



June 15, 2021

Project No. 19119232

**Ms. Maureen Hatfield**

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

**RE: MONTHLY STATUS UPDATE – ENGLEWOOD INTERMODAL YARD – NAPL COLLECTION SYSTEM/CONCRETE CAP REPAIRS  
UNION PACIFIC RAILROAD HOUSTON WOOD PRESERVING WORKS FACILITY  
4910 LIBERTY ROAD FACILITY, HOUSTON, TEXAS  
POST-CLOSURE CARE PERMIT NO. HW-50343; INDUSTRIAL SWR NO. 31547**

Dear Ms. Hatfield:

Golder Associates Inc. (Golder), on behalf of Union Pacific Railroad Company (UPRR), is pleased to provide this monthly status update for May 2021 for inspections conducted at the Englewood Intermodal Yard concrete cap area within the UPRR Houston Wood Preserving Works Facility (the Site). Monthly status updates were requested by the Texas Commission on Environmental Quality (TCEQ) in a letter dated March 20, 2018.

The non-aqueous phase liquid (NAPL) Collection System was installed in the Englewood Intermodal Yard in January 2019 to address the tar-like substance seeps within parking slots B100 to B109 (for container trailers). The following is a summary of the observations from the weekly inspections of the NAPL Collection System and Englewood Intermodal Yard concrete pavement near the collection system for May 2021 (photographs from the weekly inspections are provided in Attachment A):

- Water continues to accumulate in the NAPL collection sumps. The water appears to be related to rainfall where some of the storm water enters from the surface through the covers for the sumps. In January 2021 UPRR proposed to cease the sporadic pump down events that removed the water in the sumps as observations from 2019 through January 2021 indicated that the pump down events did not appear to affect the amount of DNAPL accumulating in the sumps. In a letter to UPRR dated April 5, 2021 the TCEQ requested that the pump downs of water from the sumps be continued due to a potential concern that water might overflow from the sumps if full. Data and observations from the weekly inspections of the sumps performed since installation in January 2019 have not indicated any evidence of water overflowing from the sumps. However, pursuant to the TCEQ request in the April 5, 2021 letter, UPRR resumed the pump down of the water in the sumps on May 27, 2021 and will continue periodic pump down events of the water that accumulates in the sumps once a quarter for the next year (i.e., through May 2022).

- After the previous pump down in January 2021, the water level in Sump 1 (B099/B100 slots) returned to the top of the sump by the January 22<sup>nd</sup> weekly inspection and has remained near the top of the sump through May 27, 2021 when the sumps were pumped down again. Water levels in Sump 2 (B103/B104 slots) and Sump 3 (B107/B108 slots) continue to fluctuate between rainfall events. The water level in Sumps 2 and 3 were at 7.5 and 7 inches from the top of the sumps, respectively, on May 5, 2021 and had recovered to the top in both sumps by May 19, 2021 following heavy rainfall events. During the May 27<sup>th</sup> pump down, approximately 1,000 gallons of water were pumped out of Sump 1, which successfully emptied the sump (Photo 41). Sumps 2 and 3 are installed within the same NAPL collection trench and are hydraulically connected. A total of 8,500 gallons were pumped out of Sumps 2 and 3. This temporarily emptied Sump 2, however water continued to flow into Sump 3 (Photo 44) as it was being pumped out which did not allow for Sumps 2 and 3 to be fully emptied. Following the pump down the water levels in Sumps 1, 2, and 3 recovered to 41, 32, and 26 inches, respectively, from the top of the sumps. Water level data for the sumps are available in Table 1. The water in the sumps was observed as being brown in color. No sheen or odors were reported during the May 2021 inspections or the pump down. Prior to the pump down, a sample of the water in the sumps was collected for developing the waste profile for the water. The analytical results are provided in Attachment B. The sumps have continued to be checked for DNAPL using an interface probe every week. Even though no measurable DNAPL has been noted, a dipper tool has continued to be used in an attempt to further evaluate the presence of and recover DNAPL, if present, from the bottom of each of the sumps during the weekly inspections. No DNAPL was visually observed or recovered from Sump 1, 2, or 3 during the pump down or the inspections during the month of May.
- One very small tar-like NAPL surface seep was observed near the NAPL Collection System area in stall B105 on May 5, 2021 (Photo 7). For areas outside the NAPL Collection System, very small amounts of tar-like material were observed on the concrete surface in stalls A022, B057, B101, and B102 during most weekly inspection events in May. Tar-like material observed during the inspection events was recovered using a tool to scrape up the material. During May, the number of tar-like material seeps observed during inspections and the total amount of material removed from the concrete surface increased compared to the April inspections as daily outdoor temperatures increased. A total of approximately 0.5 gallons of tar-like material was recovered for the month and placed in a drum for disposal. The drum is staged at the Container Storage Area (CSA).
- Localized brown staining and seep water along cracks in the paved areas were observed during the inspection on May 5, 2021 (Photos 2, 4, and 5). Widespread brown staining and water seeps were observed in the A and B rows on May 10, 2021 (Photos 9-16). The brown staining was observed throughout both the A and B rows, with most of the heavy staining and residue located between slots 58 and 115 of both rows. In many areas, the staining was noted as “oily”. Water seeps were observed in low lying spots in the A and B rows, with the majority located in slots A065-A078. None of the water seeps were observed to be flowing into the storm water drains in the area. UPRR Contractor United States Environmental Services (USES) pressure washed the areas using pavement washing equipment on May 11 and 12, 2021 and collected the fluids, which were placed in a tote (Photos 23 and 24). Approximately 175 gallons of wash water were recovered. A sample of the tote water was collected on May 12, 2021 for waste characterization. A copy of the analytical report is provided in Attachment B. Although some of the staining was described as “oily”, the total petroleum hydrocarbon concentrations (TX1005) in the sample collected from the tote were below the detection limit. Following the pressure washing, no new seeping or staining was observed during the May 19 and May

26, 2021 inspections. UPRR will continue to have USES pressure wash the areas where the brown staining and seeps are observed as needed.

- During the week of July 13, 2020, Golder, on behalf of UPRR, coordinated with USES to excavate seven test pits in areas where historical NAPL seeps (slots A010, A021, A098, B013, B057, B096, and B108) had been observed in the Englewood Intermodal (IM) Yard. Following the test pit activities, Golder inspects the repaired concrete areas where the test pits were excavated to assess if the NAPL seeps return as part of the pilot study to evaluate the effectiveness of conducting the test pits to address the seeps. During the May 2021 weekly inspections, no NAPL seeps have been observed at the test pit locations. The seep observed in slot B057 during the inspections on May 5<sup>th</sup>, 12<sup>th</sup>, and 26<sup>th</sup> is located at an asphalt crack near the western edge of the slot. Golder, on behalf of UPRR, submitted to the TCEQ the Englewood IM Yard Test Pit Evaluation Report dated June 2, 2021 summarizing the test pit findings including weekly inspections.
- As indicated in previous monthly status updates, camera surveys were performed on the storm sewer pipes in the Intermodal Yard as part of the Englewood IM Yard Test Pit Evaluation in December 2020 and January and February 2021. Details on the camera survey activities are provided in the Englewood IM Yard Test Pit Evaluation Report indicated above.

Weekly site inspections of the NAPL Collection System and Englewood Intermodal Yard concrete pavement near the collection system will continue to be conducted. A notation on the presence of NAPL in each sump, tabulation of depth and thickness of NAPL if detected, and a tabulation of total mass of NAPL recovered from each sump is provided on the enclosed Table 1. No measurable NAPL has been detected in the sumps using the interface probe through May 2021.

If you have any questions or need additional information, please feel free to call us at (512) 671-3434 or Mr. Kevin Peterburs of UPRR at (414) 267-4164.

Sincerely,

**Golder Associates Inc.**



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



Eric Pastor, P.E.  
Principal / Program Leader

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

Attachment Table 1 – NAPL Measurements – NAPL Collection System Sumps  
Weekly Inspection Photolog  
Analytical Reports

**TABLE**



**TABLE 1**  
**NAPL Measurements - NAPL Collection System - Englewood Intermodal Yard**  
**UPRR Houston, tx - Wood Preserving Works**

Measured Date	Sump 1 (B099/B100) Freeboard (in)	Sump 2 (B103/B104) Freeboard (in)	Sump 3 (B107/B108) Freeboard (in)	Depth to DNAPL (in)	Comments
8/14/2019	2.5	28	29	Not measurable	
8/21/2019	0	27.5	26.5	Not measurable	
8/28/2019	44.5	47.9	45	Not measurable	Water from sumps pumped out
9/4/2019	19	42	41.5	Not measurable	
9/13/2019	0	39.5	38	Not measurable	
9/20/2019	0	3	2.5	Not measurable	
9/25/2019	0	42	42.5	Not measurable	Water from sumps pumped out
10/2/2019	2.5	42.5	42	Not measurable	Sheen visible in B107/B108 sump, less than 0.1 gal of DNAPL recovered
10/9/2019	3	42	41.5	Not measurable	Sheen visible in B107/B108 sump, less than 0.1 gal of DNAPL recovered
10/16/2019	0	39.5	39	Not measurable	Less than 0.1 gal of DNAPL recovered from B107/B108 Sump
10/24/2019	3	35	25	Not measurable	Less than 0.1 gal of DNAPL recovered from B107/B108 Sump
10/29/2019	0	24	23	Not measurable	Water from sumps pumped out
10/30/2019	0	40	39	Not measurable	Slight sheen visible in B107/B108 sump
11/6/2019	9	39	38.5	Not measurable	
11/13/2019	7	30	29	Not measurable	Less than 0.1 gal of DNAPL recovered from B107/B108 Sump
11/19/2019	4	26	25.5	Not measurable	
11/27/2019	0	25	23	Not measurable	
12/3/2019	2	25.5	25	Not measurable	Less than 0.1 gal of DNAPL recovered from B107/B108 Sump
12/11/2019	1.5	17	16.54	Not measurable	Less than 0.1 gal of DNAPL recovered from B107/B108 Sump
12/17/2019	5	19.5	17.5	Not measurable	
12/23/2019	10	21	20.5	Not measurable	
1/7/2020	9	13	12.5	Not measurable	
1/8/2020	9	13	12.5	Not measurable	Water from sumps pumped out
1/17/2020	0	32	31.5	Not measurable	
1/21/2020	2.5	26.5	26	Not measurable	
1/28/2020	0	0	0	Not measurable	
2/4/2020	2	11	10.5	Not measurable	
2/12/2020	0	0	0	Not measurable	
2/18/2020	1.5	11.5	10.25	Not measurable	Water from sumps pumped out on 2/20/2020
2/27/2020	2	42	36	Not measurable	
3/6/2020	1	36	36	Not measurable	
3/11/2020	2	36	35.5	Not measurable	
3/18/2020	0	35.5	35	Not measurable	
3/27/2020	0	29	28	Not measurable	
4/3/2020	1.5	29	28.5	Not measurable	
4/8/2020	0	23	22	Not measurable	
4/15/2020	0.5	23	22	Not measurable	
4/21/2020	0	21	21	Not measurable	
4/28/2020	0	23	22	Not measurable	
5/4/2020	-	-	-	Not Measured	Measurements were not taken; the inspector was unable to open the sumps
5/12/2020	0	20	19	Not measurable	
5/19/2020	0	15.75	14.25	Not measurable	Sump 1 pumped down (May 22nd)
5/27/2020	0	14	13	Not measurable	
6/1/2020	0	7	5	Not measurable	
6/10/2020	0	10	9	Not measurable	
6/17/2020	1	12	11	Not measurable	
6/25/2020	0	0	0	Not measurable	
6/30/2020	0	0	0	Not measured	
7/1/2020	48	46	47	Not measurable	Sumps 1, 2, & 3 pumped down
7/8/2020	34	24.5	24	Not measurable	Less than 0.1 gal of DNAPL recovered from B107/B108 Sump

**TABLE 1**  
**NAPL Measurements - NAPL Collection System - Englewood Intermodal Yard**  
**UPRR Houston, tx - Wood Preserving Works**

Measured Date	Sump 1 (B099/B100) Freeboard (in)	Sump 2 (B103/B104) Freeboard (in)	Sump 3 (B107/B108) Freeboard (in)	Depth to DNAPL (in)	Comments
7/15/2020	32	29.5	29	Not measurable	Sheen visible in B99/B100 sump & B107/B108 sump, less than 0.1 gal of DNAPL recovered B107/B108 sump
7/23/2020	0	23	22.5	Not measured	Less than 0.1 gal of DNAPL recovered from B107/B108 Sump
7/31/2020	0	11	10	Not measurable	
8/5/2020	0	7	5	Not measurable	
8/13/2020	1	11	10	Not measurable	
8/19/2020	0	7	6	Not measurable	
8/26/2020	0	10	9	Not measurable	
9/2/2020	43	37	38	Not measurable	Sumps 1, 2, & 3 pumped down (September 1); Sheen visible in B99/B100 sump & B107/B108 sump
9/9/2020	28	37	36	Not measurable	Sheen visible in B107/B108 sump
9/15/2020	1	35	33	Not measurable	
9/23/2020	0	0	0	Not measurable	
9/30/2020	1	10	9	Not measurable	
10/8/2020	4	12	11.5	Not measurable	
10/15/2020	0	11	10.5	Not measurable	Less than 0.1 gal of DNAPL recovered B107/B108 sump
10/21/2020	1	10.5	9.25	Not measurable	
10/28/2020	0	11	10	Not measurable	
11/4/2020	9	13	12	Not measurable	
11/11/2020	0.5	12	11	Not measurable	
11/18/2020	3.5	13	12	Not measurable	
11/24/2020	7	14	13.5	Not measurable	
11/30/2020	2	7	6	Not measurable	
12/10/2020	5	10.5	10	Not measurable	
12/18/2020	4	10	9	Not measurable	
12/23/2020	1	9	7.5	Not measurable	
12/31/2020	0	4	3.5	Not measurable	
1/6/2021	4	10.5	9	Not measurable	
1/15/2021	43	39	37.5	Not measurable	Sumps 1, 2, & 3 pumped down
1/22/2021	0	34	33	Not measurable	Sheen visible in B107/B108 sump
1/29/2021	2	31	30	Not measurable	Sheen visible in B107/B108 sump
2/4/2021	4	30	29.5	Not measurable	Sheen visible in B099/B100 sump
2/10/2021	0	27	25.5	Not measurable	
2/17/2021	0	0	0	Not measurable	
2/24/2021	2	10	9.5	Not measurable	
3/2/2021	0	0	0	Not measurable	
3/10/2021	0	10	9.75	Not measurable	
3/17/2021	0	2	1	Not measurable	
3/24/2021	0	3.5	2	Not measurable	
3/31/2021	0	6.5	7	Not measurable	
4/8/2021	0	7.5	7	Not measurable	
4/14/2021	0	6.5	6	Not measurable	Less than 0.1 gal of DNAPL recovered B107/B108 sump; Sheen visible in B103/104 and B107/B108 sumps
4/21/2021	0.5	9	8.5	Not measurable	
4/28/2021	0	8.5	8	Not measurable	
5/5/2021	0	7.5	7	Not measurable	
5/12/2021	0	8	7.5	Not measurable	
5/19/2021	0	0	0	Not measurable	
5/26/2021	0	2	0.5	Not measurable	
5/27/2021	41	32	26	Not measurable	Sumps 1,2, & 3 pumped down

Note:

Freeboard in sumps is measured as depth to water from top rim of sump, measured in inches

**ATTACHMENT A**

# Weekly Inspection Photolog





# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.:</b> 19119232
---	---	---------------------------------

<b>Photo No.</b> 1	<b>Date:</b> 5/5/2021
<b>Description:</b>  Slot A022, very small amount of tar-like material seeping at asphalt crack, material was removed.  Lat: 29.785392, Long: -95.318655	



<b>Photo No.</b> 2	<b>Date:</b> 5/5/2021
-----------------------	--------------------------

<b>Description:</b>  Slot A023, brown staining and water observed along the crack in the asphalt.  Lat: 29.785377 Long: -95.318682	
---	--







# PHOTOGRAPHIC LOG

**Client Name:**  
Union Pacific Railroad

**Site Location:**  
Englewood Houston, Texas

**Project No.:**  
19119232

**Photo No.:**  
3

**Date:**  
5/5/2021

**Description:**

Slot B057, very small amount of tar-like material seeping at asphalt crack (not at July 2020 test pit), material was removed.

Lat: 29.7847472  
Long: - 95.3195417



**Photo No.:**  
4

**Date:**  
5/5/2021

**Description:**

Slot B096, no tar-like material seeps observed where test pit conducted (July 2020), brown staining observed along asphalt cracks, looking northwest.

Lat: 29.7842528  
Long: - 95.3206250







# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.:</b> 19119232
---	---	---------------------------------

<b>Photo No.</b> 5	<b>Date:</b> 5/5/2021
<b>Description:</b>  Slot B098, no tar-like material seeps observed, brown staining along asphalt cracks.  Lat: 29.7842587 Long: - 95.3206699	



<b>Photo No.</b> 6	<b>Date:</b> 5/5/2021
<b>Description:</b>  Slot B102, small amount of tar-like material seeping at joint, material was removed.  Lat: 29.7842203 Long: - 95.320827	







# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.:</b> 19119232
---	---	---------------------------------

<b>Photo No.:</b> 7	<b>Date:</b> 5/5/2021
------------------------	--------------------------

**Description:**

Slot B105, very small amount of tar-like material seeping at asphalt crack, material was removed.

Lat: 29.7841472  
Long: - 95.3208777



<b>Photo No.:</b> 8	<b>Date:</b> 5/5/2021
------------------------	--------------------------

**Description:**

View of slots B109-B097, NAPL collection system visible in background, looking northeast.

Lat: 29.784358  
Long: -95.320611







**Client Name:**  
**Union Pacific Railroad**

**Site Location:**  
Englewood Houston, Texas

**Project No.**  
19119232

**Photo No.**  
**9**

**Date:**  
5/10/2021

**Description:**

Slot A115-A001, Overview of brown staining in A and B rows, looking northeast.

Lat: 29.784159  
Long: -95.321266



**Photo No.**  
**10**

**Date:**  
5/10/2021

**Description:**

Slot A106, brown staining.

Lat: 29.784366  
Long: -95.321056







**Client Name:**  
**Union Pacific Railroad**

**Site Location:**  
Englewood Houston, Texas

**Project No.**  
19119232

**Photo No.**  
**11**

**Date:**  
5/10/2021

**Description:**

Slot A102-A001, overview of heavy brown staining and residue along asphalt cracks in A and B rows, looking northeast.

Lat: 29.784412

Long: -95.320948



**Photo No.**  
**12**

**Date:**  
5/10/2021

**Description:**

Slots B098-B001, brown staining and residue along asphalt cracks, looking northeast.

Lat: 29.7842587

Long: - 95.3206699







**Client Name:**  
**Union Pacific Railroad**

**Site Location:**  
Englewood Houston, Texas

**Project No.**  
19119232

**Photo No.**  
**13**

**Date:**  
5/10/2021

**Description:**

Slots B098, brown staining and fluid in asphalt crack.

Lat: 29.7842587  
Long: - 95.3206699



**Photo No.**  
**14**

**Date:**  
5/10/2021

**Description:**

Slot A091, brown staining and brown water along asphalt crack, looking northwest.

Lat: 29.784546  
Long: -95.320631







**Client Name:**  
**Union Pacific Railroad**

**Site Location:**  
Englewood Houston, Texas

**Project No.**  
19119232

**Photo No.**  
**15**

**Date:**  
5/10/2021

**Description:**

Slot A078, brown staining and brown water.

Lat: 29.7847148  
Long: -95.3202713



**Photo No.**  
**16**

**Date:**  
5/10/2021

**Description:**

Slots A069-A001, brown staining and water in the A row slots, looking northeast.

Lat: 29.784809  
Long: -95.320011







# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.:</b> 19119232
---	---	---------------------------------

<b>Photo No.</b> 17	<b>Date:</b> 5/12/2021
<b>Description:</b>  Slot A022, very small amount of tar-like material seeping at asphalt crack, water from recent rain event, material was removed.  Lat: 29.785392, Long: -95.318655	



<b>Photo No.</b> 18	<b>Date:</b> 5/12/2021
<b>Description:</b>  Slot B057, very small amount of tar-like material seeping at asphalt crack (not at July 2020 test pit), material was removed.  Lat: 29.7847472 Long: -95.3195417	







**Client Name:**  
**Union Pacific Railroad**

**Site Location:**  
Englewood Houston, Texas

**Project No.**  
19119232

**Photo No.**  
**19**

**Date:**  
5/12/2021

**Description:**

Slot B101, very small amount of tar-like material seeping at asphalt crack, material was removed.

Lat: 29.784275  
Long: - 95.320813



**Photo No.**  
**20**

**Date:**  
5/12/2021

**Description:**

Slot B102, small amount of tar-like material seeping at joint, water from recent rain event, material was removed.

