.6								
4-Chloro-3-methylphenol	< 0.70	6.6								
4-Chloroaniline	< 1.1	6.6								
4-Chlorophenyl phenyl ether	< 1.5	6.6								
4-Nitroaniline	< 2.2	6.6								
4-Nitrophenol	< 1.9	13								
Acenaphthene	< 0.50	3.3								
Acenaphthylene	< 1.0	3.3								
Anthracene	< 0.50	3.3								
Benz(a)anthracene	< 1.6	3.3								
Benzidine	< 1.4	6.6								
Benzo(a)pyrene	< 1.0	3.3								
Benzo(b)fluoranthene	< 1.2	3.3								
Benzo(g,h,i)perylene	< 0.70	3.3								
Benzo(k)fluoranthene	< 0.90	3.3								
Benzyl alcohol	< 0.70	6.6								

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-179558** Units: **ug/Kg** Analysis Date: **06-Jun-2022 10:37**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679577** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	< 0.90	6.6								
Bis(2-chloroethyl)ether	< 1.1	6.6								
Bis(2-chloroisopropyl)ether	< 1.4	6.6								
Bis(2-ethylhexyl)phthalate	< 1.7	6.6								
Butyl benzyl phthalate	< 1.3	6.6								
Carbazole	< 1.2	6.6								
Chrysene	< 0.80	3.3								
Dibenz(a,h)anthracene	< 1.6	3.3								
Dibenzofuran	< 0.70	3.3								
Diethyl phthalate	< 1.0	6.6								
Dimethyl phthalate	< 0.80	6.6								
Di-n-butyl phthalate	< 1.2	6.6								
Di-n-octyl phthalate	< 0.90	6.6								
Fluoranthene	< 1.1	3.3								
Fluorene	< 1.1	3.3								
Hexachlorobenzene	< 0.90	6.6								
Hexachlorobutadiene	< 1.2	6.6								
Hexachlorocyclopentadiene	< 0.80	6.6								
Hexachloroethane	< 1.5	6.6								
Indeno(1,2,3-cd)pyrene	< 0.80	3.3								
Isophorone	< 0.80	6.6								
Naphthalene	< 0.60	3.3								
Nitrobenzene	< 0.90	6.6								
N-Nitrosodimethylamine	< 1.2	6.6								
N-Nitrosodi-n-propylamine	< 1.1	6.6								
N-Nitrosodiphenylamine	< 0.70	6.6								
Pentachlorophenol	< 3.3	6.6								
Phenanthrene	< 1.5	3.3								
Phenol	< 1.1	6.6								
Pyrene	< 0.60	3.3								
Pyridine	< 0.90	6.6								
Surr: 2,4,6-Tribromophenol	*133.8*	*6.6*	*167*	*0*	*80.1*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*129.2*	*6.6*	*167*	*0*	*77.4*	*43 - 125*				
Surr: 2-Fluorophenol	*90.74*	*6.6*	*167*	*0*	*54.3*	*37 - 125*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-179558** Units: **ug/Kg** Analysis Date: **06-Jun-2022 10:37**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679577** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*205.5*	*6.6*	*167*	*0*	*123*	*32 - 125*				
Surr: Nitrobenzene-d5	*99.23*	*6.6*	*167*	*0*	*59.4*	*37 - 125*				
Surr: Phenol-d6	*87.33*	*6.6*	*167*	*0*	*52.3*	*40 - 125*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-179558** Units: **ug/Kg** Analysis Date: **06-Jun-2022 10:58**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679578** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	123.5	6.6	167	0	74.0	50 - 120				
2,4,5-Trichlorophenol	121.5	6.6	167	0	72.7	45 - 127				
2,4,6-Trichlorophenol	117.9	6.6	167	0	70.6	45 - 130				
2,4-Dichlorophenol	104.7	6.6	167	0	62.7	45 - 125				
2,4-Dimethylphenol	116.9	6.6	167	0	70.0	45 - 120				
2,4-Dinitrophenol	73.88	13	167	0	44.2	10 - 126				
2,4-Dinitrotoluene	145	6.6	167	0	86.8	50 - 130				
2,6-Dinitrotoluene	132.3	6.6	167	0	79.2	50 - 125				
2-Chloronaphthalene	128.5	6.6	167	0	76.9	50 - 145				
2-Chlorophenol	113	6.6	167	0	67.7	45 - 120				
2-Methylnaphthalene	134.9	3.3	167	0	80.8	50 - 120				
2-Methylphenol	112	6.6	167	0	67.1	45 - 120				
2-Nitroaniline	120.9	6.6	167	0	72.4	45 - 138				
2-Nitrophenol	122.3	6.6	167	0	73.2	45 - 125				
3&4-Methylphenol	113	6.6	167	0	67.6	45 - 120				
3,3´-Dichlorobenzidine	184.6	6.6	167	0	111	15 - 120				
3-Nitroaniline	145.8	6.6	167	0	87.3	40 - 120				
4,6-Dinitro-2-methylphenol	113.9	6.6	167	0	68.2	15 - 135				
4-Bromophenyl phenyl ether	138.8	6.6	167	0	83.1	50 - 125				
4-Chloro-3-methylphenol	119.9	6.6	167	0	71.8	45 - 130				
4-Chloroaniline	129.8	6.6	167	0	77.7	20 - 120				
4-Chlorophenyl phenyl ether	124.5	6.6	167	0	74.6	50 - 120				
4-Nitroaniline	122.5	6.6	167	0	73.3	50 - 127				
4-Nitrophenol	98.96	13	167	0	59.3	40 - 147				
Acenaphthene	127.3	3.3	167	0	76.2	50 - 120				
Acenaphthylene	122.9	3.3	167	0	73.6	50 - 120				
Anthracene	139.4	3.3	167	0	83.5	50 - 123				
Benz(a)anthracene	133.4	3.3	167	0	79.9	40 - 140				
Benzidine	63.61	6.6	167	0	38.1	10 - 120				
Benzo(a)pyrene	110.5	3.3	167	0	66.1	50 - 130				
Benzo(b)fluoranthene	129.5	3.3	167	0	77.5	50 - 137				
Benzo(g,h,i)perylene	113.5	3.3	167	0	68.0	50 - 130				
Benzo(k)fluoranthene	111.6	3.3	167	0	66.8	50 - 143				
Benzyl alcohol	118.6	6.6	167	0	71.0	40 - 143				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-179558** Units: **ug/Kg** Analysis Date: **06-Jun-2022 10:58**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679578** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	108.4	6.6	167	0	64.9	50 - 120				
Bis(2-chloroethyl)ether	120.3	6.6	167	0	72.0	45 - 127				
Bis(2-chloroisopropyl)ether	131.9	6.6	167	0	79.0	50 - 120				
Bis(2-ethylhexyl)phthalate	156.9	6.6	167	0	93.9	21 - 148				
Butyl benzyl phthalate	142.3	6.6	167	0	85.2	50 - 136				
Carbazole	140	6.6	167	0	83.8	50 - 143				
Chrysene	132.1	3.3	167	0	79.1	50 - 130				
Dibenz(a,h)anthracene	129.7	3.3	167	0	77.6	50 - 130				
Dibenzofuran	134.2	3.3	167	0	80.4	50 - 125				
Diethyl phthalate	125.8	6.6	167	0	75.3	50 - 125				
Dimethyl phthalate	120.2	6.6	167	0	72.0	50 - 125				
Di-n-butyl phthalate	145.5	6.6	167	0	87.1	50 - 140				
Di-n-octyl phthalate	118.8	6.6	167	0	71.1	50 - 140				
Fluoranthene	161.8	3.3	167	0	96.9	50 - 131				
Fluorene	133.8	3.3	167	0	80.1	50 - 125				
Hexachlorobenzene	160.1	6.6	167	0	95.9	50 - 124				
Hexachlorobutadiene	127.3	6.6	167	0	76.2	50 - 125				
Hexachlorocyclopentadiene	95.53	6.6	167	0	57.2	45 - 135				
Hexachloroethane	107.1	6.6	167	0	64.1	45 - 125				
Indeno(1,2,3-cd)pyrene	133.1	3.3	167	0	79.7	45 - 139				
Isophorone	110.1	6.6	167	0	66.0	45 - 130				
Naphthalene	119.3	3.3	167	0	71.4	50 - 125				
Nitrobenzene	99.91	6.6	167	0	59.8	50 - 125				
N-Nitrosodimethylamine	84.98	6.6	167	0	50.9	20 - 140				
N-Nitrosodi-n-propylamine	105.9	6.6	167	0	63.4	45 - 120				
N-Nitrosodiphenylamine	129	6.6	167	0	77.2	50 - 130				
Pentachlorophenol	98.35	6.6	167	0	58.9	23 - 136				
Phenanthrene	148.8	3.3	167	0	89.1	50 - 125				
Phenol	105.5	6.6	167	0	63.2	45 - 130				
Pyrene	136.3	3.3	167	0	81.6	45 - 130				
Pyridine	91.6	6.6	167	0	54.8	15 - 120				
Surr: 2,4,6-Tribromophenol	*150.6*	*6.6*	*167*	*0*	*90.2*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*128.3*	*6.6*	*167*	*0*	*76.8*	*43 - 125*				
Surr: 2-Fluorophenol	*86.62*	*6.6*	*167*	*0*	*51.9*	*37 - 125*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-179558** Units: **ug/Kg** Analysis Date: **06-Jun-2022 10:58**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679578** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*154.8*	*6.6*	*167*	*0*	*92.7*	*32 - 125*				
Surr: Nitrobenzene-d5	*102*	*6.6*	*167*	*0*	*61.1*	*37 - 125*				
Surr: Phenol-d6	*90.48*	*6.6*	*167*	*0*	*54.2*	*40 - 125*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS22060154-01MS** Units: **ug/Kg** Analysis Date: **06-Jun-2022 12:01**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679580** PrepDate: **03-Jun-2022** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	135.2	66	165.8	0	81.5	50 - 120				
2,4,5-Trichlorophenol	67.47	66	165.8	0	40.7	45 - 127				S
2,4,6-Trichlorophenol	109	66	165.8	0	65.7	45 - 130				
2,4-Dichlorophenol	121.5	66	165.8	0	73.3	45 - 125				
2,4-Dimethylphenol	102.9	66	165.8	0	62.1	45 - 120				
2,4-Dinitrophenol	< 45	130	165.8	0	0	10 - 126				S
2,4-Dinitrotoluene	146.2	66	165.8	0	88.1	50 - 130				
2,6-Dinitrotoluene	131.1	66	165.8	0	79.1	50 - 125				
2-Chloronaphthalene	86.85	66	165.8	0	52.4	50 - 145				
2-Chlorophenol	95.13	66	165.8	0	57.4	45 - 120				
2-Methylnaphthalene	120.8	33	165.8	0	72.8	50 - 120				
2-Methylphenol	95.05	66	165.8	0	57.3	45 - 120				
2-Nitroaniline	109.9	66	165.8	0	66.2	45 - 138				
2-Nitrophenol	88.25	66	165.8	0	53.2	45 - 125				
3&4-Methylphenol	87.17	66	165.8	0	52.6	45 - 120				
3,3´-Dichlorobenzidine	54.97	66	165.8	0	33.1	15 - 120				J
3-Nitroaniline	136.7	66	165.8	0	82.4	40 - 120				
4,6-Dinitro-2-methylphenol	127.4	66	165.8	0	76.8	15 - 135				
4-Bromophenyl phenyl ether	154.7	66	165.8	0	93.3	50 - 125				
4-Chloro-3-methylphenol	92.12	66	165.8	0	55.5	45 - 130				
4-Chloroaniline	53	66	165.8	0	32.0	20 - 120				J
4-Chlorophenyl phenyl ether	132.2	66	165.8	0	79.7	50 - 120				
4-Nitroaniline	99.06	66	165.8	0	59.7	50 - 127				
4-Nitrophenol	183.8	130	165.8	0	111	40 - 147				
Acenaphthene	136.3	33	165.8	23	68.3	50 - 120				
Acenaphthylene	121	33	165.8	0	72.9	50 - 120				
Anthracene	180.5	33	165.8	77.39	62.2	50 - 123				
Benz(a)anthracene	202.1	33	165.8	152.5	29.9	40 - 140				S
Benzidine	20.89	66	165.8	0	12.6	10 - 120				J
Benzo(a)pyrene	159.5	33	165.8	106.8	31.7	50 - 130				S
Benzo(b)fluoranthene	203.8	33	165.8	195	5.29	50 - 137				S
Benzo(g,h,i)perylene	163.2	33	165.8	74.75	53.3	50 - 130				
Benzo(k)fluoranthene	167.3	33	165.8	93.53	44.5	50 - 143				S
Benzyl alcohol	64.76	66	165.8	0	39.0	40 - 143				JS

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS22060154-01MS** Units: **ug/Kg** Analysis Date: **06-Jun-2022 12:01**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679580** PrepDate: **03-Jun-2022** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	103.5	66	165.8	0	62.4	50 - 120				
Bis(2-chloroethyl)ether	96.61	66	165.8	0	58.3	45 - 127				
Bis(2-chloroisopropyl)ether	109.6	66	165.8	0	66.1	50 - 120				
Bis(2-ethylhexyl)phthalate	217.9	66	165.8	119.6	59.3	21 - 148				
Butyl benzyl phthalate	154.8	66	165.8	0	93.3	50 - 136				
Carbazole	190.5	66	165.8	67.82	74.0	50 - 143				
Chrysene	242.2	33	165.8	195.7	28.1	50 - 130				S
Dibenz(a,h)anthracene	99.47	33	165.8	25.99	44.3	50 - 130				S
Dibenzofuran	145	33	165.8	27.45	70.9	50 - 125				
Diethyl phthalate	135.8	66	165.8	0	81.9	50 - 125				
Dimethyl phthalate	130.9	66	165.8	0	78.9	50 - 125				
Di-n-butyl phthalate	160.8	66	165.8	0	97.0	50 - 140				
Di-n-octyl phthalate	173.8	66	165.8	0	105	50 - 140				
Fluoranthene	435.4	33	165.8	555.6	-72.5	50 - 131				S
Fluorene	142.2	33	165.8	35.51	64.4	50 - 125				
Hexachlorobenzene	179.1	66	165.8	0	108	50 - 124				
Hexachlorobutadiene	135.7	66	165.8	0	81.8	50 - 125				
Hexachlorocyclopentadiene	26.39	66	165.8	0	15.9	45 - 135				JS
Hexachloroethane	112.5	66	165.8	0	67.8	45 - 125				
Indeno(1,2,3-cd)pyrene	114.9	33	165.8	98.39	9.97	45 - 139				S
Isophorone	94.77	66	165.8	0	57.1	45 - 130				
Naphthalene	121.6	33	165.8	23.48	59.1	50 - 125				
Nitrobenzene	107.7	66	165.8	0	64.9	50 - 125				
N-Nitrosodimethylamine	35.94	66	165.8	0	21.7	20 - 140				J
N-Nitrosodi-n-propylamine	98.64	66	165.8	0	59.5	45 - 120				
N-Nitrosodiphenylamine	131.5	66	165.8	0	79.3	50 - 130				
Pentachlorophenol	138.1	66	165.8	0	83.3	23 - 136				
Phenanthrene	354.5	33	165.8	490.1	-81.8	50 - 125				S
Phenol	53.26	66	165.8	0	32.1	45 - 130				JS
Pyrene	313.7	33	165.8	340.9	-16.4	45 - 130				S
Pyridine	77.85	66	165.8	0	46.9	15 - 120				
Surr: 2,4,6-Tribromophenol	*184.8*	*66*	*165.8*	*0*	*111*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*131.8*	*66*	*165.8*	*0*	*79.5*	*43 - 125*				
Surr: 2-Fluorophenol	*94.15*	*66*	*165.8*	*0*	*56.8*	*37 - 125*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS22060154-01MS** Units: **ug/Kg** Analysis Date: **06-Jun-2022 12:01**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679580** PrepDate: **03-Jun-2022** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*161.3*	*66*	*165.8*	*0*	*97.3*	*32 - 125*				
Surr: Nitrobenzene-d5	*76.46*	*66*	*165.8*	*0*	*46.1*	*37 - 125*				
Surr: Phenol-d6	*85.98*	*66*	*165.8*	*0*	*51.8*	*40 - 125*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS22060154-01MSD** Units: **ug/Kg** Analysis Date: **06-Jun-2022 12:22**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679581** PrepDate: **03-Jun-2022** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	165.5	66	166.1	0	99.7	50 - 120	135.2	20.2	30	
2,4,5-Trichlorophenol	103	66	166.1	0	62.0	45 - 127	67.47	41.7	30	R
2,4,6-Trichlorophenol	102.9	66	166.1	0	62.0	45 - 130	109	5.8	30	
2,4-Dichlorophenol	134.9	66	166.1	0	81.2	45 - 125	121.5	10.4	30	
2,4-Dimethylphenol	105.4	66	166.1	0	63.5	45 - 120	102.9	2.41	30	
2,4-Dinitrophenol	< 45	130	166.1	0	0	10 - 126	0	0	30	S
2,4-Dinitrotoluene	120.3	66	166.1	0	72.4	50 - 130	146.2	19.5	30	
2,6-Dinitrotoluene	162	66	166.1	0	97.5	50 - 125	131.1	21	30	
2-Chloronaphthalene	137	66	166.1	0	82.5	50 - 145	86.85	44.8	30	R
2-Chlorophenol	111.5	66	166.1	0	67.2	45 - 120	95.13	15.9	30	
2-Methylnaphthalene	166.8	33	166.1	0	100	50 - 120	120.8	32	30	R
2-Methylphenol	100.4	66	166.1	0	60.5	45 - 120	95.05	5.47	30	
2-Nitroaniline	139.2	66	166.1	0	83.8	45 - 138	109.9	23.6	30	
2-Nitrophenol	101.1	66	166.1	0	60.9	45 - 125	88.25	13.6	30	
3&4-Methylphenol	95.94	66	166.1	0	57.8	45 - 120	87.17	9.58	30	
3,3´-Dichlorobenzidine	105.7	66	166.1	0	63.6	15 - 120	54.97	63.1	30	R
3-Nitroaniline	146.8	66	166.1	0	88.4	40 - 120	136.7	7.16	30	
4,6-Dinitro-2-methylphenol	120.5	66	166.1	0	72.6	15 - 135	127.4	5.59	30	
4-Bromophenyl phenyl ether	173.8	66	166.1	0	105	50 - 125	154.7	11.6	30	
4-Chloro-3-methylphenol	106.8	66	166.1	0	64.3	45 - 130	92.12	14.7	30	
4-Chloroaniline	63.13	66	166.1	0	38.0	20 - 120	53	0	30	J
4-Chlorophenyl phenyl ether	161.7	66	166.1	0	97.4	50 - 120	132.2	20.1	30	
4-Nitroaniline	70.62	66	166.1	0	42.5	50 - 127	99.06	33.5	30	SR
4-Nitrophenol	166.8	130	166.1	0	100	40 - 147	183.8	9.69	30	
Acenaphthene	184	33	166.1	23	97.0	50 - 120	136.3	29.8	30	
Acenaphthylene	141.1	33	166.1	0	85.0	50 - 120	121	15.4	30	
Anthracene	212.6	33	166.1	77.39	81.4	50 - 123	180.5	16.3	30	
Benz(a)anthracene	291.4	33	166.1	152.5	83.6	40 - 140	202.1	36.2	30	R
Benzidine	15.02	66	166.1	0	9.04	10 - 120	20.89	0	30	JS
Benzo(a)pyrene	122.7	33	166.1	106.8	9.56	50 - 130	159.5	26.1	30	S
Benzo(b)fluoranthene	165.5	33	166.1	195	-17.8	50 - 137	203.8	20.7	30	S
Benzo(g,h,i)perylene	169	33	166.1	74.75	56.7	50 - 130	163.2	3.48	30	
Benzo(k)fluoranthene	178.4	33	166.1	93.53	51.1	50 - 143	167.3	6.46	30	
Benzyl alcohol	90.29	66	166.1	0	54.4	40 - 143	64.76	32.9	30	R

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS22060154-01MSD** Units: **ug/Kg** Analysis Date: **06-Jun-2022 12:22**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679581** PrepDate: **03-Jun-2022** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	114.6	66	166.1	0	69.0	50 - 120	103.5	10.2	30	
Bis(2-chloroethyl)ether	145.6	66	166.1	0	87.7	45 - 127	96.61	40.5	30	R
Bis(2-chloroisopropyl)ether	169.8	66	166.1	0	102	50 - 120	109.6	43.1	30	R
Bis(2-ethylhexyl)phthalate	283.7	66	166.1	119.6	98.8	21 - 148	217.9	26.2	30	
Butyl benzyl phthalate	189.1	66	166.1	0	114	50 - 136	154.8	20	30	
Carbazole	222.1	66	166.1	67.82	92.9	50 - 143	190.5	15.3	30	
Chrysene	311.8	33	166.1	195.7	69.9	50 - 130	242.2	25.1	30	
Dibenz(a,h)anthracene	117.7	33	166.1	25.99	55.2	50 - 130	99.47	16.8	30	
Dibenzofuran	181.4	33	166.1	27.45	92.7	50 - 125	145	22.3	30	
Diethyl phthalate	154.8	66	166.1	0	93.2	50 - 125	135.8	13.1	30	
Dimethyl phthalate	131.1	66	166.1	0	78.9	50 - 125	130.9	0.107	30	
Di-n-butyl phthalate	168.8	66	166.1	0	102	50 - 140	160.8	4.83	30	
Di-n-octyl phthalate	213.1	66	166.1	0	128	50 - 140	173.8	20.3	30	
Fluoranthene	527.5	33	166.1	555.6	-16.9	50 - 131	435.4	19.1	30	S
Fluorene	201.5	33	166.1	35.51	100.0	50 - 125	142.2	34.5	30	R
Hexachlorobenzene	187.4	66	166.1	0	113	50 - 124	179.1	4.54	30	
Hexachlorobutadiene	169.3	66	166.1	0	102	50 - 125	135.7	22	30	
Hexachlorocyclopentadiene	37.24	66	166.1	0	22.4	45 - 135	26.39	0	30	JS
Hexachloroethane	136.3	66	166.1	0	82.1	45 - 125	112.5	19.1	30	
Indeno(1,2,3-cd)pyrene	148	33	166.1	98.39	29.9	45 - 139	114.9	25.2	30	S
Isophorone	120.9	66	166.1	0	72.8	45 - 130	94.77	24.2	30	
Naphthalene	167.1	33	166.1	23.48	86.5	50 - 125	121.6	31.6	30	R
Nitrobenzene	125.5	66	166.1	0	75.6	50 - 125	107.7	15.3	30	
N-Nitrosodimethylamine	81.1	66	166.1	0	48.8	20 - 140	35.94	77.2	30	R
N-Nitrosodi-n-propylamine	122.2	66	166.1	0	73.6	45 - 120	98.64	21.4	30	
N-Nitrosodiphenylamine	154.8	66	166.1	0	93.2	50 - 130	131.5	16.2	30	
Pentachlorophenol	153.7	66	166.1	0	92.6	23 - 136	138.1	10.7	30	
Phenanthrene	485.6	33	166.1	490.1	-2.72	50 - 125	354.5	31.2	30	SR
Phenol	106.7	66	166.1	0	64.2	45 - 130	53.26	66.8	30	R
Pyrene	426.1	33	166.1	340.9	51.3	45 - 130	313.7	30.4	30	R
Pyridine	87.3	66	166.1	0	52.6	15 - 120	77.85	11.5	30	
Surr: 2,4,6-Tribromophenol	*122.6*	*66*	*166.1*	*0*	*73.8*	*36 - 126*	*184.8*	*40.5*	*30*	R
Surr: 2-Fluorobiphenyl	*152*	*66*	*166.1*	*0*	*91.5*	*43 - 125*	*131.8*	*14.2*	*30*	
Surr: 2-Fluorophenol	*117.9*	*66*	*166.1*	*0*	*71.0*	*37 - 125*	*94.15*	*22.4*	*30*	

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: 179558 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS22060154-01MSD** Units: **ug/Kg** Analysis Date: **06-Jun-2022 12:22**
Client ID: Run ID: **SV-7_410060** SeqNo: **6679581** PrepDate: **03-Jun-2022** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*192.2*	*66*	*166.1*	*0*	*116*	*32 - 125*	*161.3*	*17.5*	*30*	
Surr: Nitrobenzene-d5	*108.8*	*66*	*166.1*	*0*	*65.5*	*37 - 125*	*76.46*	*34.9*	*30*	R
Surr: Phenol-d6	*112.5*	*66*	*166.1*	*0*	*67.7*	*40 - 125*	*85.98*	*26.7*	*30*	

The following samples were analyzed in this batch: HS22060148-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410085 (0) **Instrument: VOA11** **Method: LOW LEVEL VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKM-220606** Units: **ug/L** Analysis Date: **06-Jun-2022 15:52**
Client ID: Run ID: **VOA11_410085** SeqNo: **6680678** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	< 10	50								
1,1,2,2-Tetrachloroethane	< 25	50								
1,1,2-Trichloroethane	< 15	50								
1,1-Dichloroethane	< 10	50								
1,1-Dichloroethene	< 10	50								
1,2-Dichlorobenzene	< 25	50								
1,2-Dichloroethane	< 10	50								
1,2-Dichloropropane	< 25	50								
1,3-Dichlorobenzene	< 20	50								
1,4-Dichlorobenzene	< 20	50								
2-Butanone	< 25	100								
2-Hexanone	< 50	100								
4-Methyl-2-pentanone	< 35	100								
Acetone	< 100	100								
Benzene	< 10	50								
Bromochloromethane	< 10	50								
Bromodichloromethane	< 10	50								
Bromoform	< 20	50								
Bromomethane	< 20	50								
Carbon disulfide	< 30	100								
Carbon tetrachloride	< 25	50								
Chlorobenzene	< 15	50								
Chloroethane	< 15	50								
Chloroform	< 10	50								
Chloromethane	< 10	50								
cis-1,2-Dichloroethene	< 10	50								
cis-1,3-Dichloropropene	< 5.0	50								
Dibromochloromethane	< 15	50								
Ethylbenzene	< 15	50								
m,p-Xylene	< 25	100								
Methylene chloride	< 50	100								
o-Xylene	< 15	50								
Styrene	< 15	50								
Tetrachloroethene	< 15	50								

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410085 (0) **Instrument: VOA11** **Method: LOW LEVEL VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKM-220606** Units: **ug/L** Analysis Date: **06-Jun-2022 15:52**
Client ID: Run ID: **VOA11_410085** SeqNo: **6680678** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	< 10	50								
trans-1,2-Dichloroethene	< 10	50								
trans-1,3-Dichloropropene	< 10	50								
Trichloroethene	< 10	50								
Vinyl acetate	< 25	50								
Vinyl chloride	< 10	50								
Xylenes, Total	< 15	50								
1,2-Dichloroethene, Total	< 10	50								
Surr: 1,2-Dichloroethane-d4	*2551*	*50*	*2500*	*0*	*102*	*70 - 123*				
Surr: 4-Bromofluorobenzene	*2502*	*50*	*2500*	*0*	*100*	*77 - 113*				
Surr: Dibromofluoromethane	*2381*	*50*	*2500*	*0*	*95.3*	*73 - 126*				
Surr: Toluene-d8	*2644*	*50*	*2500*	*0*	*106*	*81 - 120*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410085 (0) **Instrument: VOA11** **Method: LOW LEVEL VOLATILES BY SW8260C**

LCS Sample ID: **VLCSW-220606** Units: **ug/L** Analysis Date: **06-Jun-2022 15:30**
Client ID: Run ID: **VOA11_410085** SeqNo: **6680677** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.04	1.0	20	0	95.2	70 - 130				
1,1,2,2-Tetrachloroethane	20.59	1.0	20	0	103	70 - 120				
1,1,2-Trichloroethane	20.43	1.0	20	0	102	77 - 113				
1,1-Dichloroethane	20.25	1.0	20	0	101	71 - 122				
1,1-Dichloroethene	20.57	1.0	20	0	103	70 - 130				
1,2-Dichlorobenzene	20.09	1.0	20	0	100	77 - 113				
1,2-Dichloroethane	19.41	1.0	20	0	97.1	70 - 124				
1,2-Dichloropropane	21.36	1.0	20	0	107	72 - 119				
1,3-Dichlorobenzene	18.25	1.0	20	0	91.3	78 - 118				
1,4-Dichlorobenzene	20.18	1.0	20	0	101	79 - 113				
2-Butanone	44.65	2.0	40	0	112	70 - 130				
2-Hexanone	39.54	2.0	40	0	98.9	70 - 130				
4-Methyl-2-pentanone	36.18	2.0	40	0	90.5	70 - 130				
Acetone	42.47	2.0	40	0	106	70 - 130				
Benzene	19.2	1.0	20	0	96.0	74 - 120				
Bromochloromethane	20.09	1.0	20	0	100	76 - 124				
Bromodichloromethane	19.03	1.0	20	0	95.2	74 - 122				
Bromoform	16.34	1.0	20	0	81.7	73 - 128				
Bromomethane	16.27	1.0	20	0	81.4	70 - 130				
Carbon disulfide	39.96	2.0	40	0	99.9	70 - 130				
Carbon tetrachloride	18.13	1.0	20	0	90.7	71 - 125				
Chlorobenzene	20.23	1.0	20	0	101	76 - 113				
Chloroethane	15.49	1.0	20	0	77.4	70 - 130				
Chloroform	21.12	1.0	20	0	106	71 - 121				
Chloromethane	17.75	1.0	20	0	88.8	70 - 129				
cis-1,2-Dichloroethene	19.95	1.0	20	0	99.8	75 - 122				
cis-1,3-Dichloropropene	19.96	1.0	20	0	99.8	73 - 127				
Dibromochloromethane	18.31	1.0	20	0	91.5	77 - 122				
Ethylbenzene	20.5	1.0	20	0	102	77 - 117				
m,p-Xylene	36.81	2.0	40	0	92.0	77 - 122				
Methylene chloride	21.63	2.0	20	0	108	70 - 127				
o-Xylene	18.42	1.0	20	0	92.1	75 - 119				
Styrene	18.81	1.0	20	0	94.1	72 - 126				
Tetrachloroethene	19.78	1.0	20	0	98.9	76 - 119				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410085 (0) **Instrument: VOA11** **Method: LOW LEVEL VOLATILES BY SW8260C**

