



January 9, 2024

Project No. 31406585.016

Ms. Maureen Hatfield

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

**RE: DNAPL RECOVERY ACTIVITIES QUARTERLY REPORT – 3RD QUARTER 2023
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:

WSP USA Inc. (WSP), on behalf of Union Pacific Railroad Company (UPRR), submits this 3rd Quarter 2023 summary report for the dense non-aqueous phase liquid (DNAPL) recovery activities conducted at the UPRR Houston Wood Preserving Works Facility (the Site).

DNAPL Recovery Summary – 3rd Quarter 2023

Below is a summary of the DNAPL recovery activities for the 3rd Quarter 2023:

- Five recovery wells (MW-12B, MW-32B, MW-41B, MW-49B, and MW-70B) exhibited measurable DNAPL (greater than a trace) during at least one of the six semi-monthly events during the 3rd Quarter 2023. DNAPL was recovered from these five wells during the 3rd Quarter 2023. Wells MW-12B and MW-41B exhibited recoverable DNAPL during each event, but the groundwater/DNAPL interface was not measurable as it remained below the dedicated pumps in both wells. No more than a trace of DNAPL was measured in eight wells (MW-45C, MW-46C, MW-49A, MW-57B, MW-68B, MW-74B, MW-75B, and MW-78A) with no recovery from these wells during the 3rd Quarter.
- Approximately 7.25 gallons of DNAPL were recovered during the 3rd Quarter 2023.
- MW-44C was damaged throughout the quarter.

DNAPL Recovery Procedures

As detailed in the Response Action Plan (RAP) dated November 24, 2014, a 24-month DNAPL recovery pilot test, consisting of manual DNAPL recovery from selected wells on a monthly basis, was conducted at the Site. Following the 24-month pilot testing period, the DNAPL recovery activities have continued monthly following the same procedures detailed in the RAP. In response to the Texas Commission on Environmental Quality (TCEQ) Technical Notice of Deficiency dated April 11, 2019, the DNAPL recovery frequency was increased to bi-monthly (twice a month) in June 2019.

The following monitoring wells are part of the current DNAPL recovery activities:

Well Name	Zone
MW-57A	A-TZ
MW-78A	A-TZ
MW-12B	B-TZ
MW-32B	B-CZ
MW-41B	B-TZ
MW-49A	A-TZ
MW-49B	B-CZ
MW-57B	B-CZ
MW-68B	B-TZ
MW-70B	B-CZ
MW-74B	B-TZ
MW-75B	B-CZ
MW-23C	C-TZ
MW-34CR	C-TZ
MW-44C	C-TZ
MW-45C	C-TZ
MW-46C	C-TZ

The locations of the DNAPL recovery wells are shown on Figure 1.

DNAPL recovery activities consist of measuring the depth to groundwater surface, the depth to groundwater/DNAPL interface, and the total depth of the well relative to the top of casing prior to DNAPL recovery. DNAPL recovery from each well is then performed using a peristaltic pump or submersible pump. Beginning in October 2019, the DNAPL encountered in MW-12B and MW-41B was too thick for the submersible pump to efficiently recover. Two stainless steel pneumatic pulse pumps (gas displacement pumps) from QED Environmental Systems (model LP1301) were installed in MW-12B and MW-41B on March 30, 2020. These pumps are designed for recovering the more viscous liquids observed in these wells. DNAPL is pumped from the bottom of each well until groundwater returns in the pump discharge. The volume of recovered DNAPL is estimated from each well based on the volume pumped, and the well is gauged to measure the total depth of the well and depth to DNAPL following pumping. Recovered DNAPL from all the wells is consolidated into a 55-gallon drum and temporarily stored at the Containment Storage Area at the site pending disposal at TCEQ-permitted facilities including the Clean Harbors Deer Park Facility in La Porte, Texas or the US Ecology Robstown Facility in Robstown, Texas. The most recent waste manifest for the disposal of recovered DNAPL and groundwater is provided in Attachment 1.

3rd and 4th Quarter 2022 DNAPL Well Redevelopment

Of the wells currently listed in the table above as DNAPL recovery wells, 14 were redeveloped in August and October 2022. Details of the redevelopment were provided in the 4th quarter 2022 DNAPL Recovery Activities Report.

3rd Quarter 2023 DNAPL Recovery Activities

A summary of the DNAPL recovery measurements from February 2013 through September 2023 is provided in Table 1. DNAPL thicknesses listed on the table and referenced in this letter are “in-well thicknesses”. A graph of DNAPL thicknesses measured prior to each recovery effort over time from February 2013 through September 2023 is presented on Figure 2, with individual graphs for each zone and/or portion of the Site (Figures 3 through 7) discussed below. Observations from the 3rd Quarter 2023 gauging and recovery activities are provided below for each of the groundwater bearing units (GWBUs):

- **A-TZ Wells:** Recovery wells MW-49A, MW-57A, and MW-78A completed in the A-TZ were evaluated for DNAPL recovery during this period (graph of DNAPL thickness from July 2018 through September 2023 shown on Figure 3).
 - **MW-49A:** No measurable DNAPL was detected during any of the 3rd Quarter recovery events; however, a trace amount of DNAPL was detected but not measurable on July 13th, August 10th, August 24th, September 7th, and September 21st. A trace amount of DNAPL was recovered from MW-49A during 3rd Quarter 2023.
 - **MW-57A:** No DNAPL was detected nor recovered from MW-57A during 3rd Quarter 2023. DNAPL has not been detected in this well since May 2019, when a trace amount was measured. Measurable DNAPL has not been recorded in MW-57A since August 2015.
 - **MW-78A:** A trace amount of DNAPL was detected but not measurable during the August and September events in the 3rd Quarter 2023. Measurable DNAPL has not been detected in this well since December 2020.
- **B-TZ Wells (West Side):** Recovery wells MW-12B and MW-41B completed in the B-TZ were evaluated for DNAPL recovery during this period (graph of DNAPL thickness from July 2018 through September 2023 shown on Figure 4).
 - **MW-12B:** During the 3rd Quarter 2023 recovery events at MW-12B, the groundwater/DNAPL interface was below the top of the pneumatic pulse pump. As a result, the interface probe could not get past the pump assembly, and it was not possible to record a DNAPL thickness in the well. The pump length is approximately 1.55 feet. Based on the measured length of the pump assembly, the assumption is that there is less than approximately 1.5-2 feet of DNAPL in the well. Approximately 0.35 gallons of DNAPL were recovered from MW-12B using the pneumatic pump during the 3rd Quarter 2023.
 - **MW-41B:** Similar to MW-12B, the top of the groundwater/DNAPL interface in MW-41B was below the top of the pneumatic pulse pump during the 3rd Quarter 2023. Based on measured length of the pump assembly, the assumption is there is less than approximately 1.5-2 feet of DNAPL in the well. Approximately 0.55 gallon of DNAPL were recovered from MW-41B using the pneumatic pump during the 3rd Quarter 2023.
- **B-TZ/B-CZ Wells (North (on-site and off-site)):** Recovery wells MW-32B, MW-57B, MW-68B, and MW-70B completed in either the B-TZ or B-CZ on the north side of the Site or off-site to the north were evaluated for DNAPL recovery during this period (graph of DNAPL thickness from July 2018

through September 2023 shown on Figure 5).

- **MW-32B (off-site):** Following the redevelopment of MW-32B during the 3rd Quarter 2022, DNAPL thickness observed in the well increased in October 2022 but has since shown a decline through the 3rd Quarter 2023. During the DNAPL recovery event on January 13, 2023, DNAPL thickness was measured at 6.76 feet. By September 21, 2023, the DNAPL thickness decreased to 0.3 feet. Approximately 2 gallons of DNAPL were recovered from MW-32B during the 3rd Quarter 2023.
- **MW-57B (on-site):** No measurable DNAPL was detected during any of the 3rd Quarter recovery events, however, a trace amount of DNAPL was detected but not measurable on July 13th, July 27th, and September 21st. No DNAPL was recovered from MW-57B during 3rd Quarter 2023.
- **MW-68B (off-site):** No measurable DNAPL was detected during any of the 3rd Quarter recovery events, however, a trace amount of DNAPL was detected but not measurable during each 3rd Quarter recovery event. No DNAPL was recovered from MW-68B during 3rd Quarter 2023.
- **MW-70B (off-site):** Following redevelopment in the 3rd Quarter 2022, DNAPL thickness in MW-70B increased to approximately 3.4 feet in October 2022. Since then, DNAPL thickness has declined to a trace amount. DNAPL thickness levels fluctuated during 3rd Quarter 2023. DNAPL thickness measurements ranged from 0.75 foot on July 27, 2023 to trace amounts on September 21, 2023. A trace amount of DNAPL was recovered from MW-70B during 3rd Quarter 2023.
- **B-TZ/B-CZ Wells (Englewood Intermodal Yard):** Recovery wells MW-49B, MW-74B, and MW-75B in the Englewood Intermodal Yard completed in the B-CZ and B-TZ were evaluated for DNAPL recovery during this period (graph of DNAPL thickness from July 2018 through September 2023 shown on Figure 6).
 - **MW-49B:** MW-49B was redeveloped in August 2022 and DNAPL thickness in the well significantly increased (measured at 15.5 feet on September 30, 2022). During the 3rd Quarter 2023, thicknesses ranged from 6.55 feet on July 27, 2023, to 2.65 feet on September 21, 2023. A total of approximately 4.3 gallons of DNAPL were recovered from MW-49B during 3rd Quarter 2023, and approximately 44 gallons recovered since redevelopment.

Even though the well was redeveloped in August 2022, recent total depth measurements at MW-49B have been approximately 7 feet shallower than the well construction depth and suggest that the well has an obstruction or casing failure. The well will be plugged, abandoned, and replaced at a later date.
 - **MW-74B:** No measurable DNAPL was detected during any of the 3rd Quarter recovery events; however, a trace amount of DNAPL was detected but not measurable on August 10th, August 24th, September 7th, and September 21st. No measurable DNAPL has been detected in this well since November 2021.

- **MW-75B:** No measurable DNAPL was detected during the 3rd Quarter recovery events; however, a trace amount of DNAPL was detected but not measurable during each of the six recovery events during the 3rd Quarter. No measurable DNAPL has been detected in this well since August 2021.
- **C-TZ Wells:** Wells MW-23C, MW-34CR, MW-44C, MW-45C, and MW-46C completed in the C-TZ were evaluated for DNAPL recovery (graph of DNAPL thickness from July 2018 through September 2023 shown on Figure 7).
 - **MW-23C:** No DNAPL was detected nor recovered from this well during the seven recovery events for the 3rd Quarter 2023. Measurable DNAPL has not been detected in MW-23C since February 2022.
 - **MW-34CR:** In May 2014, replacement well MW-34CR was installed and gauged as part of the recovery program. However, no DNAPL has been detected in this well. No DNAPL was observed during the well redevelopment on August 30, 2022. Given the absence of DNAPL in this well, a graph for MW-34CR is not included in Figure 7.
 - **MW-44C:** No measurable DNAPL had been detected in MW-44C from June 2019 (trace DNAPL noted in mid-June 2019) through May 2020. DNAPL was noted (0.39 feet thick) in MW-44C at the end of May 2020. However, the total depth measurement at MW-44C was approximately 10 feet higher than the well construction depth, suggesting that the well had appeared to have silted up. MW-44C was re-developed on July 24, 2020 during the site-wide monitoring activities. Over 10 feet of silt was removed, and the final measured depth of the well was within a foot of the original total depth. During the next recovery event in early August, the well appeared to have silted up again. Redevelopment was attempted a second time on October 1, 2020, but it was unsuccessful. MW-44C was not included in the August 2022 well redevelopment activities. The well will be plugged, abandoned, and replaced with a proposed recovery well as detailed in the RAP dated August 31, 2020.
 - **MW-45C:** No DNAPL was detected from this well during six of the seven 3rd Quarter 2023 recovery events. A trace amount of DNAPL was observed in MW-45C on July 13, 2023. No measurable DNAPL has been recorded in MW-45C since March 2022.
 - **MW-46C:** No DNAPL was detected from this well during five of the six 3rd Quarter 2023 recovery events. A trace amount of DNAPL was observed in MW-46C on September 21, 2023. No measurable DNAPL has been recorded in MW-46C since May 2019.

DNAPL Recovery: From February 2013 to September 2023, an estimated cumulative total of approximately 1,065 gallons of creosote DNAPL have been recovered from the wells at the Site. Monthly DNAPL recovery volumes increased after the January 2015 event due to a change in pumping techniques. Recovery volumes began to decline in 2020 and decreased significantly beginning in September 2021. Eleven of the wells were redeveloped in August 2022 and two additional wells were redeveloped in October 2022. Following the redevelopment, DNAPL recovery volumes increased. A total of 8.0 gallons was recovered on September 30, 2022, which is the highest total recovery volume for a recovery event since October 2020. During 3rd Quarter 2023, an average of 1.2 gallons was recovered per recovery event. DNAPL recovery volumes ranged from approximately 0 – 2.2 gallons per semi-monthly event, and a total of approximately 7.3 gallons were

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recovered during the 3rd Quarter 2023 (Table 1). UPRR will continue to monitor the DNAPL thicknesses twice per month as discussed in the response to the TCEQ 4th Technical Notice of Deficiency (TNOD) letter (April 11, 2019).

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,

WSP USA Inc.



Eric C. Matzner, P.G.