Lat: 29.7842203  
Long: - 95.320827







# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.:</b> 19119232
---	---	---------------------------------

<b>Photo No.</b> <b>21</b>	<b>Date:</b> 5/12/2021
<b>Description:</b>  Sump 2 (B103/B104), 8 inches of freeboard in sump. No sheen or odors observed.  Lat: 29.7842861 Long: - 95.3208611	



<b>Photo No.</b> <b>22</b>	<b>Date:</b> 5/12/2021
<b>Description:</b>  Slot B108, view of NAPL Collection System (Sump B107/B108 and test pit in background). No tar-like material seeps observed where test pit conducted (July 2020), looking northwest.  Lat: 29.784125 Long: - 95.320989	





# PHOTOGRAPHIC LOG

<b>Client Name:</b> <b>Union Pacific Railroad</b>	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.</b> 19119232
--	---	--------------------------------

<b>Photo No.</b> <b>23</b>	<b>Date:</b> 5/12/2021
<b>Description:</b>  Slots B105-B098, UPRR subcontractor USES pressure washing brown staining and vacuuming fluids in A and B rows, looking northeast.  Lat: 29.7842528 Long: - 95.3206250	



<b>Photo No.</b> <b>24</b>	<b>Date:</b> 5/13/2021
<b>Description:</b>  Residual brown staining after USES pressure washing activities in A and B rows. Tote (located in slot B094) containing wastewater from the clean-up, looking southwest.  Lat: 29.784431 Long: -95.320647	







**Client Name:**  
**Union Pacific Railroad**

**Site Location:**  
Englewood Houston, Texas

**Project No.**  
19119232

**Photo No.**  
**25**

**Date:**  
5/19/2021

**Description:**

Slot A010, no tar-like material seeps observed where test pit conducted (July 2020), pavement wet from recent rain event, looking southwest.

Lat: 29.7855833,  
Long: -95.318375



**Photo No.**  
**26**

**Date:**  
5/19/2021

**Description:**

Slot A022, small amount of tar-like material seeping at asphalt crack, water from recent rain event, material was removed.

Lat: 29.785392,  
Long: -95.318655







**Client Name:**  
**Union Pacific Railroad**

**Site Location:**  
Englewood Houston, Texas

**Project No.**  
19119232

**Photo No.**  
**27**

**Date:**  
5/19/2021

**Description:**

Slot B013, no tar-like material seeps observed where test pit conducted (July 2020), pavement wet from recent rain event, looking south.

Lat: 29.785217  
Long: - 95.318261



**Photo No.**  
**28**

**Date:**  
5/19/2021

**Description:**

Sump 1 (B099/B100), 0 inches of freeboard in sump, no sheen or odor noted.

Lat: 29.7844000  
Long: - 95.3205861







# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.</b> 19119232
---	---	--------------------------------

<b>Photo No.</b> 29	<b>Date:</b> 5/19/2021
------------------------	---------------------------

**Description:**

Slot B094, tote containing wastewater from the USES pressure washing activities.

Lat: 29.784358  
Long: -95.320611



<b>Photo No.</b> 30	<b>Date:</b> 5/19/2021
------------------------	---------------------------

**Description:**

Slot B102, small amount of tar-like material seeping at joint, pavement wet from recent rain event, material was removed.

Lat: 29.7842203  
Long: -95.320827







# PHOTOGRAPHIC LOG

**Client Name:**  
Union Pacific Railroad

**Site Location:**  
Englewood Houston, Texas

**Project No.**  
19119232

**Photo No.**  
**31**

**Date:**  
5/19/2021

**Description:**

Sump 3 (B107/B108), 0 inches of freeboard in sump. No sheen or odors noted. No tar-like material recovered.

Lat: 29.7842861  
Long: -95.3208611



**Photo No.**  
**32**

**Date:**  
5/19/2021

**Description:**

View of slots B110-B097, NAPL collection system visible in background, pavement wet from recent rain event, looking northeast.

Lat: 29.784116  
Long: -95.321022







# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.:</b> 19119232
---	---	---------------------------------

<b>Photo No.</b> <b>33</b>	<b>Date:</b> 5/26/2021
<b>Description</b>  Slot A021, no tar-like material seeps observed where test pit conducted (July 2020), standing water from recent rain event, looking southwest.  Lat: 29.785392, Long: -95.318655	



<b>Photo No.</b> <b>34</b>	<b>Date:</b> 5/26/2021
<b>Description:</b>  Slot A022, very small amount of tar-like material seeping at asphalt crack, material was removed.  Lat: 29.785392, Long: -95.318655	







# PHOTOGRAPHIC LOG

**Client Name:**  
**Union Pacific Railroad**

**Site Location:**  
Englewood Houston, Texas

**Project No.**  
19119232

**Photo No.**  
**35**

**Date:**  
5/26/2021

**Description:**

Slot B098, no tar-like material seeps observed, residual brown staining along asphalt cracks, looking northwest.

Lat: 29.7842587  
Long: - 95.3206699



**Photo No.**  
**36**

**Date:**  
5/26/2021

**Description:**

Slot B101, very small amount of tar-like material seeping at asphalt crack, material was removed.

Lat: 29.784275  
Long: - 95.320813







# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.:</b> 19119232
---	---	---------------------------------

<b>Photo No.</b> <b>37</b>	<b>Date:</b> 5/26/2021
<b>Description:</b>  Slot B102, small amount of tar-like material seeping at joint, water from recent rain event. material was removed.  Lat: 29.7842203 Long: - 95.320827	



<b>Photo No.</b> <b>38</b>	<b>Date:</b> 5/26/2021
<b>Description:</b>  Slot B105, no tar-like material seeps observed, looking northwest.  Lat: 29.7841472 Long: - 95.3208777	







# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.:</b> 19119232
---	---	---------------------------------

<b>Photo No.</b> <b>39</b>	<b>Date:</b> 5/26/2021
<b>Description:</b>  Slot B108, view of NAPL Collection System (Sump B107/B108 and test pit in background). No tar-like material seeps observed where test pit (July 2020) conducted, looking north.  Lat: 29.784125 Long: - 95.320989	



<b>Photo No.</b> <b>40</b>	<b>Date:</b> 5/26/2021
<b>Description:</b>  Slot C126, 55-gallon drum containing booms from the storm sewer camera survey activities.  Lat: 29.783922 Long: -95.321122	







# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.</b> 19119232
---	---	--------------------------------

<b>Photo No.</b> <b>41</b>	<b>Date:</b> 5/27/2021
<b>Description:</b>  Sump 1 (B099/B100) during pump down. No sheen or odor noted.  Lat: 29.7844000 Long: - 95.3205861	



<b>Photo No.</b> <b>42</b>	<b>Date:</b> 5/27/2021
<b>Description:</b>  Sump 2 (B103/B104) during pump down. No sheen or odors observed.  Lat: 29.7842861 Long: - 95.3208611	







# PHOTOGRAPHIC LOG

<b>Client Name:</b> Union Pacific Railroad	<b>Site Location:</b> Englewood Houston, Texas	<b>Project No.:</b> 19119232
---	---	---------------------------------

<b>Photo No.</b> <b>43</b>	<b>Date:</b> 5/27/2021
-------------------------------	---------------------------

**Description:**

Sump 3 (B107/B108) during pump down, after initial truck load (4500 gals). No sheen, odors, or tar-like material noted.

Lat: 29.7842861  
Long: - 95.3208611



<b>Photo No.</b> <b>44</b>	<b>Date:</b> 5/27/2021
-------------------------------	---------------------------

**Description:**

Sump 3 (B107/B108), water entering into sump during second pump down truck load.

Lat: 29.7842861  
Long: - 95.3208611



**ATTACHMENT B**

## Analytical Reports



---

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

May 21, 2021

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

Work Order: **HS21050675**

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

Dear Eric Matzner,

ALS Environmental received 1 sample(s) on May 13, 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,

A handwritten signature in black ink, appearing to read 'Dane J. Wacasey'.

Generated By: DANE.WACASEY  
Dane J. Wacasey

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**Work Order:** HS21050675

**SAMPLE SUMMARY**

---

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21050675-01	WW-1620-IDW01-20210512	Liquid		12-May-2021 15:00	13-May-2021 14:00	<input type="checkbox"/>

---

---

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**Work Order:** HS21050675

---

**CASE NARRATIVE**

---

**GC Semivolatiles by Method TX1005**

**Batch ID: 165827**

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

**GCMS Semivolatiles by Method SW8270**

**Batch ID: 165870**

**Sample ID: LCSD-165870**

- The RPD between the LCS and LCSD was outside of the control limit for select analytes.
- 

**GCMS Volatiles by Method SW8260**

**Batch ID: R383669**

**Sample ID: WW-1620-IDW01-20210512 (HS21050675-01)**

- Lowest practical dilution due to sample matrix.
- 

**Metals by Method SW6020A**

**Batch ID: 165910**

**Sample ID: HS21050172-01MSD**

- MSD is for an unrelated sample (Barium)
- 

**Metals by Method SW7470A**

**Batch ID: 165906**

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

**WetChemistry by Method SW9040C**

**Batch ID: R383753**

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

**WetChemistry by Method SW1010**

**Batch ID: R383647**

- 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 IDWW  
 Sample ID: WW-1620-IDW01-20210512  
 Collection Date: 12-May-2021 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS21050675  
 Lab ID:HS21050675-01  
 Matrix:Liquid

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: AKP			
1,1,1-Trichloroethane	U		0.010	0.050	mg/L	50	14-May-2021 18:18
1,1,2,2-Tetrachloroethane	U		0.025	0.050	mg/L	50	14-May-2021 18:18
1,1,2-Trichloroethane	U		0.015	0.050	mg/L	50	14-May-2021 18:18
1,1-Dichloroethane	U		0.010	0.050	mg/L	50	14-May-2021 18:18
1,1-Dichloroethene	U		0.010	0.050	mg/L	50	14-May-2021 18:18
1,2-Dichlorobenzene	U		0.025	0.050	mg/L	50	14-May-2021 18:18
1,2-Dichloroethane	U		0.010	0.050	mg/L	50	14-May-2021 18:18
1,2-Dichloropropane	U		0.025	0.050	mg/L	50	14-May-2021 18:18
1,3-Dichlorobenzene	U		0.020	0.050	mg/L	50	14-May-2021 18:18
1,4-Dichlorobenzene	U		0.020	0.050	mg/L	50	14-May-2021 18:18
2-Butanone	U		0.025	0.10	mg/L	50	14-May-2021 18:18
2-Hexanone	U		0.050	0.10	mg/L	50	14-May-2021 18:18
4-Methyl-2-pentanone	U		0.035	0.10	mg/L	50	14-May-2021 18:18
Acetone	U		0.10	0.10	mg/L	50	14-May-2021 18:18
Benzene	U		0.010	0.050	mg/L	50	14-May-2021 18:18
Bromochloromethane	U		0.010	0.050	mg/L	50	14-May-2021 18:18
Bromodichloromethane	U		0.010	0.050	mg/L	50	14-May-2021 18:18
Bromoform	U		0.020	0.050	mg/L	50	14-May-2021 18:18
Bromomethane	U		0.020	0.050	mg/L	50	14-May-2021 18:18
Carbon disulfide	U		0.030	0.10	mg/L	50	14-May-2021 18:18
Carbon tetrachloride	U		0.025	0.050	mg/L	50	14-May-2021 18:18
Chlorobenzene	U		0.015	0.050	mg/L	50	14-May-2021 18:18
Chloroethane	U		0.015	0.050	mg/L	50	14-May-2021 18:18
Chloroform	U		0.010	0.050	mg/L	50	14-May-2021 18:18
Chloromethane	U		0.010	0.050	mg/L	50	14-May-2021 18:18
cis-1,2-Dichloroethene	U		0.010	0.050	mg/L	50	14-May-2021 18:18
cis-1,3-Dichloropropene	U		0.0050	0.050	mg/L	50	14-May-2021 18:18
Dibromochloromethane	U		0.015	0.050	mg/L	50	14-May-2021 18:18
Ethylbenzene	U		0.015	0.050	mg/L	50	14-May-2021 18:18
m,p-Xylene	U		0.025	0.10	mg/L	50	14-May-2021 18:18
Methylene chloride	U		0.050	0.10	mg/L	50	14-May-2021 18:18
o-Xylene	U		0.015	0.050	mg/L	50	14-May-2021 18:18
Styrene	U		0.015	0.050	mg/L	50	14-May-2021 18:18
Tetrachloroethene	U		0.015	0.050	mg/L	50	14-May-2021 18:18
Toluene	U		0.010	0.050	mg/L	50	14-May-2021 18:18
trans-1,2-Dichloroethene	U		0.010	0.050	mg/L	50	14-May-2021 18:18
trans-1,3-Dichloropropene	U		0.010	0.050	mg/L	50	14-May-2021 18:18
Trichloroethene	U		0.010	0.050	mg/L	50	14-May-2021 18:18
Vinyl acetate	U		0.025	0.050	mg/L	50	14-May-2021 18:18

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

Client: Golder Associates Inc.  
 Project: Houston TX-Wood Preserving Works IDWW  
 Sample ID: WW-1620-IDW01-20210512  
 Collection Date: 12-May-2021 15:00

**ANALYTICAL REPORT**

WorkOrder:HS21050675  
 Lab ID:HS21050675-01  
 Matrix:Liquid

ANALYSES	RESULT	QUAL	SDL	ML	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: AKP			
Vinyl chloride	U		0.010	0.050	mg/L	50	14-May-2021 18:18
Xylenes, Total	U		0.015	0.050	mg/L	50	14-May-2021 18:18
1,2-Dichloroethene, Total	U		0.010	0.050	mg/L	50	14-May-2021 18:18
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>102</i>			<i>70-126</i>	<i>%REC</i>	<i>50</i>	<i>14-May-2021 18:18</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.3</i>			<i>81-113</i>	<i>%REC</i>	<i>50</i>	<i>14-May-2021 18:18</i>
<i>Surr: Dibromofluoromethane</i>	<i>103</i>			<i>77-123</i>	<i>%REC</i>	<i>50</i>	<i>14-May-2021 18:18</i>
<i>Surr: Toluene-d8</i>	<i>104</i>			<i>82-127</i>	<i>%REC</i>	<i>50</i>	<i>14-May-2021 18:18</i>

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

Client: Golder Associates Inc.  
 Project: Houston TX-Wood Preserving Works IDWW  
 Sample ID: WW-1620-IDW01-20210512  
 Collection Date: 12-May-2021 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS21050675  
 Lab ID:HS21050675-01  
 Matrix:Liquid

ANALYSES	RESULT	QUAL	SDL	MLL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES BY 8270D</b>	<b>Method:SW8270</b>					Prep:SW3510 / 17-May-2021	Analyst: ACN
1,2,4-Trichlorobenzene	U		0.00016	0.0011	mg/L	1	20-May-2021 17:12
2,4,5-Trichlorophenol	U		0.00030	0.0011	mg/L	1	20-May-2021 17:12
2,4,6-Trichlorophenol	U		0.00025	0.0011	mg/L	1	20-May-2021 17:12
2,4-Dichlorophenol	U		0.00023	0.0011	mg/L	1	20-May-2021 17:12
2,4-Dimethylphenol	U		0.00021	0.0011	mg/L	1	20-May-2021 17:12
2,4-Dinitrophenol	U		0.00053	0.0053	mg/L	1	20-May-2021 17:12
2,4-Dinitrotoluene	U		0.00031	0.0011	mg/L	1	20-May-2021 17:12
2,6-Dinitrotoluene	U		0.00022	0.0011	mg/L	1	20-May-2021 17:12
2-Chloronaphthalene	U		0.00011	0.0011	mg/L	1	20-May-2021 17:12
2-Chlorophenol	U		0.00019	0.0011	mg/L	1	20-May-2021 17:12
<b>2-Methylnaphthalene</b>	<b>0.00030</b>	J	<b>0.00010</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:12
2-Methylphenol	U		0.00024	0.0011	mg/L	1	20-May-2021 17:12
2-Nitroaniline	U		0.00022	0.0011	mg/L	1	20-May-2021 17:12
2-Nitrophenol	U		0.00018	0.0011	mg/L	1	20-May-2021 17:12
3&4-Methylphenol	U		0.00019	0.0011	mg/L	1	20-May-2021 17:12
3,3'-Dichlorobenzidine	U		0.00023	0.0011	mg/L	1	20-May-2021 17:12
3-Nitroaniline	U		0.00026	0.0011	mg/L	1	20-May-2021 17:12
4,6-Dinitro-2-methylphenol	U		0.00011	0.0011	mg/L	1	20-May-2021 17:12
4-Bromophenyl phenyl ether	U		0.00027	0.0011	mg/L	1	20-May-2021 17:12
4-Chloro-3-methylphenol	U		0.00017	0.0011	mg/L	1	20-May-2021 17:12
4-Chloroaniline	U		0.00021	0.0011	mg/L	1	20-May-2021 17:12
4-Chlorophenyl phenyl ether	U		0.00023	0.0011	mg/L	1	20-May-2021 17:12
4-Nitroaniline	U		0.00018	0.0011	mg/L	1	20-May-2021 17:12
4-Nitrophenol	U		0.00025	0.0053	mg/L	1	20-May-2021 17:12
<b>Acenaphthene</b>	<b>0.0028</b>		<b>0.00014</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:12
Acenaphthylene	U		0.000079	0.00053	mg/L	1	20-May-2021 17:12
<b>Anthracene</b>	<b>0.00057</b>		<b>0.000074</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:12
Benz(a)anthracene	U		0.00026	0.00053	mg/L	1	20-May-2021 17:12
Benzidine	U		0.00053	0.0011	mg/L	1	20-May-2021 17:12
Benzo(a)pyrene	U		0.00011	0.00053	mg/L	1	20-May-2021 17:12
Benzo(b)fluoranthene	U		0.00012	0.00053	mg/L	1	20-May-2021 17:12
Benzo(g,h,i)perylene	U		0.000074	0.00053	mg/L	1	20-May-2021 17:12
Benzo(k)fluoranthene	U		0.00010	0.00053	mg/L	1	20-May-2021 17:12
Benzyl alcohol	U		0.00028	0.0011	mg/L	1	20-May-2021 17:12
Bis(2-chloroethoxy)methane	U		0.00016	0.0011	mg/L	1	20-May-2021 17:12
Bis(2-chloroethyl)ether	U		0.00014	0.0011	mg/L	1	20-May-2021 17:12
Bis(2-chloroisopropyl)ether	U		0.00037	0.0011	mg/L	1	20-May-2021 17:12
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.0033</b>		<b>0.00019</b>	<b>0.0011</b>	<b>mg/L</b>	1	20-May-2021 17:12
Butyl benzyl phthalate	U		0.00010	0.0011	mg/L	1	20-May-2021 17:12

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



Client: Golder Associates Inc.  
 Project: Houston TX-Wood Preserving Works IDWW  
 Sample ID: WW-1620-IDW01-20210512  
 Collection Date: 12-May-2021 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS21050675  
 Lab ID:HS21050675-01  
 Matrix:Liquid

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES BY 8270D</b>			<b>Method:SW8270</b>		Prep:SW3510 / 17-May-2021		Analyst: ACN
Carbazole	0.00056	J	0.00013	0.0011	mg/L	1	20-May-2021 17:12
Chrysene		U	0.00011	0.00053	mg/L	1	20-May-2021 17:12
<b>Di-n-butyl phthalate</b>	<b>0.0083</b>		<b>0.00011</b>	<b>0.0011</b>	<b>mg/L</b>	1	20-May-2021 17:12
Di-n-octyl phthalate		U	0.00011	0.0011	mg/L	1	20-May-2021 17:12
Dibenz(a,h)anthracene		U	0.00013	0.00053	mg/L	1	20-May-2021 17:12
<b>Dibenzofuran</b>	<b>0.0011</b>		<b>0.00011</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:12
<b>Diethyl phthalate</b>	<b>0.00084</b>	J	<b>0.00016</b>	<b>0.0011</b>	<b>mg/L</b>	1	20-May-2021 17:12
Dimethyl phthalate		U	0.00022	0.0011	mg/L	1	20-May-2021 17:12
<b>Fluoranthene</b>	<b>0.0020</b>		<b>0.000053</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:12
<b>Fluorene</b>	<b>0.0017</b>		<b>0.00016</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:12
Hexachlorobenzene		U	0.00023	0.0011	mg/L	1	20-May-2021 17:12
Hexachlorobutadiene		U	0.00016	0.0011	mg/L	1	20-May-2021 17:12
Hexachlorocyclopentadiene		U	0.00016	0.0011	mg/L	1	20-May-2021 17:12
Hexachloroethane		U	0.00031	0.0011	mg/L	1	20-May-2021 17:12
Indeno(1,2,3-cd)pyrene		U	0.00012	0.00053	mg/L	1	20-May-2021 17:12
Isophorone		U	0.00013	0.0011	mg/L	1	20-May-2021 17:12
N-Nitrosodi-n-propylamine		U	0.00017	0.0011	mg/L	1	20-May-2021 17:12
N-Nitrosodimethylamine		U	0.00053	0.0011	mg/L	1	20-May-2021 17:12
N-Nitrosodiphenylamine		U	0.00013	0.0011	mg/L	1	20-May-2021 17:12
<b>Naphthalene</b>	<b>0.00055</b>		<b>0.00011</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:12
Nitrobenzene		U	0.00013	0.0011	mg/L	1	20-May-2021 17:12
Pentachlorophenol		U	0.00042	0.0011	mg/L	1	20-May-2021 17:12
<b>Phenanthrene</b>	<b>0.00035</b>	J	<b>0.00011</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:12
Phenol		U	0.00018	0.0011	mg/L	1	20-May-2021 17:12
<b>Pyrene</b>	<b>0.0016</b>		<b>0.00010</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:12
Pyridine		U	0.00016	0.0053	mg/L	1	20-May-2021 17:12
<i>Surr: 2,4,6-Tribromophenol</i>	<i>79.7</i>			<i>34-129</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:12</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>89.4</i>			<i>40-125</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:12</i>
<i>Surr: 2-Fluorophenol</i>	<i>85.6</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:12</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>106</i>			<i>40-135</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:12</i>
<i>Surr: Nitrobenzene-d5</i>	<i>83.2</i>			<i>41-120</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:12</i>
<i>Surr: Phenol-d6</i>	<i>94.0</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:12</i>
<b>LOW-LEVEL TEXAS TPH BY TX1005</b>			<b>Method:TX1005</b>		Prep:TX1005PR / 14-May-2021		Analyst: MBG
nC6 to nC12		U	0.20	0.49	mg/L	1	15-May-2021 05:49
>nC12 to nC28		U	0.20	0.49	mg/L	1	15-May-2021 05:49
>nC28 to nC35		U	0.20	0.49	mg/L	1	15-May-2021 05:49
Total Petroleum Hydrocarbon		U	0.20	0.49	mg/L	1	15-May-2021 05:49
<i>Surr: 2-Fluorobiphenyl</i>	<i>83.1</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>15-May-2021 05:49</i>
<i>Surr: Trifluoromethyl benzene</i>	<i>87.5</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>15-May-2021 05:49</i>