LCS Sample ID: **VLCSW-220606** Units: **ug/L** Analysis Date: **06-Jun-2022 15:30**
Client ID: Run ID: **VOA11_410085** SeqNo: **6680677** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	20.35	1.0	20	0	102	77 - 118				
trans-1,2-Dichloroethene	20.37	1.0	20	0	102	72 - 127				
trans-1,3-Dichloropropene	18.42	1.0	20	0	92.1	77 - 119				
Trichloroethene	20.34	1.0	20	0	102	77 - 121				
Vinyl acetate	40.83	1.0	40	0	102	70 - 130				
Vinyl chloride	15.31	1.0	20	0	76.5	70 - 130				
Xylenes, Total	55.23	1.0	60	0	92.1	75 - 122				
1,2-Dichloroethene, Total	40.32	1.0	40	0	101	72 - 127				
Surr: 1,2-Dichloroethane-d4	*49.72*	*1.0*	*50*	*0*	*99.4*	*70 - 123*				
Surr: 4-Bromofluorobenzene	*51.11*	*1.0*	*50*	*0*	*102*	*77 - 113*				
Surr: Dibromofluoromethane	*51.78*	*1.0*	*50*	*0*	*104*	*73 - 126*				
Surr: Toluene-d8	*50.12*	*1.0*	*50*	*0*	*100*	*81 - 120*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410085 (0) **Instrument: VOA11** **Method: LOW LEVEL VOLATILES BY SW8260C**

MS Sample ID: **HS22060173-08MS** Units: **ug/L** Analysis Date: **06-Jun-2022 18:07**
Client ID: Run ID: **VOA11_410085** SeqNo: **6680364** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.01	1.0	20	0	95.0	70 - 130				
1,1,2,2-Tetrachloroethane	22.75	1.0	20	0	114	70 - 123				
1,1,2-Trichloroethane	21.43	1.0	20	0	107	70 - 117				
1,1-Dichloroethane	20.3	1.0	20	0	102	70 - 127				
1,1-Dichloroethene	21.07	1.0	20	0	105	70 - 130				
1,2-Dichlorobenzene	21.25	1.0	20	0	106	70 - 115				
1,2-Dichloroethane	18.91	1.0	20	0	94.5	70 - 127				
1,2-Dichloropropane	21.33	1.0	20	0	107	70 - 122				
1,3-Dichlorobenzene	19.06	1.0	20	0	95.3	70 - 119				
1,4-Dichlorobenzene	21.03	1.0	20	0	105	70 - 114				
2-Butanone	49.02	2.0	40	0	123	70 - 130				
2-Hexanone	43.44	2.0	40	0	109	70 - 130				
4-Methyl-2-pentanone	39.71	2.0	40	0	99.3	70 - 130				
Acetone	43.65	2.0	40	0	109	70 - 130				
Benzene	18.94	1.0	20	0	94.7	70 - 127				
Bromochloromethane	20.14	1.0	20	0	101	70 - 127				
Bromodichloromethane	18.17	1.0	20	0	90.8	70 - 124				
Bromoform	16.31	1.0	20	0	81.6	70 - 129				
Bromomethane	16.09	1.0	20	0	80.5	70 - 130				
Carbon disulfide	37.9	2.0	40	0	94.7	70 - 130				
Carbon tetrachloride	18.08	1.0	20	0	90.4	70 - 130				
Chlorobenzene	20.65	1.0	20	0	103	70 - 114				
Chloroethane	15.8	1.0	20	0	79.0	70 - 130				
Chloroform	21.06	1.0	20	0	105	70 - 125				
Chloromethane	18.54	1.0	20	0	92.7	70 - 130				
cis-1,2-Dichloroethene	20.25	1.0	20	0	101	70 - 128				
cis-1,3-Dichloropropene	19.39	1.0	20	0	97.0	70 - 125				
Dibromochloromethane	17.99	1.0	20	0	89.9	70 - 124				
Ethylbenzene	20.74	1.0	20	0	104	70 - 124				
m,p-Xylene	37.43	2.0	40	0	93.6	70 - 130				
Methylene chloride	20.66	2.0	20	0	103	70 - 128				
o-Xylene	18.74	1.0	20	0	93.7	70 - 124				
Styrene	19.12	1.0	20	0	95.6	70 - 130				
Tetrachloroethene	19.84	1.0	20	0	99.2	70 - 130				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410085 (0) **Instrument: VOA11** **Method: LOW LEVEL VOLATILES BY SW8260C**

MS Sample ID: **HS22060173-08MS** Units: **ug/L** Analysis Date: **06-Jun-2022 18:07**
Client ID: Run ID: **VOA11_410085** SeqNo: **6680364** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Toluene	20.38	1.0	20	0	102	70 - 123			
trans-1,2-Dichloroethene	20.84	1.0	20	0	104	70 - 130			
trans-1,3-Dichloropropene	17.99	1.0	20	0	89.9	70 - 121			
Trichloroethene	19.88	1.0	20	0	99.4	70 - 129			
Vinyl acetate	40.43	1.0	40	0	101	70 - 130			
Vinyl chloride	16.39	1.0	20	0	82.0	70 - 130			
Xylenes, Total	56.16	1.0	60	0	93.6	70 - 130			
1,2-Dichloroethene, Total	41.09	1.0	40	0	103	70 - 130			
Surr: 1,2-Dichloroethane-d4	*49.49*	*1.0*	*50*	*0*	*99.0*	*70 - 126*			
Surr: 4-Bromofluorobenzene	*51.22*	*1.0*	*50*	*0*	*102*	*77 - 113*			
Surr: Dibromofluoromethane	*51.04*	*1.0*	*50*	*0*	*102*	*77 - 123*			
Surr: Toluene-d8	*49.5*	*1.0*	*50*	*0*	*99.0*	*82 - 127*			

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410085 (0) **Instrument: VOA11** **Method: LOW LEVEL VOLATILES BY SW8260C**

MSD Sample ID: **HS22060173-08MSD** Units: **ug/L** Analysis Date: **06-Jun-2022 18:30**
Client ID: Run ID: **VOA11_410085** SeqNo: **6680369** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1-Trichloroethane	17.25	1.0	20	0	86.2	70 - 130	19.01	9.7	20	
1,1,2,2-Tetrachloroethane	22.05	1.0	20	0	110	70 - 123	22.75	3.12	20	
1,1,2-Trichloroethane	19.87	1.0	20	0	99.4	70 - 117	21.43	7.53	20	
1,1-Dichloroethane	18.16	1.0	20	0	90.8	70 - 127	20.3	11.2	20	
1,1-Dichloroethene	19.25	1.0	20	0	96.2	70 - 130	21.07	9.05	20	
1,2-Dichlorobenzene	20.47	1.0	20	0	102	70 - 115	21.25	3.76	20	
1,2-Dichloroethane	17.03	1.0	20	0	85.1	70 - 127	18.91	10.5	20	
1,2-Dichloropropane	19.29	1.0	20	0	96.5	70 - 122	21.33	10	20	
1,3-Dichlorobenzene	18.2	1.0	20	0	91.0	70 - 119	19.06	4.61	20	
1,4-Dichlorobenzene	20.29	1.0	20	0	101	70 - 114	21.03	3.61	20	
2-Butanone	43.53	2.0	40	0	109	70 - 130	49.02	11.9	20	
2-Hexanone	41.84	2.0	40	0	105	70 - 130	43.44	3.76	20	
4-Methyl-2-pentanone	37.72	2.0	40	0	94.3	70 - 130	39.71	5.13	20	
Acetone	39.01	2.0	40	0	97.5	70 - 130	43.65	11.2	20	
Benzene	17.22	1.0	20	0	86.1	70 - 127	18.94	9.54	20	
Bromochloromethane	18.24	1.0	20	0	91.2	70 - 127	20.14	9.94	20	
Bromodichloromethane	16.52	1.0	20	0	82.6	70 - 124	18.17	9.54	20	
Bromoform	15.66	1.0	20	0	78.3	70 - 129	16.31	4.09	20	
Bromomethane	15.61	1.0	20	0	78.1	70 - 130	16.09	3.03	20	
Carbon disulfide	35.54	2.0	40	0	88.9	70 - 130	37.9	6.41	20	
Carbon tetrachloride	16.13	1.0	20	0	80.7	70 - 130	18.08	11.4	20	
Chlorobenzene	19.22	1.0	20	0	96.1	70 - 114	20.65	7.14	20	
Chloroethane	16.05	1.0	20	0	80.3	70 - 130	15.8	1.58	20	
Chloroform	18.98	1.0	20	0	94.9	70 - 125	21.06	10.4	20	
Chloromethane	18.43	1.0	20	0	92.2	70 - 130	18.54	0.591	20	
cis-1,2-Dichloroethene	18.03	1.0	20	0	90.2	70 - 128	20.25	11.6	20	
cis-1,3-Dichloropropene	17.38	1.0	20	0	86.9	70 - 125	19.39	11	20	
Dibromochloromethane	16.93	1.0	20	0	84.6	70 - 124	17.99	6.07	20	
Ethylbenzene	19.15	1.0	20	0	95.7	70 - 124	20.74	8	20	
m,p-Xylene	35.19	2.0	40	0	88.0	70 - 130	37.43	6.17	20	
Methylene chloride	18.76	2.0	20	0	93.8	70 - 128	20.66	9.64	20	
o-Xylene	17.51	1.0	20	0	87.6	70 - 124	18.74	6.77	20	
Styrene	17.51	1.0	20	0	87.6	70 - 130	19.12	8.74	20	
Tetrachloroethene	18	1.0	20	0	90.0	70 - 130	19.84	9.72	20	

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410085 (0) **Instrument: VOA11** **Method: LOW LEVEL VOLATILES BY SW8260C**

MSD Sample ID: **HS22060173-08MSD** Units: **ug/L** Analysis Date: **06-Jun-2022 18:30**
Client ID: Run ID: **VOA11_410085** SeqNo: **6680369** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	19.27	1.0	20	0	96.4	70 - 123	20.38	5.62	20	
trans-1,2-Dichloroethene	18.48	1.0	20	0	92.4	70 - 130	20.84	12	20	
trans-1,3-Dichloropropene	16.09	1.0	20	0	80.4	70 - 121	17.99	11.1	20	
Trichloroethene	17.97	1.0	20	0	89.9	70 - 129	19.88	10.1	20	
Vinyl acetate	36.71	1.0	40	0	91.8	70 - 130	40.43	9.65	20	
Vinyl chloride	16.57	1.0	20	0	82.8	70 - 130	16.39	1.04	20	
Xylenes, Total	52.7	1.0	60	0	87.8	70 - 130	56.16	6.37	20	
1,2-Dichloroethene, Total	36.51	1.0	40	0	91.3	70 - 130	41.09	11.8	20	
Surr: 1,2-Dichloroethane-d4	*50.62*	*1.0*	*50*	*0*	*101*	*70 - 126*	*49.49*	*2.25*	*20*	
Surr: 4-Bromofluorobenzene	*50.3*	*1.0*	*50*	*0*	*101*	*77 - 113*	*51.22*	*1.8*	*20*	
Surr: Dibromofluoromethane	*51.37*	*1.0*	*50*	*0*	*103*	*77 - 123*	*51.04*	*0.633*	*20*	
Surr: Toluene-d8	*51.53*	*1.0*	*50*	*0*	*103*	*82 - 127*	*49.5*	*4.02*	*20*	

The following samples were analyzed in this batch: HS22060148-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R409965 (0) **Instrument:** WetChem_HS **Method:** PH SOIL BY SW9045D

DUP Sample ID: **HS22051402-01DUP** Units: **pH Units** Analysis Date: **03-Jun-2022 14:48**
Client ID: Run ID: **WetChem_HS_409965** SeqNo: **6677428** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.83	0.100					7.98	1.9	10	
Temp Deg C @pH	21.7	0					21.9	0.917	10	

The following samples were analyzed in this batch: HS22060148-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410051 (0) **Instrument: WetChem_HS** **Method: BURN RATE BY METHOD SW1030**

DUP Sample ID: **HS22060254-01DUP** Units: **Burn Rate, mm/sec** Analysis Date: **06-Jun-2022 11:00**
Client ID: Run ID: **WetChem_HS_410051** SeqNo: **6679242** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability, Solid	0	0					0	0	25	

The following samples were analyzed in this batch: HS22060148-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410054 (0) **Instrument: WetChem_HS** **Method: REACTIVE SULFIDE**

MBLK Sample ID: **MBLK-R410054** Units: **mg/Kg** Analysis Date: **06-Jun-2022 12:30**
Client ID: Run ID: **WetChem_HS_410054** SeqNo: **6679259** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Reactive Sulfide	< 100	100								

LCS Sample ID: **LCS-R410054** Units: **mg/Kg** Analysis Date: **06-Jun-2022 12:30**
Client ID: Run ID: **WetChem_HS_410054** SeqNo: **6679258** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Reactive Sulfide	65.6	100	100	0	65.6	20 - 120				J

MS Sample ID: **HS22060148-01MS** Units: **mg/Kg** Analysis Date: **06-Jun-2022 12:30**
Client ID: **SO-1620-WR008351-20220602** Run ID: **WetChem_HS_410054** SeqNo: **6679260** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Reactive Sulfide	61.6	100	100	0	61.6	20 - 120				J

The following samples were analyzed in this batch: HS22060148-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS22060148

QC BATCH REPORT

Batch ID: R410059 (0) **Instrument: UV-2450** **Method: REACTIVE CYANIDE**

MBLK Sample ID: **MBLK-R410059** Units: **mg/Kg** Analysis Date: **06-Jun-2022 14:10**
Client ID: Run ID: **UV-2450_410059** SeqNo: **6679331** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Reactive Cyanide	< 100	100								

LCS Sample ID: **LCS-R410059** Units: **mg/Kg** Analysis Date: **06-Jun-2022 14:10**
Client ID: Run ID: **UV-2450_410059** SeqNo: **6679330** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Reactive Cyanide	0.65	100	10	0	6.50	5 - 100				J

MS Sample ID: **HS22060148-01MS** Units: **mg/Kg** Analysis Date: **06-Jun-2022 14:10**
Client ID: **SO-1620-WR008351-20220602** Run ID: **UV-2450_410059** SeqNo: **6679332** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Reactive Cyanide	0.66	100	10	0	6.60	5 - 100				J

The following samples were analyzed in this batch: HS22060148-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: **HS22060148**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/Kg	Milligrams per Kilogram

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-34	30-Jun-2022
Illinois	2000322022-9	09-May-2023
Kansas	E-10352 2021-2022	31-Jul-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Maryland	343, 2021-2022	30-Jun-2022
North Carolina	624-2022	31-Dec-2022
Oklahoma	2021-080	31-Aug-2022
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932021-12	30-Jul-2022

Sample Receipt Checklist

Work Order ID: HS22060148 **Date/Time Received:** **02-Jun-2022 14:36**

Client Name: PBW **Received by:** **Paresh M. Giga**

Completed By: */S/ Paresh M. Giga* (eSignature) 02-Jun-2022 15:03 (Date/Time) **Reviewed by:** */S/ Dane J. Wacasey* (eSignature) 06-Jun-2022 14:55 (Date/Time)

Matrices: **Solid** Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:271092
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	0.4C/0.9C U/c	IR31	
Cooler(s)/Kit(s):	48900		
Date/Time sample(s) sent to storage:	6/2/22 15:10		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070

Chain of Custody Form

Page ____ of ____

COC ID: 271092

HS22060148

WSP Golder

Houston TX-Wood Preserving Works IDW

Customer Information		Project Information		ALS Project Manager:	
Purchase Order	TBD/Kevin Peterburs 1620-29	Project Name	IDWS Houston TX-Wood Preserving Works	A	8260_S (5632528 Volatile Organics (IDWS)) [4oz-share]
Work Order		Project Number	1620-29-Rev0 SR 92688	B	TX1005_S_REV3 (5643233 (TX1005) TPH (IDWS)) [4oz-share]
Company Name	Golder Associates Inc.	Bill To Company	Union Pacific Railroad- A/P	C	8270_LOW_S (5632532 SVOC (IDWS))
Send Report To	Eric Matzner	Invoice Attn	Accounts Payable	D	RCRA 8 Metals Plus Sb, Be & Ni (IDWS)
Address	2201 Double Creek Drive Suite 4004	Address	1400 Douglas Street Stop 0750	E	RCN_S (5652638 Reactive Cyanide (RCI) (IDWS))
City/State/Zip	Round Rock, TX 78664	City/State/Zip	Omaha NE 681790750	F	RS_S (5652638 Reactive Sulfide (RCI) (IDWS))
Phone	(512) 671-3434	Phone		G	PH_S (5632436 pH (RCI) (IDWS))
Fax	(512) 671-3446	Fax		H	IGN_S 1030 (5652637 Ignitability - RCI (IDWS))
e-Mail Address	Eric_Matzner@golder.com	e-Mail Address		I	CONTINGENCY (Hold TCLP pending Total Results (IDWS))
				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SO-1620-WRock3-20220602	06/02/22	13:30	Soil	8,9	3	X	X	X	X	X	X	X	X	X		
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: XANDER MILLAR

Shipment Method:

Required Turnaround Time: (Check Box) ☒ STD 10 Wk Days ☐ 5 Wk Days ☒ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by: XANDER MILLAR Date: 06/02/22 Time: 14:36

Received by:

Relinquished by: Date: Time:

Received by (Laboratory): 6/2/22 14:36

Logged by (Laboratory): Date: Time:

Checked by (Laboratory):

Notes: UPRR HWPW 1620-29

Cooler ID	Cooler Temp.
48Poo	0.4
	4.5

QC Package: (Check One Box Below)

- ☒ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other
- ☐ TRRP Checklist
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: TXD000820366
2. Page 1 of: 1
3. Emergency Response Phone: 888-877-7267
4. Manifest Tracking Number: 017115133 FLE

GENERATOR

5. Generator's Name and Mailing Address: UPRR C/O GHS Attn: Manifest Receiving 6520 Corporate Drive Indianapolis, IN 46278 (HH) 267-4164
Generator's Phone:

Generator's Site Address (if different than mailing address): UPRR 4910 Liberty Road Houston, TX 77026

6. Transporter 1 Company Name: OMI
U.S. EPA ID Number: LAD980870018

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address: Blue Ridge Landfill 2200 Fm 521 Fresno, TX 77545 (281) 835-6142
Facility's Phone:
U.S. EPA ID Number: TXD000084592

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. NON-DOT Regulated material (Tarry Sludge and Soil)	11	DM	100	P	1488	4091	
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
WR#D0B351 - 221030
Profile#5112224394
P/O# 22012251

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Stephanie Parker
Signature: Stephanie Parker
Month: 6 Day: 14 Year: 22

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Garrett Weatherly
Signature:
Month: 6 Day: 14 Year: 22

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
Facility's Phone:
U.S. EPA ID Number:

Republic Services
FM 521 (PO BOX 879)
Fresno, TX 77545

JUN 14 2022

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	
H132			

Blue Ridge Landfill
Permit# 1505A
SWR# 4.89429

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: DeiMan Briggs
Signature:
Month: 6 Day: 14 Year: 22

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Please print or type. Pick up Truck #9656 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: TXD000820266 | 2. Page 1 of: 1 | 3. Emergency Response Phone: 888-877-7267 | 4. Manifest Tracking Number: 017115143 FLE

5. Generator's Name and Mailing Address: UPRR c/o HMS ATTN: Manifest Receiving, 6520 Corporate Drive, Indianapolis IN 46278
Generator's Phone: (414) 267-4164

Generator's Site Address (if different than mailing address): UPRR, 4910 Liberty Road, Houston, TX 77026

6. Transporter 1 Company Name: OMI (ST 8695D) | U.S. EPA ID Number: LAD980870016

7. Transporter 2 Company Name | U.S. EPA ID Number

8. Designated Facility Name and Site Address: Blue Ridge Landfill, 2200 Fm 521, Fresno TX 77545 (281) 835-6142
Facility's Phone: | U.S. EPA ID Number

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON DOT Regulated material (Tarry Sludge and Soil)	1	DM	55	gal.	K088 4891
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
WR# 011232 - Job# 221030
Profile# 5112224394

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Stephanie Wood | Signature: Stephanie Wood | Month Day Year:

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: John F. Clement | Signature: John F. Clement | Month Day Year: 09 07 22

Transporter 2 Printed/Typed Name | Signature | Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator) | U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) | Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Hailey Wilson | Signature: HW | Month Day Year: 10 7 22

SOLID | BROWN

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: TXD000820266
2. Page 1 of: 1
3. Emergency Response Phone: 888-877-7267
4. Manifest Tracking Number: 017115172 FLE

GENERATOR

5. Generator's Name and Mailing Address
Union Pacific Railroad C/O GHD Services, Inc.
6520 Corporate Drive
Indianapolis, IN 46278
Generator's Phone: 414-267-4164

Generator's Site Address (if different than mailing address)
Union Pacific Railroad
4910 Liberty Road
Houston, TX 77026

6. Transporter 1 Company Name: FELS
U.S. EPA ID Number: TXR[illegible]

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Blue Ridge Landfill
1200 FM 521 Fresno, TX 77545
Facility's Phone: 281-835-6142
U.S. EPA ID Number

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. Non Dot Regulated Material (Tarry Sludge and Soil)	1	DM	45	lbs	1488	4891	
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
WR#012429
Profile # 5112224394

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Tyler A Parker
Signature:
Month: 12 Day: 6 Year: 22

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name
Signature
Month: Day: Year:

Transporter 2 Printed/Typed Name
Signature
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

Republic Services
2200 FM 521 (PO BOX 879)
Fresno, TX 77545

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone: NOW FREE LEGENDS 4910 LIBERTY RD HOUSTON TX 77026

DEC 06 2022

Blue Ridge Landfill
Permit# 1505A
SWR# 89429

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Jamie Villarreal
Signature:
Month: 12 Day: 6 Year: 22

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

TRANSPORTER COPY

Solid / Brown

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 29, 2021

Eric Matzner
Golder Associates Inc.
2201 Double Creek Drive
Suite 4004
Round Rock, TX 78664

Work Order: **HS21110636**

Laboratory Results for: **Houston TX-Wood Preserving Works IDW**

Dear Eric Matzner,

ALS Environmental received 1 sample(s) on Nov 10, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Dane J. Wacasey

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
Work Order: HS21110636

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21110636-01	WW-1620-SUMP-20211110	Water		10-Nov-2021 15:15	10-Nov-2021 17:24	☐

Client: Golder Associates Inc. **CASE NARRATIVE**
Project: Houston TX-Wood Preserving Works IDW
Work Order: HS21110636

Work Order Comments

• Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.

The temperature at the time of pH is reported. Please note that all pH results are already normalized to a temperature of 25 °C.

GC Semivolatiles by Method TX1005

Batch ID: 172716

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Semivolatiles by Method SW8270

Batch ID: 172448

Sample ID: LCSD-172448

• The RPD between the LCS and LCSD was outside of the control limit.

GCMS Volatiles by Method SW8260

Batch ID: R396370

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A

Batch ID: 172803

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW7470A

Batch ID: 172794

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9040C

Batch ID: R396402

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW1010

Batch ID: R396095

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Golder Associates Inc.
ANALYTICAL REPORT
Project: Houston TX-Wood Preserving Works IDW
WorkOrder:HS21110636
Sample ID: WW-1620-SUMP-20211110
Lab ID:HS21110636-01
Collection Date: 10-Nov-2021 15:15
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C	**Method:SW8260**						Analyst: AKP
1,1,1-Trichloroethane	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
1,1,2,2-Tetrachloroethane	< 0.00050		0.00050	0.0010	mg/L	1	24-Nov-2021 02:54
1,1,2-Trichloroethane	< 0.00030		0.00030	0.0010	mg/L	1	24-Nov-2021 02:54
1,1-Dichloroethane	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
1,1-Dichloroethene	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
1,2-Dichlorobenzene	< 0.00050		0.00050	0.0010	mg/L	1	24-Nov-2021 02:54
1,2-Dichloroethane	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
1,2-Dichloropropane	< 0.00050		0.00050	0.0010	mg/L	1	24-Nov-2021 02:54
1,3-Dichlorobenzene	< 0.00040		0.00040	0.0010	mg/L	1	24-Nov-2021 02:54
1,4-Dichlorobenzene	< 0.00040		0.00040	0.0010	mg/L	1	24-Nov-2021 02:54
2-Butanone	< 0.00050		0.00050	0.0020	mg/L	1	24-Nov-2021 02:54
2-Hexanone	< 0.0010		0.0010	0.0020	mg/L	1	24-Nov-2021 02:54
4-Methyl-2-pentanone	< 0.00070		0.00070	0.0020	mg/L	1	24-Nov-2021 02:54
Acetone	< 0.0020		0.0020	0.0020	mg/L	1	24-Nov-2021 02:54
Benzene	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
Bromochloromethane	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
Bromodichloromethane	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
Bromoform	< 0.00040		0.00040	0.0010	mg/L	1	24-Nov-2021 02:54
Bromomethane	< 0.00040		0.00040	0.0010	mg/L	1	24-Nov-2021 02:54
Carbon disulfide	< 0.00060		0.00060	0.0020	mg/L	1	24-Nov-2021 02:54
Carbon tetrachloride	< 0.00050		0.00050	0.0010	mg/L	1	24-Nov-2021 02:54
Chlorobenzene	< 0.00030		0.00030	0.0010	mg/L	1	24-Nov-2021 02:54
Chloroethane	< 0.00030		0.00030	0.0010	mg/L	1	24-Nov-2021 02:54
Chloroform	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
Chloromethane	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
cis-1,2-Dichloroethene	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
cis-1,3-Dichloropropene	< 0.00010		0.00010	0.0010	mg/L	1	24-Nov-2021 02:54
Dibromochloromethane	< 0.00030		0.00030	0.0010	mg/L	1	24-Nov-2021 02:54
Ethylbenzene	< 0.00030		0.00030	0.0010	mg/L	1	24-Nov-2021 02:54
m,p-Xylene	< 0.00050		0.00050	0.0020	mg/L	1	24-Nov-2021 02:54
Methylene chloride	< 0.0010		0.0010	0.0020	mg/L	1	24-Nov-2021 02:54
o-Xylene	< 0.00030		0.00030	0.0010	mg/L	1	24-Nov-2021 02:54
Styrene	< 0.00030		0.00030	0.0010	mg/L	1	24-Nov-2021 02:54
Tetrachloroethene	< 0.00030		0.00030	0.0010	mg/L	1	24-Nov-2021 02:54
Toluene	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
trans-1,2-Dichloroethene	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
trans-1,3-Dichloropropene	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
Trichloroethene	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
Vinyl acetate	< 0.00050		0.00050	0.0010	mg/L	1	24-Nov-2021 02:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
ANALYTICAL REPORT
Project: Houston TX-Wood Preserving Works IDW
WorkOrder:HS21110636
Sample ID: WW-1620-SUMP-20211110
Lab ID:HS21110636-01
Collection Date: 10-Nov-2021 15:15
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C	**Method:SW8260**						Analyst: AKP
Vinyl chloride	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
Xylenes, Total	< 0.00030		0.00030	0.0010	mg/L	1	24-Nov-2021 02:54
1,2-Dichloroethene, Total	< 0.00020		0.00020	0.0010	mg/L	1	24-Nov-2021 02:54
Surr: 1,2-Dichloroethane-d4	*97.9*			*70-126*	*%REC*	*1*	*24-Nov-2021 02:54*
Surr: 4-Bromofluorobenzene	*95.2*			*81-113*	*%REC*	*1*	*24-Nov-2021 02:54*
Surr: Dibromofluoromethane	*96.0*			*77-123*	*%REC*	*1*	*24-Nov-2021 02:54*
Surr: Toluene-d8	*104*			*82-127*	*%REC*	*1*	*24-Nov-2021 02:54*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
Sample ID: WW-1620-SUMP-20211110
Collection Date: 10-Nov-2021 15:15

ANALYTICAL REPORT
WorkOrder:HS21110636
Lab ID:HS21110636-01
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D	**Method:SW8270**				Prep:SW3510 / 12-Nov-2021		Analyst: GEY
1,2,4-Trichlorobenzene	< 0.000030		0.000030	0.00020	mg/L	1	26-Nov-2021 14:33
2,4,5-Trichlorophenol	< 0.000057		0.000057	0.00020	mg/L	1	26-Nov-2021 14:33
2,4,6-Trichlorophenol	< 0.000048		0.000048	0.00020	mg/L	1	26-Nov-2021 14:33
2,4-Dichlorophenol	< 0.000043		0.000043	0.00020	mg/L	1	26-Nov-2021 14:33
2,4-Dimethylphenol	< 0.000040		0.000040	0.00020	mg/L	1	26-Nov-2021 14:33
2,4-Dinitrophenol	< 0.00010		0.00010	0.0010	mg/L	1	26-Nov-2021 14:33
2,4-Dinitrotoluene	< 0.000058		0.000058	0.00020	mg/L	1	26-Nov-2021 14:33
2,6-Dinitrotoluene	< 0.000042		0.000042	0.00020	mg/L	1	26-Nov-2021 14:33
2-Chloronaphthalene	< 0.000021		0.000021	0.00020	mg/L	1	26-Nov-2021 14:33
2-Chlorophenol	< 0.000036		0.000036	0.00020	mg/L	1	26-Nov-2021 14:33
2-Methylnaphthalene	< 0.000019		0.000019	0.00010	mg/L	1	26-Nov-2021 14:33
2-Methylphenol	< 0.000045		0.000045	0.00020	mg/L	1	26-Nov-2021 14:33
2-Nitroaniline	< 0.000041		0.000041	0.00020	mg/L	1	26-Nov-2021 14:33
2-Nitrophenol	< 0.000034		0.000034	0.00020	mg/L	1	26-Nov-2021 14:33
3&4-Methylphenol	< 0.000036		0.000036	0.00020	mg/L	1	26-Nov-2021 14:33
3,3´-Dichlorobenzidine	< 0.000044		0.000044	0.00020	mg/L	1	26-Nov-2021 14:33
3-Nitroaniline	< 0.000049		0.000049	0.00020	mg/L	1	26-Nov-2021 14:33
4,6-Dinitro-2-methylphenol	< 0.000020		0.000020	0.00020	mg/L	1	26-Nov-2021 14:33
4-Bromophenyl phenyl ether	< 0.000051		0.000051	0.00020	mg/L	1	26-Nov-2021 14:33
4-Chloro-3-methylphenol	< 0.000032		0.000032	0.00020	mg/L	1	26-Nov-2021 14:33
4-Chloroaniline	< 0.000039		0.000039	0.00020	mg/L	1	26-Nov-2021 14:33
4-Chlorophenyl phenyl ether	< 0.000044		0.000044	0.00020	mg/L	1	26-Nov-2021 14:33
4-Nitroaniline	< 0.000035		0.000035	0.00020	mg/L	1	26-Nov-2021 14:33
4-Nitrophenol	< 0.000047		0.000047	0.0010	mg/L	1	26-Nov-2021 14:33
Acenaphthene	**0.0013**		**0.000027**	**0.00010**	**mg/L**	1	26-Nov-2021 14:33
Acenaphthylene	**0.000018**	J	**0.000015**	**0.00010**	**mg/L**	1	26-Nov-2021 14:33
Anthracene	< 0.000014		0.000014	0.00010	mg/L	1	26-Nov-2021 14:33
Benz(a)anthracene	< 0.000050		0.000050	0.00010	mg/L	1	26-Nov-2021 14:33
Benzidine	< 0.00010		0.00010	0.00020	mg/L	1	26-Nov-2021 14:33
Benzo(a)pyrene	< 0.000020		0.000020	0.00010	mg/L	1	26-Nov-2021 14:33
Benzo(b)fluoranthene	< 0.000023		0.000023	0.00010	mg/L	1	26-Nov-2021 14:33
Benzo(g,h,i)perylene	< 0.000014		0.000014	0.00010	mg/L	1	26-Nov-2021 14:33
Benzo(k)fluoranthene	< 0.000019		0.000019	0.00010	mg/L	1	26-Nov-2021 14:33
Benzyl alcohol	< 0.000054		0.000054	0.00020	mg/L	1	26-Nov-2021 14:33
Bis(2-chloroethoxy)methane	< 0.000030		0.000030	0.00020	mg/L	1	26-Nov-2021 14:33
Bis(2-chloroethyl)ether	< 0.000026		0.000026	0.00020	mg/L	1	26-Nov-2021 14:33
Bis(2-chloroisopropyl)ether	< 0.000070		0.000070	0.00020	mg/L	1	26-Nov-2021 14:33
Bis(2-ethylhexyl)phthalate	**0.0010**		**0.000037**	**0.00020**	**mg/L**	1	26-Nov-2021 14:33
Butyl benzyl phthalate	< 0.000019		0.000019	0.00020	mg/L	1	26-Nov-2021 14:33