Vice-President, Director Hydrogeologist



Texas Geoscience Firm No. 50561

CC: Waste Program Manager, TCEQ Region 12, Houston
Mr. Kevin Peterburs, UPRR – Milwaukee, WI

Attachments: Table 1 - Summary of DNAPL Recovery Measurements
Figure 1 – In-Well DNAPL Thickness – September 21, 2023
Figure 2 - DNAPL Recovery Activities February 2013 – September 2023
Figure 3 – A-TZ Wells – DNAPL Recovery Activities July 2018 – September 2023
Figure 4 – B-TZ Wells (West Side) – DNAPL Recovery Activities July 2018 – September 2023
Figure 5 – B-CZ/B-TZ Wells (North (On-Site and Off-Site) – DNAPL Recovery Activities July 2018 – September 2023
Figure 6 – B-CZ/B-TZ Wells (Englewood Intermodal Yard) – DNAPL Recovery Activities July 2018 – September 2023
Figure 7 – C-TZ Wells – DNAPL Recovery Activities July 2018 – September 2023
Attachment 1 – Recovered DNAPL Waste Manifest

TABLES

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-12B				MW-23C				MW-32B			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
2/14/2013	9.06	39.87	5.93	2.5	NM	NM	NM	0	6.01	30.06	6.23	2
4/3/2013	9.41	39.95	5.85	1.0	NM	NM	NM	0	4.86	33.61	2.68	1
4/22/2013	8.61	31.64	14.16	0.5*	NM	NM	NM	0	5.62	36.08	0.21	0.3
5/30/2013	8.47	37.62	8.18	1.5*	NM	NM	NM	0	5.86	32.21	4.08	2
6/29/2013	9.62	38.22	7.58	1.5	NM	NM	NM	0	6.79	33.59	2.7	1.5
7/22/2013	11.16	39.04	6.76	1.0	NM	NM	NM	0	7.14	33.91	2.38	1.5
8/26/2013	11.31	39.61	6.19	1.0	NM	NM	NM	0	7.48	33.83	2.46	1
9/27/2013	11.17	40.63	5.17	1.0	NM	NM	NM	0	7.23	34.39	1.9	1
10/31/2013	11.09	43.71	2.09	1.0	NM	NM	NM	0	7.16	34.96	1.33	0.5
11/27/2013	11.17	44.06	1.74	1.0	NM	NM	NM	0	7.29	35.03	1.26	0.5
12/31/2013	11.02	44.62	1.18	1.0	NM	NM	NM	0	7.16	35.16	1.13	0.5
1/30/2014	11.34	45.12	0.68	1.0	NM	NM	NM	0	6.72	34.82	1.47	0.5
3/3/2014	11.17	44.32	1.48	1.0	NM	NM	NM	0	6.53	34.52	1.77	0.5
3/31/2014	11.03	44.53	1.27	1.0	NM	NM	NM	0	6.29	34.21	2.08	0.5
4/30/2014	10.92	44.26	1.54	1.0	NM	NM	NM	0	6.42	34.67	1.62	0.5
5/27/2014	10.81	44.34	1.46	1.0	NM	NM	NM	0	6.36	34.72	1.57	0.5
6/26/2014	10.72	44.61	1.19	1.0	NM	NM	NM	0	6.21	34.61	1.68	0.5
7/31/2014	10.13	44.96	0.84	1.0	NM	NM	NM	0	6.06	34.33	1.96	0.3
8/27/2014	10.26	45.12	0.68	1.0	NM	NM	NM	0	6.18	34.98	1.31	0.3
10/3/2014	10.17	44.91	0.89	1.0	NM	NM	NM	0	6.06	34.72	1.57	0.3
11/3/2014	10.29	44.97	0.83	1.0	22.51	70.71	2.09	0.3	6.18	34.91	1.38	0.3
11/24/2014	10.27	44.99	0.81	1.0	22.56	70.92	1.88	0.5	6.21	35.16	1.13	0.5
12/22/2014	10.23	44.71	1.09	1.0	22.47	70.81	1.99	0.5	6.14	35.02	1.27	0.8
1/29/2015	10.16	44.96	0.84	1.0	22.26	71.04	1.76	0.5	5.71	35.29	1	0.8
2/26/2015	10.12	44.96	0.84	1.5	22.06	71.09	1.71	0.5	6.02	35.29	1	1
3/26/2015	9.96	45.21	0.59	1.5	22.17	71.12	1.68	0.3	5.46	35.36	0.93	1
4/27/2015	9.89	45.37	0.43	1.5	22.23	71.06	1.74	0.5	5.21	35.29	1	1
5/26/2015	9.72	45.61	0.19	2.0	22.17	71.14	1.66	0.5	5.07	35.46	0.83	1
7/6/2015	7.12	45.96	0.24	2.0	19.01	71.39	1.41	0.5	4.06	35.66	0.63	1
8/3/2015	7.26	46.09	0.11	2.0	19.16	71.46	1.34	0.8	4.29	35.71	0.58	1
8/27/2015	8.09	46.01	0.19	1.0	20.34	71.51	1.29	0.8	5.05	35.77	0.52	1
10/5/2015	7.12	45.86	0.34	1.0	19.02	71.57	1.23	0.5	4.31	35.96	0.33	1
11/5/2015	6.86	45.81	0.39	1.0	18.59	71.59	1.21	0.5	4.02	35.91	0.38	1
12/3/2015	6.46	45.79	0.41	1.0	18.33	71.67	1.13	0.5	3.92	35.96	0.33	1
12/28/2015	6.23	45.62	0.58	1.3	23.21	71.61	1.19	0.8	3.73	35.91	0.38	1
2/3/2016	6.04	45.55	0.65	1.5	17.96	71.64	1.16	0.5	3.61	35.87	0.42	1
3/3/2016	5.96	45.61	0.59	1.5	17.92	71.71	1.09	0.5	3.51	35.91	0.38	1
3/31/2016	6.06	45.72	0.48	1.5	17.86	71.79	1.01	0.5	3.56	35.92	0.37	1
5/3/2016	6.13	45.66	0.54	1.0	NM	NM	NM	0.0	3.67	35.87	0.53	0.5
6/2/2016	6.21	45.61	0.59	1.0	22.9	71.51	1.29	0.5	3.74	35.92	0.48	0.5
7/8/2016	6.29	45.72	0.48	1.0	23.09	71.52	1.28	0.3	3.91	35.96	0.44	0.5
8/3/2016	6.34	45.77	0.43	1.0	23.16	71.66	1.14	0.3	4.03	35.49	0.91	0.5
8/30/2016	6.47	45.69	0.51	1.0	23.31	71.61	1.19	0.5	4.22	36.09	0.31	0.5
9/30/2016	6.59	45.81	0.39	1.0	23.39	71.81	0.99	0.5	4.33	35.91	0.49	0.5
11/3/2016	6.64	45.92	0.28	1.0	23.41	71.98	0.82	0.5	4.47	35.99	0.41	0.5
11/30/2016	6.86	45.86	0.34	0.5	23.59	71.91	0.89	0.8	4.62	35.91	0.49	0.5
1/4/2017	7.02	45.81	0.39	0.5	23.74	71.82	0.98	0.8	4.83	36.02	0.38	0.3
2/7/2017	6.97	45.69	0.51	0.5	23.67	71.74	1.06	0.8	4.81	35.91	0.49	0.3
3/2/2017	6.91	45.64	0.56	0.5	23.54	76.82	0.98	0.8	4.66	35.97	0.43	0.3
4/3/2017	6.82	45.71	0.49	0.5	23.46	76.96	0.84	0.8	4.57	36.01	0.39	0.3
4/27/2017	6.74	45.64	0.56	0.5	23.21	77.04	0.76	0.5	4.51	36.06	0.34	0.3
5/29/2017	6.89	45.77	0.43	0.5	23.49	77.21	0.59	0.3	4.74	36.03	0.37	0.3
7/5/2017	7.01	45.71	0.49	0.5	23.61	77.27	0.53	0.3	4.86	36.13	0.27	0.3
8/1/2017	7.14	45.63	0.57	0.8	23.79	77.17	0.63	0.3	4.99	36.24	0.16	0.3
9/5/2017	7.03	45.6	0.6	1.0	23.67	77.29	0.51	0.3	4.78	36.24	0.16	0.3
10/4/2017	7.07	45.69	0.51	1.0	23.61	77.36	0.44	0.3	4.89	36.29	0.11	0.3
11/2/2017	7.11	45.76	0.44	1.0	23.74	77.42	0.38	0.3	4.96	36.26	0.14	0.3
11/29/2017	7.16	45.71	0.49	1.0	23.81	77.4	0.40	0.3	5.06	36.31	0.09	0.3
1/2/2018	6.96	45.82	0.38	1.0	23.67	77.43	0.37	0.3	4.93	36.27	0.13	0.3
2/7/2018	7.13	45.87	0.33	1.0	23.86	77.46	0.34	0.3	5.16	36.21	0.19	0.3
3/1/2018	7.36	45.96	0.24	1.0	23.96	77.41	0.39	0.3	5.38	36.13	0.27	0.3
4/2/2018	7.29	45.94	0.26	1.0	23.9	77.32	0.48	0.5	5.31	36.18	0.22	0.3
5/1/2018	8.17	45.91	0.29	1.0	24.47	77.39	0.41	0.5	6.12	36.23	0.17	0.5

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-12B				MW-23C				MW-32B			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
6/1/2018	8.49	45.86	0.34	1.0	24.81	77.31	0.49	0.5	6.41	36.19	0.21	0.5
6/29/2018	8.62	45.81	0.39	1.0	24.99	77.37	0.43	0.5	6.59	36.11	0.29	0.8
8/3/2018	8.79	45.96	0.24	1.0	25.12	77.39	0.41	0.5	6.74	36.19	0.21	0.8
8/31/2018	8.32	46.01	0.19	0.8	24.81	77.43	0.37	0.5	6.47	36.23	0.17	0.8
9/28/2018	8.27	45.93	0.27	0.5	24.69	77.39	0.41	0.5	6.41	36.19	0.21	0.8
11/2/2018	8.16	45.91	0.29	0.5	24.57	77.36	0.44	0.5	6.33	36.21	0.19	0.5
11/29/2018	8.01	45.9	0.30	0.5	24.36	77.3	0.50	0.5	6.21	36.27	0.13	0.3
1/2/2019	7.96	45.87	0.33	0.5	24.29	77.31	0.49	0.5	6.09	36.29	0.11	0.3
2/2/2019	7.82	45.89	0.31	0.5	24.21	77.44	0.36	0.5	5.97	36.24	0.16	0.5
2/28/2019	7.69	45.81	0.39	0.5	24.16	77.36	0.44	0.5	5.86	36.21	0.19	0.3
4/2/2019	7.61	45.8	0.4	0.5	24.08	77.32	0.48	0.5	5.79	36.24	0.16	0.3
4/25/2019	7.49	45.76	0.44	1.0	24.01	77.16	0.64	0.5	5.86	36.29	0.11	0.3
5/29/2019	7.51	45.71	0.49	1.0	24.11	77.11	0.69	0.5	5.91	36.21	0.19	0.3
6/12/2019	6.81	45.52	0.68	1.5	24.39	76.71	1.09	1.0	5.46	35.91	0.49	0.5
6/30/2019	6.67	45.06	1.14	2.0	24.32	76.67	1.13	0.8	5.39	35.42	0.98	1
7/16/2019	6.62	45.11	1.09	2.0	24.26	76.61	1.19	1.0	5.32	35.36	1.04	1
8/2/2019	6.69	45.01	1.19	1.5	24.31	76.49	1.31	1.5	5.41	35.26	1.14	1.5
8/15/2019	6.79	44.76	1.44	2.0	24.22	76.36	1.44	1.5	5.61	35.19	1.21	1.5
8/28/2019	6.88	44.71	1.49	2.0	24.29	76.41	1.39	1.5	5.72	35.22	1.18	1.5
9/17/2019	6.93	43.96	2.24	3.0	24.36	76.29	1.51	1.5	5.81	35.17	1.23	1.5
10/2/2019	6.86	43.17	3.03	0.0	24.32	76.09	1.71	1.5	5.77	35.02	1.38	1.5
10/16/2019	6.71	30.29	15.91	0.0	25.75	75.89	1.91	1.5	4.36	33.42	2.98	1.5
10/31/2019	6.53	21.63	24.57	0.0	26.33	75.29	2.51	1.5	3.43	31.86	4.54	1.5
11/15/2019	7.21	19.12	27.08	0.5	25.69	ND	0	0.0	3.47	35.7	0.7	1
12/3/2019	7.55	27.37	18.83	0.0	26.11	75.12	2.68	1.5	4.33	35.51	0.89	0
12/18/2019	12.68	35.9	10.3	0.0	26.13	77.4	0.4	0.3	4.71	35.61	0.79	1.5
12/30/2019	8.08	28.12	18.08	0.0	26.48	76.1	1.7	0.1	5.04	34.28	2.12	1.5
1/7/2020	--	--	--	--	--	--	--	--	--	--	--	--
1/15/2020	7.47	27.12	19.08	0.0	26.49	77.1	0.7	0.0	4.1	35.4	1	1
1/27/2020	6.28	21.06	25.14	0.0	25.99	76.58	1.22	0.0	3.01	31.15	5.25	1
2/13/2020	6.91	20.42	25.78	0.0	25.51	76.42	1.38	0.0	3.88	31.39	5.01	1
2/25/2020	6.4	23.6	22.6	0.0	25.6	75.5	2.3	0.1	3.9	31.05	5.35	0.8
3/13/2020	7.61	22.01	24.19	0.0	25.66	77.08	0.72	0.0	4.32	32.46	3.94	1.3
3/31/2020	7.88	22.01**	24.19	2.5	25.9	77.12	0.68	0.0	4.63	33.3	3.1	0.3
4/9/2020	7.37	18.21	27.99	3.0	25.91	77.22	0.58	0.0	4.65	30.14	6.26	1.0
4/27/2020	8.64	19.12	27.08	3.5	26.31	76.45	1.35	0.0	5.39	34.52	1.88	0.5
5/14/2020	9.39	33.16	13.04	2.5	26.7	75.89	1.91	0.1	6.02	34.73	1.67	0.5
5/28/2020	8.79	40.29	5.91	1.5	26.75	75.71	2.09	0.1	5.84	34.35	2.05	1.0
6/11/2020	9.29	40.69	5.51	2.5	26.93	ND	0	0.0	5.89	35.01	1.39	0.3
6/25/2020	9.01	BP	NM	2.0	25.89	77.94	0	0.0	5.6	35.12	1.28	0.3
7/9/2020	8.04	BP	NM	1.0	26.64	76	1.8	0.3	4.83	35.18	1.22	0.3
7/23/2020	8.17	BP	NM	2.5	26.81	75.61	2.19	0.3	5.63	34.7	1.7	1.0
8/6/2020	5.43	BP	NM	1.0	26.41	75.52	2.28	0.3	3.88	33.94	2.46	1.3
8/20/2020	8.03	BP	NM	1.0	26.38	75.4	2.4	0.3	4.87	33.87	2.53	0.5
9/2/2020	8.89	BP	NM	1.0	26.71	76.24	1.56	0.5	5.54	35.21	1.19	0.3
9/17/2020	9.84	BP	NM	0.0	26.99	75.9	1.9	0.5	6.01	34.4	2	0.5
10/1/2020	6.9	BP	NM	0.5	26.59	75.08	2.72	0.3	4.88	35.18	1.22	0.3
10/14/2020	8.42	BP	NM	2.5	26.71	75.08	2.72	0.3	4.95	34.26	2.14	0.5
10/28/2020	8.31	BP	NM	2.0	26.84	75.81	1.99	0.3	5.31	33.94	2.46	0.8
11/12/2020	9.19	BP	NM	1.0	27.12	76.12	1.68	TR	5.79	33.71	2.69	2.5
11/23/2020	9.55	BP	NM	0.8	27.41	76.28	1.52	0.3	6.24	34.19	2.21	1.0
12/10/2020	6.67	BP	NM	1.5	26.72	76.2	1.6	0.3	3.68	32.9	3.5	1.0
12/21/2020	5.46	BP	NM	0.8	26.21	NM	NM	0.0	3.89	32.82	3.58	1.0
1/7/2021	5.01	BP	NM	1.0	25.85	ND	0	0.0	3.02	35.4	1	1.0
1/21/2021	5.72	BP	NM	2.0	25.49	75.29	2.51	0.3	3.48	35.01	1.39	1.0
2/4/2021	6.87	BP	NM	1.5	25.48	75.36	2.44	1.3	4.09	34.48	1.92	1.0
2/23/2021	5.47	BP	NM	1.0	25.25	75.61	2.19	1.0	3.19	33.59	2.81	1.0
3/11/2021	5.95	BP	NM	0.8	25.31	75.84	1.96	1.0	3.47	34.05	2.35	1.0
3/25/2021	9.28	BP	NM	1.0	25.2	75.62	2.18	1.0	3.85	34.83	1.57	1.0
4/8/2021	7.52	BP	NM	1.0	25.38	75.4	2.4	1.0	4.92	33.7	2.7	1.0
4/22/2021	8.42	BP	NM	1.0	25.94	76.35	1.45	0.1	5.03	34.2	2.2	1.0
5/4/2021	6.82	BP	NM	1.0	25.95	75.25	2.55	1.0	4.26	34.6	1.8	1.0
5/20/2021	5.52	BP	NM	1.0	25.84	75.66	2.14	1.0	3.55	34.2	2.2	1.0