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

Client: Golder Associates Inc.  
 Project: Houston TX-Wood Preserving Works IDWW  
 Sample ID: WW-1620-IDW01-20210512  
 Collection Date: 12-May-2021 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS21050675  
 Lab ID:HS21050675-01  
 Matrix:Liquid

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>		Prep:SW3010A / 18-May-2021		Analyst: JHD	
Antimony	0.00534	J	0.00400	0.0200	mg/L	1	19-May-2021 12:48
Arsenic	0.0326		0.00400	0.0200	mg/L	1	19-May-2021 12:48
Barium	0.0644		0.0190	0.0400	mg/L	1	19-May-2021 12:48
Beryllium	U		0.00200	0.0200	mg/L	1	19-May-2021 12:48
Cadmium	U		0.00200	0.0200	mg/L	1	19-May-2021 12:48
Chromium	0.0399	J	0.00400	0.0400	mg/L	1	19-May-2021 12:48
Lead	0.109		0.00600	0.0200	mg/L	1	19-May-2021 12:48
Nickel	0.0789		0.00600	0.0200	mg/L	1	19-May-2021 12:48
Selenium	U		0.0110	0.0200	mg/L	1	19-May-2021 12:48
Silver	U		0.00200	0.0200	mg/L	1	19-May-2021 12:48
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>		Prep:SW7470A / 18-May-2021		Analyst: MSC	
Mercury	U		0.000300	0.00200	mg/L	1	18-May-2021 12:34
<b>FLASH POINT BY PENSKY-MARTENS SW1010A</b>		<b>Method:SW1010</b>				Analyst: TH	
Ignitability	> 212		70.0	70.0	°F	1	14-May-2021 08:00
<b>PH BY SW9040C</b>		<b>Method:SW9040C</b>				Analyst: JAC	
pH	9.05	H	0.100	0.100	pH Units	1	17-May-2021 14:18
Temp Deg C @pH	23.2	H	0	0	DEG C	1	17-May-2021 14:18

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 IDWW  
**WorkOrder:** HS21050675

**Batch ID:** 165827      **Start Date:** 14 May 2021 13:49      **End Date:** 14 May 2021 16:00  
**Method:** TX 1005 PREP      **Prep Code:** TX 1005\_W PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21050675-01	1	30.51 (g)	3 (mL)	0.09833	2-oz glass, Neat

**Batch ID:** 165870      **Start Date:** 17 May 2021 11:43      **End Date:** 17 May 2021 15:00  
**Method:** SV AQ SEP FUN EXTRACT-LOWLEV - 3510C      **Prep Code:** 3510\_B\_LOW

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21050675-01	1	190 (mL)	1 (mL)	0.005263	4-oz glass, Neat

**Batch ID:** 165906      **Start Date:** 18 May 2021 08:30      **End Date:** 18 May 2021 11:30  
**Method:** MERCURY PREP BY 7470A- WATER      **Prep Code:** HG\_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21050675-01		1 (mL)	10 (mL)	10	4-oz glass, Neat

**Batch ID:** 165910      **Start Date:** 18 May 2021 13:30      **End Date:** 18 May 2021 17:30  
**Method:** WATER - SW3010A      **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21050675-01		1 (mL)	10 (mL)	10	4-oz glass, Neat

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> 165827 ( 0 )		<b>Test Name :</b> LOW-LEVEL TEXAS TPH BY TX1005			<b>Matrix:</b> Liquid	
HS21050675-01	WW-1620-IDW01-20210512	12 May 2021 15:00		14 May 2021 13:49	15 May 2021 05:49	1
<b>Batch ID:</b> 165870 ( 0 )		<b>Test Name :</b> LOW-LEVEL SEMIVOLATILES BY 8270D			<b>Matrix:</b> Liquid	
HS21050675-01	WW-1620-IDW01-20210512	12 May 2021 15:00		17 May 2021 11:43	20 May 2021 17:12	1
<b>Batch ID:</b> 165906 ( 0 )		<b>Test Name :</b> MERCURY BY SW7470A			<b>Matrix:</b> Liquid	
HS21050675-01	WW-1620-IDW01-20210512	12 May 2021 15:00		18 May 2021 11:30	18 May 2021 12:34	1
<b>Batch ID:</b> 165910 ( 0 )		<b>Test Name :</b> ICP-MS METALS BY SW6020A			<b>Matrix:</b> Liquid	
HS21050675-01	WW-1620-IDW01-20210512	12 May 2021 15:00		18 May 2021 17:30	19 May 2021 12:48	1
<b>Batch ID:</b> R383647 ( 0 )		<b>Test Name :</b> FLASH POINT BY PENSKY-MARTENS SW1010A			<b>Matrix:</b> Liquid	
HS21050675-01	WW-1620-IDW01-20210512	12 May 2021 15:00			14 May 2021 08:00	1
<b>Batch ID:</b> R383669 ( 0 )		<b>Test Name :</b> LOW LEVEL VOLATILES BY SW8260C			<b>Matrix:</b> Liquid	
HS21050675-01	WW-1620-IDW01-20210512	12 May 2021 15:00			14 May 2021 18:18	50
<b>Batch ID:</b> R383753 ( 0 )		<b>Test Name :</b> PH BY SW9040C			<b>Matrix:</b> Liquid	
HS21050675-01	WW-1620-IDW01-20210512	12 May 2021 15:00			17 May 2021 14:18	1

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

**Batch ID:** 165827 ( 0)      **Instrument:** FID-10      **Method:** LOW-LEVEL TEXAS TPH BY TX1005

<b>MBLK</b>		Sample ID: <b>MBLK-165827</b>		Units: <b>mg/L</b>		Analysis Date: <b>14-May-2021 17:50</b>			
Client ID:		Run ID: <b>FID-10_383792</b>		SeqNo: <b>6096120</b>		PrepDate: <b>14-May-2021</b>		DF: <b>1</b>	
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
nC6 to nC12	U	0.50							
>nC12 to nC28	U	0.50							
>nC28 to nC35	U	0.50							
Total Petroleum Hydrocarbon	U	0.50							
<i>Surr: 2-Fluorobiphenyl</i>	2.637	0	2.5	0	105	70 - 130			
<i>Surr: Trifluoromethyl benzene</i>	2.554	0	2.5	0	102	70 - 130			

<b>LCS</b>		Sample ID: <b>LCS-165827</b>		Units: <b>mg/L</b>		Analysis Date: <b>14-May-2021 18:18</b>			
Client ID:		Run ID: <b>FID-10_383792</b>		SeqNo: <b>6096121</b>		PrepDate: <b>14-May-2021</b>		DF: <b>1</b>	
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
nC6 to nC12	22.15	0.50	25	0	88.6	75 - 125			
>nC12 to nC28	26.24	0.50	25	0	105	75 - 125			
<i>Surr: 2-Fluorobiphenyl</i>	2.439	0	2.5	0	97.5	70 - 130			
<i>Surr: Trifluoromethyl benzene</i>	2.367	0	2.5	0	94.7	70 - 130			

<b>LCSD</b>		Sample ID: <b>LCSD-165827</b>		Units: <b>mg/L</b>		Analysis Date: <b>14-May-2021 18:47</b>			
Client ID:		Run ID: <b>FID-10_383792</b>		SeqNo: <b>6096122</b>		PrepDate: <b>14-May-2021</b>		DF: <b>1</b>	
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
nC6 to nC12	21.07	0.50	25	0	84.3	75 - 125	22.15	5.02	20
>nC12 to nC28	24.75	0.50	25	0	99.0	75 - 125	26.24	5.84	20
<i>Surr: 2-Fluorobiphenyl</i>	2.433	0	2.5	0	97.3	70 - 130	2.439	0.222	20
<i>Surr: Trifluoromethyl benzene</i>	2.348	0	2.5	0	93.9	70 - 130	2.367	0.832	20

<b>MS</b>		Sample ID: <b>HS21050671-01MS</b>		Units: <b>mg/L</b>		Analysis Date: <b>14-May-2021 19:45</b>			
Client ID:		Run ID: <b>FID-10_383792</b>		SeqNo: <b>6096124</b>		PrepDate: <b>14-May-2021</b>		DF: <b>1</b>	
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
nC6 to nC12	21.7	0.50	24.8	0	87.5	75 - 125			
>nC12 to nC28	26.12	0.50	24.8	0	105	75 - 125			
<i>Surr: 2-Fluorobiphenyl</i>	2.766	0	2.48	0	112	70 - 130			
<i>Surr: Trifluoromethyl benzene</i>	2.631	0	2.48	0	106	70 - 130			

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

<b>Batch ID:</b> 165827 ( 0 )		<b>Instrument:</b> FID-10		<b>Method:</b> LOW-LEVEL TEXAS TPH BY TX1005					
<b>MSD</b>	Sample ID: <b>HS21050671-01MSD</b>	Units: <b>mg/L</b>			Analysis Date: <b>14-May-2021 20:14</b>				
Client ID:	Run ID: <b>FID-10_383792</b>	SeqNo: <b>6096125</b>		PrepDate: <b>14-May-2021</b>		DF: <b>1</b>			
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

nC6 to nC12	22.79	0.50	24.77	0	92.0	75 - 125	21.7	4.87	20
>nC12 to nC28	27.73	0.50	24.77	0	112	75 - 125	26.12	6	20
Surr: 2-Fluorobiphenyl	2.751	0	2.477	0	111	70 - 130	2.766	0.545	20
Surr: Trifluoromethyl benzene	2.587	0	2.477	0	104	70 - 130	2.631	1.71	20

The following samples were analyzed in this batch: HS21050675-01



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

**Batch ID:** 165910 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

**MBLK**      Sample ID: **MBLK-165910**      Units: **mg/L**      Analysis Date: **19-May-2021 12:16**  
 Client ID:      Run ID: **ICPMS06\_383907**      SeqNo: **6099504**      PrepDate: **18-May-2021**      DF: **1**  
 Analyte      Result      MQL      SPK Val      SPK Ref Value      %REC      Control Limit      RPD Ref Value      %RPD      RPD Limit Qual

Antimony	U	0.00200								
Arsenic	U	0.00200								
Barium	U	0.00400								
Beryllium	U	0.00200								
Cadmium	U	0.00200								
Chromium	U	0.00400								
Lead	U	0.00200								
Nickel	U	0.00200								
Selenium	U	0.00200								
Silver	U	0.00200								

**LCS**      Sample ID: **LCS-165910**      Units: **mg/L**      Analysis Date: **18-May-2021 19:34**  
 Client ID:      Run ID: **ICPMS06\_383838**      SeqNo: **6098381**      PrepDate: **18-May-2021**      DF: **1**  
 Analyte      Result      MQL      SPK Val      SPK Ref Value      %REC      Control Limit      RPD Ref Value      %RPD      RPD Limit Qual

Antimony	0.05617	0.00200	0.05	0	112	80 - 120				
Arsenic	0.05284	0.00200	0.05	0	106	80 - 120				
Barium	0.05356	0.00400	0.05	0	107	80 - 120				
Beryllium	0.05576	0.00200	0.05	0	112	80 - 120				
Cadmium	0.05571	0.00200	0.05	0	111	80 - 120				
Chromium	0.05248	0.00400	0.05	0	105	80 - 120				
Lead	0.05268	0.00200	0.05	0	105	80 - 120				
Nickel	0.05443	0.00200	0.05	0	109	80 - 120				
Selenium	0.05673	0.00200	0.05	0	113	80 - 120				
Silver	0.05621	0.00200	0.05	0	112	80 - 120				



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: 165910 ( 0 )		Instrument: ICPMS06			Method: ICP-MS METALS BY SW6020A					
<b>MS</b>		Sample ID: <b>HS21050172-01MS</b>			Units: <b>mg/L</b>		Analysis Date: <b>18-May-2021 19:40</b>			
Client ID:		Run ID: <b>ICPMS06_383838</b>			SeqNo: <b>6098384</b>		PrepDate: <b>18-May-2021</b>		DF: <b>1</b>	
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.0575	0.00200	0.05	0.000221	115	80 - 120				
Arsenic	0.05608	0.00200	0.05	0.001288	110	80 - 120				
Barium	0.4704	0.00400	0.05	0.4175	106	80 - 120				O
Beryllium	0.05652	0.00200	0.05	0.000017	113	80 - 120				
Cadmium	0.05496	0.00200	0.05	0.000015	110	80 - 120				
Chromium	0.05494	0.00400	0.05	0.000276	109	80 - 120				
Lead	0.05565	0.00200	0.05	0.00005	111	80 - 120				
Nickel	0.05472	0.00200	0.05	0.000599	108	80 - 120				
Selenium	0.05668	0.00200	0.05	0.000294	113	80 - 120				
Silver	0.05161	0.00200	0.05	0	103	80 - 120				
<b>MSD</b>		Sample ID: <b>HS21050172-01MSD</b>			Units: <b>mg/L</b>		Analysis Date: <b>18-May-2021 19:42</b>			
Client ID:		Run ID: <b>ICPMS06_383838</b>			SeqNo: <b>6098385</b>		PrepDate: <b>18-May-2021</b>		DF: <b>1</b>	
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05233	0.00200	0.05	0.000221	104	80 - 120	0.0575	9.42	20	
Arsenic	0.05167	0.00200	0.05	0.001288	101	80 - 120	0.05608	8.19	20	
Barium	0.4498	0.00400	0.05	0.4175	64.6	80 - 120	0.4704	4.48	20	SO
Beryllium	0.05455	0.00200	0.05	0.000017	109	80 - 120	0.05652	3.55	20	
Cadmium	0.05232	0.00200	0.05	0.000015	105	80 - 120	0.05496	4.91	20	
Chromium	0.05026	0.00400	0.05	0.000276	100.0	80 - 120	0.05494	8.92	20	
Lead	0.05254	0.00200	0.05	0.00005	105	80 - 120	0.05565	5.75	20	
Nickel	0.05135	0.00200	0.05	0.000599	101	80 - 120	0.05472	6.35	20	
Selenium	0.05192	0.00200	0.05	0.000294	103	80 - 120	0.05668	8.76	20	
Silver	0.04697	0.00200	0.05	0	93.9	80 - 120	0.05161	9.41	20	
<b>PDS</b>		Sample ID: <b>HS21050172-01PDS</b>			Units: <b>mg/L</b>		Analysis Date: <b>18-May-2021 19:44</b>			
Client ID:		Run ID: <b>ICPMS06_383838</b>			SeqNo: <b>6098386</b>		PrepDate: <b>18-May-2021</b>		DF: <b>1</b>	
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.5299	0.00400	0.1	0.4175	112	75 - 125				O
Nickel	0.123	0.00200	0.1	0.000599	122	75 - 125				
Silver	0.1212	0.00200	0.1	0	121	75 - 125				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

<b>Batch ID:</b> 165910 ( 0 )		<b>Instrument:</b> ICPMS06		<b>Method:</b> ICP-MS METALS BY SW6020A					
<b>SD</b>	<b>Sample ID:</b> HS21050172-01SD		<b>Units:</b> mg/L		<b>Analysis Date:</b> 18-May-2021 19:38				
<b>Client ID:</b>	<b>Run ID:</b> ICPMS06_383838		<b>SeqNo:</b> 6098383		<b>PrepDate:</b> 18-May-2021		<b>DF:</b> 5		
<b>Analyte</b>	<b>Result</b>	<b>MLQ</b>	<b>SPK Val</b>	<b>SPK Ref Value</b>	<b>%REC</b>	<b>Control Limit</b>	<b>RPD Ref Value</b>	<b>%D</b>	<b>Limit Qual</b>

Antimony	U	0.0100					0.000221	0	10
Arsenic	U	0.0100					0.001288	0	10
Barium	0.4098	0.0200					0.4175	1.84	10
Beryllium	U	0.0100					0.000017	0	10
Cadmium	U	0.0100					0.000015	0	10
Chromium	U	0.0200					0.000276	0	10
Lead	U	0.0100					0.000005	0	10
Nickel	U	0.0100					0.000599	0	10
Selenium	U	0.0100					0.000294	0	10
Silver	U	0.0100					0	0	10

The following samples were analyzed in this batch: HS21050675-01



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
MBLK	Sample ID: MBLK-165870	Units: ug/L			Analysis Date: 20-May-2021 14:45					
Client ID:	Run ID: SV-8_384070	SeqNo: 6102973	PrepDate: 17-May-2021	DF: 1						
Analyte	Result	SQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	0.20								
2,4,5-Trichlorophenol	U	0.20								
2,4,6-Trichlorophenol	U	0.20								
2,4-Dichlorophenol	U	0.20								
2,4-Dimethylphenol	U	0.20								
2,4-Dinitrophenol	U	1.0								
2,4-Dinitrotoluene	U	0.20								
2,6-Dinitrotoluene	U	0.20								
2-Chloronaphthalene	U	0.20								
2-Chlorophenol	U	0.20								
2-Methylnaphthalene	U	0.10								
2-Methylphenol	U	0.20								
2-Nitroaniline	U	0.20								
2-Nitrophenol	U	0.20								
3&4-Methylphenol	U	0.20								
3,3'-Dichlorobenzidine	U	0.20								
3-Nitroaniline	U	0.20								
4,6-Dinitro-2-methylphenol	U	0.20								
4-Bromophenyl phenyl ether	U	0.20								
4-Chloro-3-methylphenol	U	0.20								
4-Chloroaniline	U	0.20								
4-Chlorophenyl phenyl ether	U	0.20								
4-Nitroaniline	U	0.20								
4-Nitrophenol	U	1.0								
Acenaphthene	U	0.10								
Acenaphthylene	U	0.10								
Anthracene	U	0.10								
Benz(a)anthracene	U	0.10								
Benzidine	U	0.20								
Benzo(a)pyrene	U	0.10								
Benzo(b)fluoranthene	U	0.10								
Benzo(g,h,i)perylene	U	0.10								
Benzo(k)fluoranthene	U	0.10								
Benzyl alcohol	U	0.20								

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
MBLK	Sample ID: MBLK-165870	Units: ug/L			Analysis Date: 20-May-2021 14:45					
Client ID:	Run ID: SV-8_384070	SeqNo: 6102973		PrepDate: 17-May-2021		DF: 1				
Analyte	Result	MLQ	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Bis(2-chloroethoxy)methane	U	0.20								
Bis(2-chloroethyl)ether	U	0.20								
Bis(2-chloroisopropyl)ether	U	0.20								
Bis(2-ethylhexyl)phthalate	U	0.20								
Butyl benzyl phthalate	U	0.20								
Carbazole	U	0.20								
Chrysene	U	0.10								
Dibenz(a,h)anthracene	U	0.10								
Dibenzofuran	U	0.10								
Diethyl phthalate	U	0.20								
Dimethyl phthalate	U	0.20								
Di-n-butyl phthalate	U	0.20								
Di-n-octyl phthalate	U	0.20								
Fluoranthene	U	0.10								
Fluorene	U	0.10								
Hexachlorobenzene	U	0.20								
Hexachlorobutadiene	U	0.20								
Hexachlorocyclopentadiene	U	0.20								
Hexachloroethane	U	0.20								
Indeno(1,2,3-cd)pyrene	U	0.10								
Isophorone	U	0.20								
Naphthalene	U	0.10								
Nitrobenzene	U	0.20								
N-Nitrosodimethylamine	U	0.20								
N-Nitrosodi-n-propylamine	U	0.20								
N-Nitrosodiphenylamine	U	0.20								
Pentachlorophenol	U	0.20								
Phenanthrene	U	0.10								
Phenol	U	0.20								
Pyrene	U	0.10								
Pyridine	U	1.0								
<i>Surr: 2,4,6-Tribromophenol</i>	4.238	0.20	5	0	84.8	34 - 129				
<i>Surr: 2-Fluorobiphenyl</i>	5.122	0.20	5	0	102	40 - 125				
<i>Surr: 2-Fluorophenol</i>	5.598	0.20	5	0	112	20 - 120				