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
Sample ID: WW-1620-SUMP-20211110
Collection Date: 10-Nov-2021 15:15

ANALYTICAL REPORT
WorkOrder:HS21110636
Lab ID:HS21110636-01
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D	**Method:SW8270**				Prep:SW3510 / 12-Nov-2021		Analyst: GEY
Carbazole	< 0.000025		0.000025	0.00020	mg/L	1	26-Nov-2021 14:33
Chrysene	< 0.000021		0.000021	0.00010	mg/L	1	26-Nov-2021 14:33
Di-n-butyl phthalate	< 0.000020		0.000020	0.00020	mg/L	1	26-Nov-2021 14:33
Di-n-octyl phthalate	< 0.000020		0.000020	0.00020	mg/L	1	26-Nov-2021 14:33
Dibenz(a,h)anthracene	< 0.000024		0.000024	0.00010	mg/L	1	26-Nov-2021 14:33
Dibenzofuran	**0.000022**	J	**0.000020**	**0.00010**	**mg/L**	1	26-Nov-2021 14:33
Diethyl phthalate	< 0.000030		0.000030	0.00020	mg/L	1	26-Nov-2021 14:33
Dimethyl phthalate	< 0.000041		0.000041	0.00020	mg/L	1	26-Nov-2021 14:33
Fluoranthene	**0.00032**		**0.000010**	**0.00010**	**mg/L**	1	26-Nov-2021 14:33
Fluorene	< 0.000030		0.000030	0.00010	mg/L	1	26-Nov-2021 14:33
Hexachlorobenzene	< 0.000044		0.000044	0.00020	mg/L	1	26-Nov-2021 14:33
Hexachlorobutadiene	< 0.000030		0.000030	0.00020	mg/L	1	26-Nov-2021 14:33
Hexachlorocyclopentadiene	< 0.000030		0.000030	0.00020	mg/L	1	26-Nov-2021 14:33
Hexachloroethane	< 0.000059		0.000059	0.00020	mg/L	1	26-Nov-2021 14:33
Indeno(1,2,3-cd)pyrene	< 0.000022		0.000022	0.00010	mg/L	1	26-Nov-2021 14:33
Isophorone	< 0.000025		0.000025	0.00020	mg/L	1	26-Nov-2021 14:33
N-Nitrosodi-n-propylamine	< 0.000032		0.000032	0.00020	mg/L	1	26-Nov-2021 14:33
N-Nitrosodimethylamine	< 0.00010		0.00010	0.00020	mg/L	1	26-Nov-2021 14:33
N-Nitrosodiphenylamine	< 0.000025		0.000025	0.00020	mg/L	1	26-Nov-2021 14:33
Naphthalene	< 0.000020		0.000020	0.00010	mg/L	1	26-Nov-2021 14:33
Nitrobenzene	< 0.000024		0.000024	0.00020	mg/L	1	26-Nov-2021 14:33
Pentachlorophenol	< 0.000079		0.000079	0.00020	mg/L	1	26-Nov-2021 14:33
Phenanthrene	< 0.000021		0.000021	0.00010	mg/L	1	26-Nov-2021 14:33
Phenol	< 0.000035		0.000035	0.00020	mg/L	1	26-Nov-2021 14:33
Pyrene	**0.000078**	J	**0.000019**	**0.00010**	**mg/L**	1	26-Nov-2021 14:33
Pyridine	< 0.000030		0.000030	0.0010	mg/L	1	26-Nov-2021 14:33
Surr: 2,4,6-Tribromophenol	*104*			*34-129*	*%REC*	*1*	*26-Nov-2021 14:33*
Surr: 2-Fluorobiphenyl	*96.8*			*40-125*	*%REC*	*1*	*26-Nov-2021 14:33*
Surr: 2-Fluorophenol	*103*			*20-120*	*%REC*	*1*	*26-Nov-2021 14:33*
Surr: 4-Terphenyl-d14	*94.1*			*40-135*	*%REC*	*1*	*26-Nov-2021 14:33*
Surr: Nitrobenzene-d5	*84.4*			*41-120*	*%REC*	*1*	*26-Nov-2021 14:33*
Surr: Phenol-d6	*86.7*			*20-120*	*%REC*	*1*	*26-Nov-2021 14:33*
LOW-LEVEL TEXAS TPH BY TX1005	**Method:TX1005**				Prep:TX1005PR / 19-Nov-2021		Analyst: SAM
nC6 to nC12	< 0.19		0.19	0.48	mg/L	1	20-Nov-2021 03:37
>nC12 to nC28	< 0.19		0.19	0.48	mg/L	1	20-Nov-2021 03:37
>nC28 to nC35	< 0.19		0.19	0.48	mg/L	1	20-Nov-2021 03:37
Total Petroleum Hydrocarbon	< 0.19		0.19	0.48	mg/L	1	20-Nov-2021 03:37
Surr: 2-Fluorobiphenyl	*82.3*			*70-130*	*%REC*	*1*	*20-Nov-2021 03:37*
Surr: Trifluoromethyl benzene	*95.9*			*70-130*	*%REC*	*1*	*20-Nov-2021 03:37*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
Sample ID: WW-1620-SUMP-20211110
Collection Date: 10-Nov-2021 15:15

ANALYTICAL REPORT
WorkOrder:HS21110636
Lab ID:HS21110636-01
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 22-Nov-2021		Analyst: JHD
Antimony	**0.00320**		**0.000400**	**0.00200**	**mg/L**	1	23-Nov-2021 21:53
Arsenic	**0.00957**		**0.000400**	**0.00200**	**mg/L**	1	23-Nov-2021 21:53
Barium	**0.0897**		**0.00190**	**0.00400**	**mg/L**	1	23-Nov-2021 21:53
Beryllium	< 0.000200		0.000200	0.00200	mg/L	1	23-Nov-2021 21:53
Cadmium	**0.000308**	J	**0.000200**	**0.00200**	**mg/L**	1	23-Nov-2021 21:53
Chromium	**0.00599**		**0.000400**	**0.00400**	**mg/L**	1	23-Nov-2021 21:53
Lead	**0.0366**		**0.000600**	**0.00200**	**mg/L**	1	23-Nov-2021 21:53
Nickel	**0.0109**		**0.000600**	**0.00200**	**mg/L**	1	23-Nov-2021 21:53
Selenium	< 0.00110		0.00110	0.00200	mg/L	1	23-Nov-2021 21:53
Silver	< 0.000200		0.000200	0.00200	mg/L	1	23-Nov-2021 21:53
MERCURY BY SW7470A		**Method:SW7470A**			Prep:SW7470A / 22-Nov-2021		Analyst: MSC
Mercury	< 0.0000300		0.0000300	0.000200	mg/L	1	22-Nov-2021 16:43
FLASH POINT BY PENSKY-MARTENS SW1010A		**Method:SW1010**					Analyst: TH
Ignitability	> 212		70.0	70.0	°F	1	19-Nov-2021 14:00
PH BY SW9040C		**Method:SW9040C**					Analyst: SH
pH	**8.54**	H	**0.100**	**0.100**	**pH Units**	1	24-Nov-2021 13:00
Temp Deg C @pH	**22.0**	H	**0**	**0**	**DEG C**	1	24-Nov-2021 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

Batch ID: 172448 **Start Date:** 12 Nov 2021 08:30 **End Date:** 12 Nov 2021 14:30
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_LOW

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21110636-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 172716 **Start Date:** 19 Nov 2021 10:15 **End Date:** 19 Nov 2021 13:03
Method: TX 1005 PREP **Prep Code:** TX 1005_W PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21110636-01	1	30.97 (g)	3 (mL)	0.09687	40 mL VOA w/ HCL

Batch ID: 172794 **Start Date:** 22 Nov 2021 08:30 **End Date:** 22 Nov 2021 11:30
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21110636-01		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 172803 **Start Date:** 22 Nov 2021 12:00 **End Date:** 22 Nov 2021 16:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21110636-01		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 172448 (0)	**Test Name :** LOW-LEVEL SEMIVOLATILES BY 8270D				**Matrix:** Water	
HS21110636-01	WW-1620-SUMP-20211110	10 Nov 2021 15:15		12 Nov 2021 12:06	26 Nov 2021 14:33	1
Batch ID: 172716 (0)	**Test Name :** LOW-LEVEL TEXAS TPH BY TX1005				**Matrix:** Water	
HS21110636-01	WW-1620-SUMP-20211110	10 Nov 2021 15:15		19 Nov 2021 10:15	20 Nov 2021 03:37	1
Batch ID: 172794 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Water	
HS21110636-01	WW-1620-SUMP-20211110	10 Nov 2021 15:15		22 Nov 2021 08:30	22 Nov 2021 16:43	1
Batch ID: 172803 (0)	**Test Name :** ICP-MS METALS BY SW6020A				**Matrix:** Water	
HS21110636-01	WW-1620-SUMP-20211110	10 Nov 2021 15:15		22 Nov 2021 16:00	23 Nov 2021 21:53	1
Batch ID: R396095 (0)	**Test Name :** FLASH POINT BY PENSKY-MARTENS SW1010A				**Matrix:** Water	
HS21110636-01	WW-1620-SUMP-20211110	10 Nov 2021 15:15			19 Nov 2021 14:00	1
Batch ID: R396370 (0)	**Test Name :** LOW LEVEL VOLATILES BY SW8260C				**Matrix:** Water	
HS21110636-01	WW-1620-SUMP-20211110	10 Nov 2021 15:15			24 Nov 2021 02:54	1
Batch ID: R396402 (0)	**Test Name :** PH BY SW9040C				**Matrix:** Water	
HS21110636-01	WW-1620-SUMP-20211110	10 Nov 2021 15:15			24 Nov 2021 13:00	1

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172716 (0) **Instrument: FID-13** **Method: LOW-LEVEL TEXAS TPH BY TX1005**

MBLK Sample ID: **MBLK-172716** Units: **mg/L** Analysis Date: **19-Nov-2021 22:18**
Client ID: Run ID: **FID-13_396183** SeqNo: **6385824** PrepDate: **19-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	< 0.20	0.50								
>nC12 to nC28	< 0.20	0.50								
>nC28 to nC35	< 0.20	0.50								
Total Petroleum Hydrocarbon	< 0.20	0.50								
Surr: 2-Fluorobiphenyl	*2.428*	*0*	*2.5*	*0*	*97.1*	*70 - 130*				
Surr: Trifluoromethyl benzene	*2.787*	*0*	*2.5*	*0*	*111*	*70 - 130*				

LCS Sample ID: **LCS-172716** Units: **mg/L** Analysis Date: **19-Nov-2021 22:48**
Client ID: Run ID: **FID-13_396183** SeqNo: **6385825** PrepDate: **19-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	20.08	0.50	25	0	80.3	75 - 125				
>nC12 to nC28	21.84	0.50	25	0	87.4	75 - 125				
Surr: 2-Fluorobiphenyl	*2.268*	*0*	*2.5*	*0*	*90.7*	*70 - 130*				
Surr: Trifluoromethyl benzene	*2.345*	*0*	*2.5*	*0*	*93.8*	*70 - 130*				

LCSD Sample ID: **LCSD-172716** Units: **mg/L** Analysis Date: **19-Nov-2021 23:17**
Client ID: Run ID: **FID-13_396183** SeqNo: **6385826** PrepDate: **19-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	21.89	0.50	25	0	87.6	75 - 125	20.08	8.64	20	
>nC12 to nC28	20.64	0.50	25	0	82.6	75 - 125	21.84	5.66	20	
Surr: 2-Fluorobiphenyl	*2.693*	*0*	*2.5*	*0*	*108*	*70 - 130*	*2.268*	*17.2*	*20*	
Surr: Trifluoromethyl benzene	*2.794*	*0*	*2.5*	*0*	*112*	*70 - 130*	*2.345*	*17.5*	*20*	

MS Sample ID: **HS21110841-30MS** Units: **mg/L** Analysis Date: **20-Nov-2021 01:41**
Client ID: Run ID: **FID-13_396183** SeqNo: **6385829** PrepDate: **19-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	19.28	0.49	24.57	0	78.5	75 - 125				
>nC12 to nC28	20.95	0.49	24.57	0	85.3	75 - 125				
Surr: 2-Fluorobiphenyl	*2.394*	*0*	*2.457*	*0*	*97.5*	*70 - 130*				
Surr: Trifluoromethyl benzene	*2.339*	*0*	*2.457*	*0*	*95.2*	*70 - 130*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172716 (0) **Instrument: FID-13** **Method: LOW-LEVEL TEXAS TPH BY TX1005**

MSD Sample ID: **HS21110841-30MSD** Units: **mg/L** Analysis Date: **20-Nov-2021 02:10**
Client ID: Run ID: **FID-13_396183** SeqNo: **6385830** PrepDate: **19-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	19.29	0.50	25.1	0	76.8	75 - 125	19.28	0.0278	20	
>nC12 to nC28	21.06	0.50	25.1	0	83.9	75 - 125	20.95	0.491	20	
Surr: 2-Fluorobiphenyl	*2.451*	*0*	*2.51*	*0*	*97.6*	*70 - 130*	*2.394*	*2.33*	*20*	
Surr: Trifluoromethyl benzene	*2.387*	*0*	*2.51*	*0*	*95.1*	*70 - 130*	*2.339*	*2.03*	*20*	

The following samples were analyzed in this batch: HS21110636-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172794 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-172794** Units: **mg/L** Analysis Date: **22-Nov-2021 15:50**
Client ID: Run ID: **HG03_396210** SeqNo: **6387392** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	< 0.0000300	0.000200								

LCS Sample ID: **LCS-172794** Units: **mg/L** Analysis Date: **22-Nov-2021 15:58**
Client ID: Run ID: **HG03_396210** SeqNo: **6387393** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0051	0.000200	0.005	0	102	80 - 120				

MS Sample ID: **HS21110622-12MS** Units: **mg/L** Analysis Date: **22-Nov-2021 16:01**
Client ID: Run ID: **HG03_396210** SeqNo: **6387395** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00435	0.000200	0.005	0.000005	86.9	75 - 125				

MSD Sample ID: **HS21110622-12MSD** Units: **mg/L** Analysis Date: **22-Nov-2021 16:08**
Client ID: Run ID: **HG03_396210** SeqNo: **6387398** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00465	0.000200	0.005	0.000005	92.9	75 - 125	0.00435	6.67	20	

The following samples were analyzed in this batch: HS21110636-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172803 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

MBLK Sample ID: **MBLK-172803** Units: **mg/L** Analysis Date: **23-Nov-2021 21:33**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390513** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	< 0.000400	0.00200								

MBLK Sample ID: **MBLK-172803** Units: **mg/L** Analysis Date: **23-Nov-2021 20:27**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390484** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	< 0.000400	0.00200								
Barium	< 0.00190	0.00400								
Beryllium	< 0.000200	0.00200								
Cadmium	< 0.000200	0.00200								
Chromium	< 0.000400	0.00400								
Lead	< 0.000600	0.00200								
Nickel	< 0.000600	0.00200								
Selenium	< 0.00110	0.00200								
Silver	< 0.000200	0.00200								

LCS Sample ID: **LCS-172803** Units: **mg/L** Analysis Date: **23-Nov-2021 21:35**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390514** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05138	0.00200	0.05	0	103	80 - 120				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172803 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

LCS Sample ID: **LCS-172803** Units: **mg/L** Analysis Date: **23-Nov-2021 20:29**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390485** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05115	0.00200	0.05	0	102	80 - 120				
Barium	0.05281	0.00400	0.05	0	106	80 - 120				
Beryllium	0.04696	0.00200	0.05	0	93.9	80 - 120				
Cadmium	0.05309	0.00200	0.05	0	106	80 - 120				
Chromium	0.05249	0.00400	0.05	0	105	80 - 120				
Lead	0.05088	0.00200	0.05	0	102	80 - 120				
Nickel	0.05455	0.00200	0.05	0	109	80 - 120				
Selenium	0.05109	0.00200	0.05	0	102	80 - 120				
Silver	0.05186	0.00200	0.05	0	104	80 - 120				

MS Sample ID: **HS21111036-07MS** Units: **mg/L** Analysis Date: **23-Nov-2021 21:41**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390517** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05308	0.00200	0.05	0.00002	106	80 - 120				

MS Sample ID: **HS21111036-07MS** Units: **mg/L** Analysis Date: **23-Nov-2021 20:35**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390488** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0521	0.00200	0.05	-0.000014	104	80 - 120				
Barium	0.05498	0.00400	0.05	0.000754	108	80 - 120				
Beryllium	0.04853	0.00200	0.05	-0.000013	97.1	80 - 120				
Cadmium	0.05509	0.00200	0.05	0.000007	110	80 - 120				
Chromium	0.05432	0.00400	0.05	-0.000093	109	80 - 120				
Lead	0.05232	0.00200	0.05	0.000014	105	80 - 120				
Nickel	0.0564	0.00200	0.05	0.000169	112	80 - 120				
Selenium	0.05302	0.00200	0.05	-0.000328	107	80 - 120				
Silver	0.05213	0.00200	0.05	-0.000009	104	80 - 120				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172803 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

MSD Sample ID: **HS21111036-07MSD** Units: **mg/L** Analysis Date: **23-Nov-2021 21:43**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390518** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05167	0.00200	0.05	0.00002	103	80 - 120	0.05695	9.71	20	

MSD Sample ID: **HS21111036-07MSD** Units: **mg/L** Analysis Date: **23-Nov-2021 20:37**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390489** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05108	0.00200	0.05	-0.000014	102	80 - 120	0.0521	1.99	20	
Barium	0.05309	0.00400	0.05	0.000754	105	80 - 120	0.05498	3.49	20	
Beryllium	0.04627	0.00200	0.05	-0.000013	92.6	80 - 120	0.04853	4.78	20	
Cadmium	0.05273	0.00200	0.05	0.000007	105	80 - 120	0.05509	4.38	20	
Chromium	0.05268	0.00400	0.05	-0.000093	106	80 - 120	0.05432	3.06	20	
Lead	0.05078	0.00200	0.05	0.000014	102	80 - 120	0.05232	2.98	20	
Nickel	0.05394	0.00200	0.05	0.000169	108	80 - 120	0.0564	4.46	20	
Selenium	0.05158	0.00200	0.05	-0.000328	104	80 - 120	0.05302	2.75	20	
Silver	0.0517	0.00200	0.05	-0.000009	103	80 - 120	0.05213	0.824	20	

PDS Sample ID: **HS21111036-07PDS** Units: **mg/L** Analysis Date: **23-Nov-2021 21:45**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390519** PrepDate: **22-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1057	0.00200	0.1	0.00002	106	75 - 125				

SD Sample ID: **HS21111036-07SD** Units: **mg/L** Analysis Date: **23-Nov-2021 21:39**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390516** PrepDate: **22-Nov-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	< 0.00200	0.0100					0.00002	0	10	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172803 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

SD Sample ID: **HS21111036-07SD** Units: **mg/L** Analysis Date: **23-Nov-2021 20:33**
Client ID: Run ID: **ICPMS06_396318** SeqNo: **6390487** PrepDate: **22-Nov-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	< 0.00200	0.0100					-0.000014	0	10	
Barium	< 0.00950	0.0200					0.000754	0	10	
Beryllium	< 0.00100	0.0100					-0.000013	0	10	
Cadmium	< 0.00100	0.0100					0.000007	0	10	
Chromium	< 0.00200	0.0200					-0.000093	0	10	
Lead	< 0.00300	0.0100					0.000014	0	10	
Nickel	< 0.00300	0.0100					0.000169	0	10	
Selenium	< 0.00550	0.0100					-0.000328	0	10	
Silver	< 0.00100	0.0100					-0.000009	0	10	

The following samples were analyzed in this batch: HS21110636-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172448 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-172448** Units: **ug/L** Analysis Date: **18-Nov-2021 12:44**
Client ID: Run ID: **SV-7_396034** SeqNo: **6383371** PrepDate: **12-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	< 0.030	0.20								
2,4,5-Trichlorophenol	< 0.057	0.20								
2,4,6-Trichlorophenol	< 0.048	0.20								
2,4-Dichlorophenol	< 0.043	0.20								
2,4-Dimethylphenol	< 0.040	0.20								
2,4-Dinitrophenol	< 0.10	1.0								
2,4-Dinitrotoluene	< 0.058	0.20								
2,6-Dinitrotoluene	< 0.042	0.20								
2-Chloronaphthalene	< 0.021	0.20								
2-Chlorophenol	< 0.036	0.20								
2-Methylnaphthalene	< 0.019	0.10								
2-Methylphenol	< 0.045	0.20								
2-Nitroaniline	< 0.041	0.20								
2-Nitrophenol	< 0.034	0.20								
3&4-Methylphenol	< 0.036	0.20								
3,3´-Dichlorobenzidine	< 0.044	0.20								
3-Nitroaniline	< 0.049	0.20								
4,6-Dinitro-2-methylphenol	< 0.020	0.20								
4-Bromophenyl phenyl ether	< 0.051	0.20								
4-Chloro-3-methylphenol	< 0.032	0.20								
4-Chloroaniline	< 0.039	0.20								
4-Chlorophenyl phenyl ether	< 0.044	0.20								
4-Nitroaniline	< 0.035	0.20								
4-Nitrophenol	< 0.047	1.0								
Acenaphthene	< 0.027	0.10								
Acenaphthylene	< 0.015	0.10								
Anthracene	< 0.014	0.10								
Benz(a)anthracene	< 0.050	0.10								
Benzidine	< 0.10	0.20								
Benzo(a)pyrene	< 0.020	0.10								
Benzo(b)fluoranthene	< 0.023	0.10								
Benzo(g,h,i)perylene	< 0.014	0.10								
Benzo(k)fluoranthene	< 0.019	0.10								
Benzyl alcohol	< 0.054	0.20								