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-12B				MW-23C				MW-32B			
	DTW (ft BTOC)	DTD (ft BTOC)	Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	Thickness (ft)	DNAPL Pumped (gal)
6/3/2021	5.46	BP	NM	1.0	25.19	75.74	2.06	0.5	2.54	34.6	1.8	1.0
6/17/2021	6.67	BP	NM	1.0	25.06	75.62	2.18	0.5	3.08	33.98	2.42	1.0
7/1/2021	5.46	BP	NM	1.0	24.72	75.12	2.68	0.5	2.61	34.38	2.02	1.0
7/19/2021	5.08	BP	NM	1.0	23.99	74.9	2.9	0.5	2.68	34.18	2.22	0.5
7/29/2021	7.1	BP	NM	1.0	24.19	75.25	2.55	0.3	3.71	34.10	2.3	0.5
8/12/2021	8.71	BP	NM	1.0	24.96	75.72	2.08	0.3	4.96	34.19	2.21	1.0
8/26/2021	8.93	BP	NM	1.0	25.42	75.81	1.99	0.5	5.2	34.8	1.6	1.0
9/10/2021	8.91	BP	NM	0.7	25.87	75.79	2.01	TR	5.68	34.48	1.92	1.1
9/22/2021	7.42	BP	NM	0	25.93	ND	0	0	4.72	31.15	5.25	1.3
10/8/2021	6.00	45.60	0.10	0	25.68	75.60	2.20	0	3.30	32.70	3.70	1.0
10/20/2021	7.81	44.00	1.70	0	26.14	ND	0	0	4.82	32.82	3.58	1.2
11/4/2021	6.03	BP	NM	0	25.57	ND	0	0	3.93	33.30	3.10	1.5
11/18/2021	6.75	BP	NM	0	25.65	74.80	1.71	0	4.3	33.61	2.79	0.3
12/3/2021	6.30	BP	NM	0	25.79	ND	0	0	4.64	32.70	3.70	1.3
12/16/2021	6.37	BP	NM	0	25.92	76.00	0.51	0	4.84	33.30	2.70	1.3
12/30/2021	6.21	BP	NM	0	25.84	ND	Trace	0	4.22	33.63	2.37	1.5
1/14/2022	6.26	ND	Trace	0	25.92	ND	Trace	0	4.31	33.74	2.26	1.5
1/26/2022	6.32	ND	Trace	0	26.01	ND	Trace	0	4.26	33.61	2.39	1.5
2/10/2022	5.70	43.50	2.20	0.12	25.65	75.3	1.2	0	3.51	34.65	1.35	0.3
2/24/2022	6.53	BP	NM	0.15	26.00	75.51	0.99	0.2	4.87	34.32	1.68	0.3
3/10/2022	6.40	BP	NM	0.2	25.96	ND	0	0	5.03	34.6	1.40	0.5
3/24/2022	6.83	BP	NM	0	26.55	ND	0	0	5.33	35.07	0.93	0.3
4/7/2022	6.98	BP	NM	0.1	26.51	ND	0	0	4.48	35.51	0.53	0.3
4/18/2022	7.49	BP	NM	0.8	26.72	ND	0	0	4.77	35.46	0.54	0.5
5/2/2022	7.95	BP	NM	1.0	26.89	ND	Trace	0	5.12	35.33	0.57	0.5
5/20/2022	6.72	BP	NM	1.0	26.39	ND	0	0	5.21	35.21	0.84	0.5
6/2/2022	6.81	BP	NM	1.0	26.31	ND	0	0	5.39	35.34	0.71	0.5
6/16/2022	9.85	BP	NM	0.5	27.62	ND	Trace	0	5.20	35.50	0.35	0.3
6/30/2022	9.91	BP	NM	0.25	27.98	ND	0	0	6.97	ND	Trace	0.1
7/15/2022	6.89	BP	NM	1.0	27.87	ND	0	0	6.26	35.31	0.69	0.5
7/28/2022	6.96	BP	NM	1.0	27.96	ND	0	0	6.39	35.21	0.79	0.5
8/12/2022	9.10	BP	NM	0.1	28.28	Trace	Trace	0	6.92	34.15	1.85	NM
8/29/2022	8.56	BP	NM	0.5	26.56	ND	0	0	5.52	35.52	0.53	0.5
9/16/2022	8.30	BP	NM	0.5	27.70	ND	0	0	5.20	31.00	5.05	0.5
9/30/2022	9.80	BP	NM	0.25	28.00	ND	0	0	6.40	28.50	7.55	3.0
10/17/2022	11.52	BP	NM	0.25	28.32	ND	0	0	7.10	27.35	8.70	2.0
10/27/2022	11.79	BP	NM	0.25	28.74	ND	0	0	7.49	28.91	7.14	2.0
11/10/2022	11.47	BP	NM	0.25	28.51	ND	0	0	7.22	28.96	7.09	2.0
11/30/2022	7.49	BP	NM	0.25	26.21	ND	0	0	3.76	29.31	6.74	1.5
12/16/2022	7.36	BP	NM	0.25	26.06	ND	0	0	3.52	29.26	6.79	1.5
12/27/2022	7.59	BP	NM	0.25	25.67	ND	0	0	3.71	29.21	6.84	1.5
1/13/2023	8.06	BP	NM	0.25	26.29	ND	0	0	4.06	29.29	6.76	1.5
1/27/2023	5.57	BP	NM	0.25	26.97	ND	0	0	3.67	29.72	6.33	1.0
2/9/2023	5.6	BP	NM	0.10	26.52	ND	0	0	3.74	NM	NM	0.0
2/23/2023	6.42	BP	NM	0.25	26.56	ND	0	0	4.28	29.93	6.12	1.5
3/9/2023	6.52	BP	NM	0.25	26.46	ND	0	0	4.17	29.86	6.19	1.5
3/23/2023	7.25	BP	NM	0.25	27.50	ND	0	0	4.70	31.50	4.55	1.5
4/6/2023	6.63	BP	NM	0.25	26.53	ND	0	0	5.06	31.67	4.38	1.5
4/19/2023	6.55	BP	NM	0.25	27.00	ND	0	0	4.31	31.00	5.05	1.5
5/5/2023	6.81	BP	NM	0.25	26.78	ND	0	0	5.29	31.77	4.28	1.5
5/18/2023	5.22	BP	NM	0.25	26.15	ND	0	0	1.98	32.18	3.87	0.5
6/1/2023	7.85	BP	NM	0.10	26.32	ND	0	0	4.20	32.80	3.25	0.5
6/15/2023	7.88	BP	NM	0.10	26.62	ND	0	0	4.52	33.23	2.82	0.50
6/29/2023	9.05	BP	NM	0.10	27.18	ND	0	0	5.57	33.45	2.50	0.10
7/13/2023	8.90	BP	NM	Trace	19.34	ND	0	0	5.33	33.50	3.41	0.50
7/27/2023	10.02	BP	NM	Trace	27.75	ND	0	0	6.50	34.60	1.37	Trace
8/10/2023	10.90	BP	NM	0.25	28.26	ND	0	0	6.97	33.30	2.70	0.75
8/24/2023	11.28	BP	NM	Trace	29.37	ND	0	0	7.80	34.22	1.98	0.25
9/7/2023	11.36	BP	NM	0.10	29.48	ND	0	0	7.91	35.01	1.09	0.25
9/21/2023	12.00	BP	NM	0.00	29.18	ND	0	0	7.80	35.80	0.30	0.30
Total DNAPL Pumped (gal)	155.6				55.5				146.8			

Notes:

* - indicates DNAPL and groundwater mixture

MW-23C- added 5 feet to TOC due to capping after 2/3/2016

** - indicates DTD from previous event was used; DNAPL recovered revised based on review of field notes.

--- - No DNAPL pumped

ND - Not detected

DTW - Depth to water (feet Below Top of Casing (BTOC))

NM - Not measured

DTD - Depth to DNAPL (feet BTOC)

PoP - Product on probe, not measureable

MW-12B- TD measured at 46.2 instead of 45.8, August 28, 2015.

TR- Trace amount of DNAPL Extracted

BP - Below pump; depth to DNAPL not measured because DNAPL is below top of in-well pump

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-33BR				MW-34C/MW-34CR (July 2014)				MW-41B			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
2/14/2013	3.72	ND	0	0	NM	NM	NM	0	8.91	41.1	3.71	3
4/3/2013	4.02	PoP	0	0	NM	NM	NM	0	9.37	41.6	3.21	1.5
4/22/2013	3.63	ND	0	0	NM	NM	NM	0	8.62	41.6	3.21	0.5*
5/30/2013	3.59	ND	0	0	NM	NM	NM	0	8.73	34.16	10.65	2
6/29/2013	6.07	ND	0	0	NM	NM	NM	0	9.72	37.12	7.69	2
7/22/2013	9.68	ND	0	0	NM	NM	NM	0	10.31	39.29	5.52	1.5
8/26/2013	9.86	ND	0	0	NM	NM	NM	0	10.09	34.55	10.26	2.5
9/27/2013	9.57	ND	0	0	NM	NM	NM	0	9.63	37.29	7.52	2
10/31/2013	9.32	ND	0	0	21.63	NM	NM	0	9.52	38.16	6.65	2
11/27/2013	9.16	ND	0	0	NM	NM	NM	0	9.57	38.39	6.42	2
12/31/2013	8.97	ND	0	0	NM	NM	NM	0	9.42	39.36	5.45	2
1/30/2014	7.41	ND	0	0	NM	NM	NM	0	9.06	39.17	5.64	2
3/3/2014	7.16	ND	0	0	NM	NM	NM	0	8.62	38.06	6.75	2
3/31/2014	7.04	ND	0	0	NM	NM	NM	0	8.52	37.74	7.07	2
4/30/2014	6.88	ND	0	0	NM	NM	NM	0	8.36	37.21	7.6	2
5/27/2014	6.72	ND	0	0	NM	NM	NM	0	8.26	37.29	7.52	2
6/26/2014	6.52	ND	0	0	NM	NM	NM	0	8.02	37.47	7.34	2
7/31/2014	6.29	ND	0	0	19.06	ND	0	0	8.21	37.92	6.89	2
8/27/2014	6.47	ND	0	0	18.96	ND	0	0	8.07	38.29	6.52	1.5
10/3/2014	6.32	ND	0	0	18.81	ND	0	0	8.02	38.13	6.68	2
11/3/2014	NM	NM	NM	0	19.06	ND	0	0	8.22	38.29	6.52	2
11/24/2014	NM	NM	NM	0	19.11	ND	0	0	8.27	38.47	6.34	2
12/22/2014	NM	NM	NM	0	19.06	ND	0	0	8.16	38.39	6.42	2
1/29/2015	NM	NM	NM	0	18.79	ND	0	0	8.02	39.16	5.65	1.5
2/26/2015	NM	NM	NM	0	18.71	ND	0	0	7.92	39.06	5.75	2.5
3/26/2015	NM	NM	NM	0	18.67	ND	0	0	7.83	38.74	6.07	2.5
4/27/2015	NM	NM	NM	0	18.79	ND	0	0	8.02	38.61	6.2	3
5/26/2015	NM	NM	NM	0	18.63	ND	0	0	7.91	38.72	6.09	3
7/6/2015	NM	NM	NM	0	17.29	ND	0	0	6.03	38.96	5.85	2.5
8/3/2015	NM	NM	NM	0	17.21	ND	0	0	6.09	39.01	5.8	2.5
8/27/2015	NM	NM	NM	0	18.46	ND	0	0	7.39	39.14	5.67	2
10/5/2015	NM	NM	NM	0	17.29	ND	0	0	6.32	39.34	5.47	2
11/5/2015	NM	NM	NM	0	16.78	ND	0	0	6.01	39.51	5.3	2
12/3/2015	NM	NM	NM	0	16.44	ND	0	0	5.76	39.56	5.25	2
12/28/2015	NM	NM	NM	0	16.16	ND	0	0	5.62	39.63	5.18	2.3
2/3/2016	NM	NM	NM	0	15.98	ND	0	0	5.32	39.72	5.09	3
3/3/2016	NM	NM	NM	0	15.98	ND	0	0	5.17	39.81	5	3
3/31/2016	NM	NM	NM	0	15.98	ND	0	0	5.26	39.77	5.04	3
5/3/2016	NM	NM	NM	0	15.79	ND	0	0	5.52	39.96	4.85	3
6/2/2016	NM	NM	NM	0	15.97	ND	0	0	5.67	40.07	4.74	3
7/8/2016	NM	NM	NM	0	16.06	ND	0	0	5.72	40.01	4.8	3
8/3/2016	NM	NM	NM	0	16.17	ND	0	0	5.79	40.09	4.72	3
8/30/2016	NM	NM	NM	0	16.31	ND	0	0	5.91	40.26	4.55	3
9/30/2016	NM	NM	NM	0	16.42	ND	0	0	6.06	40.13	4.68	3
11/3/2016	NM	NM	NM	0	16.51	ND	0	0	6.11	40.29	4.52	3
11/30/2016	NM	NM	NM	0	16.72	ND	0	0	6.26	40.42	4.39	3
1/4/2017	NM	NM	NM	0	16.94	ND	0	0	6.39	40.56	4.25	3
2/7/2017	NM	NM	NM	0	16.91	ND	0	0	6.44	40.51	4.3	3
3/2/2017	NM	NM	NM	0	16.78	ND	0	0	6.29	40.76	4.05	3
4/3/2017	NM	NM	NM	0	16.71	ND	0	0	6.21	40.67	4.14	2.5
4/27/2017	NM	NM	NM	0	16.61	ND	0	0	6.19	40.87	3.94	3
5/29/2017	NM	NM	NM	0	16.84	ND	0	0	6.14	40.29	4.52	3
7/5/2017	NM	NM	NM	0	17.01	ND	0	0	6.34	40.57	4.24	2.5
8/1/2017	NM	NM	NM	0	17.17	ND	0	0	6.42	40.79	4.02	3
9/5/2017	NM	NM	NM	0	17.11	ND	0	0	6.36	40.68	4.13	3
10/4/2017	NM	NM	NM	0	17.06	ND	0	0	6.29	40.69	4.12	2.5
11/2/2017	NM	NM	NM	0	17.17	ND	0	0	6.41	40.73	4.08	3
11/29/2017	NM	NM	NM	0	17.29	ND	0	0	6.52	40.82	3.99	2.5
1/2/2018	NM	NM	NM	0	17.52	ND	0	0	6.72	40.72	4.09	2.5
2/7/2018	NM	NM	NM	0	18.11	ND	0	0	6.97	40.79	4.02	2.5
3/1/2018	NM	NM	NM	0	18.38	ND	0	0	7.16	40.63	4.18	2
4/2/2018	NM	NM	NM	0	18.29	ND	0	0	7.13	40.71	4.1	2
5/1/2018	NM	NM	NM	0	18.33	ND	0	0	8.26	40.76	4.05	2