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
<b>MBLK</b>	Sample ID: <b>MBLK-165870</b>	Units: <b>ug/L</b>			Analysis Date: <b>20-May-2021 14:45</b>					
Client ID:	Run ID: <b>SV-8_384070</b>	SeqNo: <b>6102973</b>		PrepDate: <b>17-May-2021</b>		DF: <b>1</b>				
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual	
<i>Surr: 4-Terphenyl-d14</i>	5.831	0.20	5	0	117	40 - 135				
<i>Surr: Nitrobenzene-d5</i>	4.774	0.20	5	0	95.5	41 - 120				
<i>Surr: Phenol-d6</i>	5.364	0.20	5	0	107	20 - 120				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
LCS	Sample ID: LCS-165870	Units: ug/L			Analysis Date: 20-May-2021 15:05					
Client ID:	Run ID: SV-8_384070	SeqNo: 6102974		PrepDate: 17-May-2021		DF: 1				
Analyte	Result	MLQ	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
1,2,4-Trichlorobenzene	3.953	0.20	5	0	79.1	45 - 120				
2,4,5-Trichlorophenol	4.333	0.20	5	0	86.7	46 - 120				
2,4,6-Trichlorophenol	4.376	0.20	5	0	87.5	42 - 120				
2,4-Dichlorophenol	4.505	0.20	5	0	90.1	49 - 120				
2,4-Dimethylphenol	5.03	0.20	5	0	101	35 - 120				
2,4-Dinitrophenol	3.195	1.0	5	0	63.9	15 - 120				
2,4-Dinitrotoluene	5.279	0.20	5	0	106	50 - 122				
2,6-Dinitrotoluene	5.099	0.20	5	0	102	50 - 120				
2-Chloronaphthalene	5.212	0.20	5	0	104	50 - 120				
2-Chlorophenol	5.019	0.20	5	0	100	40 - 120				
2-Methylnaphthalene	4.856	0.10	5	0	97.1	50 - 120				
2-Methylphenol	5.133	0.20	5	0	103	45 - 120				
2-Nitroaniline	5.951	0.20	5	0	119	28 - 139				
2-Nitrophenol	4.661	0.20	5	0	93.2	40 - 120				
3&4-Methylphenol	5.509	0.20	5	0	110	35 - 120				
3,3'-Dichlorobenzidine	4.465	0.20	5	0	89.3	15 - 120				
3-Nitroaniline	5.744	0.20	5	0	115	30 - 120				
4,6-Dinitro-2-methylphenol	3.997	0.20	5	0	79.9	25 - 121				
4-Bromophenyl phenyl ether	4.292	0.20	5	0	85.8	45 - 120				
4-Chloro-3-methylphenol	5.386	0.20	5	0	108	47 - 120				
4-Chloroaniline	5.794	0.20	5	0	116	20 - 120				
4-Chlorophenyl phenyl ether	4.134	0.20	5	0	82.7	50 - 120				
4-Nitroaniline	5.504	0.20	5	0	110	30 - 133				
4-Nitrophenol	6.372	1.0	5	0	127	30 - 130				
Acenaphthene	4.469	0.10	5	0	89.4	45 - 120				
Acenaphthylene	4.901	0.10	5	0	98.0	47 - 120				
Anthracene	5.542	0.10	5	0	111	45 - 120				
Benz(a)anthracene	5.235	0.10	5	0	105	40 - 120				
Benzidine	2.383	0.20	5	0	47.7	10 - 120				
Benzo(a)pyrene	5.693	0.10	5	0	114	45 - 120				
Benzo(b)fluoranthene	5.57	0.10	5	0	111	50 - 120				
Benzo(g,h,i)perylene	4.55	0.10	5	0	91.0	42 - 127				
Benzo(k)fluoranthene	5.558	0.10	5	0	111	45 - 127				
Benzyl alcohol	5.229	0.20	5	0	105	35 - 122				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
LCS	Sample ID: LCS-165870	Units: ug/L			Analysis Date: 20-May-2021 15:05					
Client ID:	Run ID: SV-8_384070	SeqNo: 6102974	PrepDate: 17-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	4.98	0.20	5	0	99.6	45 - 120				
Bis(2-chloroethyl)ether	4.825	0.20	5	0	96.5	37 - 121				
Bis(2-chloroisopropyl)ether	4.748	0.20	5	0	95.0	40 - 120				
Bis(2-ethylhexyl)phthalate	6.862	0.20	5	0	137	40 - 139				
Butyl benzyl phthalate	6.017	0.20	5	0	120	47 - 123				
Carbazole	5.953	0.20	5	0	119	42 - 128				
Chrysene	5.582	0.10	5	0	112	43 - 120				
Dibenz(a,h)anthracene	4.658	0.10	5	0	93.2	45 - 125				
Dibenzofuran	4.922	0.10	5	0	98.4	50 - 120				
Diethyl phthalate	5.366	0.20	5	0	107	41 - 120				
Dimethyl phthalate	5.025	0.20	5	0	100	40 - 122				
Di-n-butyl phthalate	6.123	0.20	5	0	122	45 - 123				
Di-n-octyl phthalate	5.538	0.20	5	0	111	45 - 129				
Fluoranthene	5.121	0.10	5	0	102	45 - 125				
Fluorene	5.255	0.10	5	0	105	49 - 120				
Hexachlorobenzene	4.283	0.20	5	0	85.7	48 - 120				
Hexachlorobutadiene	3.5	0.20	5	0	70.0	40 - 120				
Hexachlorocyclopentadiene	3.23	0.20	5	0	64.6	34 - 136				
Hexachloroethane	5.048	0.20	5	0	101	40 - 120				
Indeno(1,2,3-cd)pyrene	4.566	0.10	5	0	91.3	41 - 128				
Isophorone	4.754	0.20	5	0	95.1	40 - 121				
Naphthalene	5.251	0.10	5	0	105	45 - 120				
Nitrobenzene	4.834	0.20	5	0	96.7	44 - 120				
N-Nitrosodimethylamine	3.825	0.20	5	0	76.5	30 - 121				
N-Nitrosodi-n-propylamine	5.054	0.20	5	0	101	40 - 120				
N-Nitrosodiphenylamine	5.564	0.20	5	0	111	40 - 125				
Pentachlorophenol	3.34	0.20	5	0	66.8	19 - 121				
Phenanthrene	5.555	0.10	5	0	111	45 - 121				
Phenol	5.046	0.20	5	0	101	20 - 124				
Pyrene	5.924	0.10	5	0	118	40 - 130				
Pyridine	3.392	1.0	5	0	67.8	15 - 120				
<i>Surr: 2,4,6-Tribromophenol</i>	<i>4.368</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>87.4</i>	<i>34 - 129</i>				
<i>Surr: 2-Fluorobiphenyl</i>	<i>4.976</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>99.5</i>	<i>40 - 125</i>				
<i>Surr: 2-Fluorophenol</i>	<i>5.01</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>100</i>	<i>20 - 120</i>				



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
<b>LCS</b>	Sample ID: <b>LCS-165870</b>	Units: <b>ug/L</b>			Analysis Date: <b>20-May-2021 15:05</b>					
Client ID:	Run ID: <b>SV-8_384070</b>	SeqNo: <b>6102974</b>		PrepDate: <b>17-May-2021</b>		DF: <b>1</b>				
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
<i>Surr: 4-Terphenyl-d14</i>	5.497	0.20	5	0	110	40 - 135				
<i>Surr: Nitrobenzene-d5</i>	4.871	0.20	5	0	97.4	41 - 120				
<i>Surr: Phenol-d6</i>	5.034	0.20	5	0	101	20 - 120				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
LCSD		Sample ID: LCSD-165870		Units: ug/L		Analysis Date: 20-May-2021 15:25				
Client ID:		Run ID: SV-8_384070		SeqNo: 6102975		PrepDate: 17-May-2021		DF: 1		
Analyte	Result	MLQ	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	3.953	0.20	5	0	79.1	45 - 120	3.953	0.00402	20	
2,4,5-Trichlorophenol	4.22	0.20	5	0	84.4	46 - 120	4.333	2.64	20	
2,4,6-Trichlorophenol	4.207	0.20	5	0	84.1	42 - 120	4.376	3.94	20	
2,4-Dichlorophenol	4.508	0.20	5	0	90.2	49 - 120	4.505	0.0638	20	
2,4-Dimethylphenol	5.249	0.20	5	0	105	35 - 120	5.03	4.25	20	
2,4-Dinitrophenol	3.246	1.0	5	0	64.9	15 - 120	3.195	1.6	50	
2,4-Dinitrotoluene	5.552	0.20	5	0	111	50 - 122	5.279	5.05	20	
2,6-Dinitrotoluene	5.014	0.20	5	0	100	50 - 120	5.099	1.68	20	
2-Chloronaphthalene	4.948	0.20	5	0	99.0	50 - 120	5.212	5.19	20	
2-Chlorophenol	5.658	0.20	5	0	113	40 - 120	5.019	12	20	
2-Methylnaphthalene	4.771	0.10	5	0	95.4	50 - 120	4.856	1.76	20	
2-Methylphenol	5.524	0.20	5	0	110	45 - 120	5.133	7.34	20	
2-Nitroaniline	5.829	0.20	5	0	117	28 - 139	5.951	2.06	20	
2-Nitrophenol	4.925	0.20	5	0	98.5	40 - 120	4.661	5.51	20	
3&4-Methylphenol	5.746	0.20	5	0	115	35 - 120	5.509	4.21	20	
3,3'-Dichlorobenzidine	4.355	0.20	5	0	87.1	15 - 120	4.465	2.48	20	
3-Nitroaniline	5.263	0.20	5	0	105	30 - 120	5.744	8.74	20	
4,6-Dinitro-2-methylphenol	4.508	0.20	5	0	90.2	25 - 121	3.997	12	30	
4-Bromophenyl phenyl ether	4.312	0.20	5	0	86.2	45 - 120	4.292	0.468	20	
4-Chloro-3-methylphenol	5.388	0.20	5	0	108	47 - 120	5.386	0.0397	20	
4-Chloroaniline	5.647	0.20	5	0	113	20 - 120	5.794	2.57	20	
4-Chlorophenyl phenyl ether	4.012	0.20	5	0	80.2	50 - 120	4.134	3.01	20	
4-Nitroaniline	5.94	0.20	5	0	119	30 - 133	5.504	7.62	20	
4-Nitrophenol	6.223	1.0	5	0	124	30 - 130	6.372	2.36	20	
Acenaphthene	4.346	0.10	5	0	86.9	45 - 120	4.469	2.79	20	
Acenaphthylene	4.867	0.10	5	0	97.3	47 - 120	4.901	0.686	20	
Anthracene	5.53	0.10	5	0	111	45 - 120	5.542	0.218	20	
Benz(a)anthracene	5.27	0.10	5	0	105	40 - 120	5.235	0.66	20	
Benzidine	2.167	0.20	5	0	43.3	10 - 120	2.383	9.49	30	
Benzo(a)pyrene	5.674	0.10	5	0	113	45 - 120	5.693	0.335	20	
Benzo(b)fluoranthene	5.407	0.10	5	0	108	50 - 120	5.57	2.96	20	
Benzo(g,h,i)perylene	4.673	0.10	5	0	93.5	42 - 127	4.55	2.67	20	
Benzo(k)fluoranthene	5.296	0.10	5	0	106	45 - 127	5.558	4.84	20	
Benzyl alcohol	5.433	0.20	5	0	109	35 - 122	5.229	3.82	20	

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
LCSD		Sample ID: LCSD-165870		Units: ug/L		Analysis Date: 20-May-2021 15:25				
Client ID:		Run ID: SV-8_384070		SeqNo: 6102975		PrepDate: 17-May-2021		DF: 1		
Analyte	Result	MLQ	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	4.926	0.20	5	0	98.5	45 - 120	4.98	1.09	20	
Bis(2-chloroethyl)ether	5.196	0.20	5	0	104	37 - 121	4.825	7.4	20	
Bis(2-chloroisopropyl)ether	5.227	0.20	5	0	105	40 - 120	4.748	9.61	20	
Bis(2-ethylhexyl)phthalate	6.804	0.20	5	0	136	40 - 139	6.862	0.854	20	
Butyl benzyl phthalate	6.125	0.20	5	0	122	47 - 123	6.017	1.78	20	
Carbazole	5.816	0.20	5	0	116	42 - 128	5.953	2.32	20	
Chrysene	5.619	0.10	5	0	112	43 - 120	5.582	0.673	20	
Dibenz(a,h)anthracene	4.619	0.10	5	0	92.4	45 - 125	4.658	0.831	20	
Dibenzofuran	4.773	0.10	5	0	95.5	50 - 120	4.922	3.07	20	
Diethyl phthalate	5.245	0.20	5	0	105	41 - 120	5.366	2.29	20	
Dimethyl phthalate	4.978	0.20	5	0	99.6	40 - 122	5.025	0.923	20	
Di-n-butyl phthalate	6.018	0.20	5	0	120	45 - 123	6.123	1.72	20	
Di-n-octyl phthalate	6.175	0.20	5	0	124	45 - 129	5.538	10.9	20	
Fluoranthene	5.056	0.10	5	0	101	45 - 125	5.121	1.28	20	
Fluorene	5.108	0.10	5	0	102	49 - 120	5.255	2.84	20	
Hexachlorobenzene	4.139	0.20	5	0	82.8	48 - 120	4.283	3.42	20	
Hexachlorobutadiene	3.612	0.20	5	0	72.2	40 - 120	3.5	3.15	20	
Hexachlorocyclopentadiene	3.12	0.20	5	0	62.4	34 - 136	3.23	3.45	20	
Hexachloroethane	5.338	0.20	5	0	107	40 - 120	5.048	5.59	20	
Indeno(1,2,3-cd)pyrene	4.531	0.10	5	0	90.6	41 - 128	4.566	0.783	20	
Isophorone	4.751	0.20	5	0	95.0	40 - 121	4.754	0.0645	20	
Naphthalene	5.221	0.10	5	0	104	45 - 120	5.251	0.571	20	
Nitrobenzene	4.778	0.20	5	0	95.6	44 - 120	4.834	1.15	20	
N-Nitrosodimethylamine	4.675	0.20	5	0	93.5	30 - 121	3.825	20	20	R
N-Nitrosodi-n-propylamine	5.34	0.20	5	0	107	40 - 120	5.054	5.49	20	
N-Nitrosodiphenylamine	5.467	0.20	5	0	109	40 - 125	5.564	1.76	20	
Pentachlorophenol	3.614	0.20	5	0	72.3	19 - 121	3.34	7.88	20	
Phenanthrene	5.48	0.10	5	0	110	45 - 121	5.555	1.36	20	
Phenol	5.278	0.20	5	0	106	20 - 124	5.046	4.51	20	
Pyrene	5.969	0.10	5	0	119	40 - 130	5.924	0.761	20	
Pyridine	3.666	1.0	5	0	73.3	15 - 120	3.392	7.76	20	
Surr: 2,4,6-Tribromophenol	4.489	0.20	5	0	89.8	34 - 129	4.368	2.73	20	
Surr: 2-Fluorobiphenyl	4.863	0.20	5	0	97.3	40 - 125	4.976	2.31	20	
Surr: 2-Fluorophenol	5.434	0.20	5	0	109	20 - 120	5.01	8.11	20	



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

**Batch ID:** 165870 ( 0 )      **Instrument:** SV-8      **Method:** LOW-LEVEL SEMIVOLATILES BY 8270D

LCSD		Sample ID: LCSD-165870			Units: ug/L		Analysis Date: 20-May-2021 15:25			
Client ID:		Run ID: SV-8_384070			SeqNo: 6102975		PrepDate: 17-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	5.536	0.20	5	0	111	40 - 135	5.497	0.71	20	
Surr: Nitrobenzene-d5	4.904	0.20	5	0	98.1	41 - 120	4.871	0.689	20	
Surr: Phenol-d6	5.47	0.20	5	0	109	20 - 120	5.034	8.3	20	

The following samples were analyzed in this batch: HS21050675-01

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
<b>MBLK</b>	Sample ID: <b>VBLKW-210514</b>	Units: <b>ug/L</b>			Analysis Date: <b>14-May-2021 12:04</b>					
Client ID:	Run ID: <b>VOA4_383669</b>	SeqNo: <b>6092645</b>		PrepDate:		DF: <b>1</b>				
Analyte	Result	MLQ	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	2.0								
2-Hexanone	U	2.0								
4-Methyl-2-pentanone	U	2.0								
Acetone	U	2.0								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	2.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
cis-1,3-Dichloropropene	U	1.0								
Dibromochloromethane	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methylene chloride	U	2.0								
o-Xylene	U	1.0								
Styrene	U	1.0								
Tetrachloroethene	U	1.0								

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

<b>Batch ID:</b> R383669 ( 0 )		<b>Instrument:</b> VOA4		<b>Method:</b> LOW LEVEL VOLATILES BY SW8260C						
<b>MBLK</b>	Sample ID: <b>VBLKW-210514</b>	Units: <b>ug/L</b>			Analysis Date: <b>14-May-2021 12:04</b>					
Client ID:	Run ID: <b>VOA4_383669</b>	SeqNo: <b>6092645</b>		PrepDate:			DF: <b>1</b>			
Analyte	Result	MLQ	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	

Toluene	U	1.0							
trans-1,2-Dichloroethene	U	1.0							
trans-1,3-Dichloropropene	U	1.0							
Trichloroethene	U	1.0							
Vinyl acetate	U	1.0							
Vinyl chloride	U	1.0							
Xylenes, Total	U	1.0							
1,2-Dichloroethene, Total	U	1.0							
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>50.65</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>70 - 123</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>47.43</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>94.9</i>	<i>82 - 115</i>			
<i>Surr: Dibromofluoromethane</i>	<i>49.39</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>98.8</i>	<i>73 - 126</i>			
<i>Surr: Toluene-d8</i>	<i>51.34</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>81 - 120</i>			



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
LCS	Sample ID: VLCSW-210514	Units: ug/L			Analysis Date: 14-May-2021 11:20					
Client ID:	Run ID: VOA4_383669	SeqNo: 6092644	PrepDate:	DF: 1						
Analyte	Result	SQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.79	1.0	20	0	98.9	70 - 130				
1,1,2,2-Tetrachloroethane	18.06	1.0	20	0	90.3	70 - 120				
1,1,2-Trichloroethane	18.51	1.0	20	0	92.6	77 - 113				
1,1-Dichloroethane	19.68	1.0	20	0	98.4	71 - 122				
1,1-Dichloroethene	20.04	1.0	20	0	100	70 - 130				
1,2-Dichlorobenzene	19.67	1.0	20	0	98.4	77 - 113				
1,2-Dichloroethane	18.11	1.0	20	0	90.5	70 - 124				
1,2-Dichloropropane	19.48	1.0	20	0	97.4	72 - 119				
1,3-Dichlorobenzene	20.01	1.0	20	0	100	78 - 118				
1,4-Dichlorobenzene	20.89	1.0	20	0	104	79 - 113				
2-Butanone	34.07	2.0	40	0	85.2	70 - 130				
2-Hexanone	35.99	2.0	40	0	90.0	70 - 130				
4-Methyl-2-pentanone	36.55	2.0	40	0	91.4	70 - 130				
Acetone	34.71	2.0	40	0	86.8	70 - 130				
Benzene	19.51	1.0	20	0	97.6	74 - 120				
Bromochloromethane	19.84	1.0	20	0	99.2	76 - 124				
Bromodichloromethane	19.6	1.0	20	0	98.0	74 - 122				
Bromoform	18.63	1.0	20	0	93.2	73 - 128				
Bromomethane	21.52	1.0	20	0	108	70 - 130				
Carbon disulfide	40.93	2.0	40	0	102	70 - 130				
Carbon tetrachloride	19.09	1.0	20	0	95.4	71 - 125				
Chlorobenzene	19.28	1.0	20	0	96.4	76 - 113				
Chloroethane	22.14	1.0	20	0	111	70 - 130				
Chloroform	19.57	1.0	20	0	97.8	71 - 121				
Chloromethane	21.34	1.0	20	0	107	70 - 129				
cis-1,2-Dichloroethene	18.73	1.0	20	0	93.6	75 - 122				
cis-1,3-Dichloropropene	20.25	1.0	20	0	101	73 - 127				
Dibromochloromethane	19.33	1.0	20	0	96.6	77 - 122				
Ethylbenzene	19.85	1.0	20	0	99.3	77 - 117				
m,p-Xylene	41.01	2.0	40	0	103	77 - 122				
Methylene chloride	20.21	2.0	20	0	101	70 - 127				
o-Xylene	21.16	1.0	20	0	106	75 - 119				
Styrene	21.08	1.0	20	0	105	72 - 126				
Tetrachloroethene	19.18	1.0	20	0	95.9	76 - 119				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