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172448 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-172448** Units: **ug/L** Analysis Date: **18-Nov-2021 12:44**
Client ID: Run ID: **SV-7_396034** SeqNo: **6383371** PrepDate: **12-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	< 0.030	0.20								
Bis(2-chloroethyl)ether	< 0.026	0.20								
Bis(2-chloroisopropyl)ether	< 0.070	0.20								
Bis(2-ethylhexyl)phthalate	< 0.037	0.20								
Butyl benzyl phthalate	< 0.019	0.20								
Carbazole	< 0.025	0.20								
Chrysene	< 0.021	0.10								
Dibenz(a,h)anthracene	< 0.024	0.10								
Dibenzofuran	< 0.020	0.10								
Diethyl phthalate	< 0.030	0.20								
Dimethyl phthalate	< 0.041	0.20								
Di-n-butyl phthalate	< 0.020	0.20								
Di-n-octyl phthalate	< 0.020	0.20								
Fluoranthene	< 0.010	0.10								
Fluorene	< 0.030	0.10								
Hexachlorobenzene	< 0.044	0.20								
Hexachlorobutadiene	< 0.030	0.20								
Hexachlorocyclopentadiene	< 0.030	0.20								
Hexachloroethane	< 0.059	0.20								
Indeno(1,2,3-cd)pyrene	< 0.022	0.10								
Isophorone	< 0.025	0.20								
Naphthalene	< 0.020	0.10								
Nitrobenzene	< 0.024	0.20								
N-Nitrosodimethylamine	< 0.10	0.20								
N-Nitrosodi-n-propylamine	< 0.032	0.20								
N-Nitrosodiphenylamine	< 0.025	0.20								
Pentachlorophenol	< 0.079	0.20								
Phenanthrene	< 0.021	0.10								
Phenol	< 0.035	0.20								
Pyrene	< 0.019	0.10								
Pyridine	< 0.030	1.0								
Surr: 2,4,6-Tribromophenol	*6.412*	*0.20*	*5*	*0*	*128*	*34 - 129*				
Surr: 2-Fluorobiphenyl	*5.2*	*0.20*	*5*	*0*	*104*	*40 - 125*				
Surr: 2-Fluorophenol	*5.413*	*0.20*	*5*	*0*	*108*	*20 - 120*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172448 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-172448** Units: **ug/L** Analysis Date: **18-Nov-2021 12:44**
Client ID: Run ID: **SV-7_396034** SeqNo: **6383371** PrepDate: **12-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*5.992*	*0.20*	*5*	*0*	*120*	*40 - 135*				
Surr: Nitrobenzene-d5	*4.348*	*0.20*	*5*	*0*	*87.0*	*41 - 120*				
Surr: Phenol-d6	*4.689*	*0.20*	*5*	*0*	*93.8*	*20 - 120*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172448 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-172448** Units: **ug/L** Analysis Date: **18-Nov-2021 15:21**
Client ID: Run ID: **SV-7_396034** SeqNo: **6383373** PrepDate: **12-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	5.043	0.20	5	0	101	45 - 120				
2,4,5-Trichlorophenol	5.726	0.20	5	0	115	46 - 120				
2,4,6-Trichlorophenol	4.826	0.20	5	0	96.5	42 - 120				
2,4-Dichlorophenol	5.476	0.20	5	0	110	49 - 120				
2,4-Dimethylphenol	4.85	0.20	5	0	97.0	35 - 120				
2,4-Dinitrophenol	5.022	1.0	5	0	100	15 - 120				
2,4-Dinitrotoluene	5.506	0.20	5	0	110	50 - 122				
2,6-Dinitrotoluene	5.564	0.20	5	0	111	50 - 120				
2-Chloronaphthalene	5.616	0.20	5	0	112	50 - 120				
2-Chlorophenol	4.794	0.20	5	0	95.9	40 - 120				
2-Methylnaphthalene	5.306	0.10	5	0	106	50 - 120				
2-Methylphenol	4.829	0.20	5	0	96.6	45 - 120				
2-Nitroaniline	5.593	0.20	5	0	112	28 - 139				
2-Nitrophenol	4.829	0.20	5	0	96.6	40 - 120				
3&4-Methylphenol	5.091	0.20	5	0	102	35 - 120				
3,3´-Dichlorobenzidine	2.164	0.20	5	0	43.3	15 - 120				
3-Nitroaniline	5.925	0.20	5	0	118	30 - 120				
4,6-Dinitro-2-methylphenol	5.266	0.20	5	0	105	25 - 121				
4-Bromophenyl phenyl ether	5.529	0.20	5	0	111	45 - 120				
4-Chloro-3-methylphenol	5.606	0.20	5	0	112	47 - 120				
4-Chloroaniline	5.687	0.20	5	0	114	20 - 120				
4-Chlorophenyl phenyl ether	5.284	0.20	5	0	106	50 - 120				
4-Nitroaniline	5.742	0.20	5	0	115	30 - 133				
4-Nitrophenol	3.026	1.0	5	0	60.5	30 - 130				
Acenaphthene	4.599	0.10	5	0	92.0	45 - 120				
Acenaphthylene	5.15	0.10	5	0	103	47 - 120				
Anthracene	5.442	0.10	5	0	109	45 - 120				
Benz(a)anthracene	5.594	0.10	5	0	112	40 - 120				
Benzidine	1.469	0.20	5	0	29.4	10 - 120				
Benzo(a)pyrene	5.929	0.10	5	0	119	45 - 120				
Benzo(b)fluoranthene	5.616	0.10	5	0	112	50 - 120				
Benzo(g,h,i)perylene	5.825	0.10	5	0	117	42 - 127				
Benzo(k)fluoranthene	5.415	0.10	5	0	108	45 - 127				
Benzyl alcohol	4.534	0.20	5	0	90.7	35 - 122				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172448 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-172448** Units: **ug/L** Analysis Date: **18-Nov-2021 15:21**
Client ID: Run ID: **SV-7_396034** SeqNo: **6383373** PrepDate: **12-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	4.724	0.20	5	0	94.5	45 - 120				
Bis(2-chloroethyl)ether	4.28	0.20	5	0	85.6	37 - 121				
Bis(2-chloroisopropyl)ether	3.604	0.20	5	0	72.1	40 - 120				
Bis(2-ethylhexyl)phthalate	5.774	0.20	5	0	115	40 - 139				
Butyl benzyl phthalate	5.712	0.20	5	0	114	47 - 123				
Carbazole	5.81	0.20	5	0	116	42 - 128				
Chrysene	5.335	0.10	5	0	107	43 - 120				
Dibenz(a,h)anthracene	5.871	0.10	5	0	117	45 - 125				
Dibenzofuran	5.18	0.10	5	0	104	50 - 120				
Diethyl phthalate	5.332	0.20	5	0	107	41 - 120				
Dimethyl phthalate	5.264	0.20	5	0	105	40 - 122				
Di-n-butyl phthalate	5.778	0.20	5	0	116	45 - 123				
Di-n-octyl phthalate	5.245	0.20	5	0	105	45 - 129				
Fluoranthene	5.901	0.10	5	0	118	45 - 125				
Fluorene	5.102	0.10	5	0	102	49 - 120				
Hexachlorobenzene	5.62	0.20	5	0	112	48 - 120				
Hexachlorobutadiene	5.221	0.20	5	0	104	40 - 120				
Hexachlorocyclopentadiene	4.333	0.20	5	0	86.7	34 - 136				
Hexachloroethane	4.624	0.20	5	0	92.5	40 - 120				
Indeno(1,2,3-cd)pyrene	5.919	0.10	5	0	118	41 - 128				
Isophorone	4.599	0.20	5	0	92.0	40 - 121				
Naphthalene	4.856	0.10	5	0	97.1	45 - 120				
Nitrobenzene	4.49	0.20	5	0	89.8	44 - 120				
N-Nitrosodimethylamine	5.234	0.20	5	0	105	30 - 121				
N-Nitrosodi-n-propylamine	4.64	0.20	5	0	92.8	40 - 120				
N-Nitrosodiphenylamine	5.533	0.20	5	0	111	40 - 125				
Pentachlorophenol	5.024	0.20	5	0	100	19 - 121				
Phenanthrene	5.281	0.10	5	0	106	45 - 121				
Phenol	4.643	0.20	5	0	92.9	20 - 124				
Pyrene	5.329	0.10	5	0	107	40 - 130				
Pyridine	4.543	1.0	5	0	90.9	15 - 120				
Surr: 2,4,6-Tribromophenol	*5.87*	*0.20*	*5*	*0*	*117*	*34 - 129*				
Surr: 2-Fluorobiphenyl	*5.517*	*0.20*	*5*	*0*	*110*	*40 - 125*				
Surr: 2-Fluorophenol	*4.231*	*0.20*	*5*	*0*	*84.6*	*20 - 120*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172448 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-172448** Units: **ug/L** Analysis Date: **18-Nov-2021 15:21**
Client ID: Run ID: **SV-7_396034** SeqNo: **6383373** PrepDate: **12-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*5.997*	*0.20*	*5*	*0*	*120*	*40 - 135*				
Surr: Nitrobenzene-d5	*4.688*	*0.20*	*5*	*0*	*93.8*	*41 - 120*				
Surr: Phenol-d6	*4.984*	*0.20*	*5*	*0*	*99.7*	*20 - 120*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172448 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCSD Sample ID: **LCSD-172448** Units: **ug/L** Analysis Date: **18-Nov-2021 13:23**
Client ID: Run ID: **SV-7_396034** SeqNo: **6383372** PrepDate: **12-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	5.183	0.20	5	0	104	45 - 120	5.043	2.72	20	
2,4,5-Trichlorophenol	5.688	0.20	5	0	114	46 - 120	5.726	0.669	20	
2,4,6-Trichlorophenol	5.169	0.20	5	0	103	42 - 120	4.826	6.87	20	
2,4-Dichlorophenol	5.488	0.20	5	0	110	49 - 120	5.476	0.208	20	
2,4-Dimethylphenol	3.878	0.20	5	0	77.6	35 - 120	4.85	22.3	20	R
2,4-Dinitrophenol	4.413	1.0	5	0	88.3	15 - 120	5.022	12.9	50	
2,4-Dinitrotoluene	5.555	0.20	5	0	111	50 - 122	5.506	0.885	20	
2,6-Dinitrotoluene	5.547	0.20	5	0	111	50 - 120	5.564	0.313	20	
2-Chloronaphthalene	4.437	0.20	5	0	88.7	50 - 120	5.616	23.5	20	R
2-Chlorophenol	5.299	0.20	5	0	106	40 - 120	4.794	10	20	
2-Methylnaphthalene	4.994	0.10	5	0	99.9	50 - 120	5.306	6.07	20	
2-Methylphenol	5.007	0.20	5	0	100	45 - 120	4.829	3.61	20	
2-Nitroaniline	5.139	0.20	5	0	103	28 - 139	5.593	8.46	20	
2-Nitrophenol	4.568	0.20	5	0	91.4	40 - 120	4.829	5.56	20	
3&4-Methylphenol	5.165	0.20	5	0	103	35 - 120	5.091	1.44	20	
3,3´-Dichlorobenzidine	2.67	0.20	5	0	53.4	15 - 120	2.164	20.9	20	R
3-Nitroaniline	5.748	0.20	5	0	115	30 - 120	5.925	3.03	20	
4,6-Dinitro-2-methylphenol	4.994	0.20	5	0	99.9	25 - 121	5.266	5.3	30	
4-Bromophenyl phenyl ether	5.759	0.20	5	0	115	45 - 120	5.529	4.08	20	
4-Chloro-3-methylphenol	5.996	0.20	5	0	120	47 - 120	5.606	6.73	20	
4-Chloroaniline	5.792	0.20	5	0	116	20 - 120	5.687	1.83	20	
4-Chlorophenyl phenyl ether	5.399	0.20	5	0	108	50 - 120	5.284	2.15	20	
4-Nitroaniline	5.555	0.20	5	0	111	30 - 133	5.742	3.31	20	
4-Nitrophenol	3.712	1.0	5	0	74.2	30 - 130	3.026	20.4	20	R
Acenaphthene	4.683	0.10	5	0	93.7	45 - 120	4.599	1.82	20	
Acenaphthylene	5.16	0.10	5	0	103	47 - 120	5.15	0.19	20	
Anthracene	5.411	0.10	5	0	108	45 - 120	5.442	0.577	20	
Benz(a)anthracene	5.261	0.10	5	0	105	40 - 120	5.594	6.14	20	
Benzidine	1.341	0.20	5	0	26.8	10 - 120	1.469	9.16	30	
Benzo(a)pyrene	5.805	0.10	5	0	116	45 - 120	5.929	2.12	20	
Benzo(b)fluoranthene	5.568	0.10	5	0	111	50 - 120	5.616	0.858	20	
Benzo(g,h,i)perylene	5.986	0.10	5	0	120	42 - 127	5.825	2.71	20	
Benzo(k)fluoranthene	5.9	0.10	5	0	118	45 - 127	5.415	8.58	20	
Benzyl alcohol	5.143	0.20	5	0	103	35 - 122	4.534	12.6	20	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172448 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCSD Sample ID: **LCSD-172448** Units: **ug/L** Analysis Date: **18-Nov-2021 13:23**
Client ID: Run ID: **SV-7_396034** SeqNo: **6383372** PrepDate: **12-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	4.392	0.20	5	0	87.8	45 - 120	4.724	7.3	20	
Bis(2-chloroethyl)ether	3.968	0.20	5	0	79.4	37 - 121	4.28	7.58	20	
Bis(2-chloroisopropyl)ether	3.627	0.20	5	0	72.5	40 - 120	3.604	0.639	20	
Bis(2-ethylhexyl)phthalate	5.584	0.20	5	0	112	40 - 139	5.774	3.34	20	
Butyl benzyl phthalate	5.647	0.20	5	0	113	47 - 123	5.712	1.16	20	
Carbazole	5.352	0.20	5	0	107	42 - 128	5.81	8.2	20	
Chrysene	5.254	0.10	5	0	105	43 - 120	5.335	1.54	20	
Dibenz(a,h)anthracene	5.807	0.10	5	0	116	45 - 125	5.871	1.1	20	
Dibenzofuran	5.306	0.10	5	0	106	50 - 120	5.18	2.41	20	
Diethyl phthalate	5.436	0.20	5	0	109	41 - 120	5.332	1.92	20	
Dimethyl phthalate	5.205	0.20	5	0	104	40 - 122	5.264	1.14	20	
Di-n-butyl phthalate	5.882	0.20	5	0	118	45 - 123	5.778	1.78	20	
Di-n-octyl phthalate	5.66	0.20	5	0	113	45 - 129	5.245	7.61	20	
Fluoranthene	6.049	0.10	5	0	121	45 - 125	5.901	2.48	20	
Fluorene	5.292	0.10	5	0	106	49 - 120	5.102	3.66	20	
Hexachlorobenzene	5.793	0.20	5	0	116	48 - 120	5.62	3.02	20	
Hexachlorobutadiene	5.522	0.20	5	0	110	40 - 120	5.221	5.59	20	
Hexachlorocyclopentadiene	3.985	0.20	5	0	79.7	34 - 136	4.333	8.38	20	
Hexachloroethane	4.768	0.20	5	0	95.4	40 - 120	4.624	3.07	20	
Indeno(1,2,3-cd)pyrene	5.713	0.10	5	0	114	41 - 128	5.919	3.53	20	
Isophorone	4.041	0.20	5	0	80.8	40 - 121	4.599	12.9	20	
Naphthalene	4.64	0.10	5	0	92.8	45 - 120	4.856	4.54	20	
Nitrobenzene	4.153	0.20	5	0	83.1	44 - 120	4.49	7.79	20	
N-Nitrosodimethylamine	5.57	0.20	5	0	111	30 - 121	5.234	6.23	20	
N-Nitrosodi-n-propylamine	4.497	0.20	5	0	89.9	40 - 120	4.64	3.12	20	
N-Nitrosodiphenylamine	5.715	0.20	5	0	114	40 - 125	5.533	3.23	20	
Pentachlorophenol	4.919	0.20	5	0	98.4	19 - 121	5.024	2.11	20	
Phenanthrene	5.405	0.10	5	0	108	45 - 121	5.281	2.32	20	
Phenol	4.226	0.20	5	0	84.5	20 - 124	4.643	9.4	20	
Pyrene	5.163	0.10	5	0	103	40 - 130	5.329	3.16	20	
Pyridine	5.078	1.0	5	0	102	15 - 120	4.543	11.1	20	
Surr: 2,4,6-Tribromophenol	*6.24*	*0.20*	*5*	*0*	*125*	*34 - 129*	*5.87*	*6.11*	*20*	
Surr: 2-Fluorobiphenyl	*5.655*	*0.20*	*5*	*0*	*113*	*40 - 125*	*5.517*	*2.47*	*20*	
Surr: 2-Fluorophenol	*5.094*	*0.20*	*5*	*0*	*102*	*20 - 120*	*4.231*	*18.5*	*20*	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: 172448 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCSD Sample ID: **LCSD-172448** Units: **ug/L** Analysis Date: **18-Nov-2021 13:23**
Client ID: Run ID: **SV-7_396034** SeqNo: **6383372** PrepDate: **12-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*5.85*	*0.20*	*5*	*0*	*117*	*40 - 135*	*5.997*	*2.48*	*20*	
Surr: Nitrobenzene-d5	*4.431*	*0.20*	*5*	*0*	*88.6*	*41 - 120*	*4.688*	*5.63*	*20*	
Surr: Phenol-d6	*4.862*	*0.20*	*5*	*0*	*97.2*	*20 - 120*	*4.984*	*2.49*	*20*	

The following samples were analyzed in this batch: HS21110636-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: R396370 (0) **Instrument: VOA7** **Method: LOW LEVEL VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 23:04**
Client ID: Run ID: **VOA7_396370** SeqNo: **6391172** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	< 0.20	1.0								
1,1,2,2-Tetrachloroethane	< 0.50	1.0								
1,1,2-Trichloroethane	< 0.30	1.0								
1,1-Dichloroethane	< 0.20	1.0								
1,1-Dichloroethene	< 0.20	1.0								
1,2-Dichlorobenzene	< 0.50	1.0								
1,2-Dichloroethane	< 0.20	1.0								
1,2-Dichloropropane	< 0.50	1.0								
1,3-Dichlorobenzene	< 0.40	1.0								
1,4-Dichlorobenzene	< 0.40	1.0								
2-Butanone	< 0.50	2.0								
2-Hexanone	< 1.0	2.0								
4-Methyl-2-pentanone	< 0.70	2.0								
Acetone	< 2.0	2.0								
Benzene	< 0.20	1.0								
Bromochloromethane	< 0.20	1.0								
Bromodichloromethane	< 0.20	1.0								
Bromoform	< 0.40	1.0								
Bromomethane	< 0.40	1.0								
Carbon disulfide	< 0.60	2.0								
Carbon tetrachloride	< 0.50	1.0								
Chlorobenzene	< 0.30	1.0								
Chloroethane	< 0.30	1.0								
Chloroform	< 0.20	1.0								
Chloromethane	< 0.20	1.0								
cis-1,2-Dichloroethene	< 0.20	1.0								
cis-1,3-Dichloropropene	< 0.10	1.0								
Dibromochloromethane	< 0.30	1.0								
Ethylbenzene	< 0.30	1.0								
m,p-Xylene	< 0.50	2.0								
Methylene chloride	< 1.0	2.0								
o-Xylene	< 0.30	1.0								
Styrene	< 0.30	1.0								
Tetrachloroethene	< 0.30	1.0								

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: R396370 (0) **Instrument: VOA7** **Method: LOW LEVEL VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 23:04**
Client ID: Run ID: **VOA7_396370** SeqNo: **6391172** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	< 0.20	1.0								
trans-1,2-Dichloroethene	< 0.20	1.0								
trans-1,3-Dichloropropene	< 0.20	1.0								
Trichloroethene	< 0.20	1.0								
Vinyl acetate	< 0.50	1.0								
Vinyl chloride	< 0.20	1.0								
Xylenes, Total	< 0.30	1.0								
1,2-Dichloroethene, Total	< 0.20	1.0								
Surr: 1,2-Dichloroethane-d4	*46.41*	*1.0*	*50*	*0*	*92.8*	*70 - 123*				
Surr: 4-Bromofluorobenzene	*49.38*	*1.0*	*50*	*0*	*98.8*	*82 - 115*				
Surr: Dibromofluoromethane	*46.38*	*1.0*	*50*	*0*	*92.8*	*73 - 126*				
Surr: Toluene-d8	*50.32*	*1.0*	*50*	*0*	*101*	*81 - 120*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: R396370 (0) **Instrument: VOA7** **Method: LOW LEVEL VOLATILES BY SW8260C**

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 22:22**
Client ID: Run ID: **VOA7_396370** SeqNo: **6391171** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.84	1.0	20	0	99.2	70 - 130				
1,1,2,2-Tetrachloroethane	19.64	1.0	20	0	98.2	70 - 120				
1,1,2-Trichloroethane	20.25	1.0	20	0	101	77 - 113				
1,1-Dichloroethane	17.94	1.0	20	0	89.7	71 - 122				
1,1-Dichloroethene	15.05	1.0	20	0	75.3	70 - 130				
1,2-Dichlorobenzene	18.82	1.0	20	0	94.1	77 - 113				
1,2-Dichloroethane	18.25	1.0	20	0	91.3	70 - 124				
1,2-Dichloropropane	17.26	1.0	20	0	86.3	72 - 119				
1,3-Dichlorobenzene	20.05	1.0	20	0	100	78 - 118				
1,4-Dichlorobenzene	20.05	1.0	20	0	100	79 - 113				
2-Butanone	32.35	2.0	40	0	80.9	70 - 130				
2-Hexanone	37.29	2.0	40	0	93.2	70 - 130				
4-Methyl-2-pentanone	39.69	2.0	40	0	99.2	70 - 130				
Acetone	33.8	2.0	40	0	84.5	70 - 130				
Benzene	18.46	1.0	20	0	92.3	74 - 120				
Bromochloromethane	19	1.0	20	0	95.0	76 - 124				
Bromodichloromethane	20.34	1.0	20	0	102	74 - 122				
Bromoform	18.98	1.0	20	0	94.9	73 - 128				
Bromomethane	15.37	1.0	20	0	76.8	70 - 130				
Carbon disulfide	38.88	2.0	40	0	97.2	70 - 130				
Carbon tetrachloride	19.54	1.0	20	0	97.7	71 - 125				
Chlorobenzene	18.53	1.0	20	0	92.7	76 - 113				
Chloroethane	18.99	1.0	20	0	94.9	70 - 130				
Chloroform	19.2	1.0	20	0	96.0	71 - 121				
Chloromethane	18.56	1.0	20	0	92.8	70 - 129				
cis-1,2-Dichloroethene	20.36	1.0	20	0	102	75 - 122				
cis-1,3-Dichloropropene	19.07	1.0	20	0	95.4	73 - 127				
Dibromochloromethane	19.2	1.0	20	0	96.0	77 - 122				
Ethylbenzene	18.48	1.0	20	0	92.4	77 - 117				
m,p-Xylene	36.15	2.0	40	0	90.4	77 - 122				
Methylene chloride	18.94	2.0	20	0	94.7	70 - 127				
o-Xylene	18.56	1.0	20	0	92.8	75 - 119				
Styrene	17.89	1.0	20	0	89.4	72 - 126				
Tetrachloroethene	20.81	1.0	20	0	104	76 - 119				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: R396370 (0) **Instrument: VOA7** **Method: LOW LEVEL VOLATILES BY SW8260C**

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 22:22**
Client ID: Run ID: **VOA7_396370** SeqNo: **6391171** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	19.64	1.0	20	0	98.2	77 - 118				
trans-1,2-Dichloroethene	18.54	1.0	20	0	92.7	72 - 127				
trans-1,3-Dichloropropene	18.88	1.0	20	0	94.4	77 - 119				
Trichloroethene	19.92	1.0	20	0	99.6	77 - 121				
Vinyl acetate	34.84	1.0	40	0	87.1	70 - 130				
Vinyl chloride	15.9	1.0	20	0	79.5	70 - 130				
Xylenes, Total	54.71	1.0	60	0	91.2	75 - 122				
1,2-Dichloroethene, Total	38.89	1.0	40	0	97.2	72 - 127				
Surr: 1,2-Dichloroethane-d4	*48.58*	*1.0*	*50*	*0*	*97.2*	*70 - 123*				
Surr: 4-Bromofluorobenzene	*50.96*	*1.0*	*50*	*0*	*102*	*82 - 115*				
Surr: Dibromofluoromethane	*48.72*	*1.0*	*50*	*0*	*97.4*	*73 - 126*				
Surr: Toluene-d8	*49.22*	*1.0*	*50*	*0*	*98.4*	*81 - 120*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: R396370 (0) **Instrument: VOA7** **Method: LOW LEVEL VOLATILES BY SW8260C**

MS Sample ID: **HS21110705-01MS** Units: **ug/L** Analysis Date: **24-Nov-2021 06:33**
Client ID: Run ID: **VOA7_396370** SeqNo: **6391220** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.08	1.0	20	0	100	70 - 130				
1,1,2,2-Tetrachloroethane	18.72	1.0	20	0	93.6	70 - 123				
1,1,2-Trichloroethane	19.01	1.0	20	0	95.0	70 - 117				
1,1-Dichloroethane	17.45	1.0	20	0	87.3	70 - 127				
1,1-Dichloroethene	17.1	1.0	20	0	85.5	70 - 130				
1,2-Dichlorobenzene	19.09	1.0	20	0	95.4	70 - 115				
1,2-Dichloroethane	17.84	1.0	20	0	89.2	70 - 127				
1,2-Dichloropropane	17.35	1.0	20	0	86.8	70 - 122				
1,3-Dichlorobenzene	19.5	1.0	20	0	97.5	70 - 119				
1,4-Dichlorobenzene	19.5	1.0	20	0	97.5	70 - 114				
2-Butanone	29.82	2.0	40	0	74.5	70 - 130				
2-Hexanone	32.16	2.0	40	0	80.4	70 - 130				
4-Methyl-2-pentanone	35.04	2.0	40	0	87.6	70 - 130				
Acetone	33.25	2.0	40	0	83.1	70 - 130				
Benzene	18.15	1.0	20	0	90.7	70 - 127				
Bromochloromethane	18.9	1.0	20	0	94.5	70 - 127				
Bromodichloromethane	18.85	1.0	20	0	94.3	70 - 124				
Bromoform	18.03	1.0	20	0	90.2	70 - 129				
Bromomethane	17.57	1.0	20	0	87.8	70 - 130				
Carbon disulfide	39.57	2.0	40	0	98.9	70 - 130				
Carbon tetrachloride	19.7	1.0	20	0	98.5	70 - 130				
Chlorobenzene	18.68	1.0	20	0	93.4	70 - 114				
Chloroethane	18.98	1.0	20	0	94.9	70 - 130				
Chloroform	18.95	1.0	20	0	94.7	70 - 125				
Chloromethane	18.84	1.0	20	0	94.2	70 - 130				
cis-1,2-Dichloroethene	19.35	1.0	20	0	96.7	70 - 128				
cis-1,3-Dichloropropene	16.93	1.0	20	0	84.6	70 - 125				
Dibromochloromethane	18.53	1.0	20	0	92.7	70 - 124				
Ethylbenzene	19.23	1.0	20	0	96.1	70 - 124				
m,p-Xylene	36.6	2.0	40	0	91.5	70 - 130				
Methylene chloride	18.61	2.0	20	0	93.1	70 - 128				
o-Xylene	18.45	1.0	20	0	92.2	70 - 124				
Styrene	18.23	1.0	20	0	91.2	70 - 130				
Tetrachloroethene	21.55	1.0	20	0	108	70 - 130				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: R396370 (0) **Instrument: VOA7** **Method: LOW LEVEL VOLATILES BY SW8260C**

MS Sample ID: **HS21110705-01MS** Units: **ug/L** Analysis Date: **24-Nov-2021 06:33**
Client ID: Run ID: **VOA7_396370** SeqNo: **6391220** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	19.71	1.0	20	0	98.5	70 - 123				
trans-1,2-Dichloroethene	19	1.0	20	0	95.0	70 - 130				
trans-1,3-Dichloropropene	17.09	1.0	20	0	85.5	70 - 121				
Trichloroethene	20.15	1.0	20	0	101	70 - 129				
Vinyl acetate	30.92	1.0	40	0	77.3	70 - 130				
Vinyl chloride	17.31	1.0	20	0	86.6	70 - 130				
Xylenes, Total	55.04	1.0	60	0	91.7	70 - 130				
1,2-Dichloroethene, Total	38.34	1.0	40	0	95.9	70 - 130				
Surr: 1,2-Dichloroethane-d4	*45.34*	*1.0*	*50*	*0*	*90.7*	*70 - 126*				
Surr: 4-Bromofluorobenzene	*51.96*	*1.0*	*50*	*0*	*104*	*81 - 113*				
Surr: Dibromofluoromethane	*47.86*	*1.0*	*50*	*0*	*95.7*	*77 - 123*				
Surr: Toluene-d8	*50.81*	*1.0*	*50*	*0*	*102*	*82 - 127*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: R396370 (0) **Instrument: VOA7** **Method: LOW LEVEL VOLATILES BY SW8260C**

MSD Sample ID: **HS21110705-01MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 06:54**
Client ID: Run ID: **VOA7_396370** SeqNo: **6391221** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.07	1.0	20	0	95.4	70 - 130	20.08	5.16	20	
1,1,2,2-Tetrachloroethane	17.29	1.0	20	0	86.4	70 - 123	18.72	7.95	20	
1,1,2-Trichloroethane	18.6	1.0	20	0	93.0	70 - 117	19.01	2.16	20	
1,1-Dichloroethane	17.01	1.0	20	0	85.0	70 - 127	17.45	2.57	20	
1,1-Dichloroethene	16.75	1.0	20	0	83.7	70 - 130	17.1	2.11	20	
1,2-Dichlorobenzene	17.93	1.0	20	0	89.6	70 - 115	19.09	6.29	20	
1,2-Dichloroethane	16.66	1.0	20	0	83.3	70 - 127	17.84	6.85	20	
1,2-Dichloropropane	16.41	1.0	20	0	82.0	70 - 122	17.35	5.59	20	
1,3-Dichlorobenzene	19	1.0	20	0	95.0	70 - 119	19.5	2.62	20	
1,4-Dichlorobenzene	19	1.0	20	0	95.0	70 - 114	19.5	2.62	20	
2-Butanone	28.66	2.0	40	0	71.6	70 - 130	29.82	3.97	20	
2-Hexanone	31.22	2.0	40	0	78.0	70 - 130	32.16	2.97	20	
4-Methyl-2-pentanone	31.67	2.0	40	0	79.2	70 - 130	35.04	10.1	20	
Acetone	29.24	2.0	40	0	73.1	70 - 130	33.25	12.8	20	
Benzene	18.1	1.0	20	0	90.5	70 - 127	18.15	0.268	20	
Bromochloromethane	18.81	1.0	20	0	94.0	70 - 127	18.9	0.495	20	
Bromodichloromethane	19.14	1.0	20	0	95.7	70 - 124	18.85	1.5	20	
Bromoform	17.47	1.0	20	0	87.3	70 - 129	18.03	3.19	20	
Bromomethane	16.33	1.0	20	0	81.7	70 - 130	17.57	7.26	20	
Carbon disulfide	37.35	2.0	40	0	93.4	70 - 130	39.57	5.77	20	
Carbon tetrachloride	18.98	1.0	20	0	94.9	70 - 130	19.7	3.73	20	
Chlorobenzene	17.31	1.0	20	0	86.5	70 - 114	18.68	7.63	20	
Chloroethane	17.91	1.0	20	0	89.6	70 - 130	18.98	5.76	20	
Chloroform	18.24	1.0	20	0	91.2	70 - 125	18.95	3.82	20	
Chloromethane	18.37	1.0	20	0	91.8	70 - 130	18.84	2.56	20	
cis-1,2-Dichloroethene	18.58	1.0	20	0	92.9	70 - 128	19.35	4.06	20	
cis-1,3-Dichloropropene	17.22	1.0	20	0	86.1	70 - 125	16.93	1.7	20	
Dibromochloromethane	18.25	1.0	20	0	91.3	70 - 124	18.53	1.53	20	
Ethylbenzene	17.78	1.0	20	0	88.9	70 - 124	19.23	7.81	20	
m,p-Xylene	35.28	2.0	40	0	88.2	70 - 130	36.6	3.65	20	
Methylene chloride	18.05	2.0	20	0	90.3	70 - 128	18.61	3.06	20	
o-Xylene	17.38	1.0	20	0	86.9	70 - 124	18.45	5.99	20	
Styrene	17.34	1.0	20	0	86.7	70 - 130	18.23	5.01	20	
Tetrachloroethene	19.37	1.0	20	0	96.8	70 - 130	21.55	10.7	20	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: R396370 (0) **Instrument:** VOA7 **Method:** LOW LEVEL VOLATILES BY SW8260C

MSD Sample ID: **HS21110705-01MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 06:54**
Client ID: Run ID: **VOA7_396370** SeqNo: **6391221** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Toluene	18.63	1.0	20	0	93.2	70 - 123	19.71	5.61	20	
trans-1,2-Dichloroethene	18.48	1.0	20	0	92.4	70 - 130	19	2.73	20	
trans-1,3-Dichloropropene	17.07	1.0	20	0	85.3	70 - 121	17.09	0.139	20	
Trichloroethene	19.12	1.0	20	0	95.6	70 - 129	20.15	5.26	20	
Vinyl acetate	31.08	1.0	40	0	77.7	70 - 130	30.92	0.535	20	
Vinyl chloride	16.99	1.0	20	0	85.0	70 - 130	17.31	1.85	20	
Xylenes, Total	52.66	1.0	60	0	87.8	70 - 130	55.04	4.43	20	
1,2-Dichloroethene, Total	37.06	1.0	40	0	92.7	70 - 130	38.34	3.4	20	
Surr: 1,2-Dichloroethane-d4	*47.02*	*1.0*	*50*	*0*	*94.0*	*70 - 126*	*45.34*	*3.64*	*20*	
Surr: 4-Bromofluorobenzene	*50.96*	*1.0*	*50*	*0*	*102*	*81 - 113*	*51.96*	*1.93*	*20*	
Surr: Dibromofluoromethane	*47.99*	*1.0*	*50*	*0*	*96.0*	*77 - 123*	*47.86*	*0.265*	*20*	
Surr: Toluene-d8	*50.38*	*1.0*	*50*	*0*	*101*	*82 - 127*	*50.81*	*0.853*	*20*	

The following samples were analyzed in this batch: HS21110636-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: R396095 (0) **Instrument:** WetChem_HS **Method:** FLASH POINT BY PENSKY-MARTENS SW1010A

LCS Sample ID: **LCS-R396095** Units: **°F** Analysis Date: **19-Nov-2021 14:00**
Client ID: Run ID: **WetChem_HS_396095** SeqNo: **6383369** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	81.04	70.0	81	0	100	95 - 105				

DUP Sample ID: **HS21110604-01DUP** Units: **°F** Analysis Date: **19-Nov-2021 14:00**
Client ID: Run ID: **WetChem_HS_396095** SeqNo: **6383370** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	> 212	70.0					0	0	20	

The following samples were analyzed in this batch: HS21110636-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: HS21110636

QC BATCH REPORT

Batch ID: R396402 (0) **Instrument:** WetChem_HS **Method:** PH BY SW9040C

DUP Sample ID: **HS21110636-01DUP** Units: **pH Units** Analysis Date: **24-Nov-2021 13:00**
Client ID: **WW-1620-SUMP-20211110** Run ID: **WetChem_HS_396402** SeqNo: **6391971** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.55	0.100					8.54	0.117	10	
Temp Deg C @pH	22	0					22	0	10	

The following samples were analyzed in this batch: HS21110636-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works IDW
WorkOrder: **HS21110636**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

Sample Receipt Checklist

Work Order ID: HS21110636 **Date/Time Received:** **10-Nov-2021 17:24**

Client Name: PBW **Received by:** **Jared R. Makan**

Completed By:	/S/ Pablo Marinez	11-Nov-2021 12:25	**Reviewed by:**	/S/ Dane J. Wacasey	18-Nov-2021 08:16
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **WATER** Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:257357
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.2°C UC/C	IR 31	
Cooler(s)/Kit(s):	46152		
Date/Time sample(s) sent to storage:	11/11/21 12:30		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070

Chain of Custody Form

Page ____ of ____

COC ID: 257357

HS21110636

Golder Associates Inc.
Houston TX-Wood Preserving Works IDW

Customer Information		Project Information		ALS Project Manager:
Purchase Order	4300042071/Kevin Peterburs 1620	Project Name	Houston TX-Wood Preserving Works IDWW	
Work Order		Project Number	1620-28-Rev0 SR 92688	
Company Name	Golder Associates Inc.	Bill To Company	Union Pacific Railroad- A/P	
Send Report To	Eric Matzner	Invoice Attn	Accounts Payable	
Address	2201 Double Creek Drive Suite 4004	Address	1400 Douglas Street Stop 0750	
City/State/Zip	Round Rock, TX 78664	City/State/Zip	Omaha NE 681790750	
Phone	(512) 671-3434	Phone		
Fax	(512) 671-3446	Fax		
e-Mail Address	Eric_Matzner@golder.com	e-Mail Address		

A	8260_LL_W (5632528 Volatile Organics IDWW)
B	TX1005_W_Low (5643233 TPH TX1005)
C	8270_LOW_W (5632532 SemiVolatiles (w/pyridine) IDWW)
D	ICP_TW (5652643 5652646 RCRA 8+3 Metals)
E	IGN_W (5652637 Ignitability - RCI)
F	pH_W_9040C (5632436 pH - RCI)
G	
H	
I	
J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	WW-1620-Sump-20211110	11/10/21	1515	Water	1,2,8	10	X	X	X	X	X	X					
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Leon St Rose