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-33BR				MW-34C/MW-34CR (July 2014)				MW-41B			
	DTW (ft BTOC)	DTD (ft BTOC)	Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	Thickness (ft)	DNAPL Pumped (gal)
6/1/2018	NM	NM	NM	0	18.62	ND	0	0	8.71	40.81	4	2.3
6/29/2018	NM	NM	NM	0	18.91	ND	0	0	9.02	40.71	4.1	2.5
8/3/2018	NM	NM	NM	0	19.06	ND	0	0	9.13	40.76	4.05	2.5
8/31/2018	NM	NM	NM	0	18.77	ND	0	0	8.89	40.86	3.95	2
9/28/2018	NM	NM	NM	0	18.64	ND	0	0	8.77	40.76	4.05	2
11/2/2018	NM	NM	NM	0	18.57	ND	0	0	8.61	40.71	4.1	2
11/29/2018	NM	NM	NM	0	18.39	ND	0	0	8.41	40.81	4	2
1/2/2019	NM	NM	NM	0	18.26	ND	0	0	8.22	40.83	3.98	2
2/2/2019	NM	NM	NM	0	18.19	ND	0	0	8.16	40.89	3.92	2
2/28/2019	NM	NM	NM	0	18.02	ND	0	0	8.03	40.76	4.05	3
4/2/2019	NM	NM	NM	0	17.96	ND	0	0	7.93	40.69	4.12	3
4/25/2019	NM	NM	NM	0	Well Damaged			0	7.76	40.28	4.53	3
5/29/2019	NM	NM	NM	0	Well Damaged			0	7.71	40.07	4.74	3
6/12/2019	NM	NM	NM	0	Well Damaged			0	7.52	39.63	5.18	3
6/30/2019	NM	NM	NM	0	Well Damaged			0	7.46	39.52	5.29	3
7/16/2019	NM	NM	NM	0	Well Damaged			0	7.39	39.46	5.35	3
8/2/2019	NM	NM	NM	0	Well Damaged			0	7.46	39.42	5.39	0
8/15/2019	NM	NM	NM	0	Well Damaged			0	7.51	39.31	5.5	3
8/28/2019	NM	NM	NM	0	Well Damaged			0	7.57	39.21	5.6	3
9/17/2019	NM	NM	NM	0	Well Damaged			0	7.66	39.02	5.79	3
10/2/2019	NM	NM	NM	0	Well Damaged			0	7.61	38.76	6.05	3
10/16/2019	NM	NM	NM	0	Well Damaged			0	5.21	38.67	6.14	3
10/31/2019	NM	NM	NM	0	Well Damaged			0	5.21	38.67	6.14	3
11/15/2019	NM	NM	NM	0	Well Damaged			0	4.81	38.12	6.69	2
12/3/2019	NM	NM	NM	0	Well Damaged			0	6.46	39.27	5.54	3
12/18/2019	NM	NM	NM	0	Well Damaged			0	6.51	41.7	3.11	0
12/30/2019	NM	NM	NM	0	Well Damaged			0	6.99	43.5	1.31	0
1/7/2020	--	--	--	--	--	--	--	--	--	--	--	--
1/15/2020	NM	NM	NM	0	Well Damaged			0	5.12	38.99	5.82	0
1/27/2020	NM	NM	NM	0	Well Damaged			0	3.41	40.7	4.11	0
2/13/2020	NM	NM	NM	0	Well Damaged			0	5.1	40.12	4.69	0
2/25/2020	NM	NM	NM	0	Well Damaged			0	4.5	41.12	3.69	0
3/13/2020	NM	NM	NM	0	Well Damaged			0	6.06	42.12	2.69	0
3/31/2020	NM	NM	NM	0	17.49	ND	0	0	6.82	42.12**	2.69	2
4/9/2020	NM	NM	NM	0	17.63	ND	0	0	6.47	BP	NM	2
4/27/2020	NM	NM	NM	0	17.89	ND	0	0	8.01	BP	NM	2
5/14/2020	NM	NM	NM	0	18.29	ND	0	0	8.71	42.1	2.71	3.5
5/28/2020	NM	NM	NM	0	18.31	ND	0	0	8.08	BP	NM	3.5
6/11/2020	NM	NM	NM	0	18.51	ND	0	0	8.01	41.59	3.22	2
6/25/2020	NM	NM	NM	0	17.66	ND	0	0	7.52	BP	NM	2
7/9/2020	NM	NM	NM	0	18.22	ND	0	0	7.29	BP	NM	2
7/23/2020	NM	NM	NM	0	18.36	ND	0	0	7.49	BP	NM	2.5
8/6/2020	NM	NM	NM	0	17.66	ND	0	0	5.64	BP	NM	1.3
8/20/2020	NM	NM	NM	0	18.02	ND	0	0	7.38	BP	NM	0.5
9/2/2020	NM	NM	NM	0	18.2	ND	0	0	8.11	BP	NM	0.8
9/17/2020	NM	NM	NM	0	18.56	ND	0	0	8.81	BP	NM	1
10/1/2020	NM	NM	NM	0	18.29	ND	0	0	6.39	BP	NM	0.8
10/14/2020	NM	NM	NM	0	18.31	ND	0	0	8.71	BP	NM	2
10/28/2020	NM	NM	NM	0	18.61	ND	0	0	8.51	BP	NM	1.5
11/12/2020	NM	NM	NM	0	18.71	ND	0	0	8.49	BP	NM	0.5
11/23/2020	NM	NM	NM	0	18.97	ND	0	0	8.84	BP	NM	0
12/10/2020	NM	NM	NM	0	18.62	ND	0	0	5.31	BP	NM	1.5
12/21/2020	NM	NM	NM	0	18.01	ND	0	0	4.42	BP	NM	1
1/7/2021	NM	NM	NM	0	17.52	ND	0	0	4.48	BP	NM	1.5
1/21/2021	NM	NM	NM	0	17.39	ND	0	0	4.59	BP	NM	2
2/4/2021	NM	NM	NM	0	17.22	ND	0	0	5.62	BP	NM	1.5
2/23/2021	NM	NM	NM	0	17.04	ND	0	0	4.58	BP	NM	1
3/11/2021	NM	NM	NM	0	16.98	ND	0	0	4.22	BP	NM	1.5
3/25/2021	NM	NM	NM	0	17.01	ND	0	0	5.13	BP	NM	1.0
4/8/2021	NM	NM	NM	0	17.22	ND	0	0	6.63	BP	NM	1.0
4/22/2021	NM	NM	NM	0	17.41	ND	0	0	7.64	BP	NM	1.0
5/4/2021	NM	NM	NM	0	17.57	ND	0	0	5.96	BP	NM	1.0
5/20/2021	NM	NM	NM	0	16.51	ND	0	0	5.62	BP	NM	1.0

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-33BR				MW-34C/MW-34CR (July 2014)				MW-41B			
	DTW (ft BTOC)	DTD (ft BTOC)	Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	Thickness (ft)	DNAPL Pumped (gal)
6/3/2021	NM	NM	NM	0	15.81	ND	0	0	4.41	BP	NM	1.0
6/17/2021	NM	NM	NM	0	16.74	ND	0	0	5.81	BP	NM	1.0
7/1/2021	NM	NM	NM	0	15.71	ND	0	0	4.36	BP	NM	1.0
7/19/2021	NM	NM	NM	0	15.49	ND	0	0	4.11	BP	NM	1.0
7/29/2021	NM	NM	NM	0	15.98	ND	0	0	6.51	BP	NM	1.0
8/12/2021	NM	NM	NM	0	16.58	ND	0	0	8.01	BP	NM	1.0
8/26/2021	NM	NM	NM	0	17.11	ND	0	0	8.04	BP	NM	1.0
9/10/2021	NM	NM	NM	0	17.56	ND	0	0	8.25	BP	NM	0.3
9/22/2021	5.32	ND	0	0	17.32	ND	0	0	5.66	BP	NM	0
10/8/2021	1.53	ND	0	0	NM	NM	NM	0	1.34	43.68	1.13	0.0
10/20/2021	1.98	ND	0	0	17.68	ND	0	0	5.98	43.01	1.80	0.0
11/4/2021	3.56	ND	0	0	NM	NM	NM	0	5.08	42.00	2.81	0.3
11/18/2021	NM	NM	NM	0	NM	NM	NM	0	5.92	BP	NM	0.0
12/3/2021	3.7	ND	0	0	NM	NM	NM	0	6.57	BP	NM	0.0
12/16/2021	4.6	ND	0	0	17.6	ND	0	0	6.63	BP	NM	0.0
12/30/2021	4.29	ND	0	0	17.52	ND	0	0	5.21	BP	NM	0.0
1/14/2022	4.36	ND	0	0	17.58	ND	0	0	5.34	ND	Trace	0.0
1/26/2022	4.43	ND	0	0	17.66	ND	0	0	5.42	ND	Trace	0.0
2/10/2022	4.3	ND	0	0	17.3	ND	0	0	4.61	41.55	3.26	0.3
2/24/2022	4.25	ND	0	0	17.42	ND	0	0	5.6	41.55	3.26	0.2
3/10/2022	NM	NM	NM	0	17.48	ND	0	0	5.59	41.58	3.23	0.3
3/24/2022	5.08	ND	0	0	17.72	ND	0	0	5.06	BP	NM	TR
4/7/2022	4.80	ND	0	0	17.40	ND	0	0	5.80	BP	NM	0.1
4/18/2022	5.16	ND	0	0	17.86	ND	0	0	6.03	BP	NM	1.0
5/2/2022	5.40	ND	0	0	18.10	ND	0	0	6.24	BP	NM	1.0
5/20/2022	5.46	ND	0	0	18.02	ND	0	0	6.13	BP	NM	1.0
6/2/2022	5.61	ND	0	0	18.12	ND	0	0	6.29	BP	NM	1.0
6/16/2022	5.82	ND	0	0	18.21	ND	0	0	9.23	BP	NM	1.0
6/30/2022	5.87	ND	0	0	18.39	ND	0	0	9.37	BP	NM	1.0
7/15/2022	6.81	ND	0	0	19.27	ND	0	0	6.54	BP	NM	1.0
7/28/2022	6.94	ND	0	0	19.39	ND	0	0	6.67	BP	NM	1.0
8/12/2022	7.68	ND	0	0	20.00	ND	0	0	1.00	BP	NM	0.25
8/29/2022	NM	NM	NM	0	19.81	ND	0	0	6.47	BP	NM	0.5
9/16/2022	5.70	ND	0	0	19.45	ND	0	0	8.00	BP	NM	0.5
9/30/2022	NM	NM	NM	0	19.60	ND	0	0	9.10	42.50	2.31	1.0
10/17/2022	6.90	ND	0	0	19.93	ND	0	0	9.88	BP	NM	0.25
10/27/2022	7.02	ND	0	0	20.06	ND	0	0	10.13	BP	NM	0.25
11/10/2022	6.91	ND	0	0	19.92	ND	0	0	10.02	BP	NM	0.25
11/30/2022	5.24	ND	0	0	17.52	ND	0	0	6.12	BP	NM	0.25
12/16/2022	5.17	ND	0	0	17.39	ND	0	0	6.02	BP	NM	0.25
12/27/2022	5.46	ND	0	0	17.58	ND	0	0	6.34	BP	NM	0.25
1/13/2023	5.86	ND	0	0	18.13	ND	0	0	6.63	BP	NM	0.25
1/27/2023	3.88	ND	0	0	18.30	ND	0	0	4.55	BP	NM	1.00
2/9/2023	4.59	ND	0	0	18.12	ND	0	0	4.51	BP	NM	0.25
2/23/2023	NM	NM	NM	0	18.03	ND	0	0	5.35	BP	NM	0.25
3/9/2023	3.99	ND	0	0	17.91	ND	0	0	5.26	BP	NM	0.25
3/23/2023	4.99	ND	0	0	18.6	ND	0	0	6.41	BP	NM	0.50
4/6/2023	4.12	ND	0	0	17.74	ND	0	0	5.36	BP	NM	0.25
4/19/2023	4.93	4.93	0	0	18.60	ND	0	0	5.41	BP	NM	0.25
5/5/2023	4.27	4.27	0	0	17.89	ND	0	0	5.52	BP	NM	0.25
5/18/2023	2.34	ND	0	0	18.3	ND	0	0	4.23	BP	NM	0.25
6/1/2023	3.66	ND	0	0	17.87	ND	0	0	7.12	BP	NM	0.50
6/15/2023	4.43	ND	0	0	18.03	ND	0	0	7.14	BP	NM	0.10
6/29/2023	5.32	ND	0	0	18.60	ND	0	0	8.34	BP	NM	0.25
7/13/2023	5.88	ND	0	0	18.81	ND	0	0	8.12	BP	NM	0.10
7/27/2023	7.92	ND	0	0	19.31	ND	0	0	9.40	BP	NM	Trace
8/10/2023	7.58	ND	0	0	19.42	ND	0	0	10.30	BP	NM	0.25
8/24/2023	8.11	ND	0	0	20.29	ND	0	0	9.08	BP	NM	0.10
9/7/2023	8.45	ND	0	0	20.62	ND	0	0	9.13	BP	NM	0.10
9/21/2023	8.45	ND	0	0	20.75	ND	0	0	11.45	BP	NM	Trace
Total DNAPL Pumped (gal)				0.0				0.0				283.3

Notes:

* - indicates DNAPL and groundwater mixture

** - indicates DTD from previous event was used

--- - No DNAPL pumped

DTW - Depth to water (feet Below Top of Casing (BTOC))

DTD - Depth to DNAPL (feet BTOC)

BP - Below pump; depth to DNAPL not measured because DNAPL is below top of in-well pump