**Batch ID:** R383669 ( 0 )      **Instrument:** VOA4      **Method:** LOW LEVEL VOLATILES BY SW8260C

LCS		Sample ID: VLCSW-210514			Units: ug/L		Analysis Date: 14-May-2021 11:20			
Client ID:		Run ID: VOA4_383669			SeqNo: 6092644		PrepDate:		DF: 1	
Analyte	Result	MLL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	19.44	1.0	20	0	97.2	77 - 118				
trans-1,2-Dichloroethene	18.59	1.0	20	0	93.0	72 - 127				
trans-1,3-Dichloropropene	18.2	1.0	20	0	91.0	77 - 119				
Trichloroethene	18.95	1.0	20	0	94.8	77 - 121				
Vinyl acetate	33.52	1.0	40	0	83.8	70 - 130				
Vinyl chloride	19.64	1.0	20	0	98.2	70 - 130				
Xylenes, Total	62.17	1.0	60	0	104	75 - 122				
1,2-Dichloroethene, Total	37.32	1.0	40	0	93.3	72 - 127				
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>48.84</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>97.7</i>	<i>70 - 123</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>50.41</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>82 - 115</i>				
<i>Surr: Dibromofluoromethane</i>	<i>50.73</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>73 - 126</i>				
<i>Surr: Toluene-d8</i>	<i>51.48</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>81 - 120</i>				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
MS	Sample ID: HS21050330-01MS	Units: ug/L			Analysis Date: 14-May-2021 13:32					
Client ID:	Run ID: VOA4_383669	SeqNo: 6092649	PrepDate:	DF: 1						
Analyte	Result	MLQ	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.61	1.0	20	0	98.1	70 - 130				
1,1,2,2-Tetrachloroethane	17.18	1.0	20	0	85.9	70 - 123				
1,1,2-Trichloroethane	16.48	1.0	20	0	82.4	70 - 117				
1,1-Dichloroethane	19.14	1.0	20	0	95.7	70 - 127				
1,1-Dichloroethene	20.08	1.0	20	0	100	70 - 130				
1,2-Dichlorobenzene	18.51	1.0	20	0	92.5	70 - 115				
1,2-Dichloroethane	15.79	1.0	20	0	79.0	70 - 127				
1,2-Dichloropropane	18.44	1.0	20	0	92.2	70 - 122				
1,3-Dichlorobenzene	18.84	1.0	20	0	94.2	70 - 119				
1,4-Dichlorobenzene	19.79	1.0	20	0	99.0	70 - 114				
2-Butanone	30.56	2.0	40	0	76.4	70 - 130				
2-Hexanone	31.73	2.0	40	0	79.3	70 - 130				
4-Methyl-2-pentanone	32.35	2.0	40	0	80.9	70 - 130				
Acetone	33.77	2.0	40	0	84.4	70 - 130				
Benzene	18.8	1.0	20	0	94.0	70 - 127				
Bromochloromethane	19.09	1.0	20	0	95.5	70 - 127				
Bromodichloromethane	18.52	1.0	20	0	92.6	70 - 124				
Bromoform	16.57	1.0	20	0	82.9	70 - 129				
Bromomethane	21.76	1.0	20	0	109	70 - 130				
Carbon disulfide	40.65	2.0	40	0	102	70 - 130				
Carbon tetrachloride	19.01	1.0	20	0	95.0	70 - 130				
Chlorobenzene	18.18	1.0	20	0	90.9	70 - 114				
Chloroethane	22.59	1.0	20	0	113	70 - 130				
Chloroform	18.57	1.0	20	0	92.8	70 - 125				
Chloromethane	21.92	1.0	20	0	110	70 - 130				
cis-1,2-Dichloroethene	19.26	1.0	20	0	96.3	70 - 128				
cis-1,3-Dichloropropene	18.6	1.0	20	0	93.0	70 - 125				
Dibromochloromethane	17.85	1.0	20	0	89.3	70 - 124				
Ethylbenzene	19.21	1.0	20	0	96.0	70 - 124				
m,p-Xylene	38.69	2.0	40	0	96.7	70 - 130				
Methylene chloride	19.06	2.0	20	0	95.3	70 - 128				
o-Xylene	18.98	1.0	20	0	94.9	70 - 124				
Styrene	19.74	1.0	20	0	98.7	70 - 130				
Tetrachloroethene	18.81	1.0	20	0	94.0	70 - 130				



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

**Batch ID:** R383669 ( 0 )      **Instrument:** VOA4      **Method:** LOW LEVEL VOLATILES BY SW8260C

MS		Sample ID: HS21050330-01MS			Units: ug/L		Analysis Date: 14-May-2021 13:32			
Client ID:		Run ID: VOA4_383669			SeqNo: 6092649		PrepDate:		DF: 1	
Analyte	Result	MLL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	19	1.0	20	0	95.0	70 - 123				
trans-1,2-Dichloroethene	18.38	1.0	20	0	91.9	70 - 130				
trans-1,3-Dichloropropene	16.66	1.0	20	0	83.3	70 - 121				
Trichloroethene	17.66	1.0	20	0	88.3	70 - 129				
Vinyl acetate	31.75	1.0	40	0	79.4	70 - 130				
Vinyl chloride	19.41	1.0	20	0	97.0	70 - 130				
Xylenes, Total	57.68	1.0	60	0	96.1	70 - 130				
1,2-Dichloroethene, Total	37.64	1.0	40	0	94.1	70 - 130				
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>49.72</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>99.4</i>	<i>70 - 126</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>49.27</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>98.5</i>	<i>81 - 113</i>				
<i>Surr: Dibromofluoromethane</i>	<i>50.68</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>77 - 123</i>				
<i>Surr: Toluene-d8</i>	<i>49.65</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>99.3</i>	<i>82 - 127</i>				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
MSD	Sample ID: HS21050330-01MSD	Units: ug/L			Analysis Date: 14-May-2021 13:54					
Client ID:	Run ID: VOA4_383669	SeqNo: 6092650	PrepDate:	DF: 1						
Analyte	Result	SQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.03	1.0	20	0	100	70 - 130	19.61	2.08	20	
1,1,2,2-Tetrachloroethane	16.86	1.0	20	0	84.3	70 - 123	17.18	1.87	20	
1,1,2-Trichloroethane	17.27	1.0	20	0	86.4	70 - 117	16.48	4.69	20	
1,1-Dichloroethane	18.89	1.0	20	0	94.5	70 - 127	19.14	1.29	20	
1,1-Dichloroethene	19.37	1.0	20	0	96.8	70 - 130	20.08	3.59	20	
1,2-Dichlorobenzene	18.24	1.0	20	0	91.2	70 - 115	18.51	1.47	20	
1,2-Dichloroethane	16.83	1.0	20	0	84.2	70 - 127	15.79	6.36	20	
1,2-Dichloropropane	18.72	1.0	20	0	93.6	70 - 122	18.44	1.51	20	
1,3-Dichlorobenzene	19.1	1.0	20	0	95.5	70 - 119	18.84	1.37	20	
1,4-Dichlorobenzene	19.56	1.0	20	0	97.8	70 - 114	19.79	1.2	20	
2-Butanone	30.62	2.0	40	0	76.6	70 - 130	30.56	0.188	20	
2-Hexanone	31.36	2.0	40	0	78.4	70 - 130	31.73	1.19	20	
4-Methyl-2-pentanone	32.71	2.0	40	0	81.8	70 - 130	32.35	1.12	20	
Acetone	34.43	2.0	40	0	86.1	70 - 130	33.77	1.95	20	
Benzene	18.81	1.0	20	0	94.0	70 - 127	18.8	0.0571	20	
Bromochloromethane	18.5	1.0	20	0	92.5	70 - 127	19.09	3.12	20	
Bromodichloromethane	18.95	1.0	20	0	94.8	70 - 124	18.52	2.31	20	
Bromoform	16.7	1.0	20	0	83.5	70 - 129	16.57	0.754	20	
Bromomethane	20.11	1.0	20	0	101	70 - 130	21.76	7.88	20	
Carbon disulfide	39.71	2.0	40	0	99.3	70 - 130	40.65	2.33	20	
Carbon tetrachloride	19.21	1.0	20	0	96.0	70 - 130	19.01	1.04	20	
Chlorobenzene	17.79	1.0	20	0	89.0	70 - 114	18.18	2.17	20	
Chloroethane	19.4	1.0	20	0	97.0	70 - 130	22.59	15.2	20	
Chloroform	18.72	1.0	20	0	93.6	70 - 125	18.57	0.817	20	
Chloromethane	21.89	1.0	20	0	109	70 - 130	21.92	0.159	20	
cis-1,2-Dichloroethene	18.2	1.0	20	0	91.0	70 - 128	19.26	5.66	20	
cis-1,3-Dichloropropene	18.6	1.0	20	0	93.0	70 - 125	18.6	0.00685	20	
Dibromochloromethane	17.25	1.0	20	0	86.3	70 - 124	17.85	3.4	20	
Ethylbenzene	19.09	1.0	20	0	95.5	70 - 124	19.21	0.585	20	
m,p-Xylene	38.68	2.0	40	0	96.7	70 - 130	38.69	0.0242	20	
Methylene chloride	18.54	2.0	20	0	92.7	70 - 128	19.06	2.75	20	
o-Xylene	19.75	1.0	20	0	98.7	70 - 124	18.98	3.95	20	
Styrene	19.48	1.0	20	0	97.4	70 - 130	19.74	1.35	20	
Tetrachloroethene	18.08	1.0	20	0	90.4	70 - 130	18.81	3.93	20	

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
<b>MSD</b>	Sample ID: <b>HS21050330-01MSD</b>	Units: <b>ug/L</b>			Analysis Date: <b>14-May-2021 13:54</b>					
Client ID:	Run ID: <b>VOA4_383669</b>	SeqNo: <b>6092650</b>		PrepDate:			DF: <b>1</b>			
Analyte	Result	MLL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Toluene	18.39	1.0	20	0	91.9	70 - 123	19	3.25	20	
trans-1,2-Dichloroethene	18.59	1.0	20	0	93.0	70 - 130	18.38	1.15	20	
trans-1,3-Dichloropropene	16.53	1.0	20	0	82.6	70 - 121	16.66	0.807	20	
Trichloroethene	18.47	1.0	20	0	92.4	70 - 129	17.66	4.48	20	
Vinyl acetate	31.86	1.0	40	0	79.6	70 - 130	31.75	0.352	20	
Vinyl chloride	19.56	1.0	20	0	97.8	70 - 130	19.41	0.772	20	
Xylenes, Total	58.43	1.0	60	0	97.4	70 - 130	57.68	1.3	20	
1,2-Dichloroethene, Total	36.79	1.0	40	0	92.0	70 - 130	37.64	2.28	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>47.06</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>94.1</i>	<i>70 - 126</i>	<i>49.72</i>	<i>5.5</i>	<i>20</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>48.72</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>97.4</i>	<i>81 - 113</i>	<i>49.27</i>	<i>1.12</i>	<i>20</i>	
<i>Surr: Dibromofluoromethane</i>	<i>50.65</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>77 - 123</i>	<i>50.68</i>	<i>0.0529</i>	<i>20</i>	
<i>Surr: Toluene-d8</i>	<i>49.19</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>98.4</i>	<i>82 - 127</i>	<i>49.65</i>	<i>0.942</i>	<i>20</i>	

The following samples were analyzed in this batch: HS21050675-01



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

**Batch ID:** R383647 ( 0 )      **Instrument:** WetChem\_HS      **Method:** FLASH POINT BY PENSKY-MARTENS SW1010A

**LCS**      Sample ID: **LCS-R383647**      Units: °F      Analysis Date: **14-May-2021 08:00**  
 Client ID:      Run ID: **WetChem\_HS\_383647** SeqNo: **6092235** PrepDate:      DF: **1**  
 Analyte      Result      MQL      SPK Val      SPK Ref Value      %REC      Control Limit      RPD Ref Value      %RPD      RPD Limit Qual

Ignitability      80.13      70.0      81      0      98.9      95 - 105

**DUP**      Sample ID: **HS21050386-01DUP**      Units: °F      Analysis Date: **14-May-2021 08:00**  
 Client ID:      Run ID: **WetChem\_HS\_383647** SeqNo: **6092236** PrepDate:      DF: **1**  
 Analyte      Result      MQL      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:

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QC BATCH REPORT**

<b>Batch ID:</b> R383753 ( 0 )		<b>Instrument:</b> WetChem_HS		<b>Method:</b> PH BY SM4500H+ B						
<b>DUP</b>	Sample ID: <b>HS21050379-01DUP</b>	Units: <b>pH Units</b>			Analysis Date: <b>17-May-2021 14:18</b>					
Client ID:	Run ID: <b>WetChem_HS_383753</b>	SeqNo: <b>6094976</b>		PrepDate:		DF: <b>1</b>				
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH	6.79	0.100					6.71	1.19	10
Temp Deg C @pH	23.3	0					23.2	0.43	10

The following samples were analyzed in this batch:

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050675

**QUALIFIERS,  
ACRONYMS, UNITS**

<b>Qualifier</b>	<b>Description</b>
*	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

<b>Acronym</b>	<b>Description</b>
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 Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<b>Unit Reported</b>	<b>Description</b>
mg/L	Milligrams per Liter



**CERTIFICATIONS,ACCREDITATIONS & LICENSES**

<b>Agency</b>	<b>Number</b>	<b>Expire Date</b>
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: HS21050675

Date/Time Received: 13-May-2021 14:00

Client Name: PBW

Received by: Jared R. Makan

Completed By: /S/ Pablo Martinez	13-May-2021 19:43	Reviewed by: /S/ Dane J. Wacasey	14-May-2021 16:36
eSignature	Date/Time	eSignature	Date/Time

Matrices: OIL

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:237972
- 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):	0.8°C UC/C	IR 31
Cooler(s)/Kit(s):	43398	
Date/Time sample(s) sent to storage:	5/13/21 19:50	

- 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: 14-May-2021 Person Contacted: Golder

Contacted By: Regarding:

Comments: PEDD required transfer of information to most recent template for ALS.

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: 237972

HS21050675

Golder Associates Inc.  
Houston TX-Wood Preserving Works



ALS Project Manager:

Customer Information		Project Information	
Purchase Order	UPRR/Kevin Peterburs	Project Name	Houston TX-Wood Preserving Works IDWS
Work Order		Project Number	1620-15-Rev2 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	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	<del>SO-1620-IDWV-202105</del>			Solid	8	3	X	X	X	X	X	X	X				
2	<del>SO-1620-IDWV-202105</del>			Solid	8	3	X	X	X	X	X	X	X				
3	WW-1620-IDW01-20210512	5-12-21	1500	W	8	3	X	X	X	X	X	X	X				
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>Tim Spodda</i>		Shipment Method <i>Hand delivered</i>		Required Turnaround Time: (Check Box) <input checked="" type="checkbox"/> 7 <input type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour				Results Due Date:	
Relinquished by:	Date: <i>5-13-21</i>	Time: <i>1:00</i>	Received by:	Notes: UPRR HWPW 1620-15 <b>WR# 004578</b>					
Relinquished by:	Date: <i>5/13/21</i>	Time: <i>14:00</i>	Received by (Laboratory):	Cooler ID: <i>43398</i>	Cooler Temp: <i>08°C</i>	QC Package: (Check One Box Below)			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	<input checked="" type="checkbox"/> Level II Std QC	<input type="checkbox"/> TRRP Checklist				
Preservative Key: 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other <i>8-4°C</i> 9-5035				<input type="checkbox"/> Level III Std QC/Raw Data			<input type="checkbox"/> TRRP Level IV		
				<input type="checkbox"/> Level IV SWB/BCLP			<input type="checkbox"/> Other		

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.

Copyright 2011 by ALS Environmental.





**ALS**  
10450 Stancliff Rd., Suite 210  
Houston, Texas 77099  
Tel. +1 281 530 5656  
Fax. +1 281 530 5887

**CUSTODY SEAL**

Date: 5-14-2001 Time: 1630  
Name: JM MRS PULDA  
Company: Golda

Seal Broken By: A  
Date: 7/13/21



---

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

May 27, 2021

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

Work Order: **HS21050676**

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

Dear Eric Matzner,

ALS Environmental received 1 sample(s) on May 13, 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,

A handwritten signature in black ink, appearing to read 'Dane J. Wacasey'.

Generated By: DAYNA.FISHER  
Dane J. Wacasey

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**Work Order:** HS21050676

**SAMPLE SUMMARY**

---

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21050676-01	WW-1620-ToteWater-20210512	Liquid		12-May-2021 16:00	13-May-2021 14:00	<input type="checkbox"/>



---

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**Work Order:** HS21050676

---

**CASE NARRATIVE**

---

**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: 165827**

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

**GCMS Semivolatiles by Method SW8270**

**Batch ID: 165870**

**Sample ID: LCSD-165870**

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

**GCMS Volatiles by Method SW8260**

**Batch ID: R383669**

**Sample ID: WW-1620-ToteWater-20210512 (HS21050676-01)**

- Lowest practical dilution due to sample matrix.
- 

**Metals by Method SW6020A**

**Batch ID: 166038**

**Sample ID: HS21050786-01MS**

- MS and MSD are for an unrelated sample (Arsenic)
- 

**Metals by Method SW7470A**

**Batch ID: 165906**

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

**WetChemistry by Method SW9040C**

**Batch ID: R383753**

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

**WetChemistry by Method SW1010**

**Batch ID: R383647**

- 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 IDWW  
 Sample ID: WW-1620-ToteWater-20210512  
 Collection Date: 12-May-2021 16:00

**ANALYTICAL REPORT**  
 WorkOrder:HS21050676  
 Lab ID:HS21050676-01  
 Matrix:Liquid

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: AKP			
1,1,1-Trichloroethane	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
1,1,2,2-Tetrachloroethane	< 0.025		0.025	0.050	mg/L	50	14-May-2021 18:40
1,1,2-Trichloroethane	< 0.015		0.015	0.050	mg/L	50	14-May-2021 18:40
1,1-Dichloroethane	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
1,1-Dichloroethene	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
1,2-Dichlorobenzene	< 0.025		0.025	0.050	mg/L	50	14-May-2021 18:40
1,2-Dichloroethane	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
1,2-Dichloropropane	< 0.025		0.025	0.050	mg/L	50	14-May-2021 18:40
1,3-Dichlorobenzene	< 0.020		0.020	0.050	mg/L	50	14-May-2021 18:40
1,4-Dichlorobenzene	< 0.020		0.020	0.050	mg/L	50	14-May-2021 18:40
2-Butanone	< 0.025		0.025	0.10	mg/L	50	14-May-2021 18:40
2-Hexanone	< 0.050		0.050	0.10	mg/L	50	14-May-2021 18:40
4-Methyl-2-pentanone	< 0.035		0.035	0.10	mg/L	50	14-May-2021 18:40
Acetone	< 0.10		0.10	0.10	mg/L	50	14-May-2021 18:40
Benzene	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
Bromochloromethane	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
Bromodichloromethane	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
Bromoform	< 0.020		0.020	0.050	mg/L	50	14-May-2021 18:40
Bromomethane	< 0.020		0.020	0.050	mg/L	50	14-May-2021 18:40
Carbon disulfide	< 0.030		0.030	0.10	mg/L	50	14-May-2021 18:40
Carbon tetrachloride	< 0.025		0.025	0.050	mg/L	50	14-May-2021 18:40
Chlorobenzene	< 0.015		0.015	0.050	mg/L	50	14-May-2021 18:40
Chloroethane	< 0.015		0.015	0.050	mg/L	50	14-May-2021 18:40
Chloroform	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
Chloromethane	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
cis-1,2-Dichloroethene	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
cis-1,3-Dichloropropene	< 0.0050		0.0050	0.050	mg/L	50	14-May-2021 18:40
Dibromochloromethane	< 0.015		0.015	0.050	mg/L	50	14-May-2021 18:40
Ethylbenzene	< 0.015		0.015	0.050	mg/L	50	14-May-2021 18:40
m,p-Xylene	< 0.025		0.025	0.10	mg/L	50	14-May-2021 18:40
Methylene chloride	< 0.050		0.050	0.10	mg/L	50	14-May-2021 18:40
o-Xylene	< 0.015		0.015	0.050	mg/L	50	14-May-2021 18:40
Styrene	< 0.015		0.015	0.050	mg/L	50	14-May-2021 18:40
Tetrachloroethene	< 0.015		0.015	0.050	mg/L	50	14-May-2021 18:40
Toluene	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
trans-1,2-Dichloroethene	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
trans-1,3-Dichloropropene	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
Trichloroethene	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
Vinyl acetate	< 0.025		0.025	0.050	mg/L	50	14-May-2021 18:40

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

Client: Golder Associates Inc.  
 Project: Houston TX-Wood Preserving Works IDWW  
 Sample ID: WW-1620-ToteWater-20210512  
 Collection Date: 12-May-2021 16:00

**ANALYTICAL REPORT**

WorkOrder:HS21050676  
 Lab ID:HS21050676-01  
 Matrix:Liquid

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: AKP			
Vinyl chloride	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
Xylenes, Total	< 0.015		0.015	0.050	mg/L	50	14-May-2021 18:40
1,2-Dichloroethene, Total	< 0.010		0.010	0.050	mg/L	50	14-May-2021 18:40
Surr: 1,2-Dichloroethane-d4	99.6			70-126	%REC	50	14-May-2021 18:40
Surr: 4-Bromofluorobenzene	96.4			81-113	%REC	50	14-May-2021 18:40
Surr: Dibromofluoromethane	103			77-123	%REC	50	14-May-2021 18:40
Surr: Toluene-d8	101			82-127	%REC	50	14-May-2021 18:40

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



Client: Golder Associates Inc.  
 Project: Houston TX-Wood Preserving Works IDWW  
 Sample ID: WW-1620-ToteWater-20210512  
 Collection Date: 12-May-2021 16:00