Shipment Method: Drop off

Required Turnaround Time: (Check Box) [X] STD 10 Wk Days [ ] 5 Wk Days [ ] 2 Wk Days [ ] 24 Hour [ ] Other ____

Results Due Date:

Relinquished by: Date: 11/10/21 Time: 1724 Received by:

Relinquished by: Date: 11/10/21 Time: 17.24 Received by (Laboratory):

Logged by (Laboratory): Date: Time: Checked by (Laboratory):

Notes: UPRR HWPW 1620-28

Cooler ID	Cooler Temp.
46152	3.2°C

QC Package: (Check One Box Below)
[X] Level II Std QC
[ ] Level III Std QC/Raw Data
[ ] Level IV SW846/CLP
[ ] Other:
[ ] TRRP Checklist
[ ] TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

14231 CAS

Note:
1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	1	1-888-877-7261	UPRR-008122-1

5. Generator's Name and Mailing Address
UPRR C/O GRB ATTN: Manifest Receiving
6525 Corporate Drive
Indianapolis IN 46278
Generator's Phone: 414-260-4164

Generator's Site Address (if different than mailing address)
UPRR
5600 Wallisville Rd
Houston, TX 77020

6. Transporter 1 Company Name — **U.S. EPA ID Number**

7. Transporter 2 Company Name — **U.S. EPA ID Number**

8. Designated Facility Name and Site Address — **U.S. EPA ID Number**
Delta Water Processing LLC
10511 Beaumont Hwy
Houston, TX 77049
Facility's Phone: (281) 404-4423
TX97222

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	1 NON Regulated NON Hazardous Hydrocarbon Water	1	TT	5250	G	None
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information
WR#008122

Profile: LEGA0103P

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Tyler A. Parker — Signature — Month: 03 Day: 16 Year: 22

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:
Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: LIONEL HUBBARD — Signature — Month / Day / Year
Transporter 2 Printed/Typed Name — Signature — Month / Day / Year

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month / Day / Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Darrell Adams — Signature — Month: 3 Day: 16 Year: 22

DESIGNATED FACILITY TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	1	1-800-874-7267	UPRR-008122 - 2

5. Generator's Name and Mailing Address
UPRR C/O EHS Attn: Manifest Receiving
6520 Corporate Drive
Indianapolis IN 46278
Generator's Phone:

Generator's Site Address (if different than mailing address)
UPRR
6500 Wallisville Rd
Houston, TX 77020

6. Transporter 1 Company Name
Quality — U.S. EPA ID Number

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number
Delta Water Processing, LLC
18511 Beaumont Hwy
Houston, TX 77049 (281) 404-4423 — TX 97222
Facility's Phone:

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non-Regulated Non Hazardous Hydrocarbon Wastes		TT	3850	G	None
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
WR# 008122

Profile# LEGAD103P

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Tyler A. Parker — Signature — Month: 03 Day: 16 Year: 22

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: LIONEL HUBBARD — Signature — Month: 3 Day: 16 Year: 22

Transporter 2 Printed/Typed Name — Signature — Month: Day: Year:

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name — Signature — Month: 3 Day: 16 Year: 22

DESIGNATED FACILITY TO GENERATOR

2 ND LOAD
TICKET 76031

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	1	888-877-7267	WR0008122 - 1

5. Generator's Name and Mailing Address
Union Pacific Railroad (UPRR) c/o GHD Services, Inc
6520 Corporate Drive
Indianapolis IN 46278
Attn: Manifest Receiving
Generator's Phone: 402 998 6615

Generator's Site Address (if different than mailing address)
UPRR
5600 Wallisville Rd
Houston TX 77020

6. Transporter 1 Company Name
OMI
U.S. EPA ID Number
LAD980870018

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Delta Water Processing LLC.
18511 Beaumont Hwy.
Houston TX 77049
Facility's Phone: 281 404-4429
U.S. EPA ID Number
TXD982220

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non Regulated Non Hazardous Hydrocarbon Water	1	TT	4500	G	NONE
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
1) WR#0008122 / LEGA0103P

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Tommy Ray
Signature:
Month: 5 Day: 4 Year: 22

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: DARRICK JONES
Signature:
Month: 5 Day: 4 Year: 22

Transporter 2 Printed/Typed Name: Michael White
Signature:
Month: 5 Day: 4 Year: 22

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Darnell
Signature:
Month: 5 Day: 4 Year: 22

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

169-BLC-O 5 11977 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

1 ST LOAD

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	1	888-877-7267	WRD08122-2

5. Generator's Name and Mailing Address
Union Pacific Railroad (UPRR) c/o GHD Services, Inc.
6520 Corporate Drive
Indianapolis IN 46278
Attn: Manifest Receiving
Generator's Phone: 409 982-5646

Generator's Site Address (if different than mailing address)
UPRR
5500 Wallisville Rd
Houston TX 77020

6. Transporter 1 Company Name
ONI

U.S. EPA ID Number
LAD980870018

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Delta Water Processing LLC
18511 Beaumont Hwy.
Houston TX 77049
Facility's Phone: 281 404-4423

U.S. EPA ID Number
T X D 9 8 2 2

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non Regulated Non Hazardous Hydrocarbon Water	1	TT	4500	G	NONE
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information 1) WR#008122 / LEGA0103P

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Tommy Ray
Signature: Tommy Ray
Month 5 Day 4 Year 22

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: DARRICK JONES
Signature: Darrick Jones
Month 5 Day 4 Year 22

Transporter 2 Printed/Typed Name
Signature
Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Darrell Henry
Signature
Month 5 Day 4 Year 22

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number
		888-877-7267	WR008122-1

GENERATOR

5. Generator's Name and Mailing Address
Union Pacific Railroad (UPRR) c/o GHD Services, Inc. Att Manifest Receiving
6520 Corporate Drive
Indianapolis IN 46278
Generator's Phone: 409 983-5648

Generator's Site Address (if different than mailing address)
UPRR
5500 Wallisville Rd.
Houston TX 77020

6. Transporter 1 Company Name — U.S. EPA ID Number

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address
Delta Water Processing LLC
18511 Beaumont Hwy.
Houston TX 77049
Facility's Phone: 281 409-4423

U.S. EPA ID Number: TX 8 7 2 2 2

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non Regulated Non Hazardous Hydrocarbon Water		TT	130 bbls	G	NONE
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
1) WR#008122 / LEGAD103F

Plo# 2201130

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Stephanie Wood — Signature: Stephanie Wood — Month 7 Day 20 Year 22

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Fred Kalas — Signature: — Month 7 Day 20 Year 22
Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: JASON HICKS — Signature: — Month 7 Day 20 Year 22

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number
		888-877-7267	WR008122-2

5. Generator's Name and Mailing Address
Union Pacific Railroad (UPRR) c/o GHD Services, Inc. Att: Manifest Receiving
6520 Corporate Drive
Indianapolis IN 46278
Generator's Phone: 409 983-5846

Generator's Site Address (if different than mailing address)
UPRR
6600 Wallisville Rd.
Houston TX 77020

6. Transporter 1 Company Name
QOR Industrial Services
U.S. EPA ID Number: TXR000085000

7. Transporter 2 Company Name
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Delta Water Processing LLC
18511 Beaumont Hwy.
Houston TX 77049
Facility's Phone: 281 404-4423
U.S. EPA ID Number: TX 9 7 2 2 2

GENERATOR

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non Regulated Non Hazardous Hydrocarbon Water		TT	5,000	G	NONE
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information 1) WR#008122 / LEGA0103P
Plo# 2201130

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Stephanie Wood
Signature: Stephanie Wood
Month Day Year

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: David K Johnson
Signature: David K Johnson
Month Day Year
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Jason Hicks
Signature:
Month Day Year: 7 20 22

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
TXD-000820266	1	888-877-7267	WR008122-8.31.22

5. Generator's Name and Mailing Address
Union Pacific Railroad (UPRR) c/o GHD Services, Inc. Att: Manifest Receiving
6620 Corporate Drive
Indianapolis IN 46278
Generator's Phone: 409 983-5848

Generator's Site Address (if different than mailing address)
UPRR
5500 Wallisville Rd.
Houston TX 77020

6. Transporter 1 Company Name
Space City Services

U.S. EPA ID Number: TXR-000084784

7. Transporter 2 Company Name

U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Delta Water Processing LLC
18511 Beaumont Hwy.
Houston TX 77049
Facility's Phone: 281 404-4423

U.S. EPA ID Number: TX97222

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	1 Non Regulated Non Hazardous Hydrocarbon Water	1	TT	5000	G	NONE
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information
1) WR#008122 / LEGA0103F
Job# 221334

TD-PD2201130

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Stephanie Wood
Signature: Stephanie Wood
Month 8 Day 31 Year 22

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Andrew Hays
Signature:
Month 8 Day 31 Year 22

Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator) Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Damon H
Signature:
Month 8 Day 31 Year 22

169-BLC-O 5 11977 (Rev. 9/09) DESIGNATED FACILITY TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
TXD000820216 (JN)	1	888-877-7267	WR008122-8.31.22

5. Generator's Name and Mailing Address
Union Pacific Railroad (UPRR) c/o GHD Services, Inc. Att: Manifest Receiving
8620 Corporate Drive
Indianapolis IN 46278
Generator's Phone: 800 823-6845

Generator's Site Address (if different than mailing address)
UPRR
6500 Wallisville Rd.
Houston TX 77020

6. Transporter 1 Company Name
Space City Services
U.S. EPA ID Number: TXR000084784

7. Transporter 2 Company Name
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Delta Water Processing LLC.
18511 Beaumont Hwy.
Houston TX 77049
Facility's Phone: 281 404-4478
U.S. EPA ID Number: TX 5 7 3 2 2

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	1 Non Regulated Non Hazardous Hydrocarbon Water	1	TT	5,000	G	NONE
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information
Job# 221334
1) WR#008122 / LEGA0103P
TD - PO# 2201130

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Stephanie Wood
Signature: Stephanie Wood
Month: 8 Day: 31 Year: 22

INT'L
15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER
16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Julian Nieto
Signature: Julian Nieto
Month: 8 Day: 31 Year: 22
Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY
17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Darrell K
Signature:
Month: 8 Day: 31 Year: 22

Please print or type.
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	1	888-877-7267	WR0081221-10-19-1

5. Generator's Name and Mailing Address
Union Pacific Railroad (Rural c/o BHD Servs
6525 Corporate Drive
Indianapolis IN 46278
Generator's Phone: 402-923-5848

Generator's Site Address (if different than mailing address)
UPRR
5500 Wallisville Rd
Houston TX 77020

6. Transporter 1 Company Name
OMF 1-800-645-6671

U.S. EPA ID Number
LAD980870018

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Delta Water Processing LLC
18511 Beaumont Hwy.
Houston TX 77049

U.S. EPA ID Number
TX9722

Facility's Phone: 281-404-4425

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non Regulated Non Hazardous Hydrocarbon Water	001	TT	3500	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
1.) WR# 0081221/LECA0103P

P.O.# 2201130

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Stephanie Wood
Signature: Stephanie Wood
Month: 10 Day: 19 Year: 22

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Kahlil Mason
Signature:
Month: 10 Day: 19 Year: 22

Transporter 2 Printed/Typed Name
Signature
Month: Day: Year:

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Damon H
Signature:
Month: 10 Day: 19 Year: 22

DESIGNATED FACILITY TO GENERATOR

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of 1

3. Emergency Response Phone: 888-877-7767

4. Waste Tracking Number: WR008122-10-19-1 -2

5. Generator's Name and Mailing Address
Union Pacific Railroad (UPRR)
6520 Corporate Drive
Indianapolis IN 46278
Generator's Phone: 400-923-5848

Generator's Site Address (if different than mailing address)
C-ID Servics UPRR
5500 Wallisville Rd
Houston TX 77020

6. Transporter 1 Company Name
OMI 1-800-645-6671

U.S. EPA ID Number
LAD 980870018

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Delta Water Processing LLC.
15511 Beaumont Hwy.
Houston TX 77049
Facility's Phone: 281-404-4423

U.S. EPA ID Number
TX 97222

GENERATOR

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non Regulated Non Hazardous Hydrocarbon Water	001	TT	1201	Bbl	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
1) WR# 008122/LEGM 0103 P

PO # 2201130

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Stephanie Wood
Signature: Stephanie Wood
Month 10 Day 19 Year 22

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Albert Esparza
Signature: Albert Esparza
Month 10 Day 19 Year 22

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Darrell H
Signature
Month 10 Day 19 Year 22

DESIGNATED FACILITY TO GENERATOR

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

June 08, 2022

Eric Matzner
WSP Golder
1601 S. MoPac Expressway
Suite 325D
Austin, TX 78746

Work Order: **HS22060092**

Laboratory Results for: **Houston TX-Wood Preserving Works IDWW**

Dear Eric Matzner,

ALS Environmental received 1 sample(s) on Jun 02, 2022 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Dane J. Wacasey

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
Work Order: HS22060092

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22060092-01	WW-1620-IDW009707-20220601	Water		01-Jun-2022 17:30	02-Jun-2022 08:10	☐

Client: WSP Golder **CASE NARRATIVE**
Project: Houston TX-Wood Preserving Works IDWW
Work Order: HS22060092

Work Order Comments

• Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.

The temperature at the time of pH is reported. Please note that all pH results are already normalized to a temperature of 25 °C.

GC Semivolatiles by Method TX1005

Batch ID: 179497

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260

Batch ID: R410100

Sample ID: WW-1620-IDW009707-20220601 (HS22060092-01)

• Lowest practical dilution due to sample matrix and/or high concentration of non-target analyte(s).

Metals by Method SW6020A

Batch ID: 179579

Sample ID: HS22060217-03MS

• MS and MSD are for an unrelated sample (Barium)

Metals by Method SW7470A

Batch ID: 179538

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9040C

Batch ID: R409968

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW1010

Batch ID: R409944

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: WSP Golder **ANALYTICAL REPORT**
Project: Houston TX-Wood Preserving Works IDWW WorkOrder:HS22060092
Sample ID: WW-1620-IDW009707-20220601 Lab ID:HS22060092-01
Collection Date: 01-Jun-2022 17:30 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		**Method:SW8260**					Analyst: AKP
Benzene	< 0.010		0.010	0.050	mg/L	50	06-Jun-2022 13:50
Ethylbenzene	< 0.015		0.015	0.050	mg/L	50	06-Jun-2022 13:50
Toluene	< 0.010		0.010	0.050	mg/L	50	06-Jun-2022 13:50
Xylenes, Total	< 0.015		0.015	0.050	mg/L	50	06-Jun-2022 13:50
Surr: 1,2-Dichloroethane-d4	*96.2*			*70-126*	*%REC*	*50*	*06-Jun-2022 13:50*
Surr: 4-Bromofluorobenzene	*96.9*			*77-113*	*%REC*	*50*	*06-Jun-2022 13:50*
Surr: Dibromofluoromethane	*94.5*			*77-123*	*%REC*	*50*	*06-Jun-2022 13:50*
Surr: Toluene-d8	*99.6*			*82-127*	*%REC*	*50*	*06-Jun-2022 13:50*
LOW-LEVEL TEXAS TPH BY TX1005		**Method:TX1005**			Prep:TX1005PR / 02-Jun-2022		Analyst: SAM
nC6 to nC12	< 0.20		0.20	0.50	mg/L	1	03-Jun-2022 00:31
>nC12 to nC28	< 0.20		0.20	0.50	mg/L	1	03-Jun-2022 00:31
>nC28 to nC35	< 0.20		0.20	0.50	mg/L	1	03-Jun-2022 00:31
Total Petroleum Hydrocarbon	< 0.20		0.20	0.50	mg/L	1	03-Jun-2022 00:31
Surr: 2-Fluorobiphenyl	*124*			*70-130*	*%REC*	*1*	*03-Jun-2022 00:31*
Surr: Trifluoromethyl benzene	*109*			*70-130*	*%REC*	*1*	*03-Jun-2022 00:31*
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 06-Jun-2022		Analyst: JHD
Antimony	**0.0880**		**0.00400**	**0.0200**	**mg/L**	1	07-Jun-2022 16:23
Arsenic	**1.33**		**0.00400**	**0.0200**	**mg/L**	1	07-Jun-2022 16:23
Barium	**0.368**		**0.0190**	**0.0400**	**mg/L**	1	07-Jun-2022 16:23
Beryllium	< 0.00200		0.00200	0.0200	mg/L	1	07-Jun-2022 16:23
Cadmium	**0.00582**	J	**0.00200**	**0.0200**	**mg/L**	1	07-Jun-2022 16:23
Chromium	**0.528**		**0.00400**	**0.0400**	**mg/L**	1	07-Jun-2022 16:23
Lead	**0.375**		**0.00600**	**0.0200**	**mg/L**	1	07-Jun-2022 16:23
Nickel	**1.50**		**0.00600**	**0.0200**	**mg/L**	1	07-Jun-2022 16:23
Selenium	**0.0162**	J	**0.0110**	**0.0200**	**mg/L**	1	07-Jun-2022 16:23
Silver	**0.0224**		**0.00200**	**0.0200**	**mg/L**	1	07-Jun-2022 16:23
MERCURY BY SW7470A		**Method:SW7470A**			Prep:SW7470A / 03-Jun-2022		Analyst: MSC
Mercury	**0.00189**	J	**0.000300**	**0.00200**	**mg/L**	1	03-Jun-2022 14:58
FLASH POINT BY PENSKY-MARTENS SW1010A		**Method:SW1010**					Analyst: TH
Ignitability	> 212		70.0	70.0	°F	1	03-Jun-2022 13:00
PH BY SW9040C		**Method:SW9040C**					Analyst: SB
pH	**10.1**	H	**0.100**	**0.100**	**pH Units**	1	03-Jun-2022 15:04
Temp Deg C @pH	**20.6**	H	**0**	**0**	**DEG C**	1	03-Jun-2022 15:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

Batch ID: 179497 **Start Date:** 02 Jun 2022 13:03 **End Date:** 02 Jun 2022 13:50
Method: TX 1005 PREP **Prep Code:** TX 1005_W PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22060092-01	1	30.25 (g)	3 (mL)	0.09917	40 mL VOA w/ HCL

Batch ID: 179538 **Start Date:** 03 Jun 2022 09:00 **End Date:** 03 Jun 2022 12:00
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22060092-01		1 (mL)	10 (mL)	10	120 plastic HNO3

Batch ID: 179579 **Start Date:** 06 Jun 2022 08:00 **End Date:** 06 Jun 2022 12:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22060092-01		1 (mL)	10 (mL)	10	120 plastic HNO3

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 179497 (0)	**Test Name :** LOW-LEVEL TEXAS TPH BY TX1005				**Matrix:** Water	
HS22060092-01	WW-1620-IDW009707-20220601	01 Jun 2022 17:30		02 Jun 2022 13:03	03 Jun 2022 00:31	1
Batch ID: 179538 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Water	
HS22060092-01	WW-1620-IDW009707-20220601	01 Jun 2022 17:30		03 Jun 2022 09:00	03 Jun 2022 14:58	1
Batch ID: 179579 (0)	**Test Name :** ICP-MS METALS BY SW6020A				**Matrix:** Water	
HS22060092-01	WW-1620-IDW009707-20220601	01 Jun 2022 17:30		06 Jun 2022 08:00	07 Jun 2022 16:23	1
Batch ID: R409944 (0)	**Test Name :** FLASH POINT BY PENSKY-MARTENS SW1010A				**Matrix:** Water	
HS22060092-01	WW-1620-IDW009707-20220601	01 Jun 2022 17:30			03 Jun 2022 13:00	1
Batch ID: R409968 (0)	**Test Name :** PH BY SW9040C				**Matrix:** Water	
HS22060092-01	WW-1620-IDW009707-20220601	01 Jun 2022 17:30			03 Jun 2022 15:04	1
Batch ID: R410100 (0)	**Test Name :** LOW LEVEL VOLATILES BY SW8260C				**Matrix:** Water	
HS22060092-01	WW-1620-IDW009707-20220601	01 Jun 2022 17:30			06 Jun 2022 13:50	50

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: 179497 (0) **Instrument: FID-12** **Method: LOW-LEVEL TEXAS TPH BY TX1005**

MBLK Sample ID: **MBLK-179497** Units: **mg/L** Analysis Date: **02-Jun-2022 21:04**
Client ID: Run ID: **FID-12_409950** SeqNo: **6677131** PrepDate: **02-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	< 0.20	0.50								
>nC12 to nC28	< 0.20	0.50								
>nC28 to nC35	< 0.20	0.50								
Total Petroleum Hydrocarbon	< 0.20	0.50								
Surr: 2-Fluorobiphenyl	*2.671*	*0*	*2.5*	*0*	*107*	*70 - 130*				
Surr: Trifluoromethyl benzene	*2.826*	*0*	*2.5*	*0*	*113*	*70 - 130*				

LCS Sample ID: **LCS-179497** Units: **mg/L** Analysis Date: **02-Jun-2022 21:34**
Client ID: Run ID: **FID-12_409950** SeqNo: **6677132** PrepDate: **02-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	27.42	0.50	25	0	110	75 - 125				
>nC12 to nC28	30.51	0.50	25	0	122	75 - 125				
Surr: 2-Fluorobiphenyl	*2.82*	*0*	*2.5*	*0*	*113*	*70 - 130*				
Surr: Trifluoromethyl benzene	*2.746*	*0*	*2.5*	*0*	*110*	*70 - 130*				

LCSD Sample ID: **LCSD-179497** Units: **mg/L** Analysis Date: **02-Jun-2022 22:03**
Client ID: Run ID: **FID-12_409950** SeqNo: **6677133** PrepDate: **02-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	27.28	0.50	25	0	109	75 - 125	27.42	0.505	20	
>nC12 to nC28	30.89	0.50	25	0	124	75 - 125	30.51	1.24	20	
Surr: 2-Fluorobiphenyl	*2.779*	*0*	*2.5*	*0*	*111*	*70 - 130*	*2.82*	*1.45*	*20*	
Surr: Trifluoromethyl benzene	*2.705*	*0*	*2.5*	*0*	*108*	*70 - 130*	*2.746*	*1.49*	*20*	

MS Sample ID: **HS22051347-04MS** Units: **mg/L** Analysis Date: **02-Jun-2022 23:02**
Client ID: Run ID: **FID-12_409950** SeqNo: **6677135** PrepDate: **02-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	27.09	0.49	24.45	0	111	75 - 125				
>nC12 to nC28	29.36	0.49	24.45	0	120	75 - 125				
Surr: 2-Fluorobiphenyl	*2.713*	*0*	*2.445*	*0*	*111*	*70 - 130*				
Surr: Trifluoromethyl benzene	*2.642*	*0*	*2.445*	*0*	*108*	*70 - 130*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: 179497 (0) **Instrument: FID-12** **Method: LOW-LEVEL TEXAS TPH BY TX1005**

MSD Sample ID: **HS22051347-04MSD** Units: **mg/L** Analysis Date: **02-Jun-2022 23:32**
Client ID: Run ID: **FID-12_409950** SeqNo: **6677136** PrepDate: **02-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	27.67	0.49	24.66	0	112	75 - 125	27.09	2.1	20	
>nC12 to nC28	29.55	0.49	24.66	0	120	75 - 125	29.36	0.648	20	
Surr: 2-Fluorobiphenyl	*2.752*	*0*	*2.466*	*0*	*112*	*70 - 130*	*2.713*	*1.39*	*20*	
Surr: Trifluoromethyl benzene	*2.652*	*0*	*2.466*	*0*	*108*	*70 - 130*	*2.642*	*0.396*	*20*	

The following samples were analyzed in this batch: HS22060092-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: 179538 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-179538** Units: **mg/L** Analysis Date: **03-Jun-2022 13:14**
Client ID: Run ID: **HG03_409946** SeqNo: **6677077** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	< 0.0000300	0.000200								

LCS Sample ID: **LCS-179538** Units: **mg/L** Analysis Date: **03-Jun-2022 13:16**
Client ID: Run ID: **HG03_409946** SeqNo: **6677078** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00488	0.000200	0.005	0	97.6	80 - 120				

MS Sample ID: **HS22060097-03MS** Units: **mg/L** Analysis Date: **03-Jun-2022 15:21**
Client ID: Run ID: **HG03_409946** SeqNo: **6677542** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0055	0.000200	0.005	0.000016	110	75 - 125				

MS Sample ID: **HS22060094-01MS** Units: **mg/L** Analysis Date: **03-Jun-2022 13:20**
Client ID: Run ID: **HG03_409946** SeqNo: **6677080** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00461	0.000200	0.005	-0.000017	92.5	75 - 125				

MSD Sample ID: **HS22060097-03MSD** Units: **mg/L** Analysis Date: **03-Jun-2022 15:28**
Client ID: Run ID: **HG03_409946** SeqNo: **6677543** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00568	0.000200	0.005	0.000016	113	75 - 125	0.0055	3.22	20	

MSD Sample ID: **HS22060094-01MSD** Units: **mg/L** Analysis Date: **03-Jun-2022 13:25**
Client ID: Run ID: **HG03_409946** SeqNo: **6677081** PrepDate: **03-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0044	0.000200	0.005	-0.000017	88.3	75 - 125	0.00461	4.66	20	

The following samples were analyzed in this batch: HS22060092-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: 179579 (0) **Instrument: ICPMS05** **Method: ICP-MS METALS BY SW6020A**

MBLK Sample ID: **MBLK-179579** Units: **mg/L** Analysis Date: **06-Jun-2022 15:00**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679668** PrepDate: **06-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	< 0.000400	0.00200								
Arsenic	< 0.000400	0.00200								
Barium	< 0.00190	0.00400								
Beryllium	< 0.000200	0.00200								
Cadmium	< 0.000200	0.00200								
Chromium	< 0.000400	0.00400								
Lead	< 0.000600	0.00200								
Nickel	< 0.000600	0.00200								
Selenium	< 0.00110	0.00200								
Silver	< 0.000200	0.00200								

LCS Sample ID: **LCS-179579** Units: **mg/L** Analysis Date: **06-Jun-2022 15:02**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679669** PrepDate: **06-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05192	0.00200	0.05	0	104	80 - 120				
Arsenic	0.051	0.00200	0.05	0	102	80 - 120				
Barium	0.05319	0.00400	0.05	0	106	80 - 120				
Beryllium	0.04959	0.00200	0.05	0	99.2	80 - 120				
Cadmium	0.05241	0.00200	0.05	0	105	80 - 120				
Chromium	0.04741	0.00400	0.05	0	94.8	80 - 120				
Lead	0.0512	0.00200	0.05	0	102	80 - 120				
Nickel	0.0482	0.00200	0.05	0	96.4	80 - 120				
Selenium	0.05264	0.00200	0.05	0	105	80 - 120				
Silver	0.0498	0.00200	0.05	0	99.6	80 - 120				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: 179579 (0) **Instrument: ICPMS05** **Method: ICP-MS METALS BY SW6020A**

MS Sample ID: **HS22060217-03MS** Units: **mg/L** Analysis Date: **06-Jun-2022 15:12**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679674** PrepDate: **06-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05212	0.00200	0.05	0.000231	104	80 - 120				
Arsenic	0.05502	0.00200	0.05	0.003337	103	80 - 120				
Barium	6.708	0.00400	0.05	6.667	81.3	80 - 120				EO
Beryllium	0.0802	0.00200	0.05	0.02895	102	80 - 120				
Cadmium	0.05124	0.00200	0.05	0.000113	102	80 - 120				
Chromium	0.0638	0.00400	0.05	0.01595	95.7	80 - 120				
Lead	0.1243	0.00200	0.05	0.07006	108	80 - 120				
Nickel	0.1006	0.00200	0.05	0.05533	90.5	80 - 120				
Selenium	0.05419	0.00200	0.05	0.003364	102	80 - 120				
Silver	0.04758	0.00200	0.05	0.0001	95.0	80 - 120				

MSD Sample ID: **HS22060217-03MSD** Units: **mg/L** Analysis Date: **06-Jun-2022 15:14**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679675** PrepDate: **06-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.0545	0.00200	0.05	0.000231	109	80 - 120	0.05212	4.45	20	
Arsenic	0.05693	0.00200	0.05	0.003337	107	80 - 120	0.05502	3.42	20	
Barium	6.762	0.00400	0.05	6.667	189	80 - 120	6.708	0.803	20	SEO
Beryllium	0.08067	0.00200	0.05	0.02895	103	80 - 120	0.0802	0.581	20	
Cadmium	0.05135	0.00200	0.05	0.000113	102	80 - 120	0.05124	0.216	20	
Chromium	0.06492	0.00400	0.05	0.01595	97.9	80 - 120	0.0638	1.74	20	
Lead	0.1234	0.00200	0.05	0.07006	107	80 - 120	0.1243	0.672	20	
Nickel	0.102	0.00200	0.05	0.05533	93.4	80 - 120	0.1006	1.42	20	
Selenium	0.0551	0.00200	0.05	0.003364	103	80 - 120	0.05419	1.66	20	
Silver	0.04801	0.00200	0.05	0.0001	95.8	80 - 120	0.04758	0.902	20	

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: 179579 (0) **Instrument: ICPMS05** **Method: ICP-MS METALS BY SW6020A**

PDS Sample ID: **HS22060217-03PDS** Units: **mg/L** Analysis Date: **06-Jun-2022 15:16**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679676** PrepDate: **06-Jun-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09582	0.00200	0.1	0.000231	95.6	75 - 125				
Arsenic	0.1087	0.00200	0.1	0.003337	105	75 - 125				
Beryllium	0.1309	0.00200	0.1	0.02895	102	75 - 125				
Cadmium	0.09828	0.00200	0.1	0.000113	98.2	75 - 125				
Chromium	0.1145	0.00400	0.1	0.01595	98.5	75 - 125				
Lead	0.172	0.00200	0.1	0.07006	102	75 - 125				
Nickel	0.144	0.00200	0.1	0.05533	88.6	75 - 125				
Selenium	0.1059	0.00200	0.1	0.003364	103	75 - 125				
Silver	0.0926	0.00200	0.1	0.0001	92.5	75 - 125				

PDS Sample ID: **HS22060217-03PDS** Units: **mg/L** Analysis Date: **06-Jun-2022 15:28**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679680** PrepDate: **06-Jun-2022** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	11.97	0.200	5	6.555	108	75 - 125				