ND - Not detected

NM - Not measured

PoP - Product on probe, not measureable

TR- Trace amount of DNAPL Extracted

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-44C				MW-45C				MW-46C			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
2/14/2013	18.96	62.95	7.85	1	21.26	69.9	0.7	0.3	21.07	71.3	1.6	0.3
4/3/2013	19.34	70.47	0.33	0.3*	21.39	70.39	0.21	0.3*	20.61	72.36	0.54	0.3*
4/22/2013	18.62	70.64	0.16	0.3*	21.03	70.47	0.13	0.3*	20.61	72.61	0.29	0.3*
5/30/2013	18.43	70.01	0.79	0.3*	21.16	70.25	0.35	0.3*	20.59	71.61	1.29	0.3*
6/29/2013	19.34	70.32	0.48	0.3	21.93	70.32	0.28	0.3*	21.09	72.34	0.56	0.3*
7/22/2013	20.36	70.26	0.54	0.3	22.72	70.39	0.21	0.3*	21.96	72.16	0.74	0.3*
8/26/2013	20.62	70.39	0.41	0.3	22.86	70.31	0.29	0.3	22.23	72.32	0.58	0.3
9/27/2013	20.39	70.61	0.19	0.3	22.66	70.17	0.43	0.3	22.09	72.09	0.81	0.3
10/31/2013	20.17	70.75	0.05	0.1	22.59	70.42	0.18	0.1	22.41	72.34	0.56	0.2
11/27/2013	20.09	70.78	0.02	0.0	22.52	70.49	0.11	0	22.31	72.47	0.43	0.1
12/31/2013	20.01	70.8	PoP	0.0	22.39	70.46	0.14	0	22.03	72.53	0.37	0.1
1/30/2014	19.67	70.42	0.38	0.3	22.13	70.35	0.25	0	21.81	72.55	0.35	0.1
3/3/2014	19.29	70.17	0.63	0.3	21.86	70.09	0.51	0	21.57	72.05	0.85	0.3
3/31/2014	19.17	70.02	0.78	0.3	21.71	69.63	0.97	0.3	21.43	72.12	0.78	0.1
4/30/2014	19.02	69.81	0.99	0.3	21.59	69.74	0.86	0.3	21.27	71.81	1.09	0.3
5/27/2014	18.92	69.71	1.09	0.0	21.52	69.67	0.93	0.3	21.34	71.71	1.19	0.3
6/26/2014	18.81	69.52	1.28	0.3	21.59	69.77	0.83	0.3	21.17	71.6	1.3	0.3
7/31/2014	18.66	69.37	1.43	0.3	21.21	69.96	0.64	0.3	20.39	71.43	1.47	0.3
8/27/2014	18.53	69.47	1.33	0.3	21.13	70.12	0.48	0.3	20.22	71.61	1.29	0.3
10/3/2014	18.41	69.23	1.57	0.3	20.13	70.41	0.19	0.3	20.14	71.39	1.51	0.3
11/3/2014	18.52	69.37	1.43	0.3	20.29	70.36	0.24	0.3	20.27	71.47	1.43	0.3
11/24/2014	18.57	69.49	1.31	0.5	20.34	70.48	0.12	0.3	20.38	71.53	1.37	0.5
12/22/2014	18.51	69.31	1.49	0.5	20.31	70.41	0.19	0.3	20.37	71.42	1.48	0.5
1/29/2015	18.39	69.39	1.41	0.5	20.17	70.51	0.09	0.3	20.13	71.48	1.42	0.5
2/26/2015	18.42	69.51	1.29	0.5	20.11	70.59	0.01	0	20.09	71.38	1.52	0.5
3/26/2015	18.39	69.42	1.38	0.3	19.26	70.52	0.08	0	20.17	71.02	1.88	0.3
4/27/2015	18.29	69.52	1.28	0.5	20.17	70.48	0.12	0.3	20.22	71.56	1.34	1.0
5/26/2015	18.17	69.57	1.23	0.8	20.12	70.41	0.19	0.3	20.12	71.61	1.29	1.0
7/6/2015	16.29	69.86	0.94	0.5	18.07	70.49	0.11	0.3	18.17	71.93	0.97	0.8
8/3/2015	16.18	69.82	0.98	0.5	18.16	70.56	0.04	TR*	18.24	71.98	0.92	0.8
8/27/2015	17.46	69.74	1.06	0.3	19.03	70.54	0.06	TR*	19.39	72.03	0.87	0.5
10/5/2015	16.83	69.86	0.94	0.3	18.39	ND	0	0	18.72	72.34	0.56	0.5
11/5/2015	16.62	69.79	1.01	0.3	17.96	ND	0	0	18.51	72.26	0.64	0.5
12/3/2015	16.46	69.73	1.07	0.3	17.72	ND	0	0	18.62	72.36	0.54	0.5
12/28/2015	16.32	69.77	1.03	0.3	17.62	ND	0	0	18.42	72.31	0.59	0.5
2/3/2016	16.17	69.74	1.06	0.3	17.42	ND	0	0	18.29	72.46	0.44	0.3
3/3/2016	16.12	69.79	1.01	0.3	17.39	ND	0	0	18.23	72.49	0.41	0.3
3/31/2016	16.06	69.71	1.09	0.3	17.33	ND	0	0	18.24	72.54	0.36	0.3
5/3/2016	16.27	69.59	1.21	0.3	17.47	ND	0	0	18.39	72.39	0.51	0.3
6/2/2016	16.38	69.63	1.17	0.3	17.52	ND	0	0	18.43	72.43	0.47	0.3
7/8/2016	16.47	69.71	1.09	0.3	17.62	ND	0	0	18.54	72.49	0.41	0.3
8/3/2016	16.59	69.7	1.1	0.3	17.69	ND	0	0	18.51	72.53	0.37	0.3
8/30/2016	16.67	69.58	1.22	0.3	17.76	ND	0	0	18.72	72.57	0.33	0.3
9/30/2016	16.79	69.49	1.31	0.5	17.86	ND	0	0	18.83	72.46	0.44	0.3
11/3/2016	16.86	69.71	1.09	0.5	17.92	ND	0	0	18.89	72.41	0.49	0.3
11/30/2016	17.03	69.94	0.86	0.8	18.09	ND	0	0	19.12	72.32	0.58	0.3
1/4/2017	17.22	70.11	0.69	0.8	18.22	ND	0	0	19.27	72.46	0.44	0.3
2/7/2017	17.29	70.01	0.79	0.5	18.17	ND	0	0	19.19	72.39	0.51	0.3
3/2/2017	17.17	70.16	0.64	0.5	17.96	ND	0	0	19.03	72.31	0.59	0.3
4/3/2017	17.06	70.21	0.59	0	17.89	ND	0	0	18.97	72.39	0.51	0.3
4/27/2017	17.01	70.29	0.51	0	17.67	ND	0	0	18.84	72.31	0.59	0.5
5/29/2017	17.23	70.24	0.56	0.3	17.84	ND	0	0	18.94	72.47	0.43	0.3
7/5/2017	17.33	70.34	0.46	0.3	17.96	ND	0	0	19.12	72.34	0.56	0.5
8/1/2017	17.39	70.39	0.41	0.3	18.09	ND	0	0	19.23	72.27	0.63	0.5
9/5/2017	17.36	70.43	0.37	0.3	18.16	ND	0	0	19.29	72.34	0.56	0.5
10/4/2017	17.31	70.41	0.39	0.3	18.21	ND	0	0	19.36	72.3	0.6	0.5
11/2/2017	17.42	70.4	0.4	0.3	18.32	ND	0	0	19.42	72.36	0.54	0.5
11/29/2017	17.49	70.36	0.44	0.3	18.43	ND	0	0	19.57	72.34	0.56	0.5
1/2/2018	17.67	70.31	0.49	0.5	18.73	ND	0	0	19.81	72.39	0.51	0.5
2/7/2018	17.77	70.34	0.46	0.5	18.62	ND	0	0	19.96	72.46	0.44	0.5
3/1/2018	NM	NM	NM	0	18.79	ND	0	0	20.02	72.32	0.58	0.5
4/2/2018	NM	NM	NM	0	18.72	ND	0	0	19.81	72.39	0.51	0.5
5/1/2018	NM	NM	NM	0	19.31	ND	0	0	20.62	72.46	0.44	1

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-44C				MW-45C				MW-46C			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
6/1/2018	18.31	70.17	0.63	0.8	19.47	ND	0	0	20.87	72.51	0.39	1
6/29/2018	18.79	70.39	0.41	0.8	19.67	ND	0	0	20.97	72.57	0.33	1
8/3/2018	18.97	70.36	0.44	0.8	19.77	ND	0	0	21.11	72.59	0.31	1
8/31/2018	18.87	70.39	0.41	0.5	19.41	ND	0	0	20.96	72.48	0.42	0.5
9/28/2018	18.82	70.41	0.39	0.8	19.32	ND	0	0	20.91	72.43	0.47	0.5
11/2/2018	18.67	70.44	0.36	0.8	19.26	ND	0	0	20.77	72.39	0.51	0.8
11/29/2018	18.47	70.46	0.34	0.3	19.16	ND	0	0	20.52	72.34	0.56	0.5
1/2/2019	18.42	70.41	0.39	0.5	19.02	ND	0	0	20.49	72.46	0.44	0.5
2/2/2019	18.29	70.41	0.39	0.5	18.93	ND	0	0	20.43	72.49	0.41	0.5
2/28/2019	18.16	70.42	0.38	0.5	18.77	ND	0	0	20.34	72.37	0.53	0.5
4/2/2019	18.09	70.39	0.41	0.5	18.71	ND	0	0	20.18	72.32	0.58	0.5
4/25/2019	18.02	70.16	0.64	0.5	18.63	ND	0	0	20.14	72.36	0.54	0.5
5/29/2019	18.61	70.23	0.57	0.5	18.47	ND	0	0	20.06	72.39	0.51	0.5
6/12/2019	18.29	ND	Trace	0	18.81	ND	0	0	18.02	ND	Trace	0
6/30/2019	18.16	ND	0	0	18.71	ND	0	0	18.09	ND	0	0
7/16/2019	18.09	ND	0	0	18.66	ND	0	0	18.12	ND	0	0
8/2/2019	18.17	ND	0	0	18.72	ND	0	0	18.17	ND	0	0
8/15/2019	18.22	ND	0	0	18.79	ND	0	0	18.09	ND	0	0
8/28/2019	18.29	ND	0	0	18.86	ND	0	0	18.17	ND	0	0
9/17/2019	18.39	ND	0	0	18.97	ND	0	0	18.23	ND	0	0
10/2/2019	18.32	ND	0	0	18.89	ND	0	0	18.17	ND	0	0
10/16/2019	15.06	ND**	0	0	16.23	ND	0	0	16.34	ND	0	0
10/31/2019	14.89	ND**	0	0	15.94	ND	0	0	16.06	ND	0	0
11/15/2019	14.21	ND**	0	0	15.69	ND	0	0	15.81	ND	0	0
12/3/2019	16.11	ND**	0	0	15.71	ND	0	0	15.91	ND	0	0
12/18/2019	16.51	ND**	0	0	15.91	ND	0	0	16.11	ND	0	0
12/30/2019	16.65	ND**	0	0	16.11	ND	0	0	16.22	ND	0	0
1/7/2020	--	--	--	--	--	--	--	--	--	--	--	--
1/15/2020	16.61	ND**	0	0	16.11	ND	0	0	16.29	ND	0	0
1/27/2020	16.24	ND**	0	0	15.71	ND	0	0	16.15	ND	0	0
2/13/2020	15.81	ND**	0	0	15.29	ND	0	0	14.4	ND	0	0
2/25/2020	15.81	ND**	0	0	15.28	ND	0	0	15.42	ND	0	0
3/13/2020	15.84	ND**	0	0	15.31	ND	0	0	15.57	ND	0	0
3/31/2020	14.82	ND**	0	0	15.59	ND	0	0	15.72	ND	0	0
4/9/2020	22.76	ND**	0	0	15.67	ND	0	0	15.89	ND	0	0
4/27/2020	14.67	ND**	0	0	15.94	ND	0	0	16.12	ND	0	0
5/14/2020	14.21	ND**	0	0	16.38	69.3	1.30	0.1	16.51	ND	0	0
5/28/2020	12.06	57.61	0.39**	0	16.46	70	0.6	0	16.71	ND	0	0
6/11/2020	11.61	ND**	0	0	16.68	ND	0	0	16.83	ND	0	0
6/25/2020	10.37	ND**	0	0	14.99	ND	0	0	15.12	ND	0	0
7/9/2020	11.51	ND**	0	0	16.28	ND	0	0	16.51	ND	0	0
7/23/2020	16.92	ND**	0	0	16.49	69.7	0.90	TR	16.49	ND	0	0
8/6/2020	16.75	ND**	0	0	16.19	ND	0	0	16.47	ND	0	0
8/20/2020	16.71	ND**	0	0	16.18	ND	0	0	16.35	ND	0	0
9/2/2020	16.84	ND**	0	0	16.21	ND	0	0	16.51	ND	0	0
9/17/2020	17.29	ND**	0	0	16.71	ND	0	0	16.85	ND	0	0
10/1/2020	16.84	ND**	0	0	16.61	ND	0	0	16.64	ND	0	0
10/14/2020	16.92	ND**	0	0	16.39	ND	0	0	16.58	ND	0	0
10/28/2020	17.11	ND**	0	0	16.58	70.6	Trace	TR	16.74	ND	0	0
11/12/2020	17.42	ND**	0	0	16.83	ND	0	0	17.04	ND	0	0
11/23/2020	17.69	ND**	0	0	17.12	ND	0	0	17.33	ND	0	0
12/10/2020	17.01	ND**	0	0	16.50	ND	0	0	16.71	ND	0	0
12/21/2020	16.69	ND**	0	0	16.02	69.04	1.56	0.3	16.22	ND	0	0
1/7/2021	15.91	ND**	0	0	15.59	ND	0	0	15.81	ND	0	0
1/21/2021	15.77	ND**	0	0	15.2	70.5	0.1	TR	15.44	ND	0	0
2/4/2021	15.69	ND**	0	0	15.19	70.55	0.05	TR	15.39	ND	0	0
2/23/2021	14.55	ND**	0	0	14.99	70.21	0.39	TR	15.24	ND	0	0
3/11/2021	15.49	ND**	0	0	14.98	ND	0	0	15.21	ND	0	0
3/25/2021	15.5	ND**	0	0	14.99	ND	0	0	15.18	ND	0	0
4/8/2021	15.59	ND**	0	0	15.19	ND	0	0	15.41	ND	0	0
4/22/2021	16.09	ND**	0	0	15.52	ND	0	0	15.77	ND	0	0
5/4/2021	Well Damaged			0	14.58	ND	0	0	14.74	ND	0	0
5/20/2021	Well Damaged			0	15.58	ND	0	0	15.75	ND	0	0