**ANALYTICAL REPORT**  
 WorkOrder:HS21050676  
 Lab ID:HS21050676-01  
 Matrix:Liquid

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES BY 8270D</b>		<b>Method:SW8270</b>			Prep:SW3510 / 17-May-2021		Analyst: ACN
1,2,4-Trichlorobenzene	< 0.00016		0.00016	0.0011	mg/L	1	20-May-2021 17:32
2,4,5-Trichlorophenol	< 0.00030		0.00030	0.0011	mg/L	1	20-May-2021 17:32
2,4,6-Trichlorophenol	< 0.00025		0.00025	0.0011	mg/L	1	20-May-2021 17:32
2,4-Dichlorophenol	< 0.00023		0.00023	0.0011	mg/L	1	20-May-2021 17:32
2,4-Dimethylphenol	< 0.00021		0.00021	0.0011	mg/L	1	20-May-2021 17:32
2,4-Dinitrophenol	< 0.00053		0.00053	0.0053	mg/L	1	20-May-2021 17:32
2,4-Dinitrotoluene	< 0.00031		0.00031	0.0011	mg/L	1	20-May-2021 17:32
2,6-Dinitrotoluene	< 0.00022		0.00022	0.0011	mg/L	1	20-May-2021 17:32
2-Chloronaphthalene	< 0.00011		0.00011	0.0011	mg/L	1	20-May-2021 17:32
2-Chlorophenol	< 0.00019		0.00019	0.0011	mg/L	1	20-May-2021 17:32
<b>2-Methylnaphthalene</b>	<b>0.0016</b>		<b>0.00010</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:32
2-Methylphenol	< 0.00024		0.00024	0.0011	mg/L	1	20-May-2021 17:32
2-Nitroaniline	< 0.00022		0.00022	0.0011	mg/L	1	20-May-2021 17:32
2-Nitrophenol	< 0.00018		0.00018	0.0011	mg/L	1	20-May-2021 17:32
<b>3&amp;4-Methylphenol</b>	<b>0.0014</b>		<b>0.00019</b>	<b>0.0011</b>	<b>mg/L</b>	1	20-May-2021 17:32
3,3'-Dichlorobenzidine	< 0.00023		0.00023	0.0011	mg/L	1	20-May-2021 17:32
3-Nitroaniline	< 0.00026		0.00026	0.0011	mg/L	1	20-May-2021 17:32
4,6-Dinitro-2-methylphenol	< 0.00011		0.00011	0.0011	mg/L	1	20-May-2021 17:32
4-Bromophenyl phenyl ether	< 0.00027		0.00027	0.0011	mg/L	1	20-May-2021 17:32
4-Chloro-3-methylphenol	< 0.00017		0.00017	0.0011	mg/L	1	20-May-2021 17:32
4-Chloroaniline	< 0.00021		0.00021	0.0011	mg/L	1	20-May-2021 17:32
4-Chlorophenyl phenyl ether	< 0.00023		0.00023	0.0011	mg/L	1	20-May-2021 17:32
4-Nitroaniline	< 0.00018		0.00018	0.0011	mg/L	1	20-May-2021 17:32
4-Nitrophenol	< 0.00025		0.00025	0.0053	mg/L	1	20-May-2021 17:32
Acenaphthene	< 0.00014		0.00014	0.00053	mg/L	1	20-May-2021 17:32
Acenaphthylene	< 0.000079		0.000079	0.00053	mg/L	1	20-May-2021 17:32
<b>Anthracene</b>	<b>0.00046</b>	J	<b>0.000074</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:32
Benz(a)anthracene	< 0.00026		0.00026	0.00053	mg/L	1	20-May-2021 17:32
Benzidine	< 0.00053		0.00053	0.0011	mg/L	1	20-May-2021 17:32
Benzo(a)pyrene	< 0.00011		0.00011	0.00053	mg/L	1	20-May-2021 17:32
Benzo(b)fluoranthene	< 0.00012		0.00012	0.00053	mg/L	1	20-May-2021 17:32
Benzo(g,h,i)perylene	< 0.000074		0.000074	0.00053	mg/L	1	20-May-2021 17:32
Benzo(k)fluoranthene	< 0.00010		0.00010	0.00053	mg/L	1	20-May-2021 17:32
Benzyl alcohol	< 0.00028		0.00028	0.0011	mg/L	1	20-May-2021 17:32
Bis(2-chloroethoxy)methane	< 0.00016		0.00016	0.0011	mg/L	1	20-May-2021 17:32
Bis(2-chloroethyl)ether	< 0.00014		0.00014	0.0011	mg/L	1	20-May-2021 17:32
Bis(2-chloroisopropyl)ether	< 0.00037		0.00037	0.0011	mg/L	1	20-May-2021 17:32
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.19</b>		<b>0.0019</b>	<b>0.011</b>	<b>mg/L</b>	10	22-May-2021 02:31
<b>Butyl benzyl phthalate</b>	<b>0.012</b>		<b>0.00010</b>	<b>0.0011</b>	<b>mg/L</b>	1	20-May-2021 17:32

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

Client: Golder Associates Inc.  
 Project: Houston TX-Wood Preserving Works IDWW  
 Sample ID: WW-1620-ToteWater-20210512  
 Collection Date: 12-May-2021 16:00

**ANALYTICAL REPORT**  
 WorkOrder:HS21050676  
 Lab ID:HS21050676-01  
 Matrix:Liquid

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES BY 8270D</b>		<b>Method:SW8270</b>		Prep:SW3510 / 17-May-2021		Analyst: ACN	
Carbazole	< 0.00013		0.00013	0.0011	mg/L	1	20-May-2021 17:32
Chrysene	< 0.00011		0.00011	0.00053	mg/L	1	20-May-2021 17:32
<b>Di-n-butyl phthalate</b>	<b>0.021</b>		<b>0.00011</b>	<b>0.0011</b>	<b>mg/L</b>	1	20-May-2021 17:32
<b>Di-n-octyl phthalate</b>	<b>0.013</b>		<b>0.00011</b>	<b>0.0011</b>	<b>mg/L</b>	1	20-May-2021 17:32
Dibenz(a,h)anthracene	< 0.00013		0.00013	0.00053	mg/L	1	20-May-2021 17:32
<b>Dibenzofuran</b>	<b>0.00044</b>	J	<b>0.00011</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:32
<b>Diethyl phthalate</b>	<b>0.0012</b>		<b>0.00016</b>	<b>0.0011</b>	<b>mg/L</b>	1	20-May-2021 17:32
Dimethyl phthalate	< 0.00022		0.00022	0.0011	mg/L	1	20-May-2021 17:32
<b>Fluoranthene</b>	<b>0.0034</b>		<b>0.000053</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:32
<b>Fluorene</b>	<b>0.00060</b>		<b>0.00016</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:32
Hexachlorobenzene	< 0.00023		0.00023	0.0011	mg/L	1	20-May-2021 17:32
Hexachlorobutadiene	< 0.00016		0.00016	0.0011	mg/L	1	20-May-2021 17:32
Hexachlorocyclopentadiene	< 0.00016		0.00016	0.0011	mg/L	1	20-May-2021 17:32
Hexachloroethane	< 0.00031		0.00031	0.0011	mg/L	1	20-May-2021 17:32
Indeno(1,2,3-cd)pyrene	< 0.00012		0.00012	0.00053	mg/L	1	20-May-2021 17:32
Isophorone	< 0.00013		0.00013	0.0011	mg/L	1	20-May-2021 17:32
N-Nitrosodi-n-propylamine	< 0.00017		0.00017	0.0011	mg/L	1	20-May-2021 17:32
N-Nitrosodimethylamine	< 0.00053		0.00053	0.0011	mg/L	1	20-May-2021 17:32
N-Nitrosodiphenylamine	< 0.00013		0.00013	0.0011	mg/L	1	20-May-2021 17:32
<b>Naphthalene</b>	<b>0.0015</b>		<b>0.00011</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:32
Nitrobenzene	< 0.00013		0.00013	0.0011	mg/L	1	20-May-2021 17:32
Pentachlorophenol	< 0.00042		0.00042	0.0011	mg/L	1	20-May-2021 17:32
<b>Phenanthrene</b>	<b>0.0049</b>		<b>0.00011</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:32
<b>Phenol</b>	<b>0.00083</b>	J	<b>0.00018</b>	<b>0.0011</b>	<b>mg/L</b>	1	20-May-2021 17:32
<b>Pyrene</b>	<b>0.0031</b>		<b>0.00010</b>	<b>0.00053</b>	<b>mg/L</b>	1	20-May-2021 17:32
Pyridine	< 0.00016		0.00016	0.0053	mg/L	1	20-May-2021 17:32
<i>Surr: 2,4,6-Tribromophenol</i>	<i>77.6</i>			<i>34-129</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:32</i>
<i>Surr: 2,4,6-Tribromophenol</i>	<i>111</i>			<i>34-129</i>	<i>%REC</i>	<i>10</i>	<i>22-May-2021 02:31</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>103</i>			<i>40-125</i>	<i>%REC</i>	<i>10</i>	<i>22-May-2021 02:31</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>77.6</i>			<i>40-125</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:32</i>
<i>Surr: 2-Fluorophenol</i>	<i>95.2</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:32</i>
<i>Surr: 2-Fluorophenol</i>	<i>93.6</i>			<i>20-120</i>	<i>%REC</i>	<i>10</i>	<i>22-May-2021 02:31</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>106</i>			<i>40-135</i>	<i>%REC</i>	<i>10</i>	<i>22-May-2021 02:31</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>101</i>			<i>40-135</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:32</i>
<i>Surr: Nitrobenzene-d5</i>	<i>92.7</i>			<i>41-120</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:32</i>
<i>Surr: Nitrobenzene-d5</i>	<i>96.4</i>			<i>41-120</i>	<i>%REC</i>	<i>10</i>	<i>22-May-2021 02:31</i>
<i>Surr: Phenol-d6</i>	<i>94.7</i>			<i>20-120</i>	<i>%REC</i>	<i>10</i>	<i>22-May-2021 02:31</i>
<i>Surr: Phenol-d6</i>	<i>102</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>20-May-2021 17:32</i>

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

Client: Golder Associates Inc.  
 Project: Houston TX-Wood Preserving Works IDWW  
 Sample ID: WW-1620-ToteWater-20210512  
 Collection Date: 12-May-2021 16:00

**ANALYTICAL REPORT**  
 WorkOrder:HS21050676  
 Lab ID:HS21050676-01  
 Matrix:Liquid

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL TEXAS TPH BY TX1005</b>		<b>Method:TX1005</b>		Prep:TX1005PR / 14-May-2021		Analyst: MBG	
nC6 to nC12	< 0.20		0.20	0.49	mg/L	1	15-May-2021 06:18
>nC12 to nC28	< 0.20		0.20	0.49	mg/L	1	15-May-2021 06:18
>nC28 to nC35	< 0.20		0.20	0.49	mg/L	1	15-May-2021 06:18
Total Petroleum Hydrocarbon	< 0.20		0.20	0.49	mg/L	1	15-May-2021 06:18
Surr: 2-Fluorobiphenyl	89.8			70-130	%REC	1	15-May-2021 06:18
Surr: Trifluoromethyl benzene	92.3			70-130	%REC	1	15-May-2021 06:18
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>		Prep:SW3010A / 20-May-2021		Analyst: JHD	
Antimony	0.0724		0.00400	0.0200	mg/L	1	21-May-2021 14:11
Arsenic	0.591		0.00400	0.0200	mg/L	1	21-May-2021 14:11
Barium	0.436		0.0190	0.0400	mg/L	1	21-May-2021 14:11
Beryllium	< 0.00200		0.00200	0.0200	mg/L	1	21-May-2021 14:11
Cadmium	0.00657	J	0.00200	0.0200	mg/L	1	21-May-2021 14:11
Chromium	0.301		0.00400	0.0400	mg/L	1	21-May-2021 14:11
Lead	0.311		0.00600	0.0200	mg/L	1	21-May-2021 14:11
Nickel	0.988		0.00600	0.0200	mg/L	1	21-May-2021 14:11
Selenium	0.0125	J	0.0110	0.0200	mg/L	1	21-May-2021 14:11
Silver	0.0125	J	0.00200	0.0200	mg/L	1	21-May-2021 14:11
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>		Prep:SW7470A / 18-May-2021		Analyst: MSC	
Mercury	0.00138	J	0.000300	0.00200	mg/L	1	18-May-2021 12:36
<b>FLASH POINT BY PENSKY-MARTENS SW1010A</b>		<b>Method:SW1010</b>				Analyst: TH	
Ignitability	> 212		70.0	70.0	°F	1	14-May-2021 08:00
<b>PH BY SW9040C</b>		<b>Method:SW9040C</b>				Analyst: JAC	
pH	9.96	H	0.100	0.100	pH Units	1	17-May-2021 14:18
Temp Deg C @pH	23.3	H	0	0	DEG C	1	17-May-2021 14:18

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 IDWW  
**WorkOrder:** HS21050676

**Batch ID:** 165827      **Start Date:** 14 May 2021 13:49      **End Date:** 14 May 2021 16:00  
**Method:** TX 1005 PREP      **Prep Code:** TX 1005\_W PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21050676-01	1	30.36 (g)	3 (mL)	0.09881	2-oz glass, Neat

**Batch ID:** 165870      **Start Date:** 17 May 2021 11:43      **End Date:** 17 May 2021 15:00  
**Method:** SV AQ SEP FUN EXTRACT-LOWLEV - 3510C      **Prep Code:** 3510\_B\_LOW

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21050676-01	1	190 (mL)	1 (mL)	0.005263	4-oz glass, Neat

**Batch ID:** 165906      **Start Date:** 18 May 2021 08:30      **End Date:** 18 May 2021 11:30  
**Method:** MERCURY PREP BY 7470A- WATER      **Prep Code:** HG\_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21050676-01		1 (mL)	10 (mL)	10	4-oz glass, Neat

**Batch ID:** 166038      **Start Date:** 20 May 2021 13:30      **End Date:** 20 May 2021 17:30  
**Method:** WATER - SW3010A      **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21050676-01		1 (mL)	10 (mL)	10	4-oz glass, Neat



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> 165827 ( 0 )		<b>Test Name :</b> LOW-LEVEL TEXAS TPH BY TX1005			<b>Matrix:</b> Liquid	
HS21050676-01	WW-1620-ToteWater-20210512	12 May 2021 16:00		14 May 2021 13:49	15 May 2021 06:18	1
<b>Batch ID:</b> 165870 ( 0 )		<b>Test Name :</b> LOW-LEVEL SEMIVOLATILES BY 8270D			<b>Matrix:</b> Liquid	
HS21050676-01	WW-1620-ToteWater-20210512	12 May 2021 16:00		17 May 2021 11:43	22 May 2021 02:31	10
HS21050676-01	WW-1620-ToteWater-20210512	12 May 2021 16:00		17 May 2021 11:43	20 May 2021 17:32	1
<b>Batch ID:</b> 165906 ( 0 )		<b>Test Name :</b> MERCURY BY SW7470A			<b>Matrix:</b> Liquid	
HS21050676-01	WW-1620-ToteWater-20210512	12 May 2021 16:00		18 May 2021 11:30	18 May 2021 12:36	1
<b>Batch ID:</b> 166038 ( 0 )		<b>Test Name :</b> ICP-MS METALS BY SW6020A			<b>Matrix:</b> Liquid	
HS21050676-01	WW-1620-ToteWater-20210512	12 May 2021 16:00		20 May 2021 17:30	21 May 2021 14:11	1
<b>Batch ID:</b> R383647 ( 0 )		<b>Test Name :</b> FLASH POINT BY PENSKY-MARTENS SW1010A			<b>Matrix:</b> Liquid	
HS21050676-01	WW-1620-ToteWater-20210512	12 May 2021 16:00			14 May 2021 08:00	1
<b>Batch ID:</b> R383669 ( 0 )		<b>Test Name :</b> LOW LEVEL VOLATILES BY SW8260C			<b>Matrix:</b> Liquid	
HS21050676-01	WW-1620-ToteWater-20210512	12 May 2021 16:00			14 May 2021 18:40	50
<b>Batch ID:</b> R383753 ( 0 )		<b>Test Name :</b> PH BY SW9040C			<b>Matrix:</b> Liquid	
HS21050676-01	WW-1620-ToteWater-20210512	12 May 2021 16:00			17 May 2021 14:18	1

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

**Batch ID:** 165827 ( 0 )      **Instrument:** FID-10      **Method:** LOW-LEVEL TEXAS TPH BY TX1005

<b>MBLK</b>		Sample ID: <b>MBLK-165827</b>		Units: <b>mg/L</b>		Analysis Date: <b>14-May-2021 17:50</b>				
Client ID:		Run ID: <b>FID-10_383792</b>		SeqNo: <b>6096120</b>		PrepDate: <b>14-May-2021</b>		DF: <b>1</b>		
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	2.637	0	2.5	0	105	70 - 130				
Surr: Trifluoromethyl benzene	2.554	0	2.5	0	102	70 - 130				

<b>LCS</b>		Sample ID: <b>LCS-165827</b>		Units: <b>mg/L</b>		Analysis Date: <b>14-May-2021 18:18</b>				
Client ID:		Run ID: <b>FID-10_383792</b>		SeqNo: <b>6096121</b>		PrepDate: <b>14-May-2021</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	22.15	0.50	25	0	88.6	75 - 125				
>nC12 to nC28	26.24	0.50	25	0	105	75 - 125				
Surr: 2-Fluorobiphenyl	2.439	0	2.5	0	97.5	70 - 130				
Surr: Trifluoromethyl benzene	2.367	0	2.5	0	94.7	70 - 130				

<b>LCSD</b>		Sample ID: <b>LCSD-165827</b>		Units: <b>mg/L</b>		Analysis Date: <b>14-May-2021 18:47</b>				
Client ID:		Run ID: <b>FID-10_383792</b>		SeqNo: <b>6096122</b>		PrepDate: <b>14-May-2021</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	21.07	0.50	25	0	84.3	75 - 125	22.15	5.02	20	
>nC12 to nC28	24.75	0.50	25	0	99.0	75 - 125	26.24	5.84	20	
Surr: 2-Fluorobiphenyl	2.433	0	2.5	0	97.3	70 - 130	2.439	0.222	20	
Surr: Trifluoromethyl benzene	2.348	0	2.5	0	93.9	70 - 130	2.367	0.832	20	

<b>MS</b>		Sample ID: <b>HS21050671-01MS</b>		Units: <b>mg/L</b>		Analysis Date: <b>14-May-2021 19:45</b>				
Client ID:		Run ID: <b>FID-10_383792</b>		SeqNo: <b>6096124</b>		PrepDate: <b>14-May-2021</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	21.7	0.50	24.8	0	87.5	75 - 125				
>nC12 to nC28	26.12	0.50	24.8	0	105	75 - 125				
Surr: 2-Fluorobiphenyl	2.766	0	2.48	0	112	70 - 130				
Surr: Trifluoromethyl benzene	2.631	0	2.48	0	106	70 - 130				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

<b>Batch ID:</b> 165827 ( 0 )		<b>Instrument:</b> FID-10		<b>Method:</b> LOW-LEVEL TEXAS TPH BY TX1005					
<b>MSD</b>	Sample ID: <b>HS21050671-01MSD</b>	Units: <b>mg/L</b>		Analysis Date: <b>14-May-2021 20:14</b>					
Client ID:	Run ID: <b>FID-10_383792</b>	SeqNo: <b>6096125</b>		PrepDate: <b>14-May-2021</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

nC6 to nC12	22.79	0.50	24.77	0	92.0	75 - 125	21.7	4.87	20
>nC12 to nC28	27.73	0.50	24.77	0	112	75 - 125	26.12	6	20
Surr: 2-Fluorobiphenyl	2.751	0	2.477	0	111	70 - 130	2.766	0.545	20
Surr: Trifluoromethyl benzene	2.587	0	2.477	0	104	70 - 130	2.631	1.71	20

The following samples were analyzed in this batch: HS21050676-01

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

<b>Batch ID:</b> 165906 ( 0 )	<b>Instrument:</b> HG03	<b>Method:</b> MERCURY BY SW7470A
-------------------------------	-------------------------	-----------------------------------

<b>MBLK</b>	Sample ID: <b>MBLK-165906</b>	Units: <b>mg/L</b>	Analysis Date: <b>18-May-2021 12:15</b>							
Client ID:	Run ID: <b>HG03_383835</b>	SeqNo: <b>6097328</b>	PrepDate: <b>18-May-2021</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual

Mercury < 0.0000300 0.000200

<b>LCS</b>	Sample ID: <b>LCS-165906</b>	Units: <b>mg/L</b>	Analysis Date: <b>18-May-2021 12:22</b>							
Client ID:	Run ID: <b>HG03_383835</b>	SeqNo: <b>6097331</b>	PrepDate: <b>18-May-2021</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual

Mercury 0.00472 0.000200 0.005 0 94.4 80 - 120

<b>MS</b>	Sample ID: <b>HS21050706-02MS</b>	Units: <b>mg/L</b>	Analysis Date: <b>18-May-2021 12:25</b>							
Client ID:	Run ID: <b>HG03_383835</b>	SeqNo: <b>6097333</b>	PrepDate: <b>18-May-2021</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual

Mercury 0.00472 0.000200 0.005 -0.000022 94.8 75 - 125

<b>MSD</b>	Sample ID: <b>HS21050706-02MSD</b>	Units: <b>mg/L</b>	Analysis Date: <b>18-May-2021 12:27</b>							
Client ID:	Run ID: <b>HG03_383835</b>	SeqNo: <b>6097334</b>	PrepDate: <b>18-May-2021</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual

Mercury 0.00408 0.000200 0.005 -0.000022 82.0 75 - 125 0.00472 14.5 20

The following samples were analyzed in this batch: HS21050676-01



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

**Batch ID:** 166038 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

<b>MBLK</b>		Sample ID: <b>MBLK-166038</b>		Units: <b>mg/L</b>		Analysis Date: <b>20-May-2021 18:52</b>			
Client ID:		Run ID: <b>ICPMS06_384036</b>		SeqNo: <b>6103135</b>		PrepDate: <b>20-May-2021</b>		DF: <b>1</b>	
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							

<b>LCS</b>		Sample ID: <b>LCS-166038</b>		Units: <b>mg/L</b>		Analysis Date: <b>20-May-2021 18:54</b>			
Client ID:		Run ID: <b>ICPMS06_384036</b>		SeqNo: <b>6103136</b>		PrepDate: <b>20-May-2021</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Antimony	0.05435	0.00200	0.05	0	109	80 - 120			
Arsenic	0.0505	0.00200	0.05	0	101	80 - 120			
Barium	0.04784	0.00400	0.05	0	95.7	80 - 120			
Beryllium	0.04617	0.00200	0.05	0	92.3	80 - 120			
Cadmium	0.04828	0.00200	0.05	0	96.6	80 - 120			
Chromium	0.0516	0.00400	0.05	0	103	80 - 120			
Lead	0.0472	0.00200	0.05	0	94.4	80 - 120			
Nickel	0.05479	0.00200	0.05	0	110	80 - 120			
Selenium	0.05438	0.00200	0.05	0	109	80 - 120			
Silver	0.04608	0.00200	0.05	0	92.2	80 - 120			