SD Sample ID: **HS22060217-03SD** Units: **mg/L** Analysis Date: **06-Jun-2022 15:10**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679673** PrepDate: **06-Jun-2022** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	< 0.00200	0.0100					0.000231	0	10	
Arsenic	0.003693	0.0100					0.003337	0	10	J
Beryllium	0.0295	0.0100					0.02895	1.9	10	
Cadmium	< 0.00100	0.0100					0.000113	0	10	
Chromium	0.0147	0.0200					0.01595	0	10	J
Lead	0.072	0.0100					0.07006	2.77	10	
Nickel	0.05562	0.0100					0.05533	0.522	10	
Selenium	0.008084	0.0100					0.003364	0	10	J
Silver	< 0.00100	0.0100					0.0001	0	10	

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: 179579 (0) **Instrument: ICPMS05** **Method: ICP-MS METALS BY SW6020A**

SD Sample ID: **HS22060217-03SD** Units: **mg/L** Analysis Date: **06-Jun-2022 15:26**
Client ID: Run ID: **ICPMS05_410028** SeqNo: **6679679** PrepDate: **06-Jun-2022** DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Barium	6.784	1.00					6.555	3.49	10	

The following samples were analyzed in this batch: HS22060092-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: R410100 (0) **Instrument: VOA4** **Method: LOW LEVEL VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKW-220606** Units: **ug/L** Analysis Date: **06-Jun-2022 10:10**
Client ID: Run ID: **VOA4_410100** SeqNo: **6680684** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	< 0.20	1.0								
Ethylbenzene	< 0.30	1.0								
Toluene	< 0.20	1.0								
Xylenes, Total	< 0.30	1.0								
Surr: 1,2-Dichloroethane-d4	*46.68*	*1.0*	*50*	*0*	*93.4*	*70 - 123*				
Surr: 4-Bromofluorobenzene	*49.35*	*1.0*	*50*	*0*	*98.7*	*77 - 113*				
Surr: Dibromofluoromethane	*45.95*	*1.0*	*50*	*0*	*91.9*	*73 - 126*				
Surr: Toluene-d8	*50.88*	*1.0*	*50*	*0*	*102*	*81 - 120*				

LCS Sample ID: **VLCSW-220606** Units: **ug/L** Analysis Date: **06-Jun-2022 09:27**
Client ID: Run ID: **VOA4_410100** SeqNo: **6680683** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	16.54	1.0	20	0	82.7	74 - 120				
Ethylbenzene	18.79	1.0	20	0	94.0	77 - 117				
Toluene	17.45	1.0	20	0	87.2	77 - 118				
Xylenes, Total	59.46	1.0	60	0	99.1	75 - 122				
Surr: 1,2-Dichloroethane-d4	*46.33*	*1.0*	*50*	*0*	*92.7*	*70 - 123*				
Surr: 4-Bromofluorobenzene	*49.41*	*1.0*	*50*	*0*	*98.8*	*77 - 113*				
Surr: Dibromofluoromethane	*46.66*	*1.0*	*50*	*0*	*93.3*	*73 - 126*				
Surr: Toluene-d8	*50.16*	*1.0*	*50*	*0*	*100*	*81 - 120*				

MS Sample ID: **HS22060101-01MS** Units: **ug/L** Analysis Date: **06-Jun-2022 18:10**
Client ID: Run ID: **VOA4_410100** SeqNo: **6680706** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	16.47	1.0	20	0	82.4	70 - 127				
Ethylbenzene	18.32	1.0	20	0	91.6	70 - 124				
Toluene	17.38	1.0	20	0	86.9	70 - 123				
Xylenes, Total	57.11	1.0	60	0	95.2	70 - 130				
Surr: 1,2-Dichloroethane-d4	*49.61*	*1.0*	*50*	*0*	*99.2*	*70 - 126*				
Surr: 4-Bromofluorobenzene	*49.71*	*1.0*	*50*	*0*	*99.4*	*77 - 113*				
Surr: Dibromofluoromethane	*49.44*	*1.0*	*50*	*0*	*98.9*	*77 - 123*				
Surr: Toluene-d8	*50.27*	*1.0*	*50*	*0*	*101*	*82 - 127*				

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: R410100 (0) **Instrument: VOA4** **Method: LOW LEVEL VOLATILES BY SW8260C**

MSD Sample ID: **HS22060101-01MSD** Units: **ug/L** Analysis Date: **06-Jun-2022 18:31**
Client ID: Run ID: **VOA4_410100** SeqNo: **6680707** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	16.34	1.0	20	0	81.7	70 - 127	16.47	0.775	20	
Ethylbenzene	17.73	1.0	20	0	88.7	70 - 124	18.32	3.27	20	
Toluene	16.84	1.0	20	0	84.2	70 - 123	17.38	3.18	20	
Xylenes, Total	55.99	1.0	60	0	93.3	70 - 130	57.11	1.98	20	
Surr: 1,2-Dichloroethane-d4	*50.02*	*1.0*	*50*	*0*	*100*	*70 - 126*	*49.61*	*0.817*	*20*	
Surr: 4-Bromofluorobenzene	*50.03*	*1.0*	*50*	*0*	*100*	*77 - 113*	*49.71*	*0.629*	*20*	
Surr: Dibromofluoromethane	*49.52*	*1.0*	*50*	*0*	*99.0*	*77 - 123*	*49.44*	*0.16*	*20*	
Surr: Toluene-d8	*49.56*	*1.0*	*50*	*0*	*99.1*	*82 - 127*	*50.27*	*1.42*	*20*	

The following samples were analyzed in this batch: HS22060092-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: R409944 (0) **Instrument:** WetChem_HS **Method:** FLASH POINT BY PENSKY-MARTENS SW1010A

LCS Sample ID: **LCS-R409944** Units: **°F** Analysis Date: **03-Jun-2022 13:00**
Client ID: Run ID: **WetChem_HS_409944** SeqNo: **6677053** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80.28	70.0	81	0	99.1	95 - 105				

DUP Sample ID: **HS22051316-01DUP** Units: **°F** Analysis Date: **03-Jun-2022 13:00**
Client ID: Run ID: **WetChem_HS_409944** SeqNo: **6677054** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	> 212	70.0					0	0	20	

The following samples were analyzed in this batch: HS22060092-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: HS22060092

QC BATCH REPORT

Batch ID: **R409968 (0)** **Instrument:** **WetChem_HS** **Method:** **PH BY SW9040C**

DUP Sample ID: **HS22060150-02DUP** Units: **pH Units** Analysis Date: **03-Jun-2022 15:04**
Client ID: Run ID: **WetChem_HS_409968** SeqNo: **6677483** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.91	0.100					6.89	0.29	10	
Temp Deg C @pH	20.2	0					20.2	0	10	

The following samples were analyzed in this batch: HS22060092-01

Client: WSP Golder
Project: Houston TX-Wood Preserving Works IDWW
WorkOrder: **HS22060092**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-34	30-Jun-2022
Illinois	2000322022-9	09-May-2023
Kansas	E-10352 2021-2022	31-Jul-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Maryland	343, 2021-2022	30-Jun-2022
North Carolina	624-2022	31-Dec-2022
Oklahoma	2021-080	31-Aug-2022
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932021-12	30-Jul-2022

Sample Receipt Checklist

Work Order ID: HS22060092 **Date/Time Received:** **02-Jun-2022 08:10**

Client Name: PBW **Received by:** **Corey Grandits**

Completed By: */S/ Paresh M. Giga* 02-Jun-2022 09:21 **Reviewed by:** _____ _____

eSignature Date/Time eSignature Date/Time

Matrices: **Water** Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:273180
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.0C/1.5C U/c	IR31
Cooler(s)/Kit(s):	45368	
Date/Time sample(s) sent to storage:	6/2/22 09:30	

Water - VOA vials have zero headspace?	Yes ☐	No ☑	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	N/A ☐
pH adjusted?	Yes ☑	No ☐	N/A ☐
pH adjusted by:	Corey Grandits		

Login Notes: Metals pH >2 (11).
Preserved with 0.5ml HNO3 (Lot 318173210)
6/2/22 @ 08:15. Final pH (7)
TPH - 2 vials have headspace >6mm

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

ALS

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 273180

HS22060092

WSP Golder

Houston TX-Wood Preserving Works IDW

ALS Project Manager:

Customer Information		Project Information			
Purchase Order	TBD/Kevin Peterburs 1620-31	Project Name	Houston TX-Wood Preserving Works	A	8260_LL_W (5652652 8260 BTEX IDWW)
Work Order		Project Number	1620-31-Rev0 SR 92688	B	TX1005_W_Low (5643233 TPH TX1005 IDWW)
Company Name	WSP Golder	Bill To Company	Union Pacific Railroad- A/P	C	ICP_TW (5652643 5652646 RCRA 8+3 Metals IDWW)
Send Report To	Eric Matzner	Invoice Attn	Accounts Payable	D	pH_W_9040C (5632436 pH - RCI IDWW)
Address	1601 S. MoPac Expressway Suite 325D	Address	1400 Douglas Street Stop 0750	E	IGN_W (5652637 Ignitability - RCI IDWW)
				F	
City/State/Zip	Austin, TX 78746	City/State/Zip	Omaha NE 681790750	G	
Phone	(512) 671-3434	Phone		H	
Fax	(512) 671-3446	Fax		I	
e-Mail Address	Eric_Matzner@golder.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	WW-1620-IDW009707-20220601	6-1-22	1730	Water	1,2,8	8	X	X	X	X	X						
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: JOHN BRAYTON [signature]

Shipment Method: HAND DELIVERED

Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☒ 3 Wrk Days

Results Due Date:

Relinquished by:	Date:	Time:	Received by:
[signature]	6-1-22	0810	
Relinquished by:	Date:	Time:	Received by (Laboratory): [illegible] 6-1-22 0810
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):

Notes: UPRR HWPW 1620-31

Cooler ID	Cooler Temp.
[illegible]	1.0
[illegible]	
[illegible]	

QC Package: (Check One Box Below)
- ☒ Level II Std QC
- ☐ Level III Std QC/Raw Date
- ☐ Level IV SW846/CLP
- ☐ Other
- ☐ TRRP Checklist
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: TXD000830216 | 2. Page 1 of 1 | 3. Emergency Response Phone: 888-877-7267 | 4. Manifest Tracking Number: 017115148 FLE

5. Generator's Name and Mailing Address: UPRR C/O GHD Ann Manifest Receiving, 6521 Corporate Dr., Indianapolis IN 46278, (414) 269-4464

Generator's Site Address (if different than mailing address): UPRR, 4910 Liberty Rd, Houston, TX 77026

Generator's Phone:

6. Transporter 1 Company Name: OMI — U.S. EPA ID Number: LA0986870018

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: Blue Ridge Landfill, 2200 Fm 521, Fresno TX 77545, (281) 835-6142 — U.S. EPA ID Number:

Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-DOT Regulated Material (Petroleum Impacted Water)	3	TP	1700		1405 1022
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information: WR# 009707 - 500 221463

Profile# SU222902D — PO# 2200003

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: [illegible] — Signature: [illegible] — Month: 8 Day: 19 Year: 22

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Adam Canty — Signature: Adam Canty — Month: 8 Day: 19 Year: 22

Transporter 2 Printed/Typed Name — Signature — Month Day Year

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
			Blue Ridge Landfill Permit# 1505A SWR# 89429

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Hailey Wilson — Signature: HW — Month: 8 Day: 19 Year: 22

Liquid RDMW 10.10

EPA Form 8700-22 (Rev. 12-17). Previous editions are obsolete.

TRANSPORTER COPY

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
March 2023	WSP USA Inc (WSP) (formerly Golder Associates USA Inc (Golder)), on behalf of Union Pacific Railroad (UPRR), submits the Post-Response Action Completion Report (PRACR) Monthly Update to the Texas Commission on Environmental Quality (TCEQ) (March 15, 2023)
February 2023	WSP, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (February 14, 2023); UPRR submits 4th Quarter 2022 Dense Non-Aqueous Phase Liquid (DNAPL) Recovery Report dated February 13, 2023 to TCEQ; Administrative Settlement Agreement and Order of Consent (ASAOC) for Removal Action Site Evaluation signed by U.S. Environmental Protection Agency (EPA) and Union Pacific in February 2023; WSP, on behalf of UPRR, submits the Updated Baseline Soil Assessment Report dated February 14, 2023; WSP, on behalf of UPRR, submits the Off-site Notification Update (TRRP 350.55) dated February 24, 2023 for the First Semi-Annual 2022 Site-wide Groundwater Monitoring Report to the TCEQ.
January 2023	WSP, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (January 17, 2023); UPRR submits to the TCEQ the Corrective Action Monitoring Report: 2022 Second Semi-Annual Event dated January 16, 2023 to the TCEQ; WSP, on behalf of UPRR, conducts 2023 first semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event.
December 2022	Golder (now WSP), on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (December 15, 2022); UPRR submits 3rd Quarter 2022 DNAPL Recovery Report dated December 22, 2022 to TCEQ; UPRR submits First Semi-Annual 2022 Site-Wide Groundwater Monitoring Report dated December 28, 2022 to TCEQ; Golder, on behalf of UPRR, submits the Updated Baseline Soil Assessment Report dated December 2, 2022.
November 2022	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (November 15, 2022).
October 2022	TCEQ issues approval dated October 7, 2022 of Baseline Soil Assessment dated September 19, 2022 and proposed additional soil sampling. Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (October 17, 2022); UPRR contractor OMI conducts repairs to soil cap. TCEQ issues approval dated October 25, 2022 of Corrective Action Monitoring Report: 2022 First Semi-Annual Event dated July 15, 2022.
September 2022	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (September 15, 2022); and submits to the TCEQ the Baseline Soil Assessment – Union Pacific Railroad Englewood Intermodal Yard dated September 19, 2022.
August 2022	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (August 15, 2022); UPRR submits 2nd Quarter 2022 DNAPL Recovery Report dated August 23, 2022 to TCEQ;

APPENDIX 3

CHRONOLOGY

Date	Description
July 2022	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (July 15, 2022); and submits the Corrective Action Monitoring Report: 2022 First Semi-Annual Event dated July 15, 2022 to the TCEQ; Golder, on behalf of UPRR, conducts 2022 second semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event;
June 2022	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (June 14, 2022); UPRR contractor OMI was called out twice to the concrete cap area to pressure wash areas with brown standing water observed along asphalt joints and cracks in the pavement in A and B rows. OMI collected the fluids into a tote which was profiled and disposed of according to federal and state rules and regulations; UPRR submits 1st Quarter 2022 DNAPL Recovery Report dated June 24, 2022 to TCEQ;
May 2022	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (May 13, 2022); TCEQ holds 2nd public meeting for Permit Renewal on May 3, 2022; UPRR contractor OMI was called out twice to the concrete cap area to pressure wash areas with brown standing water observed along asphalt joints and cracks in the pavement in A and B rows. OMI collected the fluids into a tote which was profiled and disposed of according to federal and state rules and regulations. TCEQ holds public meeting on the RCRA Permit Renewal at the Deluxe Theater on May 3, 2022.
April 2022	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (April 13, 2022); Golder, on behalf of UPRR, submits the City of Houston Storm Water Sewer Assessment dated April 29, 2022.
March 2022	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (March 15, 2022); submits 3rd Quarter 2021 DNAPL Recovery Report dated March 3, 2022 to TCEQ; submits 4th Quarter 2021 DNAPL Recovery Report dated March 9, 2022 to TCEQ; and submits Annual PRACR for 2021 on March 30, 2022. UPRR submits Site-wide 2021 Groundwater Monitoring Report dated March 31, 2022 to TCEQ.
February 2022	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (February 14, 2022); TCEQ issues approval dated February 16, 2022 of Corrective Action Monitoring Report: 2021 Second Semi-Annual Event dated January 10, 2022.
January 2022	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (January 18, 2022); and submits to the TCEQ the Corrective Action Monitoring Report: 2021 Second Semi-Annual Event dated January 10, 2022; WSP, on behalf of UPRR, conducts 2022 first semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event. TCEQ issues Comment Letter dated January 26, 2022 on Interim Groundwater Monitoring Report (July 2020), dated April 30, 2021, Englewood Intermodal Yard (EIY) Test Pit Evaluation Report, dated June 2, 2021, and Corrective Action Monitoring Report, 2021 First Semi-Annual Event, dated July 9, 2021.
December 2021	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (December 14, 2021);

APPENDIX 3

CHRONOLOGY

Date	Description
November 2021	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (November 15, 2021).
October 2021	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (October 15, 2021). UPRR contractor United States Environmental Services (USES) was called to the concrete cap area to pressure wash areas where track marks from seep material was observed. USES collected the fluids into a tote which was profiled and disposed of according to federal and state rules and regulations. UPRR contractor US Ecology removed the damaged test pit concrete at the July 2020 test pit locations and completed installation of new rebar and concrete patches.
September 2021	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (September 15, 2021).
August 2021	TCEQ issues Comment Letter dated August 10, 2021 on Englewood Yard - North Bypass Soil Management Plan (SMP), dated April 12, 2021; and Stormwater Pollution Prevention Plan (SWPPP), UP Englewood Yard North Bypass Construction Project, dated July 8, 2021. UPRR, Golder, and TCEQ held a conference call on August 12, 2021 to discuss comment letter. Golder provided additional information requested during the call on August 13, 2021. On August 12, 2021, TCEQ, UPRR, Golder, and the City of Houston (Public Works) hold a conference call to discuss the Proposed City of Houston Storm Water Sewer Assessment Work Plan dated July 12, 2021.UPRR submits the PRACR Monthly Update to the TCEQ (August 13, 2021).
July 2021	Golder, on behalf of UPRR, submits 2nd Quarter 2021 DNAPL Recovery Report dated July 28, 2021 to TCEQ; UPRR submits the PRACR Monthly Update to the TCEQ (July 15, 2021); UPRR submits to the TCEQ the Corrective Action Monitoring Report: 2021 First Semi-Annual Event dated July 9, 2021. Golder, on behalf of UPRR, conducts 2021 second semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event; Golder, on behalf of UPRR, submits Proposed City of Houston Storm Water Sewer Assessment Work Plan dated July 12, 2021 to the TCEQ.
June 2021	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (June 15, 2021); TCEQ holds public meeting (on-line) for the RCRA Permit Renewal on June 21, 2021; Golder, on behalf of UPRR, submitted to the TCEQ the Englewood IM Yard Test Pit Evaluation Report dated June 2, 2021 summarizing the findings from the test pits installed in July 2020.
May 2021	Golder, on behalf of UPRR, submits 1st Quarter 2021 DNAPL Recovery Report dated May 14, 2021 to TCEQ. UPRR submits the PRACR Monthly Update to the TCEQ (May 14, 2021); UPRR contractor United States Environmental Services (USES) was called to the concrete cap area to pressure wash areas with brown standing water observed along asphalt joints and cracks in the pavement in A and B rows. USES collected the fluids into a tote which was profiled and disposed of according to federal and state rules and regulations.
April 2021	TCEQ sends Final Draft Permit Renewal with Major Amendment to UPRR in letter dated April 19, 2021. UPRR submits Notification of Planned Construction Activities for North By-Pass Project on April 23, 2021, including Soil Management Plan; UPRR submits the PRACR Monthly Update to the TCEQ (April 15, 2021).

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	UPRR submits Site-wide Groundwater Monitoring Report (July 2020) dated April 30, 2021 to TCEQ. TCEQ, UPRR, and Golder on conference call to discuss Liberty Road Storm Sewer Survey work completed by the City of Houston on April 22, 2021. TCEQ forwards the files that the City of Houston provided regarding the storm sewer survey on April 22, 2021.
March 2021	Golder, on behalf of UPRR submits the PRACR Monthly Update to the TCEQ (March 17, 2021); UPRR submits Annual PRACR for 2020 on March 29, 2021.
February 2021	Golder, on behalf of UPRR submits the PRACR Monthly Update to the TCEQ (February 12, 2021); UPRR submits 4th Quarter DNAPL Recovery Report dated February 12, 2021. TCEQ, UPRR, and Golder holds conference call on February 9, 2021 to discuss Responses to Comments and Final Draft Permit.
January 2021	The TCEQ approved the extension for submitting additional information on the proposed engineering project at the Site via email dated January 7, 2021. UPRR submits additional information for the TCEQ Initial Draft Permit (IDP) with Response Action Plan (RAP) Revision 7 dated January 15, 2021; Golder, on behalf of UPRR submits to the TCEQ the Corrective Action Monitoring Report: 2020 Second Semi-Annual Event dated January 14, 2021; UPRR submits the PRACR Monthly Update to the TCEQ for December 2020 (January 20, 2021); Golder, on behalf of UPRR, conducts 2021 first semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event.
December 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for November 2020 (December 10, 2020); TCEQ issues IDP on December 7, 2020 via email; A conference call between TCEQ, UPRR, and Golder is held on December 21, 2020 to discuss a planned UPRR engineering railroad project that may disturb portions of the soil, asphalt, and railroad ballast cap areas; UPRR submits comments on IDP on December 22, 2020 with an extension request to submit additional information regarding the engineering project by January 15, 2021.
November 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for October 2020 (November 19, 2020); UPRR submits the 3rd Quarter 2020 DNAPL Recovery Activities Quarterly Report to the TCEQ.
October 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for September 2020 (October 20, 2020); UPRR submits RAP Revision 6 dated October 26, 2020 in response to conference call between TCEQ, UPRR, and Golder on October 12, 2020.
September 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for August 2020 (September 16, 2020).
August 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for July 2020 (August 19, 2020); UPRR submits the RCRA Part A and B Permit Renewal Application with RAP Revision 5 to the TCEQ dated August 31, 2020 in response to the Technical Notice of Deficiency (TNOD) dated April 11, 2019; UPRR submits the 2nd Quarter 2020 DNAPL Recovery Activities Quarterly Report to the TCEQ.

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July 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for June 2020 (July 10, 2020); UPRR submits Updated Pentachlorophenol Soil Assessment Interim Report dated July 14, 2020 and Updated Soil Vapor Intrusion Assessment Interim Report dated August 4, 2020 to the TCEQ; UPRR submits to the TCEQ the Corrective Action Monitoring Report: 2020 First Semi-Annual Event dated July 6, 2020; Golder, on behalf of UPRR, conducts 2020 second semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event.
June 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for May 2020 (June 2, 2020); UPRR installs additional soil gas probes to evaluate potential vapor intrusion (VI) pathway and collects additional soil samples for PCP assessment; UPRR submits the 1st Quarter 2020 DNAPL Recovery Activities Quarterly Report to the TCEQ.
May 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for April 2020 (May 8, 2020); UPRR contractor United States Environmental Services (USES) was called to the concrete cap area to pressure wash areas with brown standing water observed along asphalt joints and cracks in the pavement in A and B rows. USES collected the fluids into a tote which was profiled and disposed of according to federal and state rules and regulations; UPRR submits the non-aqueous phase liquid (NAPL) and total petroleum hydrocarbon (TPH)-NAPL interim report dated May 29, 2020 and prepared by Golder on behalf of UPRR to TCEQ; UPRR submits Bimonthly Status Update of Sampling Activities to TCEQ (May 15, 2020); UPRR submits Response to TCEQ Approval with Comments Letter Dated April 23, 2020 on Soil Vapor Intrusion Assessment Report (May 1, 2020) and Response to TCEQ Approval with Comments Letter Dated April 23, 2020 on Pentachlorophenol Soil Assessment Report (May 8, 2020); Golder, on behalf of UPRR, conducts second sampling event of monitoring wells installed in 2020.
April 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for March 2020 (April 3, 2020); UPRR submits Interim Groundwater Monitoring Report (2019-2020) to TCEQ (April 30, 2020); TCEQ issues Approval with Comments Letters dated April 23, 2020 on Soil Vapor Intrusion Assessment Interim Report dated March 31, 2020 and Pentachlorophenol Soil Assessment Interim Report dated March 30, 2020.
March 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for February 2020 (March 5, 2020); UPRR completes monitoring well installation activities and sampling of newly installed wells after development; UPRR submits Soil Vapor Intrusion Assessment Interim Report dated March 31, 2020 to TCEQ; UPRR submits Pentachlorophenol Soil Assessment Interim Report dated March 30, 2020 to TCEQ; UPRR submits the 4th Quarter 2019 DNAPL Recovery Activities Quarterly Report to the TCEQ
February 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for January 2020 (February 5, 2020); UPRR continues TPH/NAPL assessment activities and vapor intrusion assessment activities; UPRR begins monitoring well installation activities; UPRR conducts soil sampling for pentachlorophenol analysis; UPRR submits extension request letter dated February 7, 2020 to TCEQ; TCEQ grants extension request in letter dated February 21, 2020; UPRR

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Date	Description
	submits Bi-monthly status update of sampling activities to the TCEQ (February 28, 2020)
January 2020	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ for December 2019 (January 15, 2020); UPRR continues TPH/NAPL assessment activities and begins vapor intrusion assessment activities; UPRR submits revised vapor intrusion work plan dated January 2, 2020 to the TCEQ which is approved by the TCEQ in a letter dated January 3, 2020; UPRR submits additional revisions to the vapor intrusion work plan on January 31, 2020; UPRR submits to the TCEQ the Corrective Action Monitoring Report: 2019 Second Semi-Annual Event dated January 17, 2020; Golder, on behalf of UPRR, conducts 2020 first semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event.
December 2019	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (December 6, 2019); TCEQ issues a comment letter dated December 13, 2019 in response to UPRR Response to TCEQ Additional Comment Letter dated October 23, 2019 and to request a meeting on December 19, 2019; Golder submits the bi-monthly status update of sampling activities to the TCEQ in a letter dated December 13, 2019. Meeting with UPRR, Golder, and TCEQ to discuss TCEQ Additional Comment Letter on December 19, 2019. Based on that meeting, Golder on behalf of UPRR, submitted the Proposed Vapor Intrusion Assessment Work Plan (VI Work Plan) dated December 20, 2019 to the TCEQ for review. The TCEQ issued a comment letter on the Work Plan dated December 23, 2019. A revised VI Work Plan was submitted to the TCEQ on January 2, 2020 and was approved by the TCEQ in a letter dated January 3, 2020.
November 2019	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (November 5, 2019); UPRR submits the 3rd Quarter 2019 DNAPL Recovery Activities Quarterly Report to the TCEQ.
October 2019	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (October 3, 2019); UPRR submits a response letter dated October 23, 2019 to the TCEQ's letter dated September 6, 2019 providing additional comments for the 4th Technical NOD.
September 2019	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (September 4, 2019); UPRR receives additional comments on the 4th TNOD dated September 6, 2019 from the TCEQ; Meeting with UPRR, Golder, and TCEQ to discuss additional comments on the 4th Technical NOD on September 23, 2019. Golder on behalf of UPRR submits the Waterline Leak Release Response Report for the water leak discussed below dated September 18, 2019 to the TCEQ Region 12.
August 2019	TCEQ issues a comment letter dated August 9, 2019 on the PRACR Monthly Update dated July 31, 2019. On August 9, 2019, a contractor opened a valve to an abandoned water line that is located beneath the Soil Cap at the Site. This led to water emanating from the location of a former fire hydrant that was present prior to the construction of the soil cap. Water flowed through the capped soils, up through the soil cap, and over the soil cap to the south-southeast, across an asphalt road, and then to a ditch along the railroad tracks. The water flowed down the ditch approximately 200 yards to the northeast to Liberty Road and

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	under the Lockwood Drive Bridge. UPRR was notified of the water leak on the morning of August 10, 2019 and emergency response activities were initiated. Once the source of the water was identified, the valve was closed at approximately 10:36 am on August 10, 2019. Because the water may have come into contact with contaminated soils, UPRR promptly reported the incident and subsequent release to the TCEQ (Spill Report No. 20192773 and NRC Report No. 1254765) upon discovery and began the initial spill response actions on August 10, 2019.
July 2019	UPRR submits the RCRA Part A and B Permit Renewal Application (Revision No. 5) with RAP (Revision No. 4) the TCEQ dated July 10, 2019 in response to the TNOD Letter dated April 11,2019; Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (July 31, 2019). Golder submits to the TCEQ the Corrective Action Monitoring Report: 2019 First Semi-Annual Event dated July 11, 2019; Golder conducts 2019 second semi-annual groundwater monitoring event for the SWMU No. 1 and site-wide groundwater sampling event.
June 2019	UPRR receives letter granting extension to July 10, 2019 for submittal of response to 4th TNOD Letter dated April 11, 2019 from the TCEQ; Meeting with UPRR, Golder, and TCEQ to discuss 4th Technical NOD on June 12, 2019; Golder submits the 1st Quarter 2019 DNAPL Recovery Activities Quarterly Report to the TCEQ; and Golder submits the PRACR Monthly Update to the TCEQ (June 28, 2019).
May 2019	UPRR submits an Extension Request for response to 4th Technical NOD Letter dated April 11, 2019 to TCEQ; UPRR installs additional well as requested in 4th Technical NOD letter; and Golder submits the PRACR Monthly Update to the TCEQ (May 31, 2019).
April 2019	UPRR receives 4th Technical NOD dated April 11, 2019 from the TCEQ; Meeting with UPRR, Golder and TCEQ to discuss 4th Technical NOD on April 24, 2019; and Golder submits the PRACR Monthly Update to the TCEQ (April 30, 2019).
March 2019	UPRR submits Response Action Completion Report (RACR) summarizing the NAPL Collection System installation in the Englewood Intermodal Yard with the HWPW Site; and Golder submits the PRACR Monthly Update to the TCEQ (March 29, 2019).
February 2019	TCEQ issues a comment letter dated February 6, 2019 on the Response to Comments dated January 9, 2019; Golder completes the interim remedial activities by installing the non-aqueous phase liquid (NAPL) collection system; and Golder submits the PRACR Monthly Update to the TCEQ (February 28, 2019) that includes a response to TCEQ comment letter dated February 6, 2019. The response includes details on the proposed additional total petroleum hydrocarbon (TPH) assessment in soils at the UPRR Englewood Intermodal Yard within the Houston Wood Preserving Works (HWPW) Site.
January 2019	Golder, on behalf of UPRR, begins the interim remedial excavation activities for the installation of the NAPL collection system at the Englewood Intermodal Yard; Golder submits to the TCEQ the response to comments dated January 9, 2019 responding to TCEQ comment letter dated December 6, 2018 on the October 2018 PRACR Monthly Update; and Golder submits the PRACR Monthly Update to the TCEQ (February 4, 2019). Golder submits to the TCEQ the Corrective Action Monitoring Report: 2018 Second Semi-Annual Event dated January 4,

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	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, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (November 30, 2018).
October 2018	Golder, on behalf of UPRR, conducts test pits in the Englewood Intermodal Yard to evaluate the NAPL seeps observed in the primary area (stalls B100-B109) and other areas (parking stalls B13 and B54). Golder submits the PRACR Monthly Update to the TCEQ (October 31, 2018) detailing the results of the test pit evaluation.
September 2018	Golder, on behalf of UPRR, submits the PRACR Monthly Update to the TCEQ (September 28, 2018).
August 2018	UPRR submits the response to TCEQ comment and request for groundwater information letter dated November 29, 2017 – UPRR Groundwater Monitoring Data (included groundwater data from the three site-wide sampling events conducted from January – July 2018) , August 13, 2018; TCEQ issues a comment letter dated August 22, 2018 on the June 2018 PRACR Monthly Update; and Golder submits the PRACR Monthly Update to the TCEQ (August 31, 2018), including a response to the TCEQ August 22, 2018 comment letter. Response includes preliminary design for the NAPL collection system.
July 2018	Golder submits to the TCEQ the Corrective Action Monitoring Report: 2018 First Semi-Annual Event dated July 20, 2018; Golder conducts 2018 second semi-annual groundwater monitoring event for the SWMU No. 1.; Golder submits the PRACR Monthly Update to the TCEQ (July 20, 2018).
June 2018	Golder conducts a site-wide groundwater sampling event (May-June 2018) in response to TCEQ letter dated November 27, 2017; and conducts repairs to the soil cap (June 12-13, 2018). Golder submits the PRACR Monthly Update to the TCEQ (June 21, 2018).
May 2018	Pastor, Behling & Wheeler, LLC (PBW) (now Golder) submits the PRACR Monthly Update to the TCEQ (May 21, 2018).
April 2018	PBW conducts a site-wide groundwater sampling event (March - April 2018) in response to TCEQ letter dated November 27, 2017; and submits the PRACR Monthly Update to the TCEQ (April 20, 2018).
March 2018	TCEQ issues comment letter on the Updated PRACR requesting monthly updates on the soil and concrete cap repairs (March 20, 2018).
January 2018	PBW submits to the TCEQ the Corrective Action Monitoring Report: 2017 Second Semi-Annual Event dated January 18, 2018; PBW conducts 2018 first semi-annual groundwater monitoring event for the SWMU No. 1. PBW also

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	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 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	UPRR submits the RCRA Part A and B Permit Renewal Application (Revision No. 4) with RAP (Revision No. 3) to the TCEQ dated July 2016 in response to the Technical NOD Letter dated June 2, 2016. This includes submitting the Response Action Completion Report (RACR) (Revision No. 1).
May 2017	Meeting with UPRR, PBW, Baker-Wotring and the TCEQ (Corrective Action and Law Division) on May 31, 2017 discussing the 3rd 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 3rd 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

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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 constriction) 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	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	UPRR receives the TCEQ letter dated November 5, 2015 detailing the agency's review of the September 18, 2015 submittal titled Additional Information for Clean Closure Equivalence Demonstration. The TCEQ Industrial and Hazardous Waste (I&HW) Permits Section was unable to accept the request for discontinuing post-closure care of the former surface impoundment, Solid Waste Management Unit (SWMU) 1.
November 2015	Meeting with UPRR, Pastor, Behling & Wheeler (PBW), and the TCEQ on November 4, 2015 discussing the October 23, 2015 technical comment letter from the TCEQ.
October 2015	UPRR receives additional technical comments from the TCEQ in a letter dated October 23, 2015 on the Response Action Plan (RAP) regarding the Plume Management Zones and Technical Impracticability Demonstration provided in the Response Action Plan.
September 2015	PBW submits to the TCEQ the Additional Information for Clean Closure Equivalence Demonstration dated September 18, 2015 that included historical data and letters from 1983, 1984, and 1991 to demonstrate clean closure of the

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

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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.
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.