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-44C				MW-45C				MW-46C			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
6/3/2021	Well Damaged			0	14.96	ND	0	0	15.21	ND	0	0
6/17/2021	Well Damaged			0	15.76	ND	0	0	15.08	ND	0	0
7/1/2021	Well Damaged			0	14.59	69.79	0.81	0.3	14.81	ND	0	0
7/19/2021	Well Damaged			0	14.05	69.42	1.18	0.3	14.26	ND	0	0
7/29/2021	Well Damaged			0	14.05	69.71	0.89	0.1	14.29	ND	0	0
8/12/2021	Well Damaged			0	14.68	70.36	0.24	TR	14.84	ND	0	0
8/26/2021	Well Damaged			0	15.21	ND	0	0	15.43	ND	0	0
9/10/2021	Well Damaged			0	15.63	ND	0	0	15.82	ND	0	0
9/22/2021	Well Damaged			0	15.71	ND	0	0	15.89	ND	0	0
10/8/2021	Well Damaged			0	15.47	ND	0	0	15.83	ND	0	0
10/20/2021	Well Damaged			0	15.88	ND	0	0	15.98	ND	0	0
11/4/2021	Well Damaged			0	15.31	68.61	1.99	0	15.51	ND	0	0
11/18/2021	Well Damaged			0	15.31	ND	0	0	15.51	ND	0	0
12/3/2021	Well Damaged			0	15.51	ND	0	0	15.72	ND	0	0
12/16/2021	Well Damaged			0	15.68	ND	0	0	16.02	ND	0	0
12/30/2021	Well Damaged			0	15.61	ND	Trace	0	15.62	ND	Trace	0
1/14/2022	Well Damaged			0	15.72	ND	Trace	0	15.81	ND	Trace	0
1/26/2022	Well Damaged			0	15.83	ND	Trace	0	15.96	ND	Trace	0
2/10/2022	Well Damaged			0	15.33	ND	0	0	15.56	ND	0	0
2/24/2022	Well Damaged			0	15.58	69.83	0.67	0	15.78	ND	0	0
3/10/2022	Well Damaged			0	15.58	69.71	0.79	0.3	15.83	ND	0	0
3/24/2022	Well Damaged			0	16.08	ND	0	0	16.20	ND	0	0
4/7/2022	Well Damaged			0	16.15	ND	0	0	16.34	ND	0	0
4/18/2022	Well Damaged			0	16.29	ND	0	0	16.59	ND	0	0
5/2/2022	Well Damaged			0	16.43	ND	0	0	16.61	ND	0	0
5/20/2022	Well Damaged			0	16.29	ND	0	0	16.52	ND	0	0
6/2/2022	Well Damaged			0	16.42	ND	0	0	16.74	ND	0	0
6/16/2022	Well Damaged			0	NM	NM	NM	0	17.33	ND	0	0
6/30/2022	Well Damaged			0	NM	NM	NM	0	17.72	ND	0	0
7/15/2022	Well Damaged			0	17.98	ND	0	0	18.21	ND	0	0
7/28/2022	Well Damaged			0	18.06	ND	0	0	18.41	ND	0	0
8/12/2022	Well Damaged			0	NM	NM	NM	0	18.00	ND	0	0
8/29/2022	Well Damaged			0	18.57	ND	0	0	19.42	ND	0	0
9/16/2022	Well Damaged			0	17.35	ND	Trace	0	17.60	ND	0	0
9/30/2022	Well Damaged			0	17.65	ND	Trace	0	17.85	ND	0	0
10/17/2022	Well Damaged			0	18.95	ND	0	0	18.12	ND	0	0
10/27/2022	Well Damaged			0	19.03	ND	0	0	18.22	ND	0	0
11/10/2022	Well Damaged			0	18.76	ND	0	0	18.76	ND	0	0
11/30/2022	Well Damaged			0	16.46	ND	0	0	15.79	ND	0	0
12/16/2022	Well Damaged			0	16.52	ND	0	0	15.71	ND	0	0
12/27/2022	Well Damaged			0	16.74	ND	0	0	16.12	ND	0	0
1/13/2023	Well Damaged			0	17.13	ND	0	0	16.49	ND	0	0
1/27/2023	Well Damaged			0	16.45	ND	0	0	16.62	ND	0	0
2/9/2023	Well Damaged			0	16.05	ND	0	0	16.22	ND	0	0
2/23/2023	Well Damaged			0	16.11	ND	0	0	16.25	ND	0	0
3/9/2023	Well Damaged			0	15.96	ND	0	0	16.18	ND	0	0
3/23/2023	Well Damaged			0	16.57	ND	0	0	16.69	ND	0	0
4/6/2023	Well Damaged			0	16.07	ND	0	0	16.31	ND	0	0
4/19/2023	Well Damaged			0	16.04	ND	0	0	16.14	ND	0	0
5/5/2023	Well Damaged			0	16.22	ND	0	0	16.39	ND	0	0
5/18/2023	Well Damaged			0	13.02	ND	0	0	16.05	ND	0	0
6/1/2023	Well Damaged			0	17.90	ND	0	0	16.05	ND	0	0
6/15/2023	Well Damaged			0	16.15	ND	0.00	0	16.32	ND	0	0
6/29/2023	Well Damaged			0	16.55	ND	0.00	0	16.78	ND	0	0
7/13/2023	Well Damaged			0	16.86	ND	Trace	0	17.80	ND	0	0
7/27/2023	Well Damaged			0	18.33	ND	0.00	0	17.50	ND	0	0
8/10/2023	Well Damaged			0	18.51	ND	0.00	0	18.12	ND	0	0
8/24/2023	Well Damaged			0	18.31	ND	0.00	0	18.48	ND	0	0
9/7/2023	Well Damaged			0	18.85	ND	0.00	0	18.63	ND	0	0
9/21/2023	Well Damaged			0	19.85	ND	0.00	0	18.82	ND	Trace	0
Total DNAPL Pumped (gal)				26.7				7.1				31.8

Notes:

* - indicates DNAPL and groundwater mixture

--- - No DNAPL pumped

DTW - Depth to water (feet Below Top of Casing (BTOC))

DTD - Depth to DNAPL (feet BTOC)

MW-44C not measured 3/1/18 - 5/1/18; couldn't locate well due to construction. MW-45C not measured 6/16/22-6/30/22; couldn't locate well

**Total depth measured in MW-44C was approximately 10 ft higher than during previous events - attempted to remove silt in July and October 2020.

ND - Not detected

NM - Not measured

PoP - Product on probe, not measureable

TR - Trace amount of DNAPL Extracted

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-49A				MW-49B				MW-57A				MW-57B			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
2/14/2013									10.56	22.12	4.78	0.5	28.56	41.41	1.54	0.3
4/3/2013									10.32	24.79	2.11	0.5	28.09	42.36	0.59	0.3*
4/22/2013									10.71	25.85	1.05	0.5	27.06	42.17	0.78	0.3
5/30/2013									10.63	24.16	2.74	0.5	27.13	41.63	1.32	0.3
6/29/2013									12.16	23.82	3.08	2	18.26	42.07	0.88	0.3
7/22/2013					11.83	33.91	0.84	--	13.21	23.05	3.85	2	16.34	41.67	1.28	0.8
8/26/2013									12.91	25.32	1.58	1	18.01	42.31	0.64	0.3
9/27/2013									12.72	25.71	1.19	0.8	17.74	42.51	0.39	0.3
10/31/2013									12.72	25.92	0.98	1	17.61	42.61	0.29	0.1
11/27/2013									12.61	25.98	0.92	1	17.54	42.67	0.23	0.1
12/31/2013									12.46	26.09	0.81	1	17.36	42.74	0.16	0.1
1/30/2014									11.79	26.15	0.75	0.3	17.04	ND	Trace	0
3/3/2014									11.02	26.25	0.65	0.3	16.51	ND	Trace	0
3/31/2014									10.83	26.41	0.49	0.3	16.41	ND	Trace	0
4/30/2014									10.71	26.31	0.59	0.3	16.29	ND	Trace	0
5/27/2014									10.74	26.16	0.74	0.3	16.13	ND	Trace	0
6/26/2014									10.61	26.29	0.61	0.3	16.02	ND	Trace	0
7/31/2014									10.35	26.18	0.72	0.3	15.84	ND	Trace	0
8/27/2014									10.22	26.26	0.64	0.3	15.71	ND	Trace	0
10/3/2014									10.09	26.04	0.86	0.3	15.61	ND	Trace	0
11/3/2014									10.17	26.16	0.74	0.3	NM	NM	NM	0
11/24/2014									10.13	26.29	0.61	0.3	NM	NM	NM	0
12/22/2014									10.06	26.34	0.56	0.3	NM	NM	NM	0
1/29/2015									9.73	26.51	0.39	0.3	NM	NM	NM	0
2/26/2015									9.87	26.42	0.48	0.3	NM	NM	NM	0
3/26/2015									9.81	26.32	0.58	0.3	NM	NM	NM	0
4/27/2015									9.82	26.47	0.43	0.5	NM	NM	NM	0
5/26/2015									9.71	26.56	0.34	0.5	NM	NM	NM	0
7/6/2015									7.41	26.82	0.08	TR*	NM	NM	NM	0
8/3/2015									7.29	26.86	0.04	TR*	12.32	ND	PoP	0
8/27/2015									8.11	ND	0	TR*	13.04	ND	0	0
10/5/2015									7.72	ND	0	0	12.62	ND	0	0
11/5/2015									7.39	ND	0	0	12.27	ND	0	0
12/3/2015									7.13	ND	0	0	12.02	ND	0	0
12/28/2015									NM	NM	NM	0	NM	NM	NM	0
2/3/2016									NM	NM	NM	0	NM	NM	NM	0
3/3/2016									NM	NM	NM	0	NM	NM	NM	0
3/31/2016									NM	NM	NM	0	NM	NM	NM	0
5/3/2016									NM	NM	NM	0	NM	NM	NM	0
6/2/2016									7.26	ND	0	0	12.32	ND	0	0
7/8/2016									7.39	ND	0	0	12.44	ND	0	0
8/3/2016									7.46	ND	0	0	12.52	ND	0	0
8/30/2016									7.58	ND	0	0	12.67	ND	0	0
9/30/2016									7.69	ND	0	0	12.81	ND	0	0
11/3/2016									7.77	ND	0	0	12.92	ND	0	0
11/30/2016									7.92	ND	0	0	13.16	ND	0	0
1/4/2017									8.07	ND	0	0	13.24	ND	0	0
2/7/2017									8.18	ND	0	0	13.29	ND	0	0
3/2/2017									8.02	ND	0	0	13.17	ND	0	0
4/3/2017									8.06	ND	0	0	13.04	ND	0	0
4/27/2017									8.01	ND	0	0	13.14	ND	0	0
5/29/2017									8.34	ND	0	0	13.41	ND	0	0
7/5/2017									8.41	ND	0	0	13.57	ND	0	0
8/1/2017									8.52	ND	0	0	13.69	ND	0	0
9/5/2017									8.46	ND	0	0	13.79	ND	0	0
10/4/2017									8.41	ND	0	0	13.71	ND	0	0
11/2/2017									8.52	ND	0	0	13.91	ND	0	0
11/29/2017									8.67	ND	0	0	14.02	ND	0	0
1/2/2018									8.91	ND	0	0	13.06	ND	0	0
2/7/2018									8.98	ND	0	0	12.42	ND	0	0
3/1/2018									9.22	ND	0	0	12.58	ND	0	0
4/2/2018									9.16	ND	0	0	12.46	ND	0	0
5/1/2018									9.34	ND	0	0	13.04	ND	0	0

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-49A				MW-49B				MW-57A				MW-57B			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
6/1/2018									9.67	ND	0	0	13.29	ND	0	0
6/29/2018									9.87	ND	0	0	13.47	ND	0	0
8/3/2018									10.02	ND	0	0	13.61	ND	0	0
8/31/2018									9.91	ND	0	0	13.47	ND	0	0
9/28/2018									9.86	ND	0	0	13.36	ND	0	0
11/2/2018									9.77	ND	0	0	13.21	ND	0	0
11/29/2018									9.56	ND	0	0	13.01	ND	0	0
1/2/2019									9.52	ND	Trace	0	13.03	ND	Trace	0
2/2/2019									9.41	ND	Trace	0	12.91	ND	Trace	0
2/28/2019									9.32	ND	Trace	0	12.83	ND	Trace	0
4/2/2019									9.27	ND	Trace	0	12.76	ND	Trace	0
4/25/2019									9.16	ND	Trace	0	12.71	ND	Trace	0
5/29/2019									9.06	ND	Trace	0	12.70	ND	Trace	0
6/12/2019									9.39	ND	0	0	12.93	ND	0	0
6/30/2019									9.21	ND	0	0	12.86	ND	0	0
7/16/2019					12.02	34.62	0.24	--	9.17	ND	0	0	12.79	ND	0	0
8/2/2019									9.22	ND	0	0	12.84	ND	0	0
8/15/2019									9.29	ND	0	0	12.92	ND	0	0
8/28/2019									9.33	ND	0	0	12.96	ND	0	0
9/17/2019									9.46	ND	0	0	12.86	ND	0	0
10/2/2019									9.74	ND	0	0	12.83	ND	0	0
10/16/2019									10.39	ND	0	0	13.67	ND	0	0
10/31/2019									11.92	ND	0	0	14.21	ND	0	0
11/15/2019									11.14	ND	0	0	6.21	ND	0	0
12/3/2019									13.75	ND	0	0	13.51	ND	0	0
12/18/2019									14.09	ND	0	0	13.51	ND	0	0
12/30/2019									14.42	ND	0	0	13.51	ND	0	0
1/7/2020					11.51	20.09	14.77	--	--	--	--	--	--	--	--	--
1/15/2020					15.48	20.89	13.97	2.5	12.79	ND	0	0	21.93	ND	0	0
1/27/2020					14.2	22.4	12.46	2	11.61	ND	0	0	19.96	ND	0	0
2/13/2020					13.31	28.9	5.96	1.5	13.22	ND	0	0	17.91	ND	0	0
2/25/2020					11.51	26.8	8.06	1.0	12.31	ND	0	0	16.86	ND	0	0
3/13/2020					11.73	26.1	8.76	0.5	13.71	ND	0	0	15.91	ND	0	0
3/31/2020					13.72	29.39	5.47	0.5	13.85	ND	0	0	15.37	ND	0	0
4/9/2020					14.13	31.04	3.82	0.5	13.36	ND	0	0	15.19	ND	0	0
4/27/2020					15.31	32.05	2.81	0.1	14.45	ND	0	0	14.99	ND	0	0
5/14/2020					14.95	31.89	2.97	0.1	14.84	ND	0	0	14.95	ND	0	0
5/28/2020					13.66	31.07	3.79	0.5	13.91	ND	0	0	14.92	ND	0	0
6/11/2020					14.56	31.22	3.64	0.3	14.41	ND	0	0	14.89	ND	0	0
6/25/2020					10.65	31.64	3.22	0.3	14.08	ND	0	0	14.28	ND	0	0
7/9/2020					10.51	32.41	2.45	0.5	13.51	ND	0	0	14.67	ND	0	0
7/23/2020					13.51	31.13	3.73	0.5	13.26	ND	0	0	17.09	ND	0	0
8/6/2020					13.23	32.48	2.38	0.3	11.53	ND	0	0	16.20	ND	0	0
8/20/2020					12.11	32.08	2.78	0.1	13.11	ND	0	0	15.47	ND	0	0
9/2/2020					13.58	31.04	3.82	0.8	13.91	ND	0	0	15.01	ND	0	0
9/17/2020					15.91	30.24	4.62	0.5	14.43	ND	0	0	14.71	ND	0	0
10/1/2020					13.63	31.11	3.75	0.8	12.41	ND	0	0	14.44	ND	0	0
10/14/2020					12.18	29.6	5.26	2.0	13.74	ND	0	0	14.08	ND	0	0
10/28/2020					13.71	31.93	2.93	1.0	13.91	ND	0	0	13.87	ND	0	0
11/12/2020					12.74	32.03	2.83	0.5	14.64	ND	0	0	13.81	ND	0	0
11/23/2020					12.08	32.30	2.56	0.3	14.99	ND	0	0	13.21	ND	0	0
12/10/2020					8.66	31.21	3.65	0.3	12.31	ND	0	0	13.76	ND	0	0
12/21/2020					6.6	30.72	4.14	0.5	10.92	ND	0	0	13.56	ND	0	0
1/7/2021					6.41	32.25	2.61	0.5	12.51	ND	0	0	13.25	ND	0	0
1/21/2021					15.44	31.25	3.61	0.5	12.54	ND	0	0	20.69	ND	0	0
2/4/2021					15.81	31.54	3.32	0.5	13.15	ND	0	0	18.46	ND	0	0
2/23/2021					13.44	31.2	3.66	0.5	12.32	ND	0	0	16.49	ND	0	0
3/11/2021					11.91	31.96	2.9	0.5	13.13	ND	0	0	15.55	ND	0	0
3/25/2021					10.28	32.41	2.45	0.5	13.01	ND	0	0	15.06	ND	0	0
4/8/2021					10.79	31.79	3.07	0.5	13.71	ND	0	0	14.84	ND	0	0
4/22/2021					11.29	32.08	2.78	0.5	14.31	ND	0	0	14.65	ND	0	0
5/4/2021					7.94	32.4	2.46	0.3	13.03	ND	0	0	14.59	ND	0	0
5/20/2021					7.04	32.69	2.17	0.5	10.45	ND	0	0	14.61	ND	0	0