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: 166038 ( 0 )		Instrument: ICPMS06		Method: ICP-MS METALS BY SW6020A						
<b>MS</b>	Sample ID: <b>HS21050786-01MS</b>	Units: <b>mg/L</b>			Analysis Date: <b>20-May-2021 22:02</b>					
Client ID:	Run ID: <b>ICPMS06_384036</b>	SeqNo: <b>6103138</b>	PrepDate: <b>20-May-2021</b>	DF: <b>5</b>						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.04708	0.0100	0.05	0	94.2	80 - 120				
Arsenic	0.943	0.0100	0.05	0.7293	427	80 - 120				SO
Barium	0.07268	0.0200	0.05	0.01896	107	80 - 120				
Beryllium	0.04914	0.0100	0.05	0	98.3	80 - 120				
Cadmium	0.05073	0.0100	0.05	0	101	80 - 120				
Chromium	0.04908	0.0200	0.05	0	98.2	80 - 120				
Lead	0.04991	0.0100	0.05	0	99.8	80 - 120				
Nickel	0.07641	0.0100	0.05	0.02098	111	80 - 120				
Selenium	0.05287	0.0100	0.05	0	106	80 - 120				
Silver	0.04705	0.0100	0.05	0	94.1	80 - 120				

<b>MSD</b>	Sample ID: <b>HS21050786-01MSD</b>	Units: <b>mg/L</b>			Analysis Date: <b>20-May-2021 22:04</b>					
Client ID:	Run ID: <b>ICPMS06_384036</b>	SeqNo: <b>6103139</b>	PrepDate: <b>20-May-2021</b>	DF: <b>5</b>						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.04347	0.0100	0.05	0	86.9	80 - 120	0.04708	7.98	20	
Arsenic	0.9018	0.0100	0.05	0.7293	345	80 - 120	0.943	4.46	20	SO
Barium	0.06895	0.0200	0.05	0.01896	100.0	80 - 120	0.07268	5.26	20	
Beryllium	0.04572	0.0100	0.05	0	91.4	80 - 120	0.04914	7.22	20	
Cadmium	0.04659	0.0100	0.05	0	93.2	80 - 120	0.05073	8.52	20	
Chromium	0.04534	0.0200	0.05	0	90.7	80 - 120	0.04908	7.91	20	
Lead	0.04569	0.0100	0.05	0	91.4	80 - 120	0.04991	8.82	20	
Nickel	0.07061	0.0100	0.05	0.02098	99.3	80 - 120	0.07641	7.9	20	
Selenium	0.04936	0.0100	0.05	0	98.7	80 - 120	0.05287	6.87	20	
Silver	0.0408	0.0100	0.05	0	81.6	80 - 120	0.04705	14.2	20	

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

<b>Batch ID:</b> 166038 ( 0 )	<b>Instrument:</b> ICPMS06	<b>Method:</b> ICP-MS METALS BY SW6020A
-------------------------------	----------------------------	---

<b>PDS</b>		Sample ID: <b>HS21050786-01PDS</b>			Units: <b>mg/L</b>		Analysis Date: <b>20-May-2021 22:06</b>			
Client ID:		Run ID: <b>ICPMS06_384036</b>			SeqNo: <b>6103140</b>		PrepDate: <b>20-May-2021</b>		DF: <b>5</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.9475	0.0100	1	0	94.8	75 - 125				
Barium	1.016	0.0200	1	0.01896	99.7	75 - 125				
Beryllium	0.9262	0.0100	1	0	92.6	75 - 125				
Cadmium	0.9463	0.0100	1	0	94.6	75 - 125				
Chromium	0.9611	0.0200	1	0	96.1	75 - 125				
Lead	0.9657	0.0100	1	0	96.6	75 - 125				
Nickel	0.9779	0.0100	1	0.02098	95.7	75 - 125				
Selenium	1.016	0.0100	1	0	102	75 - 125				
Silver	0.8957	0.0100	1	0	89.6	75 - 125				

<b>PDS</b>		Sample ID: <b>HS21050786-01PDS</b>			Units: <b>mg/L</b>		Analysis Date: <b>21-May-2021 13:44</b>			
Client ID:		Run ID: <b>ICPMS06_384111</b>			SeqNo: <b>6104437</b>		PrepDate: <b>20-May-2021</b>		DF: <b>100</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	10.47	0.200	10	0.8177	96.6	75 - 125				

<b>SD</b>		Sample ID: <b>HS21050786-01SD</b>			Units: <b>mg/L</b>		Analysis Date: <b>20-May-2021 22:00</b>			
Client ID:		Run ID: <b>ICPMS06_384036</b>			SeqNo: <b>6103137</b>		PrepDate: <b>20-May-2021</b>		DF: <b>25</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	RPD Limit	Qual
Antimony	< 0.0100	0.0500					0.000032	0	10	
Barium	< 0.0475	0.100					0.01896	0	10	
Beryllium	< 0.00500	0.0500					0.000105	0	10	
Cadmium	< 0.00500	0.0500					0.00065	0	10	
Chromium	< 0.0100	0.100					0.00024	0	10	
Lead	< 0.0150	0.0500					0.000225	0	10	
Nickel	0.02701	0.0500					0.02098	0	10	J
Selenium	< 0.0275	0.0500					0.000991	0	10	
Silver	< 0.00500	0.0500					0.000013	0	10	

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

<b>Batch ID:</b> 166038 ( 0 )		<b>Instrument:</b> ICPMS06		<b>Method:</b> ICP-MS METALS BY SW6020A						
<b>SD</b>	Sample ID: <b>HS21050786-01SD</b>	Units: <b>mg/L</b>			Analysis Date: <b>21-May-2021 13:42</b>					
Client ID:	Run ID: <b>ICPMS06_384111</b>	SeqNo: <b>6104436</b>		PrepDate: <b>20-May-2021</b>		DF: <b>500</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual

Arsenic	0.8877	1.00					0.8177	0	10	J
---------	--------	------	--	--	--	--	--------	---	----	---

The following samples were analyzed in this batch:



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
MBLK	Sample ID: MBLK-165870	Units: ug/L			Analysis Date: 20-May-2021 14:45					
Client ID:	Run ID: SV-8_384070	SeqNo: 6102973	PrepDate: 17-May-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 IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
<b>MBLK</b>	Sample ID: <b>MBLK-165870</b>	Units: <b>ug/L</b>			Analysis Date: <b>20-May-2021 14:45</b>					
Client ID:	Run ID: <b>SV-8_384070</b>	SeqNo: <b>6102973</b>		PrepDate: <b>17-May-2021</b>		DF: <b>1</b>				
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								
<i>Surr: 2,4,6-Tribromophenol</i>	4.238	0.20	5	0	84.8	34 - 129				
<i>Surr: 2-Fluorobiphenyl</i>	5.122	0.20	5	0	102	40 - 125				
<i>Surr: 2-Fluorophenol</i>	5.598	0.20	5	0	112	20 - 120				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
<b>MBLK</b>	Sample ID: <b>MBLK-165870</b>				Units: <b>ug/L</b>	Analysis Date: <b>20-May-2021 14:45</b>				
Client ID:		Run ID: <b>SV-8_384070</b>		SeqNo: <b>6102973</b>	PrepDate: <b>17-May-2021</b>	DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
<i>Surr: 4-Terphenyl-d14</i>	5.831	0.20	5	0	117	40 - 135				
<i>Surr: Nitrobenzene-d5</i>	4.774	0.20	5	0	95.5	41 - 120				
<i>Surr: Phenol-d6</i>	5.364	0.20	5	0	107	20 - 120				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
LCS	Sample ID: LCS-165870	Units: ug/L			Analysis Date: 20-May-2021 15:05					
Client ID:	Run ID: SV-8_384070	SeqNo: 6102974	PrepDate: 17-May-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	3.953	0.20	5	0	79.1	45 - 120				
2,4,5-Trichlorophenol	4.333	0.20	5	0	86.7	46 - 120				
2,4,6-Trichlorophenol	4.376	0.20	5	0	87.5	42 - 120				
2,4-Dichlorophenol	4.505	0.20	5	0	90.1	49 - 120				
2,4-Dimethylphenol	5.03	0.20	5	0	101	35 - 120				
2,4-Dinitrophenol	3.195	1.0	5	0	63.9	15 - 120				
2,4-Dinitrotoluene	5.279	0.20	5	0	106	50 - 122				
2,6-Dinitrotoluene	5.099	0.20	5	0	102	50 - 120				
2-Chloronaphthalene	5.212	0.20	5	0	104	50 - 120				
2-Chlorophenol	5.019	0.20	5	0	100	40 - 120				
2-Methylnaphthalene	4.856	0.10	5	0	97.1	50 - 120				
2-Methylphenol	5.133	0.20	5	0	103	45 - 120				
2-Nitroaniline	5.951	0.20	5	0	119	28 - 139				
2-Nitrophenol	4.661	0.20	5	0	93.2	40 - 120				
3&4-Methylphenol	5.509	0.20	5	0	110	35 - 120				
3,3'-Dichlorobenzidine	4.465	0.20	5	0	89.3	15 - 120				
3-Nitroaniline	5.744	0.20	5	0	115	30 - 120				
4,6-Dinitro-2-methylphenol	3.997	0.20	5	0	79.9	25 - 121				
4-Bromophenyl phenyl ether	4.292	0.20	5	0	85.8	45 - 120				
4-Chloro-3-methylphenol	5.386	0.20	5	0	108	47 - 120				
4-Chloroaniline	5.794	0.20	5	0	116	20 - 120				
4-Chlorophenyl phenyl ether	4.134	0.20	5	0	82.7	50 - 120				
4-Nitroaniline	5.504	0.20	5	0	110	30 - 133				
4-Nitrophenol	6.372	1.0	5	0	127	30 - 130				
Acenaphthene	4.469	0.10	5	0	89.4	45 - 120				
Acenaphthylene	4.901	0.10	5	0	98.0	47 - 120				
Anthracene	5.542	0.10	5	0	111	45 - 120				
Benz(a)anthracene	5.235	0.10	5	0	105	40 - 120				
Benzidine	2.383	0.20	5	0	47.7	10 - 120				
Benzo(a)pyrene	5.693	0.10	5	0	114	45 - 120				
Benzo(b)fluoranthene	5.57	0.10	5	0	111	50 - 120				
Benzo(g,h,i)perylene	4.55	0.10	5	0	91.0	42 - 127				
Benzo(k)fluoranthene	5.558	0.10	5	0	111	45 - 127				
Benzyl alcohol	5.229	0.20	5	0	105	35 - 122				



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
LCS	Sample ID: LCS-165870	Units: ug/L			Analysis Date: 20-May-2021 15:05					
Client ID:	Run ID: SV-8_384070	SeqNo: 6102974	PrepDate: 17-May-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	4.98	0.20	5	0	99.6	45 - 120				
Bis(2-chloroethyl)ether	4.825	0.20	5	0	96.5	37 - 121				
Bis(2-chloroisopropyl)ether	4.748	0.20	5	0	95.0	40 - 120				
Bis(2-ethylhexyl)phthalate	6.862	0.20	5	0	137	40 - 139				
Butyl benzyl phthalate	6.017	0.20	5	0	120	47 - 123				
Carbazole	5.953	0.20	5	0	119	42 - 128				
Chrysene	5.582	0.10	5	0	112	43 - 120				
Dibenz(a,h)anthracene	4.658	0.10	5	0	93.2	45 - 125				
Dibenzofuran	4.922	0.10	5	0	98.4	50 - 120				
Diethyl phthalate	5.366	0.20	5	0	107	41 - 120				
Dimethyl phthalate	5.025	0.20	5	0	100	40 - 122				
Di-n-butyl phthalate	6.123	0.20	5	0	122	45 - 123				
Di-n-octyl phthalate	5.538	0.20	5	0	111	45 - 129				
Fluoranthene	5.121	0.10	5	0	102	45 - 125				
Fluorene	5.255	0.10	5	0	105	49 - 120				
Hexachlorobenzene	4.283	0.20	5	0	85.7	48 - 120				
Hexachlorobutadiene	3.5	0.20	5	0	70.0	40 - 120				
Hexachlorocyclopentadiene	3.23	0.20	5	0	64.6	34 - 136				
Hexachloroethane	5.048	0.20	5	0	101	40 - 120				
Indeno(1,2,3-cd)pyrene	4.566	0.10	5	0	91.3	41 - 128				
Isophorone	4.754	0.20	5	0	95.1	40 - 121				
Naphthalene	5.251	0.10	5	0	105	45 - 120				
Nitrobenzene	4.834	0.20	5	0	96.7	44 - 120				
N-Nitrosodimethylamine	3.825	0.20	5	0	76.5	30 - 121				
N-Nitrosodi-n-propylamine	5.054	0.20	5	0	101	40 - 120				
N-Nitrosodiphenylamine	5.564	0.20	5	0	111	40 - 125				
Pentachlorophenol	3.34	0.20	5	0	66.8	19 - 121				
Phenanthrene	5.555	0.10	5	0	111	45 - 121				
Phenol	5.046	0.20	5	0	101	20 - 124				
Pyrene	5.924	0.10	5	0	118	40 - 130				
Pyridine	3.392	1.0	5	0	67.8	15 - 120				
Surr: 2,4,6-Tribromophenol	4.368	0.20	5	0	87.4	34 - 129				
Surr: 2-Fluorobiphenyl	4.976	0.20	5	0	99.5	40 - 125				
Surr: 2-Fluorophenol	5.01	0.20	5	0	100	20 - 120				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
<b>LCS</b>	Sample ID: <b>LCS-165870</b>	Units: <b>ug/L</b>			Analysis Date: <b>20-May-2021 15:05</b>					
Client ID:	Run ID: <b>SV-8_384070</b>	SeqNo: <b>6102974</b>		PrepDate: <b>17-May-2021</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
<i>Surr: 4-Terphenyl-d14</i>	5.497	0.20	5	0	110	40 - 135				
<i>Surr: Nitrobenzene-d5</i>	4.871	0.20	5	0	97.4	41 - 120				
<i>Surr: Phenol-d6</i>	5.034	0.20	5	0	101	20 - 120				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
<b>LCSD</b>	Sample ID: <b>LCSD-165870</b>	Units: <b>ug/L</b>			Analysis Date: <b>20-May-2021 15:25</b>					
Client ID:	Run ID: <b>SV-8_384070</b>	SeqNo: <b>6102975</b>		PrepDate: <b>17-May-2021</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	3.953	0.20	5	0	79.1	45 - 120	3.953	0.00402	20	
2,4,5-Trichlorophenol	4.22	0.20	5	0	84.4	46 - 120	4.333	2.64	20	
2,4,6-Trichlorophenol	4.207	0.20	5	0	84.1	42 - 120	4.376	3.94	20	
2,4-Dichlorophenol	4.508	0.20	5	0	90.2	49 - 120	4.505	0.0638	20	
2,4-Dimethylphenol	5.249	0.20	5	0	105	35 - 120	5.03	4.25	20	
2,4-Dinitrophenol	3.246	1.0	5	0	64.9	15 - 120	3.195	1.6	50	
2,4-Dinitrotoluene	5.552	0.20	5	0	111	50 - 122	5.279	5.05	20	
2,6-Dinitrotoluene	5.014	0.20	5	0	100	50 - 120	5.099	1.68	20	
2-Chloronaphthalene	4.948	0.20	5	0	99.0	50 - 120	5.212	5.19	20	
2-Chlorophenol	5.658	0.20	5	0	113	40 - 120	5.019	12	20	
2-Methylnaphthalene	4.771	0.10	5	0	95.4	50 - 120	4.856	1.76	20	
2-Methylphenol	5.524	0.20	5	0	110	45 - 120	5.133	7.34	20	
2-Nitroaniline	5.829	0.20	5	0	117	28 - 139	5.951	2.06	20	
2-Nitrophenol	4.925	0.20	5	0	98.5	40 - 120	4.661	5.51	20	
3&4-Methylphenol	5.746	0.20	5	0	115	35 - 120	5.509	4.21	20	
3,3'-Dichlorobenzidine	4.355	0.20	5	0	87.1	15 - 120	4.465	2.48	20	
3-Nitroaniline	5.263	0.20	5	0	105	30 - 120	5.744	8.74	20	
4,6-Dinitro-2-methylphenol	4.508	0.20	5	0	90.2	25 - 121	3.997	12	30	
4-Bromophenyl phenyl ether	4.312	0.20	5	0	86.2	45 - 120	4.292	0.468	20	
4-Chloro-3-methylphenol	5.388	0.20	5	0	108	47 - 120	5.386	0.0397	20	
4-Chloroaniline	5.647	0.20	5	0	113	20 - 120	5.794	2.57	20	
4-Chlorophenyl phenyl ether	4.012	0.20	5	0	80.2	50 - 120	4.134	3.01	20	
4-Nitroaniline	5.94	0.20	5	0	119	30 - 133	5.504	7.62	20	
4-Nitrophenol	6.223	1.0	5	0	124	30 - 130	6.372	2.36	20	
Acenaphthene	4.346	0.10	5	0	86.9	45 - 120	4.469	2.79	20	
Acenaphthylene	4.867	0.10	5	0	97.3	47 - 120	4.901	0.686	20	
Anthracene	5.53	0.10	5	0	111	45 - 120	5.542	0.218	20	
Benz(a)anthracene	5.27	0.10	5	0	105	40 - 120	5.235	0.66	20	
Benzidine	2.167	0.20	5	0	43.3	10 - 120	2.383	9.49	30	
Benzo(a)pyrene	5.674	0.10	5	0	113	45 - 120	5.693	0.335	20	
Benzo(b)fluoranthene	5.407	0.10	5	0	108	50 - 120	5.57	2.96	20	
Benzo(g,h,i)perylene	4.673	0.10	5	0	93.5	42 - 127	4.55	2.67	20	
Benzo(k)fluoranthene	5.296	0.10	5	0	106	45 - 127	5.558	4.84	20	
Benzyl alcohol	5.433	0.20	5	0	109	35 - 122	5.229	3.82	20	

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
LCSD		Sample ID: LCSD-165870		Units: ug/L		Analysis Date: 20-May-2021 15:25				
Client ID:		Run ID: SV-8_384070		SeqNo: 6102975		PrepDate: 17-May-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	4.926	0.20	5	0	98.5	45 - 120	4.98	1.09	20	
Bis(2-chloroethyl)ether	5.196	0.20	5	0	104	37 - 121	4.825	7.4	20	
Bis(2-chloroisopropyl)ether	5.227	0.20	5	0	105	40 - 120	4.748	9.61	20	
Bis(2-ethylhexyl)phthalate	6.804	0.20	5	0	136	40 - 139	6.862	0.854	20	
Butyl benzyl phthalate	6.125	0.20	5	0	122	47 - 123	6.017	1.78	20	
Carbazole	5.816	0.20	5	0	116	42 - 128	5.953	2.32	20	
Chrysene	5.619	0.10	5	0	112	43 - 120	5.582	0.673	20	
Dibenz(a,h)anthracene	4.619	0.10	5	0	92.4	45 - 125	4.658	0.831	20	
Dibenzofuran	4.773	0.10	5	0	95.5	50 - 120	4.922	3.07	20	
Diethyl phthalate	5.245	0.20	5	0	105	41 - 120	5.366	2.29	20	
Dimethyl phthalate	4.978	0.20	5	0	99.6	40 - 122	5.025	0.923	20	
Di-n-butyl phthalate	6.018	0.20	5	0	120	45 - 123	6.123	1.72	20	
Di-n-octyl phthalate	6.175	0.20	5	0	124	45 - 129	5.538	10.9	20	
Fluoranthene	5.056	0.10	5	0	101	45 - 125	5.121	1.28	20	
Fluorene	5.108	0.10	5	0	102	49 - 120	5.255	2.84	20	
Hexachlorobenzene	4.139	0.20	5	0	82.8	48 - 120	4.283	3.42	20	
Hexachlorobutadiene	3.612	0.20	5	0	72.2	40 - 120	3.5	3.15	20	
Hexachlorocyclopentadiene	3.12	0.20	5	0	62.4	34 - 136	3.23	3.45	20	
Hexachloroethane	5.338	0.20	5	0	107	40 - 120	5.048	5.59	20	
Indeno(1,2,3-cd)pyrene	4.531	0.10	5	0	90.6	41 - 128	4.566	0.783	20	
Isophorone	4.751	0.20	5	0	95.0	40 - 121	4.754	0.0645	20	
Naphthalene	5.221	0.10	5	0	104	45 - 120	5.251	0.571	20	
Nitrobenzene	4.778	0.20	5	0	95.6	44 - 120	4.834	1.15	20	
N-Nitrosodimethylamine	4.675	0.20	5	0	93.5	30 - 121	3.825	20	20	R
N-Nitrosodi-n-propylamine	5.34	0.20	5	0	107	40 - 120	5.054	5.49	20	
N-Nitrosodiphenylamine	5.467	0.20	5	0	109	40 - 125	5.564	1.76	20	
Pentachlorophenol	3.614	0.20	5	0	72.3	19 - 121	3.34	7.88	20	
Phenanthrene	5.48	0.10	5	0	110	45 - 121	5.555	1.36	20	
Phenol	5.278	0.20	5	0	106	20 - 124	5.046	4.51	20	
Pyrene	5.969	0.10	5	0	119	40 - 130	5.924	0.761	20	
Pyridine	3.666	1.0	5	0	73.3	15 - 120	3.392	7.76	20	
Surr: 2,4,6-Tribromophenol	4.489	0.20	5	0	89.8	34 - 129	4.368	2.73	20	
Surr: 2-Fluorobiphenyl	4.863	0.20	5	0	97.3	40 - 125	4.976	2.31	20	
Surr: 2-Fluorophenol	5.434	0.20	5	0	109	20 - 120	5.01	8.11	20	