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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.
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

APPENDIX 3

CHRONOLOGY

Date	Description
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

ATTACHMENT A

2022 QUARTERLY INSPECTION RECORDS AND PHOTOGRAPHIC LOGS

ATTACHMENT A1

FIRST QUARTER 2022 (JANUARY 27th) INSPECTION RECORD AND PHOTOGRAPHIC LOG

UPRR HWPW - Quarterly Site Inspection Record

Date: January 27, 2022 **Time Started: 1030** **Time Ended: 1200**

Weather Conditions: Sunny with clear skies High 63F, low 44 F

Observations/Comments:

CAPPED AREA	ITEM	Evidence Observed?		Improvements Necessary		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Yes	No	Yes	No	
Soil Cap	Erosion (gullies, rills)		X		X	No major erosion observed
	Settlement		X		X	No major settlement observed
	Animal Damage	X			X	3 fire ant nest observed in cap
	Intrusive Shrubs/Trees		X		X	No woody shrubs oberved
	Vegetation Coverage	X			X	Dense in most areas with a few bald patches
	Stressed Vegetation	X			X	Grass in winter dormancy
	Monitoring Wells Condition	X			X	Wells appeared in good condition
Asphalt Roadway	Surface Damage		X		X	No surface damage observed
	Signs of Exposed Soils		X		X	No exposed soils were observed
	Settlement		X		X	No major settling observed
Ballast Cap	Surface Damage		X		X	None observed
	Signs of Exposed Soils		X		X	None observed
	Intrusive Vegetation		X		X	No significant vegetation growth observed
Concrete Cap (Englewood Intermodal Yard)	Surface Damage		X		X	None observed
	Signs of Exposed Soils		X		X	None observed
	Intrusive Vegetation	X			X	Grass sprouting in concrete gaps
Concrete Cap (Sidewalk)	Surface Damage		X		X	None observed
	Signs of Exposed Soils		X		X	None observed
	Intrusive Vegetation		X		X	Some vegetation observed along joints of sidewalk, vegetation appeared small.
Other Areas						
Container Storage Area	Valve Position (Closed)	X			X	Valve in closed position
	Holding Water		X		X	None observed
	Sheen/Floating Solids		X		X	None observed
Security Fence	Damaged Posts or Wire		X		X	No damage observed
	Functioning Properly		X		X	Fence was observed to be functioning as intended

Additional Comments or Observations: Possibly reseed bare vegetation and continue monitor areas of stressed vegetation. Address anthills.

Inspector: William Carter

Inspectors Signature: 

Golder Associates, Inc.

14950 Heathrow Forest Pkwy, Suite 280

Houston, Texas 77032

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

GOLDER

PHOTOGRAPHIC LOG

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

Photo No.	Date:
1	01/27/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. No major rills observed during inspection. Facing south.

Lat: 29.786128
Long: -95.320825

Photo No.	Date:
2	01/27/2022

Description:

HWPW Yard Area and Soil Cap:
Vegetative growth can be observed along the length of the soil cap, preventing future erosion. Facing southeast.

Lat: 29.787375
Long: -95.317413

PHOTOGRAPHIC LOG

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

Photo No.	Date:
3	01/27/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. Some areas of exposed soil noted. Facing east.

Lat: 29.786700
Long: -95.319838

Photo No.	Date:
4	01/27/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. Some minor bald patches and exposed soil noted. Vegetation is mostly dormant. Facing east.

Lat: 29.787525
Long: -95.317895

PHOTOGRAPHIC LOG

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

Photo No.	Date:
5	01/27/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. Some minor bald patches and exposed soil noted. Vegetation is mostly dormant. Facing northeast.

Lat: 29.786275
Long: -95.320795

Photo No.	Date:
6	01/27/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. Facing east.

Lat: 29.786441
Long: -95.320681

PHOTOGRAPHIC LOG

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

Photo No.	Date:
7	01/27/2022

Description:

Ballast Cap, Soil Cap Vegetative Cover, and Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Some vegetation can be noted growing within the ballast cap and under the concrete barriers. Facing east.

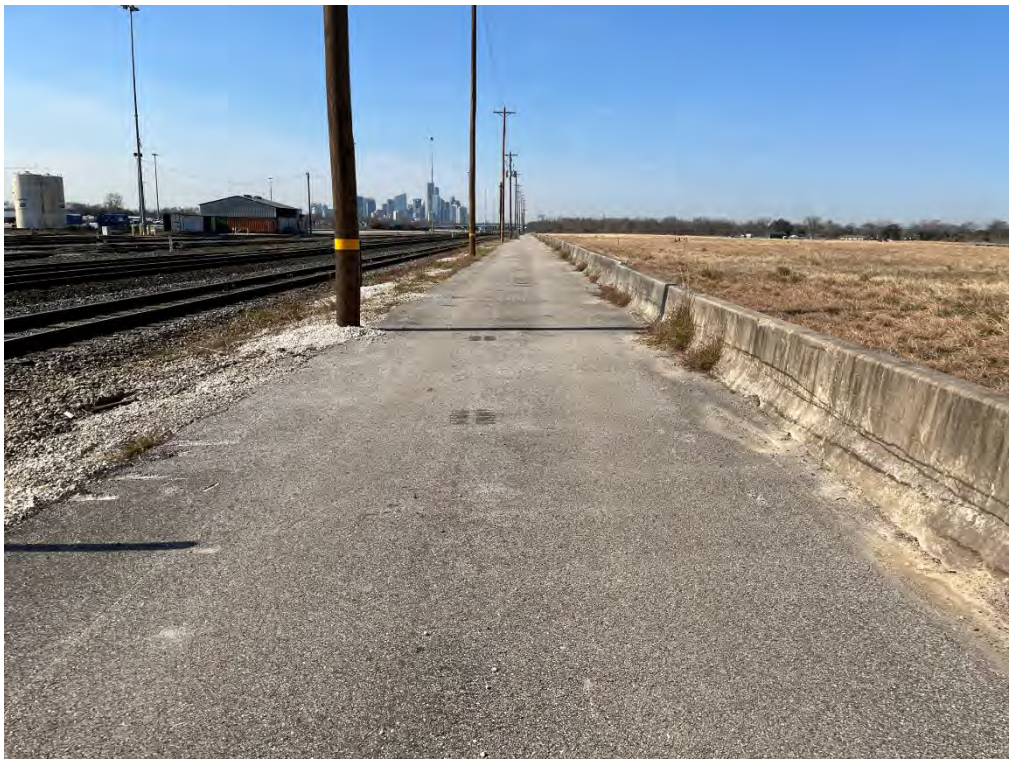
Lat: 29.787505
Long: -95.316612

Photo No.	Date:
8	01/27/2022

Description:

Ballast Cap, Soil Cap Vegetative Cover, and Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Some vegetation can be noted growing within the ballast cap and under the concrete barriers. Facing west.

Lat: 29.786042
Long: -95.320008



PHOTOGRAPHIC LOG

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

Photo No.	Date:
9	01/27/2022

Description:

Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Tar-like marks on road do not appear to have changed in size (approximately 2 inches wide). Facing northwest.

Lat: 29.785436
Long: -95.321639

Photo No.	Date:
10	01/27/2022

Description:

Ballast Cap:
Small area of erosion under concrete barriers on the north side of asphalt road.

Lat: 29.787625
Long: -95.316330

PHOTOGRAPHIC LOG

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

Photo No.	Date:
11	01/27/2022

Description:

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

Lat: 29.784388
Long: -95.323792

Photo No.	Date:
12	01/27/2022

Description:

Asphalt Roadway and Soil Cap Vegetative Cover:
Weeds and vegetation can be observed growing under the concrete barriers. Some anthills can be seen on the edge of the concrete barriers. Tar-like marks do not appear to have changed in size Facing east.

Lat: 29.786978
Long: -95.317933

PHOTOGRAPHIC LOG

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

Photo No.	Date:
13	01/27/2022

Description:

Security Fence/Sidewalk Area:
Sidewalk outside security fence in good condition. Some areas have minor vegetative growth. Minor damage and erosion under the security fence observed at the end of the sidewalk. Facing west.

Lat: 29.787692
Long: -95.316772

Photo No.	Date:
14	01/27/2022

Description:

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

Lat: 29.787647
Long: -95.316812

PHOTOGRAPHIC LOG

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

Photo No.	Date:
15	01/27/2022

Description:

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

Lat: 29.787625
Long: -95.317955

Photo No.	Date:
16	01/27/2022

Description:

Security Fence/Sidewalk Area:
Sidewalk area outside security fence in good condition. Some garbage and debris can be observed in sidewalk area. Facing west.

Lat: 29.787588
Long: -95.318900

PHOTOGRAPHIC LOG

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

Photo No.	Date:
17	01/27/2022

Description:
Concrete Cap Area (Englewood Yard):
Concrete cap within yard in good condition. Some cracking evident, particularly on edges of rows, with minimal vegetative growth. Facing north.

Lat: 29.785713
Long: -95.317925

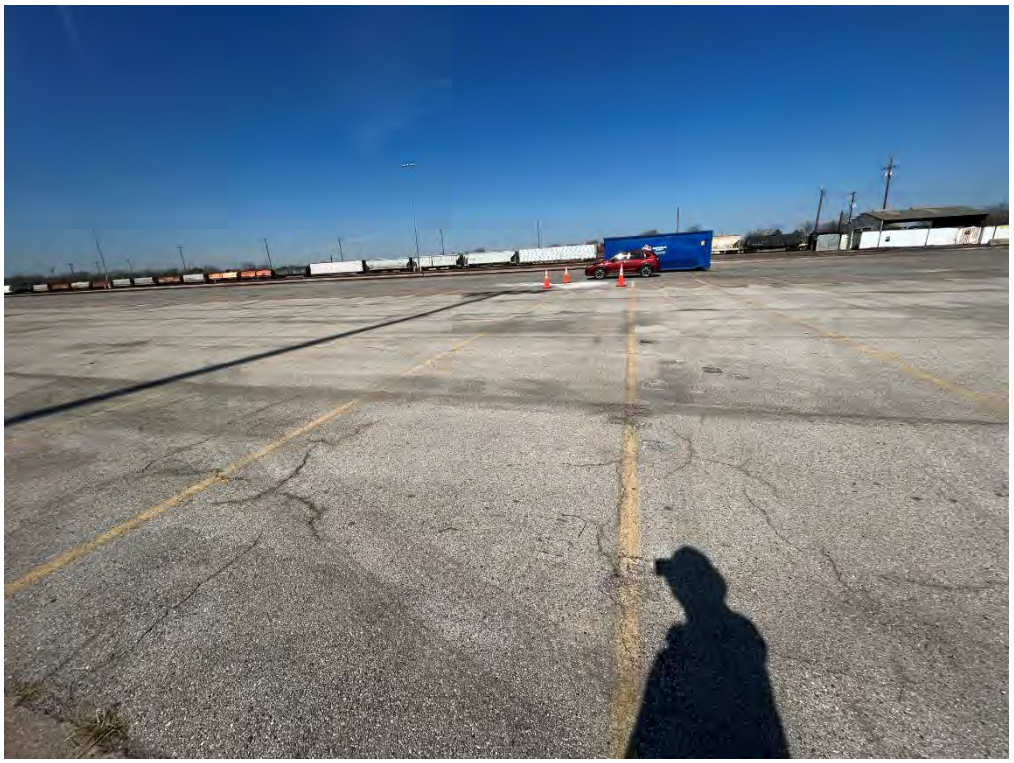


Photo No.	Date:
18	07/27/2022

Description:
Concrete Cap Area (Englewood Yard):
Stall A012. Evidence of cracking evident in multiple spots (particularly along the edge) in A and B rows. Facing southeast.

Lat: 29.785489
Long: -95.318414

PHOTOGRAPHIC LOG

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

Photo No.	Date:
19	01/27/2022

Description:
Concrete Cap Area (Englewood Yard):
A096 stall. Localized brown staining along asphalt cracks and joints. Facing west.

Lat: 29.784513
Long: -95.320725

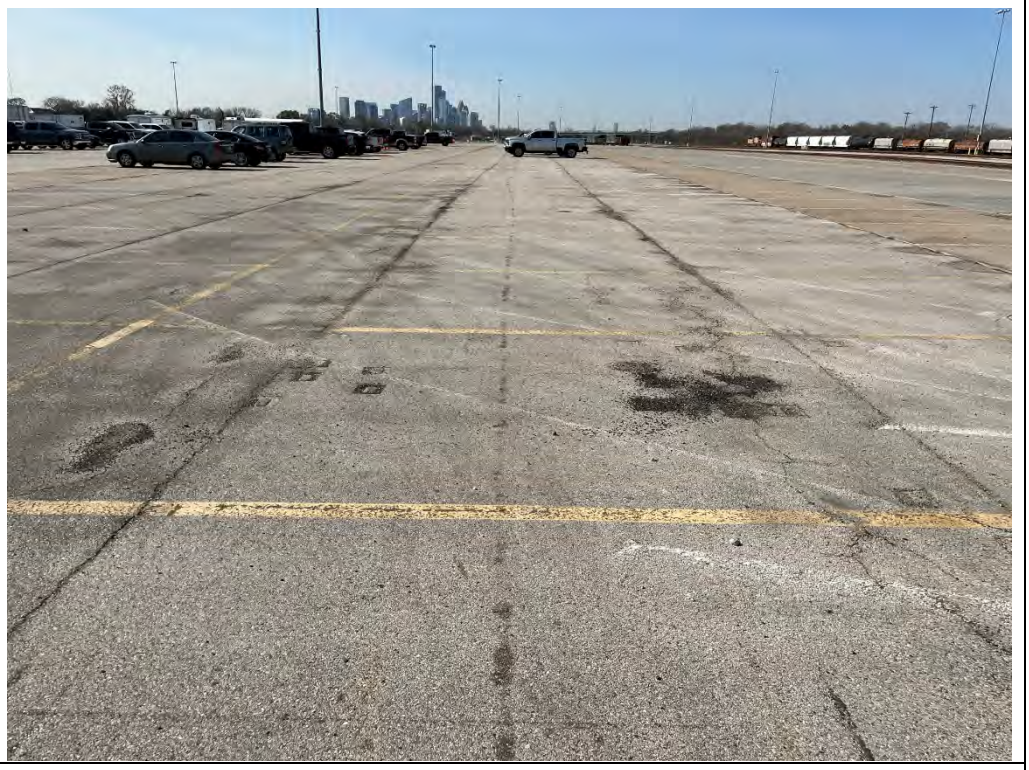


Photo No.	Date:
20	01/27/2022

Description:
Concrete Cap Area (Englewood Yard):
Some cracking in concrete along joints near stall B054.

Lat: 29.784787
Long: -95.319732

PHOTOGRAPHIC LOG

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

Photo No.	Date:
21	01/27/2022

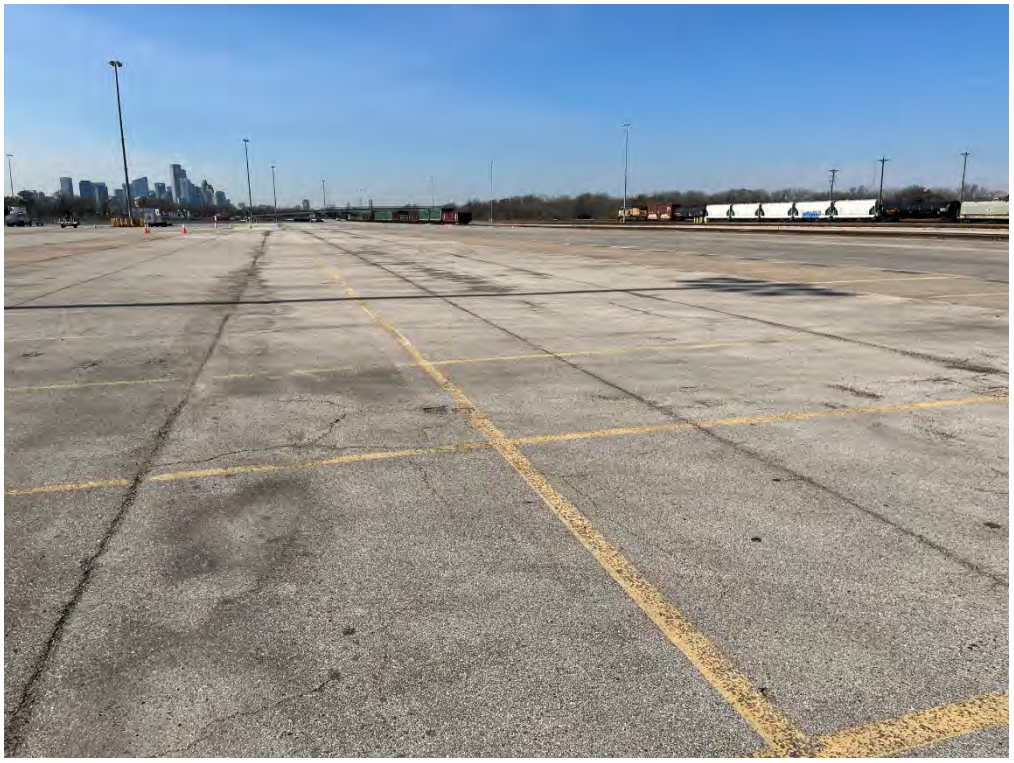
Description:
Concrete Cap Area (Englewood Yard):
B096 Stall. Pavement patch showing signs of minor cracking from previous quarter repair.

Lat: 29.784270
Long: -95.320317

Photo No.	Date:
22	01/27/2022

Description:
Concrete Cap Area (Englewood Yard):
A and B Rows showing general signs of minor cracking and staining.

Lat: 29.784212
Long: -95.320808



PHOTOGRAPHIC LOG

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

Photo No.	Date:
23	01/27/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
NAPL Collection System in stalls B099-B110 in good condition with little evidence of cracking, stains, etc. Facing west.

Lat: 29.784212
Long: -95.320825

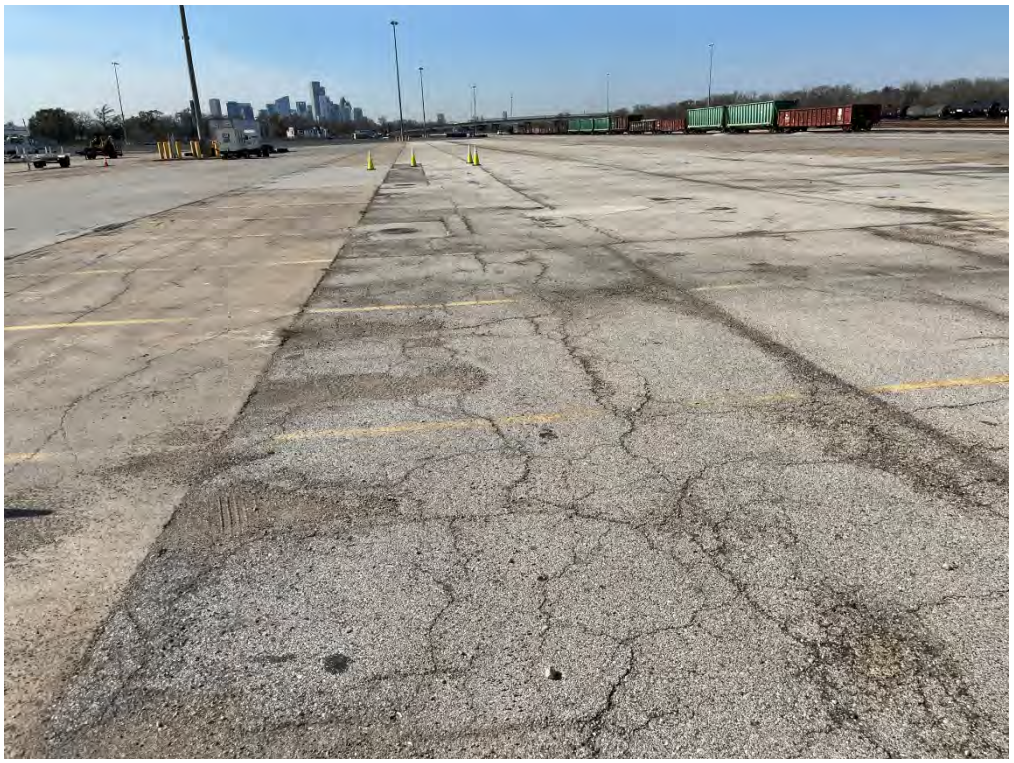


Photo No.	Date:
24	07/27/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
Sump B099/B100. Sump has 3 inches of freeboard. This sump has historically exhibited higher water levels and has not produced any DNAPL. Water is brown in color, but no odor or sheen observed.

Lat: 29.784272
Long: -95.320769

PHOTOGRAPHIC LOG

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

Photo No.	Date:
25	01/27/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
Sump B103/B104. Sump has 9 inches of freeboard. This sump has historically not produced any DNAPL. Water is brown in color, but no odor or sheen observed.

Lat: 29.784211
Long: -95.320883

Photo No.	Date:
26	01/27/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
Sump B107/B108. Sump has 9 inches of freeboard. This sump has occasionally produced small quantities of DNAPL, which is removed weekly if observed. Water is brown in color, but no odor or sheen observed. Water surrounding manhole is rainwater accumulated during recent rainfall in sump cap.

Lat: 29.784169
Long: -95.320975

PHOTOGRAPHIC LOG

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

Photo No.	Date:
27	01/27/2022

Description:

Concrete Cap Area (Englewood Yard):
Concrete cap within yard in good condition. Some cracking evident, particularly on edges of rows, with minimal vegetative growth. Facing northeast.

Lat: 29.785654
Long: -95.316732

Photo No.	Date:
28	01/27/2022

Description:

Concrete Cap Area (Englewood Yard):
Concrete cap within yard in good condition. Some cracking evident, particularly on edges of rows, with minimal vegetative growth. Facing southwest.

Lat: 29.783495
Long: -95.319022

PHOTOGRAPHIC LOG

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

Photo No.	Date:
29	01/27/2022

Description:

Concrete Cap Area (Englewood Yard):
Small gaps in concrete joints, photo representative of locations in C and D rows expressing such separation ranging between 1 and 2 inches.

Lat: 29.784292
Long: -95.317611

Photo No.	Date:
30	01/27/2022

Description:

Container Storage Area:
Valve in closed position and functioning within the container storage area**.** CSA in good condition, free of major dents and other damage. No water observed on floor. Facing south.

Lat: 29.786813
Long: -95.320612

ATTACHMENT A2

SECOND QUARTER 2022 (APRIL 27th) INSPECTION RECORD AND PHOTOGRAPHIC LOG

UPRR HWPW - Quarterly Site Inspection Record

Date: 4/27/2022 **Time Started:** **9:30 AM** **Time Ended:** 10:50 AM

Weather Conditions: Sunny and in the high 70's

Observations/Comments:

CAPPED AREA	ITEM	Evidence Observed?		Improvements Necessary		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Yes	No	Yes	No	
Soil Cap	Erosion (gullies, rills)		X		X	No major erosion abserved.
	Settlement		X		X	No major settlement observed
	Animal Damage	X			X	Fire ant nest observed .
	Intrusive Shrubs/Trees		X		X	No shrubs observed.
	Vegetation Coverage	X			X	Dense in most areas with few dead/stressed patches.
	Stressed Vegetation	X			X	Spring just started and there's been little rain. Stressed/dead patches should grow back in time.
	Monitoring Wells Condition	X			X	Wells look to be in good condition.
Asphalt Roadway	Surface Damage		X		X	No damage
	Signs of Exposed Soils		X		X	No exposed soil
	Settlement		X		X	No settlement.
Ballast Cap	Surface Damage		X		X	None Observed
	Signs of Exposed Soils		X		X	None Observed
	Intrusive Vegetation		X		X	None Observed
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X		X		There was some pooling of water as well as some potholes and big/dammaged cracks between some of the joints and in some of the stalls.
	Signs of Exposed Soils		X		X	None Observed
	Intrusive Vegetation	X			X	Grass sprouting in some of the cracks.
Concrete Cap (Sidewalk)	Surface Damage		X		X	None Observed
	Signs of Exposed Soils		X		X	None Observed
	Intrusive Vegetation	X			X	Some vegetation growing along joints of sidewalk.
Other Areas						
Container Storage Area	Valve Position (Closed)	X			X	Valve in closed position.
	Holding Water	X			X	Heavy rain on Monday all day. Water should drain off or evaporate soon.
	Sheen/Floating Solids		X		X	None Observed
Security Fence	Damaged Posts or Wire	X		X		Damaged or no wire in some areas. Also there's one hole in the fence. Posts and wire missing on the far end where car wreck occurred.
	Functioning Properly	X			X	Functioning properly.

Additional Comments or Observations: Fence is good overall but, has damaged or no wire in some areas. Also there's one hole in the fence. Posts and wire are missing on the far end where car wreck occurred.

Inspector: **Zachary Castillo**

Inspectors Signature: ZAC

Golder Associates, Inc.

14950 Heathrow Forest Pkwy, Suite 280

Houston, Texas 77032

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

GOLDER

PHOTOGRAPHIC LOG

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

Photo No.	Date:
1	04/27/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. No major rills observed during inspection. Facing south.

Lat: 29.786572
Long: -95.320367

Photo No.	Date:
2	04/27/2022

Description:

HWPW Yard Area and Soil Cap:
Vegetative growth can be observed along the length of the soil cap, some bald spots observed. Facing southeast.

Lat: 29.786411
Long: -95.320206

PHOTOGRAPHIC LOG

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

Photo No. **3**	**Date:** 04/27/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. Some areas of exposed soil noted. Facing east.

Lat: 29.786411
Long: -95.320214

Photo No. **4**	**Date:** 04/27/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion.. Facing east.

Lat: 29.786564
Long: -95.320350

PHOTOGRAPHIC LOG

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

Photo No. **5**	**Date:** 04/27/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with new growth observed and a low risk of erosion. Some minor bald patches and exposed soil noted.

Lat: 29.786383
Long: -95.320122

Photo No. **6**	**Date:** 04/27/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with new growth observed and a low risk of erosion. Some minor bald patches and exposed soil noted. Fence and barrier damaged from a car wreck. Car parts observed near wreck location. Facing east.

Lat: 29.787594
Long: -95.316681

PHOTOGRAPHIC LOG

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

Photo No. **7**	**Date:** 04/27/2022

Description:

Ballast Cap, Soil Cap Vegetative Cover, and Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Some vegetation can be noted growing within the ballast cap and under the concrete barriers. Facing west.

Lat: 29.787511
Long: -95.316572

Photo No. **8**	**Date:** 04/27/2022

Description:

Ballast Cap, Soil Cap Vegetative Cover, and Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Some vegetation can be noted growing within the ballast cap and under the concrete barriers. Facing west.

Lat: 29.786769
Long: -95.318289

PHOTOGRAPHIC LOG

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

Photo No. 9	**Date:** 04/27/2022

Description:

Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Fire ant mount between concrete barrier and asphalt road. Facing southwest.

Lat: 29.785731
Long: -95.320839

Photo No. 10	**Date:** 04/27/2022

Description:

Ballast Cap, Soil Cap Vegetative Cover, and Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Some vegetation can be noted growing within the ballast cap and under the concrete barriers. Facing west.

Lat: 29.785639
Long: -95.320969

PHOTOGRAPHIC LOG

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

Photo No. **11**	**Date:** 04/27/2022

Description:

Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage, tar-like marks on road do not appear to have changed in size. Some vegetation can be noted under the concrete barriers. Facing south.