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-49A				MW-49B				MW-57A				MW-57B			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
6/3/2021					4.81	32.6	2.26	0.5	11.15	ND	0	0	14.12	ND	0	0
6/17/2021					6.39	32.8	2.06	TR	12.21	ND	0	0	13.84	ND	0	0
7/1/2021					4.51	ND	0	0	10.38	ND	0	0	13.61	ND	0	0
7/19/2021					0.39	ND	0	0	9.79	ND	0	0	13.22	ND	0	0
7/29/2021					12.91	ND	0	0	12.51	ND	0	0	16.66	ND	0	0
8/12/2021					10.49	32.60	2.26	0.1	13.91	ND	0	0	15.32	ND	0	0
8/26/2021					9.87	31.90	2.96	0.5	14.11	ND	0	0	14.92	ND	0	0
9/10/2021					10.03	31.79	3.07	0.2	14.28	ND	0	0	14.61	ND	0	0
9/22/2021					7.50	ND	0	0	13.21	ND	0	0	14.40	ND	0	0
10/8/2021					7.56	ND	0	0	12.05	ND	0	0	14.10	ND	0	0
10/20/2021					7.8	30.94	1.82	0.1	13.80	ND	0	0	14.61	ND	0	0
11/4/2021					7.63	ND	0	0	12.45	ND	0	0	13.59	ND	0	0
11/18/2021					8.00	ND	0	0	13.37	ND	0	0	13.44	ND	0	0
12/3/2021					8.25	ND	0	0	13.81	ND	0	0	13.40	ND	0	0
12/16/2021					8.52	ND	0	0	13.69	ND	0	0	13.36	ND	0	0
12/30/2021					7.81	ND	0	0	13.36	ND	0	0	13.41	ND	Trace	0
1/14/2022					7.92	ND	0	0	13.43	ND	0	0	13.52	ND	Trace	0
1/26/2022					7.91	ND	0	0	13.56	ND	0	0	13.44	ND	Trace	0
2/10/2022					11.38	30	2.76	0.3	12.71	ND	0	0	19.21	ND	0	0
2/24/2022					12.6	ND	0	0	13.68	ND	0	0	17.65	ND	0	0
3/10/2022					11.96	ND	0	0	14.40	ND	0	0	18.44	ND	0	0
3/24/2022					12.20	ND	0	0	12.56	ND	0	0	16.06	ND	0	0
4/7/2022					11.60	ND	0	0	13.70	ND	0	0	15.60	ND	0	0
4/18/2022					11.32	ND	0	0	13.81	ND	0	0	15.39	ND	0	0
5/2/2022					11.08	ND	0	0	13.99	ND	0	0	15.17	ND	0	0
5/20/2022					11.17	ND	0	0	13.46	ND	0	0	15.41	ND	0	0
6/2/2022					11.12	ND	0	0	13.34	ND	0	0	15.34	ND	0	0
6/16/2022					10.97	ND	0	0	15.03	ND	0	0	14.95	ND	Trace	0
6/30/2022					11.16	ND	0	0	15.48	ND	0	0	15.03	ND	Trace	0
7/15/2022					8.73	ND	0	0	13.96	ND	0	0	15.22	ND	Trace	0
7/28/2022					8.84	ND	0	0	14.06	ND	0	0	15.38	ND	Trace	0
8/12/2022					11.11	ND	0	0	13.50	ND	0	0	16.60	ND	Trace	0
8/29/2022					11.39	ND	NM	2	13.56	ND	0	0	15.61	ND	0	0
9/16/2022					9.60	24.00	11.50	2.5	13.85	ND	0	0	15.30	ND	0	0
9/30/2022					10.80	20.00	15.50	3.5	14.80	ND	0	0	15.00	ND	Trace	0
10/17/2022					11.85	19.35	9.15	2.5	15.41	ND	0	0	14.85	ND	Trace	0
10/27/2022					12.06	19.47	9.03	2.5	15.79	ND	0	0	14.93	ND	Trace	0
11/10/2022					11.77	19.62	8.88	2.5	15.61	ND	0	0	14.77	ND	Trace	0
11/30/2022					7.52	19.86	8.64	2.5	12.29	ND	0	0	11.23	ND	Trace	0
12/16/2022					7.46	19.98	8.52	2.5	12.17	ND	0	0	11.06	ND	Trace	0
12/27/2022					7.74	19.62	8.88	2.5	12.46	ND	0	0	11.49	ND	Trace	0
1/13/2023					8.06	19.56	8.94	2.5	12.77	ND	0	0	12.46	ND	Trace	0
1/27/2023					7.6	ND	Trace	0	11.92	ND	0	0	18.73	42.11	0.71	0
2/9/2023					9.4	24.80	3.70	0.5	12.5	ND	0	0	17.23	ND	Trace	0
2/23/2023					10.33	26.37	2.13	1.0	13.98	ND	0	0	16.19	ND	0	0
3/9/2023					10.21	26.22	2.28	1.0	13.91	ND	0	0	16.06	ND	0	0
3/23/2023					10.06	25.00	3.50	1.0	13.78	ND	0	0	15.23	PoP	Trace	0
4/6/2023					10.71	16.94	11.56	2.0	13.77	ND	0	0	16.13	ND	0	0
4/19/2023					7.55	19.64	8.86	2.0	13.09	ND	0	0	14.87	ND	0	0
5/5/2023					9.48	22.79	5.71	1.5	13.61	ND	0	0	15.96	ND	0	0
5/18/2023					4.90	20.82	7.68	2.0	10.28	ND	0	0	14.23	ND	0	0
6/1/2023	9.25	28.40	1.53	0	8.65	25.70	2.60	1.25	13.05	ND	0	0	13.86	PoP	Trace	0
6/15/2023	9.27	27.22	2.70	1.00	7.88	24.15	4.15	0.75	13.11	ND	0	0	13.75	PoP	Trace	0
6/29/2023	9.63	28.39	0.50	0.10	9.00	24.45	3.75	1.00	13.81	ND	0	0	13.74	PoP	Trace	0
7/13/2023	9.55	PoP	Trace	Trace	7.85	24.14	4.21	1.00	13.54	ND	0	0	13.79	PoP	Trace	0
7/27/2023	10.45	PoP	0.00	0.00	10.80	21.60	6.55	0.00	14.80	ND	0	0	16.57	PoP	Trace	0
8/10/2023	10.78	PoP	Trace	0.00	10.43	23.35	4.80	0.90	15.42	ND	0	0	16.08	PoP	0.00	0
8/24/2023	11.94	PoP	Trace	0.00	11.27	24.68	3.37	0.90	12.55	ND	0	0	16.70	PoP	0.00	0
9/7/2023	12.02	PoP	Trace	0.00	11.22	24.70	3.33	0.90	12.67	ND	0	0	16.74	PoP	0.00	0
9/21/2023	10.83	PoP	Trace	0.00	10.51	25.75	2.65	0.60	15.53	ND	0	0	15.70	PoP	Trace	0
Total DNAPL Pumped (gal)				1.1				67.7				15.5				2.8

Notes:

* - indicates DNAPL and groundwater mixture

--- - No DNAPL pumped

DTW - Depth to water (feet Below Top of Casing (BTOC))

DTD - Depth to DNAPL (feet BTOC)

ND - Not detected

NM - Not measured

PoP - Product on probe, not measureable

TR- Trace amount of DNAPL Extracted

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-68B				MW-70B				MW-74B			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
2/14/2013					6.57	34.09	1.61	0.3				
4/3/2013					6.79	35.26	0.44	0.3				
4/22/2013					6.06	35.12	0.58	0.3				
5/30/2013					6.19	34.67	1.03	0.3				
6/29/2013					8.01	34.92	0.78	0.3*				
7/22/2013					8.22	34.07	1.63	0.3*				
8/26/2013					8.17	35.09	0.61	0.3				
9/27/2013					8.32	35.34	0.36	0.3				
10/31/2013					8.26	35.39	0.31	0.1				
11/27/2013					8.12	35.42	0.28	0.1				
12/31/2013					7.89	35.51	0.19	0.1				
1/30/2014					7.84	35.06	0.64	0.1				
3/3/2014					7.09	35.05	0.65	0.1				
3/31/2014					6.87	35.17	0.53	0.1				
4/30/2014					6.72	35.01	0.69	0.1				
5/27/2014					6.64	34.86	0.84	0.1				
6/26/2014					6.52	34.97	0.73	0.3				
7/31/2014					6.26	34.76	0.94	0.3				
8/27/2014					6.84	34.86	0.84	0.3				
10/3/2014					6.71	34.61	1.09	0.3				
11/3/2014					6.79	34.79	0.91	0.3				
11/24/2014					6.77	34.93	0.77	0.3				
12/22/2014					6.69	34.86	0.84	0.3				
1/29/2015					6.48	34.92	0.78	0.3				
2/26/2015					6.39	34.81	0.89	0.5				
3/26/2015					6.27	34.91	0.79	0.3				
4/27/2015					6.19	34.99	0.71	0.3				
5/26/2015					6.07	35.11	0.59	0.5				
7/6/2015					5.03	35.32	0.38	0.3				
8/3/2015					5.12	35.37	0.33	TR*				
8/27/2015					6.31	35.41	0.29	TR*				
10/5/2015					5.72	35.47	0.23	0.3				
11/5/2015					5.41	35.42	0.28	0.3				
12/3/2015					5.13	35.63	0.07	0.3				
12/28/2015					5.02	35.26	0.44	0.3				
2/3/2016					4.86	35.21	0.49	0.3				
3/3/2016					4.92	35.17	0.53	0.3				
3/31/2016					4.91	35.24	0.46	0.3				
5/3/2016					5.13	35.29	0.36	0.3				
6/2/2016					5.26	35.36	0.29	0.3				
7/8/2016					5.34	35.31	0.34	0.3				
8/3/2016					5.42	35.39	0.26	0.3				
8/30/2016					5.61	35.21	0.44	0.3				
9/30/2016					5.74	35.03	0.62	0.3				
11/3/2016					5.79	35.11	0.54	0.3				
11/30/2016					6.03	35.23	0.42	0.3				
1/4/2017					6.17	35.09	0.56	0.5				
2/7/2017					6.26	35.01	0.64	0.5				
3/2/2017					6.16	35.09	0.56	0.5				
4/3/2017					6.09	35.13	0.52	0.5				
4/27/2017					6.12	35.2	0.45	0.5				
5/29/2017					6.29	35.06	0.59	0.5				
7/5/2017					6.39	35.14	0.51	0.3				
8/1/2017					6.47	35.21	0.44	0.3				
9/5/2017					6.56	35.34	0.31	0.3				
10/4/2017					6.63	35.39	0.26	0.3				
11/2/2017					6.74	35.31	0.34	0.3				
11/29/2017					6.79	35.29	0.36	0.3				
1/2/2018					6.34	35.34	0.31	0.3				
2/7/2018					6.42	35.31	0.34	0.3				
3/1/2018					6.67	35.21	0.44	0.5				
4/2/2018					6.61	35.16	0.49	0.5				
5/1/2018					7.22	35.23	0.42	1.3				

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-68B				MW-70B				MW-74B			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
6/1/2018					7.42	35.29	0.36	1				
6/29/2018					7.58	35.21	0.44	1				
8/3/2018					7.69	35.29	0.36	0.8				
8/31/2018					7.42	35.36	0.29	0.5				
9/28/2018					7.33	35.28	0.37	0.5				
11/2/2018					7.22	35.24	0.41	0.8				
11/29/2018					7.06	35.21	0.44	0.5				
1/2/2019					6.96	35.31	0.34	0.5				
2/2/2019					6.87	35.36	0.29	0.5				
2/28/2019					6.74	35.29	0.36	0.5				
4/2/2019					6.67	35.27	0.38	0.5				
4/25/2019					6.74	35.21	0.44	0.5				
5/29/2019					6.71	35.17	0.48	0.5				
6/12/2019					6.43	34.84	0.81	1				
6/30/2019					6.48	34.61	1.04	1				
7/16/2019					6.43	34.49	1.16	1.5				
8/2/2019					6.48	34.31	1.34	1.5				
8/15/2019					6.51	34.07	1.58	2				
8/28/2019					6.57	34.09	1.56	2				
9/17/2019					6.51	34.01	1.64	2				
10/2/2019					6.46	33.71	1.94	2.5				
10/16/2019					6.42	ND	0	0				
10/31/2019					6.43	ND	Trace	0				
11/15/2019					4.75	ND	0	0				
12/3/2019					5.01	ND	0	0				
12/18/2019					5.53	35	0.65	0.3				
12/30/2019					5.71	32.4	3.25	0.1				
1/7/2020	4.82	34.21	3.59	--	--	--	--	--				
1/15/2020	4.82	34.41	3.39	0.5	7.19	32.51	3.14	0.1				
1/27/2020	2.15	35.9	1.9	0.5	9.9	31.3	4.35	0.1				
2/13/2020	3.49	35.02	2.78	0.5	5.99	31.43	4.22	0.1				
2/25/2020	2.35	36.12	1.68	0.3	4.71	31.81	3.84	0.3				
3/13/2020	3.99	35.6	2.2	0.1	4.63	30.5	5.15	0.3				
3/31/2020	4.46	36.9	0.9	0.0	6.04	31.34	4.31	0.5				
4/9/2020	4.41	35.99	1.81	0.1	6.79	31.53	4.12	0.5				
4/27/2020	5.53	36.1	1.7	0.1	6.81	30.84	4.81	1.0				
5/14/2020	6.39	37.01	0.79	0	7.26	30.63	5.02	1.0				
5/28/2020	5.99	37.09	0.71	TR	7.02	30.74	4.91	1.5				
6/11/2020	6.49	36.8	1	TR	7.53	31.2	4.45	0.5				
6/25/2020	6.09	36.94	0.86	TR	7.08	32.12	3.53	0.5				
7/9/2020	5.06	37.37	0.43	0.3	5.61	32	3.65	0.5				
7/23/2020	5.31	37.47	0.33	TR	6.33	32.2	3.45	1.0				
8/6/2020	3.02	37.38	0.42	TR	6.15	33.12	2.53	1.3				
8/20/2020	5.11	37.26	0.54	TR	5.74	33.2	2.45	1.0				
9/2/2020	5.96	37.4	0.4	TR	6.74	34.39	1.26	0.1				
9/17/2020	6.6	37.32	0.48	0.1	6.92	34.99	0.66	0.1				
10/1/2020	3.81	37.39	0.41	0.1	5.52	34.88	0.77	0.3				
10/14/2020	5.11	36.81	0.99	0.3	5.63	34.49	1.16	0.3				
10/28/2020	5.26	36.52	1.28	0.3	4.8	34.71	0.94	0.3				
11/12/2020	6.13	36.82	0.98	0.3	6.38	34.21	1.44	0.5				
11/23/2020	6.54	37.2	0.6	0.3	7.51	35.19	0.46	0.3				
12/10/2020	3.24	37.08	0.72	0.0	5.82	35.10	0.55	0.1				
12/21/2020	1.22	37.01	0.79	0.1	5.55	34.48	1.17	0.1				
1/7/2021	2.48	ND	0	0	5.04	35	0.65	TR				
1/21/2021	2.99	37.37	0.43	TR	4.72	35.02	0.63	TR				
2/4/2021	3.62	37.32	0.48	TR	7.2	35.08	0.57	TR				
2/23/2021	2.51	ND	0	0	5.33	34.2	1.45	1.0				
3/11/2021	3.49	ND	0	0	5.33	34.3	1.35	0.8				
3/25/2021	3.34	ND	0	0	5.78	34.93	0.72	0.5				
4/8/2021	4.28	ND	0	0	5.88	34.83	0.82	0.5				
4/22/2021	4.96	ND	0	0	5.99	34.56	1.09	0.5				
5/4/2021	3.64	37.38	0.42	0	6.21	34.39	1.26	0.5	7.81	32.80	2.20	2.0
5/20/2021	0.99	ND	0	0	5.89	35.09	0.56	0.3	5.93	33.40	1.60	0.5