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: 165870 ( 0 )		Instrument: SV-8		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
<b>LCSD</b>	Sample ID: <b>LCSD-165870</b>	Units: <b>ug/L</b>			Analysis Date: <b>20-May-2021 15:25</b>					
Client ID:	Run ID: <b>SV-8_384070</b>	SeqNo: <b>6102975</b>		PrepDate: <b>17-May-2021</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
<i>Surr: 4-Terphenyl-d14</i>	5.536	0.20	5	0	111	40 - 135	5.497	0.71	20	
<i>Surr: Nitrobenzene-d5</i>	4.904	0.20	5	0	98.1	41 - 120	4.871	0.689	20	
<i>Surr: Phenol-d6</i>	5.47	0.20	5	0	109	20 - 120	5.034	8.3	20	

The following samples were analyzed in this batch: HS21050676-01



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
MBLK	Sample ID: VBLKW-210514	Units: ug/L			Analysis Date: 14-May-2021 12:04					
Client ID:	Run ID: VOA4_383669	SeqNo: 6092645	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 IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
MBLK	Sample ID: VBLKW-210514	Units: ug/L			Analysis Date: 14-May-2021 12:04					
Client ID:	Run ID: VOA4_383669	SeqNo: 6092645		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								
<i>Surr: 1,2-Dichloroethane-d4</i>	50.65	1.0	50	0	101	70 - 123				
<i>Surr: 4-Bromofluorobenzene</i>	47.43	1.0	50	0	94.9	82 - 115				
<i>Surr: Dibromofluoromethane</i>	49.39	1.0	50	0	98.8	73 - 126				
<i>Surr: Toluene-d8</i>	51.34	1.0	50	0	103	81 - 120				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
LCS	Sample ID: VLCSW-210514	Units: ug/L			Analysis Date: 14-May-2021 11:20					
Client ID:	Run ID: VOA4_383669	SeqNo: 6092644	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	19.79	1.0	20	0	98.9	70 - 130				
1,1,2,2-Tetrachloroethane	18.06	1.0	20	0	90.3	70 - 120				
1,1,2-Trichloroethane	18.51	1.0	20	0	92.6	77 - 113				
1,1-Dichloroethane	19.68	1.0	20	0	98.4	71 - 122				
1,1-Dichloroethene	20.04	1.0	20	0	100	70 - 130				
1,2-Dichlorobenzene	19.67	1.0	20	0	98.4	77 - 113				
1,2-Dichloroethane	18.11	1.0	20	0	90.5	70 - 124				
1,2-Dichloropropane	19.48	1.0	20	0	97.4	72 - 119				
1,3-Dichlorobenzene	20.01	1.0	20	0	100	78 - 118				
1,4-Dichlorobenzene	20.89	1.0	20	0	104	79 - 113				
2-Butanone	34.07	2.0	40	0	85.2	70 - 130				
2-Hexanone	35.99	2.0	40	0	90.0	70 - 130				
4-Methyl-2-pentanone	36.55	2.0	40	0	91.4	70 - 130				
Acetone	34.71	2.0	40	0	86.8	70 - 130				
Benzene	19.51	1.0	20	0	97.6	74 - 120				
Bromochloromethane	19.84	1.0	20	0	99.2	76 - 124				
Bromodichloromethane	19.6	1.0	20	0	98.0	74 - 122				
Bromoform	18.63	1.0	20	0	93.2	73 - 128				
Bromomethane	21.52	1.0	20	0	108	70 - 130				
Carbon disulfide	40.93	2.0	40	0	102	70 - 130				
Carbon tetrachloride	19.09	1.0	20	0	95.4	71 - 125				
Chlorobenzene	19.28	1.0	20	0	96.4	76 - 113				
Chloroethane	22.14	1.0	20	0	111	70 - 130				
Chloroform	19.57	1.0	20	0	97.8	71 - 121				
Chloromethane	21.34	1.0	20	0	107	70 - 129				
cis-1,2-Dichloroethene	18.73	1.0	20	0	93.6	75 - 122				
cis-1,3-Dichloropropene	20.25	1.0	20	0	101	73 - 127				
Dibromochloromethane	19.33	1.0	20	0	96.6	77 - 122				
Ethylbenzene	19.85	1.0	20	0	99.3	77 - 117				
m,p-Xylene	41.01	2.0	40	0	103	77 - 122				
Methylene chloride	20.21	2.0	20	0	101	70 - 127				
o-Xylene	21.16	1.0	20	0	106	75 - 119				
Styrene	21.08	1.0	20	0	105	72 - 126				
Tetrachloroethene	19.18	1.0	20	0	95.9	76 - 119				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
<b>LCS</b>	Sample ID: <b>VLCSW-210514</b>	Units: <b>ug/L</b>			Analysis Date: <b>14-May-2021 11:20</b>					
Client ID:	Run ID: <b>VOA4_383669</b>	SeqNo: <b>6092644</b>		PrepDate:			DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Toluene	19.44	1.0	20	0	97.2	77 - 118				
trans-1,2-Dichloroethene	18.59	1.0	20	0	93.0	72 - 127				
trans-1,3-Dichloropropene	18.2	1.0	20	0	91.0	77 - 119				
Trichloroethene	18.95	1.0	20	0	94.8	77 - 121				
Vinyl acetate	33.52	1.0	40	0	83.8	70 - 130				
Vinyl chloride	19.64	1.0	20	0	98.2	70 - 130				
Xylenes, Total	62.17	1.0	60	0	104	75 - 122				
1,2-Dichloroethene, Total	37.32	1.0	40	0	93.3	72 - 127				
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>48.84</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>97.7</i>	<i>70 - 123</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>50.41</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>82 - 115</i>				
<i>Surr: Dibromofluoromethane</i>	<i>50.73</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>73 - 126</i>				
<i>Surr: Toluene-d8</i>	<i>51.48</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>81 - 120</i>				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
MS	Sample ID: HS21050330-01MS	Units: ug/L			Analysis Date: 14-May-2021 13:32					
Client ID:	Run ID: VOA4_383669	SeqNo: 6092649	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	19.61	1.0	20	0	98.1	70 - 130				
1,1,2,2-Tetrachloroethane	17.18	1.0	20	0	85.9	70 - 123				
1,1,2-Trichloroethane	16.48	1.0	20	0	82.4	70 - 117				
1,1-Dichloroethane	19.14	1.0	20	0	95.7	70 - 127				
1,1-Dichloroethene	20.08	1.0	20	0	100	70 - 130				
1,2-Dichlorobenzene	18.51	1.0	20	0	92.5	70 - 115				
1,2-Dichloroethane	15.79	1.0	20	0	79.0	70 - 127				
1,2-Dichloropropane	18.44	1.0	20	0	92.2	70 - 122				
1,3-Dichlorobenzene	18.84	1.0	20	0	94.2	70 - 119				
1,4-Dichlorobenzene	19.79	1.0	20	0	99.0	70 - 114				
2-Butanone	30.56	2.0	40	0	76.4	70 - 130				
2-Hexanone	31.73	2.0	40	0	79.3	70 - 130				
4-Methyl-2-pentanone	32.35	2.0	40	0	80.9	70 - 130				
Acetone	33.77	2.0	40	0	84.4	70 - 130				
Benzene	18.8	1.0	20	0	94.0	70 - 127				
Bromochloromethane	19.09	1.0	20	0	95.5	70 - 127				
Bromodichloromethane	18.52	1.0	20	0	92.6	70 - 124				
Bromoform	16.57	1.0	20	0	82.9	70 - 129				
Bromomethane	21.76	1.0	20	0	109	70 - 130				
Carbon disulfide	40.65	2.0	40	0	102	70 - 130				
Carbon tetrachloride	19.01	1.0	20	0	95.0	70 - 130				
Chlorobenzene	18.18	1.0	20	0	90.9	70 - 114				
Chloroethane	22.59	1.0	20	0	113	70 - 130				
Chloroform	18.57	1.0	20	0	92.8	70 - 125				
Chloromethane	21.92	1.0	20	0	110	70 - 130				
cis-1,2-Dichloroethene	19.26	1.0	20	0	96.3	70 - 128				
cis-1,3-Dichloropropene	18.6	1.0	20	0	93.0	70 - 125				
Dibromochloromethane	17.85	1.0	20	0	89.3	70 - 124				
Ethylbenzene	19.21	1.0	20	0	96.0	70 - 124				
m,p-Xylene	38.69	2.0	40	0	96.7	70 - 130				
Methylene chloride	19.06	2.0	20	0	95.3	70 - 128				
o-Xylene	18.98	1.0	20	0	94.9	70 - 124				
Styrene	19.74	1.0	20	0	98.7	70 - 130				
Tetrachloroethene	18.81	1.0	20	0	94.0	70 - 130				



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

**Batch ID:** R383669 ( 0 )      **Instrument:** VOA4      **Method:** LOW LEVEL VOLATILES BY SW8260C

MS		Sample ID: HS21050330-01MS			Units: ug/L		Analysis Date: 14-May-2021 13:32			
Client ID:		Run ID: VOA4_383669			SeqNo: 6092649		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	19	1.0	20	0	95.0	70 - 123				
trans-1,2-Dichloroethene	18.38	1.0	20	0	91.9	70 - 130				
trans-1,3-Dichloropropene	16.66	1.0	20	0	83.3	70 - 121				
Trichloroethene	17.66	1.0	20	0	88.3	70 - 129				
Vinyl acetate	31.75	1.0	40	0	79.4	70 - 130				
Vinyl chloride	19.41	1.0	20	0	97.0	70 - 130				
Xylenes, Total	57.68	1.0	60	0	96.1	70 - 130				
1,2-Dichloroethene, Total	37.64	1.0	40	0	94.1	70 - 130				
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>49.72</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>99.4</i>	<i>70 - 126</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>49.27</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>98.5</i>	<i>81 - 113</i>				
<i>Surr: Dibromofluoromethane</i>	<i>50.68</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>77 - 123</i>				
<i>Surr: Toluene-d8</i>	<i>49.65</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>99.3</i>	<i>82 - 127</i>				

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

Batch ID: R383669 ( 0 )		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
MSD	Sample ID: HS21050330-01MSD	Units: ug/L			Analysis Date: 14-May-2021 13:54					
Client ID:	Run ID: VOA4_383669	SeqNo: 6092650	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	20.03	1.0	20	0	100	70 - 130	19.61	2.08	20	
1,1,2,2-Tetrachloroethane	16.86	1.0	20	0	84.3	70 - 123	17.18	1.87	20	
1,1,2-Trichloroethane	17.27	1.0	20	0	86.4	70 - 117	16.48	4.69	20	
1,1-Dichloroethane	18.89	1.0	20	0	94.5	70 - 127	19.14	1.29	20	
1,1-Dichloroethene	19.37	1.0	20	0	96.8	70 - 130	20.08	3.59	20	
1,2-Dichlorobenzene	18.24	1.0	20	0	91.2	70 - 115	18.51	1.47	20	
1,2-Dichloroethane	16.83	1.0	20	0	84.2	70 - 127	15.79	6.36	20	
1,2-Dichloropropane	18.72	1.0	20	0	93.6	70 - 122	18.44	1.51	20	
1,3-Dichlorobenzene	19.1	1.0	20	0	95.5	70 - 119	18.84	1.37	20	
1,4-Dichlorobenzene	19.56	1.0	20	0	97.8	70 - 114	19.79	1.2	20	
2-Butanone	30.62	2.0	40	0	76.6	70 - 130	30.56	0.188	20	
2-Hexanone	31.36	2.0	40	0	78.4	70 - 130	31.73	1.19	20	
4-Methyl-2-pentanone	32.71	2.0	40	0	81.8	70 - 130	32.35	1.12	20	
Acetone	34.43	2.0	40	0	86.1	70 - 130	33.77	1.95	20	
Benzene	18.81	1.0	20	0	94.0	70 - 127	18.8	0.0571	20	
Bromochloromethane	18.5	1.0	20	0	92.5	70 - 127	19.09	3.12	20	
Bromodichloromethane	18.95	1.0	20	0	94.8	70 - 124	18.52	2.31	20	
Bromoform	16.7	1.0	20	0	83.5	70 - 129	16.57	0.754	20	
Bromomethane	20.11	1.0	20	0	101	70 - 130	21.76	7.88	20	
Carbon disulfide	39.71	2.0	40	0	99.3	70 - 130	40.65	2.33	20	
Carbon tetrachloride	19.21	1.0	20	0	96.0	70 - 130	19.01	1.04	20	
Chlorobenzene	17.79	1.0	20	0	89.0	70 - 114	18.18	2.17	20	
Chloroethane	19.4	1.0	20	0	97.0	70 - 130	22.59	15.2	20	
Chloroform	18.72	1.0	20	0	93.6	70 - 125	18.57	0.817	20	
Chloromethane	21.89	1.0	20	0	109	70 - 130	21.92	0.159	20	
cis-1,2-Dichloroethene	18.2	1.0	20	0	91.0	70 - 128	19.26	5.66	20	
cis-1,3-Dichloropropene	18.6	1.0	20	0	93.0	70 - 125	18.6	0.00685	20	
Dibromochloromethane	17.25	1.0	20	0	86.3	70 - 124	17.85	3.4	20	
Ethylbenzene	19.09	1.0	20	0	95.5	70 - 124	19.21	0.585	20	
m,p-Xylene	38.68	2.0	40	0	96.7	70 - 130	38.69	0.0242	20	
Methylene chloride	18.54	2.0	20	0	92.7	70 - 128	19.06	2.75	20	
o-Xylene	19.75	1.0	20	0	98.7	70 - 124	18.98	3.95	20	
Styrene	19.48	1.0	20	0	97.4	70 - 130	19.74	1.35	20	
Tetrachloroethene	18.08	1.0	20	0	90.4	70 - 130	18.81	3.93	20	

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

**Batch ID:** R383669 ( 0 )      **Instrument:** VOA4      **Method:** LOW LEVEL VOLATILES BY SW8260C

MSD		Sample ID: HS21050330-01MSD			Units: ug/L		Analysis Date: 14-May-2021 13:54			
Client ID:		Run ID: VOA4_383669			SeqNo: 6092650		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	18.39	1.0	20	0	91.9	70 - 123	19	3.25	20	
trans-1,2-Dichloroethene	18.59	1.0	20	0	93.0	70 - 130	18.38	1.15	20	
trans-1,3-Dichloropropene	16.53	1.0	20	0	82.6	70 - 121	16.66	0.807	20	
Trichloroethene	18.47	1.0	20	0	92.4	70 - 129	17.66	4.48	20	
Vinyl acetate	31.86	1.0	40	0	79.6	70 - 130	31.75	0.352	20	
Vinyl chloride	19.56	1.0	20	0	97.8	70 - 130	19.41	0.772	20	
Xylenes, Total	58.43	1.0	60	0	97.4	70 - 130	57.68	1.3	20	
1,2-Dichloroethene, Total	36.79	1.0	40	0	92.0	70 - 130	37.64	2.28	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>47.06</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>94.1</i>	<i>70 - 126</i>	<i>49.72</i>	<i>5.5</i>	<i>20</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>48.72</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>97.4</i>	<i>81 - 113</i>	<i>49.27</i>	<i>1.12</i>	<i>20</i>	
<i>Surr: Dibromofluoromethane</i>	<i>50.65</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>77 - 123</i>	<i>50.68</i>	<i>0.0529</i>	<i>20</i>	
<i>Surr: Toluene-d8</i>	<i>49.19</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>98.4</i>	<i>82 - 127</i>	<i>49.65</i>	<i>0.942</i>	<i>20</i>	

The following samples were analyzed in this batch: HS21050676-01

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

**Batch ID:** R383647 ( 0 )      **Instrument:** WetChem\_HS      **Method:** FLASH POINT BY PENSKY-MARTENS SW1010A

<b>LCS</b>	Sample ID: <b>LCS-R383647</b>	Units: °F				Analysis Date: <b>14-May-2021 08:00</b>				
Client ID:	Run ID: <b>WetChem_HS_383647</b>	SeqNo: <b>6092235</b>	PrepDate:	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ignitability      80.13      70.0      81      0      98.9      95 - 105

<b>DUP</b>	Sample ID: <b>HS21050386-01DUP</b>	Units: °F				Analysis Date: <b>14-May-2021 08:00</b>				
Client ID:	Run ID: <b>WetChem_HS_383647</b>	SeqNo: <b>6092236</b>	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:

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QC BATCH REPORT**

<b>Batch ID:</b> R383753 ( 0 )		<b>Instrument:</b> WetChem_HS		<b>Method:</b> PH BY SM4500H+ B					
<b>DUP</b>	Sample ID: <b>HS21050379-01DUP</b>	Units: <b>pH Units</b>			Analysis Date: <b>17-May-2021 14:18</b>				
Client ID:	Run ID: <b>WetChem_HS_383753</b>	SeqNo: <b>6094976</b>		PrepDate:			DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

pH	6.79	0.100					6.71	1.19	10
Temp Deg C @pH	23.3	0					23.2	0.43	10

The following samples were analyzed in this batch:



**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**WorkOrder:** HS21050676

**QUALIFIERS,  
ACRONYMS, UNITS**

<b>Qualifier</b>	<b>Description</b>
*	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

<b>Acronym</b>	<b>Description</b>
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 Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<b>Unit Reported</b>	<b>Description</b>
mg/L	Milligrams per Liter

---

---

**CERTIFICATIONS,ACCREDITATIONS & LICENSES**

<b>Agency</b>	<b>Number</b>	<b>Expire Date</b>
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

**Client:** Golder Associates Inc.  
**Project:** Houston TX-Wood Preserving Works IDWW  
**Work Order:** HS21050676

**SAMPLE TRACKING**

---

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21050676-01	WW-1620-ToteWater-20210512	Login	5/13/2021 7:49:43 PM	PJM	VOA244
HS21050676-01	WW-1620-ToteWater-20210512	Login	5/13/2021 7:49:43 PM	PJM	SPA341
HS21050676-01	WW-1620-ToteWater-20210512	Login	5/13/2021 7:49:43 PM	PJM	SPA341

Sample Receipt Checklist

Work Order ID: HS21050676

Date/Time Received: 13-May-2021 14:00

Client Name: PBW

Received by: Jared R. Makan

Completed By: /S/ Pablo Martinez	13-May-2021 19:50	Reviewed by:		
eSignature	Date/Time	eSignature	Date/Time	

Matrices: OIL

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:237973
- 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): 0.8°C UC/C IR 31

Cooler(s)/Kit(s): 43398

Date/Time sample(s) sent to storage: 5/13/21 19:55

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: 237973

## HS21050676

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	A	8260_S (5632528 Volatile Organics (IDWS))
Work Order		Project Number	1620-15-Rev2 SR 92683	B	TX1005_S_REV3 (5643233 TPH TX1005)
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 (5652643 5652646)
Address	2201 Double Creek Drive Suite 4004	Address	1400 Douglas Street Stop 0750	E	PH_S (5652651 pH - RCI)
				F	IGN_S 1030 (5652637 Ignitability - RCI)
City/State/Zip	Round Rock, TX 78664	City/State/Zip	Omaha NE 681790750	G	CONTINGENCY (Hold for TCLP Metals)
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	SO 1620 IDW 292405			Solid	0	3	X	X	X	X	X	X	X				
2	SO 1620 IDW 292405			Solid	0	3	X	X	X	X	X	X	X				
3	WW-1620-Total water-20210512	5-12-21	1600	W	8	3	X	X	X	X	X	X	X				
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>Timothy J. Matzner</i>		Shipment Method <i>Hand delivery</i>		Required Turnaround Time: (Check Box) <input checked="" type="checkbox"/> 7 <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour			Results Due Date:		
Relinquished by: <i>[Signature]</i>	Date: <i>5/13/21</i>	Time: <i>1400</i>	Received by:	Notes: UPRR HWPW 1620-15 <i>WR#004614</i>					
Relinquished by: <i>[Signature]</i>	Date: <i>5/13/21</i>	Time: <i>14:00</i>	Received by (Laboratory): <i>J. Muzerian</i>	Cooler ID: <i>43398</i>	Cooler Temp.: <i>UC</i> <i>0.8°C</i>	QC Package: (Check One Box Below)			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	<input checked="" type="checkbox"/> Level II Std QC	<input type="checkbox"/> TRRP Checklist				
Preservative Key: 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other <u>8-4°C</u> 9-5035							<input type="checkbox"/> Level III Std QC/Raw Data	<input type="checkbox"/> TRRP Level IV	
							<input type="checkbox"/> Level IV SWB: 6/CLP		
							<input type="checkbox"/> Other		

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.

Copyright 2011 by ALS Environmental.



 <b>ALS</b> 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	<b>CUSTODY SEAL</b>		Seal Broken By: <i>[Signature]</i>
	Date: <i>5-13-10</i>	Time: <i>16:30</i>	Date: <i>7/13/21</i>
	Name: <i>Jim Mrs. Patta</i>	Company: <i>Golda</i>	