Lat: 29.785361
Long: -95.321647

Photo No. **12**	**Date:** 04/27/2022

Description:

Ballast Cap, Asphalt Roadway and Soil Cap Vegetative Cover:
Weeds and vegetation can be observed growing in the ballast cap and under the concrete barriers. Facing west.

Lat: 29.787497
Long: -95.316536

PHOTOGRAPHIC LOG

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

Photo No. **13**	**Date:** 04/27/2022

Description:

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

Lat: 29.787644
Long: -95.317603

Photo No. **14**	**Date:** 04/27/2022

Description:

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

Lat: 29.787611
Long: -95.318467

PHOTOGRAPHIC LOG

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

Photo No. **15**	**Date:** 04/27/2022

Description:

Security Fence/Main Gate:
Main gate and security fence in good condition. Some areas of minor vegetative growth. Facing North.

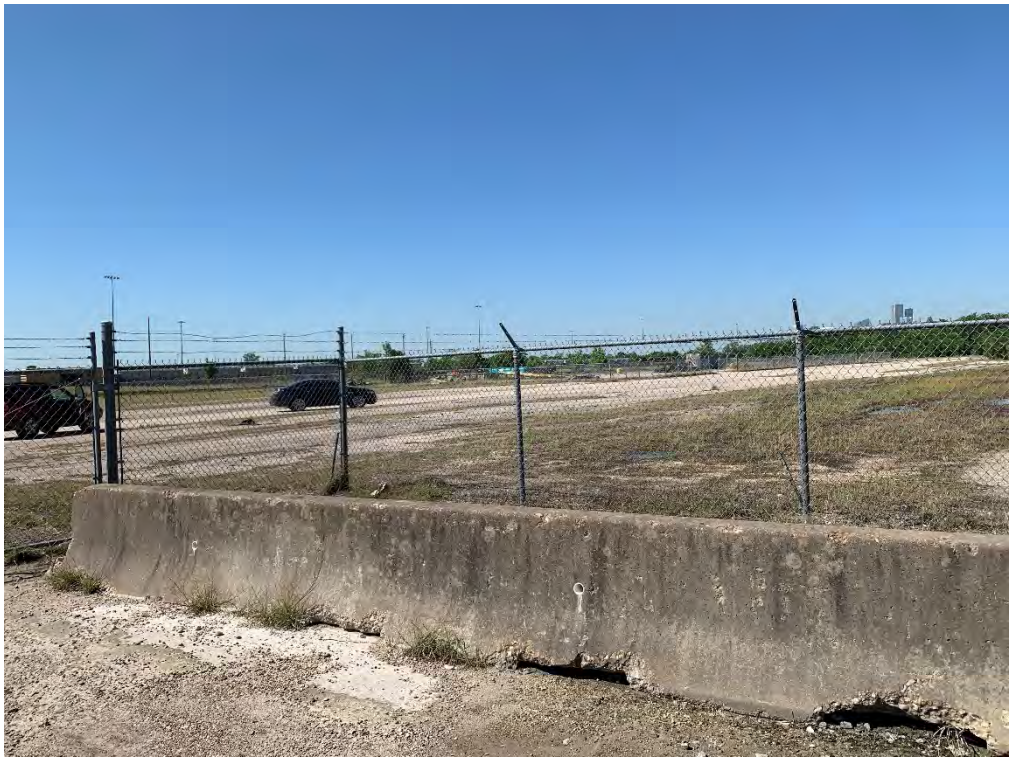
Lat: 29.787406
Long: -95.321006

Photo No. **16**	**Date:** 04/27/2022

Description:

Security Fence/Main Gate:
Security fence in good condition, small section of barb wire is missing or disconnect next to the main gate. Facing northwest.

Lat: 29.787414
Long: -95.321014



PHOTOGRAPHIC LOG

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

Photo No. **17**	**Date:** 04/27/2022

Description:
Concrete Cap Area (Englewood Yard):
Concrete cap within yard in good condition. Some cracking evident, particularly on edges of rows, with minimal vegetative growth. Facing west.

Lat: 29.784419
Long: -95.324319

Photo No. **18**	**Date:** 04/27/2022

Description:
Concrete Cap Area (Englewood Yard):
Stall A012. Evidence of cracking/potholes in multiple spots (particularly along the edge) in A and B rows. Facing east.

Lat: 29.785331
Long: -95.318803

PHOTOGRAPHIC LOG

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

Photo No. 19	**Date:** 04/27/2022

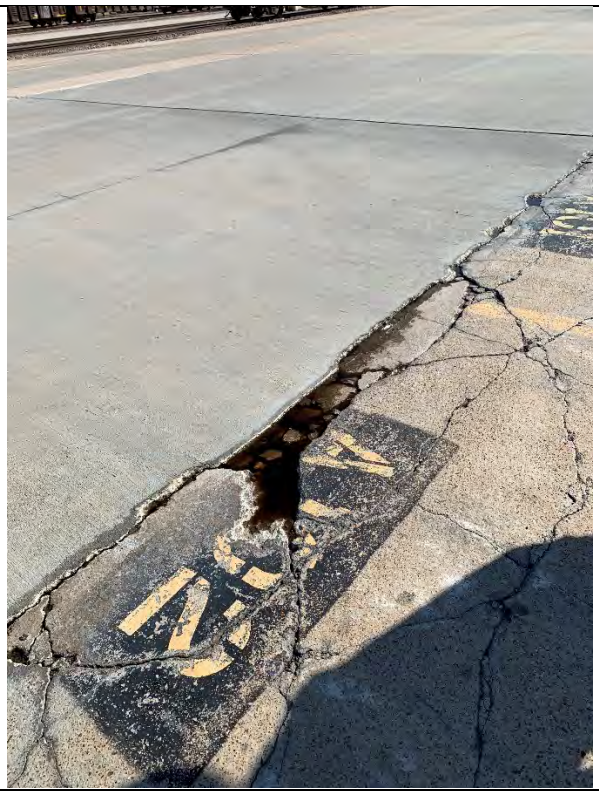
Description:
Concrete Cap Area (Englewood Yard):
F047 stall. Localized cracks and vegetation along joints. Facing northeast.

Lat: 29.784383
Long: -95.318519

Photo No. 20	**Date:** 04/27/2022

Description:
Concrete Cap Area (Englewood Yard):
Cracking in concrete in stall A102 with water from rain pooling within crack. Facing southeast

Lat: 29.784411
Long: -95.320944



PHOTOGRAPHIC LOG

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

Photo No. **21**	**Date:** 04/27/2022

Description:
Concrete Cap Area (Englewood Yard):
Stall A011, small amount of tar-like material seeping at asphalt crack, material was removed.

Lat: 29.785467
Long: -95.318347

Photo No. **22**	**Date:** 04/27/2022

Description:
Concrete Cap Area (Englewood Yard):
Western end of the G row, cap showing large pooling of water from previous rain event. Minor vegetation in cracks and joints. Facing southwest

Lat: 29.783631
Long: -95.319939

PHOTOGRAPHIC LOG

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

Photo No. **23**	**Date:** 04/27/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
NAPL Collection System in stalls B099-B110 in functional condition with evidence of cracking, stains, vegetation, etc. Facing west.

Lat: 29.784094
Long: -95.320664

Photo No. **24**	**Date:** 04/27/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
Sump B099/B100. Sump has 4.5 inches of freeboard. This sump has historically exhibited higher water levels and has not produced any DNAPL. Water is brown in color, but no odor or sheen observed.

Lat: 29.781725
Long: -95.319908

PHOTOGRAPHIC LOG

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

Photo No. 25	**Date:** 04/27/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
Sump B103/B104. Sump has 12 inches of freeboard. This sump has historically not produced any DNAPL. Water is brown in color, but no odor or sheen observed.

Lat: 29.782336
Long: -95.324678

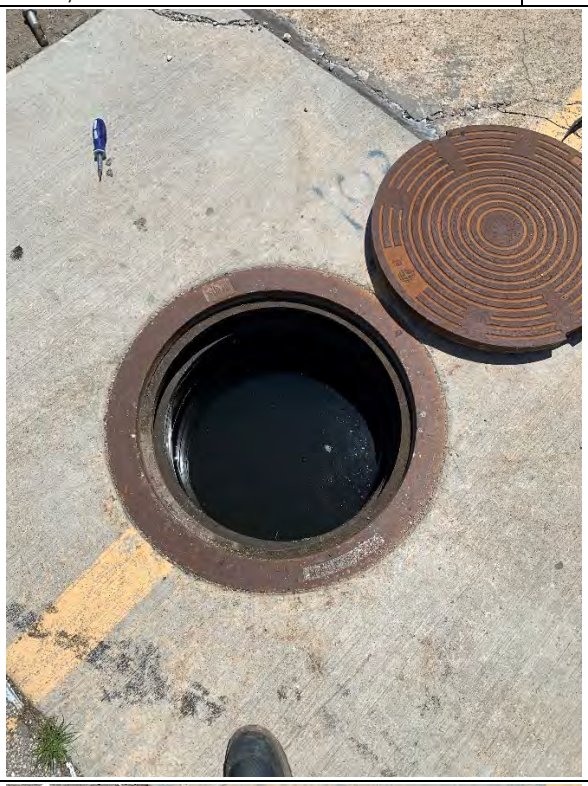


Photo No. 26	**Date:** 04/27/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
Sump B107/B108. Sump has 8.5 inches of freeboard. This sump has occasionally produced small quantities of DNAPL, which is removed weekly if observed. Water is brown in color, but no odor or sheen observed.

Lat: 29.782331
Long: -95.324692

PHOTOGRAPHIC LOG

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

Photo No. **27**	**Date:** 04/27/2022

Description:

Concrete Cap Area (Englewood Yard):
Concrete cap within yard in good condition. Some cracking evident, particularly on edges of rows, with minimal vegetative growth. Facing southwest.

Lat: 29.783686
Long: -95.321892

Photo No. **28**	**Date:** 04/27/2022

Description:

Concrete Cap Area (Englewood Yard):
Concrete cap within yard in good condition. Some cracking evident, particularly on edges of rows, with minimal vegetative growth. Facing northwest.

Lat: 29.781719
Long: -95.323356

PHOTOGRAPHIC LOG

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

Photo No. **29**	**Date:** 04/27/2022

Description:

Concrete Cap Area (Englewood Yard):
Western end of D row, gap in concrete joint, very small amount of rebar becoming exposed.

Lat: 29.783797
Long: -95.321022

Photo No. **30**	**Date:** 04/27/2022

Description:

Container Storage Area:
Valve in closed position and functioning within the container storage area**.** CSA in good condition, free of major dents and other damage. No water observed on floor. Facing south.

Lat: 29.786813
Long: -95.320612

ATTACHMENT A3

THIRD QUARTER 2022 (JULY 22nd) INSPECTION RECORD AND PHOTOGRAPHIC LOG

UPRR HWPW - Quarterly Site Inspection Record

Date: 7/22/2022 **Time Started:** **8:30 AM** **Time Ended:** 12:00 PM

Weather Conditions: Sunny and in the high 90's

Observations/Comments:

CAPPED AREA	ITEM	Evidence Observed?		Improvements Necessary		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Yes	No	Yes	No	
Soil Cap	Erosion (gullies, rills)		X		X	No major erosion abserved.
	Settlement		X		X	No major settlement observed
	Animal Damage		X		X	No animal damage observed
	Intrusive Shrubs/Trees		X		X	No shrubs observed.
	Vegetation Coverage	X			X	Dense in most areas with some dead/stressed patches.
	Stressed Vegetation	X			X	This summer has been very hot with little rain. Stressed/dead patches should grow back in time.
	Monitoring Wells Condition	X			X	Wells look to be in good condition.
Asphalt Roadway	Surface Damage		X		X	No damage
	Signs of Exposed Soils	X		X		Lots of vegetation growing on the joint of the road and barricade.
	Settlement		X		X	No settlement.
Ballast Cap	Surface Damage		X		X	None Observed
	Signs of Exposed Soils		X		X	None Observed
	Intrusive Vegetation	X		X		Lots of vegetation on ballast cap that needs to be cut.
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X		X		There was some pooling of water as well as some potholes and big/dammaged cracks between some of the joints and in some of the stalls.
	Signs of Exposed Soils		X		X	None Observed
	Intrusive Vegetation	X			X	Grass sprouting in some of the cracks and joints.
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	None Observed
	Sheen/Floating Solids		X		X	None Observed
Security Fence	Damaged Posts or Wire	X		X		Damaged or no wire in some areas. Also missing pieces of fence and barb wire where car wreck occurred.
	Functioning Properly	X			X	Functioning properly.

Additional Comments or Observations: Fence is good overall but, has damaged or no wire in some areas. Also missing pieces of fence and barb wire where car wreck occurred. Grass is overgrown in some of the fenced in areas that are not a part of the cap.

Inspector: **Zachary Castillo**

Inspectors Signature: ZAC

Golder Associates, Inc.

14950 Heathrow Forest Pkwy, Suite 280

Houston, Texas 77032

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

GOLDER

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. **1**	**Date:** 07/22/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with some stressed areas due to lack of rain and a low risk of erosion. No major ruts observed during inspection. Facing southwest.

Lat: 29.786797
Long: -95.320350

Photo No. **2**	**Date:** 07/22/2022

Description:

HWPW Yard Area and Soil Cap:
Vegetative growth can be observed along the length of the soil cap, however, some areas are stressed due to lack of rain, some bald patches observed. Facing southeast.

Lat: 29.786494
Long: -95.320144

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 3	**Date:** 07/22/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. Some areas of stressed vegetation due to lack of rain noted. Facing northeast.

Lat: 29.786522
Long: -95.320472

Photo No. 4	**Date:** 07/22/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. Some minor areas of stressed vegetation due to lack of rain noted. Facing northeast.

Lat: 29.786522
Long: -95.320472

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 5	**Date:** 07/22/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. Some minor bald patches, exposed soil, and areas of stressed vegetation due to lack of rain noted. Facing west.

Lat: 29.787469
Long: -95.317872

Photo No. 6	**Date:** 07/22/2022

Description:

HWPW Yard Area and Soil Cap:
Soil cap well-vegetated in most areas with a low risk of erosion. Small patches of exposed soil and areas of stressed vegetation due to lack of rain noted. Fence damaged due to a car wreck. Facing east.

Lat: 29.787564
Long: -95.316903

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 7	**Date:** 07/22/2022

Description:

Ballast Cap, Soil Cap Vegetative Cover, and Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Vegetation growth noted within the ballast cap and under the concrete barriers. Facing west.

Lat: 29.787747
Long: -95.316672

Photo No. 8	**Date:** 07/22/2022

Description:

Ballast Cap, Soil Cap Vegetative Cover, and Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Vegetation growth noted within the ballast cap. Facing southwest.

Lat: 29.787297
Long: -95.317069

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 9	**Date:** 07/22/2022

Description:

Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Vegetation growth noted within the ballast cap and under the concrete barriers. Facing southeast.

Lat: 29.785383
Long: -95.321539

Photo No. 10	**Date:** 07/22/2022

Description:

Ballast Cap, Soil Cap Vegetative Cover, and Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Vegetation growth noted within the ballast cap and under the concrete barriers. Facing west.

Lat: 29.785731
Long: -95.320717

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 11	**Date:** 07/22/2022

Description:

Asphalt Roadway:
Asphalt roadway in good condition, free of major cracking/damage. Small tar-like marks do not appear to have expanded in size. Vegetation growth noted within the ballast cap and under the concrete barriers. Facing west.

Lat: 29.785372
Long: -95.321572

Photo No. 12	**Date:** 07/22/2022

Description:

Ballast Cap, Asphalt Roadway and Soil Cap Vegetative Cover:
Asphalt roadway in good condition. Vegetation growth noted within the ballast cap and under the concrete barriers. Facing west.

Lat: 29.784775
Long: -95.322983

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 13	**Date:** 07/22/2022

Description:

Security Fence/Sidewalk Area:
Sidewalk outside security fence in good condition. Facing east.

Lat: 29.787681
Long: -95.317747

Photo No. 14	**Date:** 07/22/2022

Description:

Security Fence/Sidewalk Area:
Sidewalk outside security fence in good condition. Facing west.

Lat: 29.787681
Long: -95.317747

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. **15**	**Date:** 07/22/2022

Description:

Security Fence/Main Gate:
Main gate and security fence in good condition. Some areas have sagging or missing wire. Facing east.

Lat: 29.787364
Long: -95.321083

Photo No. **16**	**Date:** 07/22/2022

Description:

Security Fence/Main Gate:
Security fence in good condition, some sections have missing or sagging barbwire next to the main gate. Facing northeast.

Lat: 29.787364
Long: -95.321083

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. **17**	**Date:** 07/22/2022

Description:
Concrete Cap Area (Englewood Yard):
Concrete cap within yard in good condition. Some cracking evident, particularly on edges of rows, with minimal vegetative growth. Facing west.

Lat: 29.784714
Long: -95.318419

Photo No. **18**	**Date:** 07/22/2022

Description:
Concrete Cap Area (Englewood Yard):
Stall A012. Evidence of cracking/potholes in multiple spots (particularly along the edge) in A and B rows. Facing east.

Lat: 29.785367
Long: -95.318650

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 19	**Date:** 07/22/2022

Description:
Concrete Cap Area (Englewood Yard):
H039 stall. Localized cracks and vegetation along joints. Facing southeast.

Lat: 29.784136
Long: -95.318161

Photo No. 20	**Date:** 07/22/2022

Description:
Concrete Cap Area (Englewood Yard):
Cracking in concrete in stall A102. Facing east

Lat: 29.784428
Long: -95.320953

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 21	**Date:** 07/22/2022

Description:
Concrete Cap Area (Englewood Yard):
Slot B107, a small seep of tar-like material in concrete cracks within the NAPL Collection Area. Material was removed.

Lat: 29.784156
Long: -95.320953

Photo No. 22	**Date:** 07/22/2022

Description:
Concrete Cap Area (Englewood Yard):
Concrete cap within yard in good condition. Some cracking evident, particularly on edges of rows, with minimal vegetative growth. Facing southwest.

Lat: 29.784714
Long: -95.318419

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 23	**Date:** 07/22/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
NAPL Collection System in stalls B099-B110 in functional condition with evidence of cracking, residual stains, and minor vegetation growth. Facing southeast.

Lat: 29.784286
Long: -95.320800

Photo No. 24	**Date:** 07/20/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
Sump B099/B100 following pump down event. This sump has historically exhibited higher water levels. A small amount of DNAPL (less than 0.1 gal) was recovered for the first time from this sump during the pumpdown. Water is brown in color, with sheen visible on recharge water.

Lat: 29.781725
Long: -95.319908

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 25	**Date:** 07/20/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
Sump B103/B104, following pump down event. This sump has historically not produced any DNAPL. Water is brown in color, but no odor or sheen observed.

Lat: 29.782336
Long: -95.324678

Photo No. 26	**Date:** 07/20/2022

Description:
Concrete Cap Area (Englewood Yard)/NAPL Collection System:
Sump B107/B108, following pump down event. This sump has occasionally produced small quantities of DNAPL, which is removed weekly if observed. Water is brown in color, but no odor or sheen observed.

Lat: 29.782331
Long: -95.324692

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 27	**Date:** 07/22/2022

Description:

Concrete Cap Area (Englewood Yard):
Concrete cap within yard in good condition. Some cracking evident, particularly on edges of rows, with minor vegetative growth. Facing east.

Lat: 29.784753
Long: -95.319642

Photo No. 28	**Date:** 07/22/2022

Description:

Concrete Cap Area (Englewood Yard):
Concrete cap within yard in good condition. Some cracking evident, particularly on edges of rows, with minimal vegetative growth. Facing southwest.

Lat: 29.783553,
Long: -95.320053

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 29	**Date:** 07/22/2022

Description:

Concrete Cap Area (Englewood Yard):
Stalls D130-D131, gapping and concrete wear along joint.

Lat: 29.783703
Long: -95.320992

Photo No. 30	**Date:** 07/22/2022

Description:

Container Storage Area:
Valve in closed position and functioning within the container storage area**.** CSA in good condition, free of major dents and other damage. No water observed on floor.

Lat: 29.786813
Long: -95.320612

ATTACHMENT A4

FOURTH QUARTER 2022 (OCTOBER 19TH) INSPECTION RECORD AND PHOTOGRAPHIC LOG

UPRR HWPW - Quarterly Site Inspection Record

Date: 10/19/2022 **Time Started:** **8:30 AM** **Time Ended:** 12:00 PM

Weather Conditions: Sunny and in the high 90's

Observations/Comments:

CAPPED AREA	ITEM	Evidence Observed?		Improvements Necessary		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Yes	No	Yes	No	
Soil Cap	Erosion (gullies, rills)		X		X	No major erosion observed. Minor ruts that were located on the slope have been filled.
	Settlement		X		X	No major settlement observed
	Animal Damage		X		X	No animal damage observed
	Intrusive Shrubs/Trees		X		X	No shrubs observed.
	Vegetation Coverage	X			X	Vegetation is dormant over the majority of the cap, dense covereage in most areas
	Stressed Vegetation	X			X	This summer was very hot with little rain, so most vegetation is dormant. As rain has started to pick up there are patches of new growth starting
	Monitoring Wells Condition	X			X	Wells look to be in good condition.
Asphalt Roadway	Surface Damage	X			X	Minor cracking in asphalt where the asphalt road meets the new ashpalt pull out area.
	Signs of Exposed Soils	X		X		Vegetation growing on the joint of the road and barricade.
	Settlement		X		X	No settlement.
Ballast Cap	Surface Damage		X		X	None Observed
	Signs of Exposed Soils		X		X	None Observed
	Intrusive Vegetation	X		X		Some sections with dense vegetation that needs to be removed.
Concrete Cap (Englewood Intermodal Yard)	Surface Damage	X		X		There was some pooling of water as well as some potholes and big/dammaged cracks between some of the joints and in some of the stalls.
	Signs of Exposed Soils		X		X	None Observed
	Intrusive Vegetation	X			X	Grass sprouting in some of the cracks and joints.
Concrete Cap (Sidewalk)	Surface Damage		X		X	None Observed
	Signs of Exposed Soils		X		X	None Observed
	Intrusive Vegetation	X			X	Minor vegetation growth in joints.
Other Areas						
Container Storage Area	Valve Position (Closed)	X			X	Valve in closed position.
	Holding Water		X		X	None Observed
	Sheen/Floating Solids		X		X	None Observed
Security Fence	Damaged Posts or Wire	X		X		Leaning post and loose barb wire near entrance gate
	Functioning Properly	X			X	Functioning properly.

Additional Comments or Observations: Fence is good overall but, has damaged or no wire in some areas. Northeastern corner that was damaged in a car wreck has been repaired. Grass is overgrown in some of the fenced in areas that are not a part of the cap.

Inspector: **Zachary Castillo**

Inspectors Signature: ZAC

Golder Associates USA, Inc.

14950 Heathrow Forest Pkwy, Suite 280

Houston, Texas 77032

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

WSP GOLDER

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No.	Date:
1	10/19/2022

Description:

HWPW Yard Area and Soil Cap:

Soil cap well-vegetated in most areas with some stressed areas due to lack of rain and a low risk of erosion. Most vegetation is dormant, with some areas of new growth. No major erosion or ruts observed during inspection. Facing southwest.

Lat: 29.786797
Long: -95.320350

Photo No.	Date:
2	10/19/2022

Description:

HWPW Yard Area and Soil Cap:

Soil cap well-vegetated in most areas with some stressed areas due to lack of rain and a low risk of erosion. Most vegetation is dormant. No major erosion or ruts observed during inspection. Facing southeast.

Lat: 29.786494
Long: -95.320144

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 3	**Date:** 10/19/2022

Description:

HWPW Yard Area and Soil Cap:

Soil cap well-vegetated in most areas with a low risk of erosion, minor bald patches observed. Most vegetation is dormant with some areas of new growth. Facing southwest.

Lat: 29.786678
Long: -95.320647

Photo No. 4	**Date:** 10/19/2022

Description:

HWPW Yard Area and Soil Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. Most vegetation is dormant, some minor areas of stressed vegetation due to lack of rain noted. Facing east.

Lat: 29.786953
Long: -95.320297

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 5	**Date:** 10/19/2022

Description:

HWPW Yard Area and Soil Cap:

Soil cap well-vegetated, minor ruts on slope filled and reseeded, minor bald patches, no signs of erosion. Facing west.

Lat: 29.787469
Long: -95.317872

Photo No. 6	**Date:** 10/19/2022

Description:

HWPW Yard Area and Soil Cap:

Soil cap well-vegetated in most areas with a low risk of erosion. Fence and barrier damage from car wreck has been repaired. Facing east.

Lat: 29.787564
Long: -95.316903

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 7	**Date:** 10/19/2022

Description:

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

Asphalt roadway in good condition, free of major cracking/damage. Dead vegetation within the ballast cap. Minor vegetation growth under concrete barrier. Facing west.

Lat: 29.787450
Long: -95.316611

Photo No. 8	**Date:** 10/19/2022

Description:

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

Asphalt roadway in good condition, free of major cracking/damage. Residual oil staining noted from ongoing construction project. Minor vegetation noted growing within the ballast cap and under concrete barrier. Facing east.

Lat: 29.786656
Long: -95.318558

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 9	**Date:** 10/19/2022

Description:

Asphalt Roadway:

Asphalt roadway in good condition, free of major cracking/damage. Ballast cap in good condition. Facing northeast.

Lat: 29.785786
Long: -95.320528

Photo No. 10	**Date:** 10/19/2022

Description:

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

Asphalt roadway in good condition, free of major cracking/damage. Vegetation growing under barriers and ballast cap. Facing east.

Lat: 29.785383
Long: -95.321539

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 11	**Date:** 10/19/2022

Description:

Asphalt Roadway:

Minor cracking in asphalt where the asphalt roadway meets the new asphalt pull out section. Facing southwest.

Lat: 29.785875
Long: -95.320547

Photo No. 12	**Date:** 10/19/2022

Description:

Ballast Cap, Asphalt Roadway and Soil Cap Vegetative Cover:

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

Lat: 29.784533
Long: -95.323547

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. **13**	**Date:** 10/19/2022

Description:

<u>Security Fence/Sidewalk Area:</u>

Sidewalk outside security fence in good condition. Minor vegetation growth in joints. Facing east.

Lat: 29.787681
Long: -95.317747

Photo No. **14**	**Date:** 10/19/2022

Description:

<u>Security Fence/Sidewalk Area:</u>

Sidewalk outside security fence in good condition. Minor vegetation growth in joints. Facing west.

Lat: 29.787681
Long: -95.317747

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. **15**	**Date:** 10/19/2022

Description:

<u>Security Fence/Main Gate:</u>

Main gate and security fence in good condition. Some areas have sagging or missing wire. Facing northeast.

Lat: 29.787364
Long: -95.321083

Photo No. **16**	**Date:** 10/19/2022

Description:

<u>Security Fence/Main Gate:</u>

Minor damage to security fence and missing wire next to the main gate, fence is still functional. Facing northwest.

Lat: 29.787361
Long: -95.320869

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. **17**	**Date:** 10/19/2022

Description:

Concrete Cap Area (Englewood Yard):

Concrete cap within yard in good condition. Some cracking and potholes, with minimal vegetative growth. Facing west.

Lat: 29.785714
Long: -95.318047

Photo No. **18**	**Date:** 10/19/2022

Description:

Concrete Cap Area (Englewood Yard):

A and B rows. Evidence of cracking/potholes in multiple spots (particularly along the asphalt concrete joint). Facing west.

Lat: 29.785367
Long: -95.318650

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 19	**Date:** 10/19/2022

Description:

Concrete Cap Area (Englewood Yard):

Cracking in concrete surrounding test pit patch in stall A010. Facing south.

Lat: 29.785392,
Long: -95.318655

Photo No. 20	**Date:** 10/19/2022

Description:

Concrete Cap Area (Englewood Yard):

Cracking in concrete in stall A102. Facing southwest.

Lat: 29.784428
Long: -95.320953

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 21	**Date:** 10/19/2022

Description:

Concrete Cap Area (Englewood Yard):

Western end of D row, concrete cap in good condition, localized vegetation along joints. Facing southwest.

Lat: 29.784706
Long: -95.319519

Photo No. 22	**Date:** 10/19/2022

Description:

Concrete Cap Area (Englewood Yard):

Western end of E and F rows. Concrete cap in good condition, small area of rainwater pooling, localized vegetation along joints. Facing east.

Lat: 29.783703
Long: -95.320372

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 23	**Date:** 10/19/2022

Description:

Concrete Cap Area (Englewood Yard)/NAPL Collection System:
NAPL Collection System (stalls B099-B110) area, cracking in asphalt, residual staining. NAPL Collection system pump down in progress. Facing west.

Lat: 29.784353
Long: -95.320547

Photo No. 24	**Date:** 10/19/2022

Description:

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

Sump B099/B100, empty immediately following pump down. This sump has historically exhibited higher water levels and occasionally produced small amounts of DNAPL in 2022, which is removed weekly if observed. Sheen noted on thin layer of recharge water.

Lat: 29.781725
Long: -95.319908

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 25	**Date:** 10/19/2022

Description:

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

Sump B103/B104, empty immediately following pump down. This sump has historically not produced any DNAPL.

Lat: 29.782336
Long: -95.324678

Photo No. 26	**Date:** 10/19/2022

Description:

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

Sump B107/B108, water continued to flow into the sump during pump down. This sump has occasionally produced small quantities of DNAPL, which is removed weekly if observed. Water is brown in color, but no odor or sheen observed.

Lat: 29.782331
Long: -95.324692

GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 27	**Date:** 10/19/2022

Description:

Concrete Cap Area (Englewood Yard):

Stall B096, small amount of tar-like material observed near historical seep location along concrete joint adjacent to July 2020 test pit.

Lat: 29.7842528
Long: - 95.3206250

Photo No. 28	**Date:** 10/19/2022

Description:

Concrete Cap Area (Englewood Yard):

Western end of concrete cap, minor cracking, gapping and concrete wear along joint, similar wear can be observed several locations throughout the yard.

Lat: 29.783586
Long: -95.322586

WSP GOLDER

PHOTOGRAPHIC LOG

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

Photo No. 29	**Date:** 10/19/2022

Description:

Concrete Cap Area (Englewood Yard):

Stalls D130 and D131, gapping and concrete wear along joint, similar wear can be observed several locations throughout the yard.

Lat: 29.784658
Long: -95.319633

Photo No. 30	**Date:** 10/19/2022

Description:

Container Storage Area:

Valve in closed position and functioning within the container storage area**.** CSA in good condition, free of major dents and other damage. No water observed on floor.

Lat: 29.786813
Long: -95.320612