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-68B				MW-70B				MW-74B			
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
6/3/2021	2.66	ND	0	0	4.58	34.98	0.67	0.3	6.54	33.62	1.38	0.5
6/17/2021	3.51	ND	0	0	4.78	35.16	0.49	0.3	6.86	34.70	0.30	0.1
7/1/2021	1.11	37.01	0.39	0.1	4.48	34.85	0.8	TR	3.68	34.08	0.92	0.5
7/19/2021	1.06	37.21	0.19	TR	3.78	34.9	0.75	TR	5.36	34.15	0.85	0.8
7/29/2021	3.74	37.38	0.02	TR	5.74	35.2	0.45	TR	6.31	33.60	1.40	1.0
8/12/2021	5.21	ND	0	0	5.71	35.12	0.53	TR	7.51	33.34	1.66	1.0
8/26/2021	5.80	ND	0	TR	5.88	35.16	0.49	TR	7.34	33.22	1.78	1.0
9/10/2021	5.08	ND	0	0	6.41	35.18	0.47	0.1	7.81	34.40	0.60	0.2
9/22/2021	4.65	ND	0	0	6.46	ND	0	0	11.35	34.41	0.59	0
10/8/2021	3.14	ND	0	0	5.12	ND	0	0	6.94	33.58	1.42	0
10/20/2021	5.01	ND	0	0	6.84	35.27	0.38	0	11.84	34.81	0.19	0
11/4/2021	3.38	ND	0	0	5.10	ND	0	0	7.24	33.83	1.17	0.3
11/18/2021	4.38	ND	0	0	5.34	ND	0	0	7.41	ND	0	0
12/3/2021	4.38	ND	0	0	5.58	ND	0	0	7.90	ND	0	0
12/16/2021	4.72	ND	0	0	5.84	ND	0	0	7.51	ND	0	0
12/30/2021	3.88	ND	0	0	5.46	ND	Trace	0	7.76	ND	Trace	0
1/14/2022	3.92	ND	0	0	5.56	ND	Trace	0	7.82	ND	Trace	0
1/26/2022	4.06	ND	0	0	5.67	ND	Trace	0	7.91	ND	Trace	0
2/10/2022	3.07	ND	0	0	5.39	ND	0	0	7.30	ND	0	0
2/24/2022	4.08	ND	0	0	5.52	34.7	0.6	0.2	8.41	ND	0	0
3/10/2022	4.99	ND	0	0	6.23	ND	0	0	8.60	ND	0	0
3/24/2022	2.91	ND	0	0	6.24	ND	0	0	8.62	ND	0	0
4/7/2022	4.23	ND	0	0	6.05	ND	0	0	8.20	ND	0	0
4/18/2022	4.46	ND	0	0	6.29	ND	0	0	8.42	ND	0	0
5/2/2022	5.13	ND	0	0	6.40	ND	Trace	0	8.52	ND	0	0
5/20/2022	5.21	ND	0	0	6.52	ND	0	0	8.51	ND	0	0
6/2/2022	5.39	ND	0	0	6.43	ND	0	0	8.39	ND	0	0
6/16/2022	5.27	ND	0	0	8.80	ND	0	0	9.09	ND	Trace	0
6/30/2022	5.35	ND	0	0	8.96	ND	0	0	9.47	ND	Trace	0
7/15/2022	6.79	ND	0	0	7.34	ND	0	0	8.41	ND	Trace	0
7/28/2022	6.91	ND	0	0	7.41	ND	0	0	8.51	ND	Trace	0
8/12/2022	6.54	ND	Trace	0	7.90	ND	0	0	8.82	ND	Trace	0
8/29/2022	4.35	ND	0	0	6.26	ND	0	0	8.62	ND	0	0
9/16/2022	6.00	37.20	0.75	0.25	7.30	31.90	3.40	0.25	8.80	ND	Trace	0
9/30/2022	7.00	ND	Trace	0	7.40	32.00	3.30	0.25	8.70	ND	0	0
10/17/2022	7.83	ND	Trace	0	7.90	32.85	2.45	0.10	9.24	ND	0	0
10/27/2022	7.97	ND	Trace	0	8.27	32.97	2.33	0.50	9.42	ND	0	0
11/10/2022	7.72	ND	Trace	0	8.13	32.82	2.48	0.50	9.31	ND	0	0
11/30/2022	3.22	ND	Trace	0	3.29	33.63	1.67	0.50	6.02	ND	0	0
12/16/2022	3.34	ND	Trace	0	3.16	33.69	1.61	0.50	6.12	ND	0	0
12/27/2022	2.96	ND	Trace	0	2.87	33.52	1.78	0.50	6.02	ND	0	0
1/13/2023	2.09	ND	Trace	0	2.61	33.62	1.68	0.50	6.67	ND	0	0
1/27/2023	2.21	ND	Trace	0	5.29	34.48	0.82	0.50	7.64	ND	Trace	0
2/9/2023	3.00	ND	Trace	0	5.74	ND	Trace	0	7.21	ND	0	0
2/23/2023	3.96	ND	0	0	5.78	34.60	0.70	0.25	7.84	ND	0	0
3/9/2023	3.74	ND	0	0	5.56	34.29	1.01	0.50	7.67	ND	0	0
3/23/2023	4.56	PoP	Trace	0	6.28	ND	Trace	0	8.12	ND	0	0
4/6/2023	3.96	ND	0	0	5.69	34.62	0.68	0.50	7.81	ND	0	0
4/19/2023	4.19	PoP	Trace	0	5.99	ND	Trace	0.00	7.9	ND	0	0
5/5/2023	3.72	ND	0	0	5.79	34.69	0.61	0.50	7.62	ND	0	0
5/18/2023	1.60	ND	0	0	4.40	32.92	2.38	0.00	6.10	ND	0	0
6/1/2023	4.38	PoP	Trace	0	5.64	ND	Trace	0.00	6.85	ND	Trace	0
6/15/2023	4.80	ND	0.00	0	5.63	32.85	2.40	1.10	6.86	ND	0.00	0
6/29/2023	5.84	PoP	Trace	0	6.57	ND	Trace	0.10	7.24	ND	Trace	0
7/13/2023	5.90	PoP	Trace	0	6.58	ND	Trace	0.00	6.92	ND	0.00	0
7/27/2023	7.15	PoP	Trace	0	8.10	34.55	0.75	Trace	7.70	ND	0.00	0
8/10/2023	7.90	PoP	Trace	0	7.75	ND	Trace	0.00	8.52	ND	Trace	0
8/24/2023	8.55	PoP	Trace	0	8.28	ND	Trace	0.00	9.90	ND	Trace	0
9/7/2023	8.63	PoP	Trace	0	8.66	ND	Trace	0.00	9.96	ND	Trace	0
9/21/2023	8.70	PoP	Trace	0	8.50	ND	Trace	0.00	8.90	ND	Trace	0
Total DNAPL Pumped (gal)				4.1				63.3				7.8

* - indicates DNAPL and groundwater mixture

--- - No DNAPL pumped

DTW - Depth to water (feet Below Top of Casing (BTOC))

DTD - Depth to DNAPL (feet BTOC)

ND - Not detected

NM - Not measured

PoP - Product on probe, not measureable

TR- Trace amount of DNAPL Extracted

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-75B				MW-78A				Approx DNAPL Recovered (gal)
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	
2/14/2013	10.01	34.1	3.1	0.3	NM	NM	NM	0	9.8
4/3/2013	13.71	36.47	0.73	0.3	NM	NM	NM	0	5.2
4/22/2013	9.72	36.72	0.48	0.3	NM	NM	NM	0	2.9
5/30/2013	9.61	35.09	2.11	0.8	NM	NM	NM	0	7.7
6/29/2013	10.61	35.61	1.59	0.8	NM	NM	NM	0	7.2
7/22/2013	9.74	35.71	1.49	0.8	NM	NM	NM	0	6.7
8/26/2013	10.76	35.93	1.27	0.8	NM	NM	NM	0	6.5
9/27/2013	10.52	36.39	0.81	0.5	NM	NM	NM	0	5.8
10/31/2013	10.31	36.47	0.73	1	NM	NM	NM	0	5.1
11/27/2013	10.39	36.51	0.69	1	NM	NM	NM	0	4.7
12/31/2013	10.13	36.72	0.48	1	NM	NM	NM	0	4.7
1/30/2014	12.62	36.49	0.71	0.8	NM	NM	NM	0	4.7
3/3/2014	12.12	36.35	0.85	0.8	NM	NM	NM	0	4.9
3/31/2014	12.01	36.27	0.93	0.8	NM	NM	NM	0	5.0
4/30/2014	11.84	36.02	1.18	0.8	NM	NM	NM	0	5.1
5/27/2014	11.71	35.79	1.41	0.8	NM	NM	NM	0	4.9
6/26/2014	11.58	35.91	1.29	0.5	NM	NM	NM	0	5.0
7/31/2014	11.32	35.82	1.38	0.5	NM	NM	NM	0	4.8
8/27/2014	11.19	36.09	1.11	0.5	NM	NM	NM	0	4.3
10/3/2014	11.09	36.01	1.19	0.5	NM	NM	NM	0	4.8
11/3/2014	11.16	36.19	1.01	0.8	9.31	19.12	6.23	2	7.3
11/24/2014	11.21	36.27	0.93	0.5	9.39	19.62	5.73	2	8.0
12/22/2014	11.26	36.19	1.01	0.5	9.34	19.86	5.49	2	8.3
1/29/2015	11.06	36.34	0.86	0.5	9.14	21.29	4.06	2	7.8
2/26/2015	11.09	36.34	0.86	0.5	9.17	19.97	5.38	2.5	10.0
3/26/2015	10.93	36.42	0.78	0.5	9.12	20.31	5.04	0.8	7.3
4/27/2015	10.78	36.52	0.68	0.5	9.17	20.46	4.89	2	10.5
5/26/2015	10.61	36.72	0.48	0.8	9.09	20.59	4.76	2.5	12.3
7/6/2015	8.52	36.91	0.29	0.8	7.01	21.16	4.19	2	10.5
8/3/2015	8.66	36.96	0.24	0.8	7.12	21.39	3.96	2.5	10.8
8/27/2015	9.31	36.91	0.29	0.8	7.96	21.51	3.84	2	8.3
10/5/2015	8.62	37.02	0.18	0.5	7.23	21.67	3.68	2	8.0
11/5/2015	8.34	36.93	0.27	0.5	7.02	21.56	3.79	2	8.0
12/3/2015	8.12	36.81	0.39	0.5	6.83	21.67	3.68	2	8.0
12/28/2015	8.01	36.72	0.48	0.5	6.71	21.52	3.83	2.3	9.0
2/3/2016	7.82	36.19	1.01	0.3	6.52	21.67	3.68	2	9.0
3/3/2016	7.74	36.27	0.93	0.5	6.46	21.72	3.63	2	9.3
3/31/2016	7.67	36.39	0.81	0.5	6.49	21.86	3.49	2	9.3
5/3/2016	7.79	36.47	0.68	0.5	6.57	21.94	3.41	2	7.8
6/2/2016	7.71	36.42	0.73	0.5	6.65	21.91	3.44	2	8.3
7/8/2016	7.8	36.53	0.62	0.5	6.71	21.97	3.38	2	8.0
8/3/2016	7.89	36.59	0.56	0.5	6.82	22.04	3.31	2	8.0
8/30/2016	7.96	36.64	0.51	0.5	6.94	22.21	3.14	2	8.3
9/30/2016	7.91	36.51	0.64	0.5	7.04	22.39	2.96	2	8.5
11/3/2016	7.86	36.36	0.79	0.5	7.11	22.49	2.86	2	8.5
11/30/2016	7.97	36.47	0.68	0.8	7.29	22.67	2.68	2	8.8
1/4/2017	8.04	36.36	0.79	0.8	7.42	22.74	2.61	2	8.8
2/7/2017	8.12	36.21	0.94	0.8	7.48	22.93	2.42	2.5	9.0
3/2/2017	8.01	36.26	0.89	0.8	7.36	23.26	2.09	2	8.5
4/3/2017	7.93	36.43	0.72	0.8	7.29	23.34	2.01	2	7.5
4/27/2017	7.86	36.52	0.63	0.8	7.36	23.42	1.93	2	8.0
5/29/2017	7.94	36.41	0.74	0.8	7.51	23.51	1.84	2	7.8
7/5/2017	8.04	36.36	0.79	0.8	7.79	23.59	1.76	2	7.3
8/1/2017	8.16	36.31	0.84	0.8	7.89	23.51	1.84	2	8.0
9/5/2017	8.22	36.47	0.68	0.8	7.81	23.48	1.87	2	8.3
10/4/2017	8.29	36.56	0.59	0.8	7.89	23.51	1.84	2	7.8
11/2/2017	8.37	36.51	0.64	1	7.97	23.59	1.76	2	8.5
11/29/2017	8.33	36.59	0.56	1	8.02	23.67	1.68	2	8.0
1/2/2018	8.07	36.72	0.43	1	8.17	23.82	1.53	2	8.3
2/7/2018	8.17	36.91	0.24	1	8.29	23.97	1.38	2	8.3
3/1/2018	8.31	36.94	0.21	1	8.47	23.91	1.44	2	7.5
4/2/2018	8.26	36.89	0.26	0.8	8.39	23.97	1.38	2.3	7.8
5/1/2018	8.92	36.96	0.19	0.8	9.02	24.06	1.29	2	9.0

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-75B				MW-78A				Approx DNAPL Recovered (gal)
	DTW (ft) BTOC)	DTD (ft) BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft) BTOC)	DTD (ft) BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	
6/1/2018	9.34	36.91	0.24	0.8	9.21	24.13	1.22	2	9.8
6/29/2018	9.67	36.82	0.33	0.8	9.39	24.21	1.14	2.3	10.5
8/3/2018	9.84	36.87	0.28	0.8	9.47	24.31	1.04	2	10.0
8/31/2018	9.71	36.91	0.24	0.8	9.32	24.47	0.88	2	8.3
9/28/2018	9.62	36.84	0.31	0.8	9.22	24.39	0.96	2	8.3
11/2/2018	9.57	36.88	0.27	0.8	9.09	24.27	1.08	2	8.5
11/29/2018	9.41	36.92	0.23	1	8.96	24.22	1.13	2	7.5
1/2/2019	9.28	36.96	0.19	1	8.78	24.39	0.96	2	7.8
2/2/2019	9.22	36.91	0.24	1	8.71	24.47	0.88	2	8.0
2/28/2019	9.16	36.93	0.22	1	8.67	24.42	0.93	2	8.8
4/2/2019	9.06	36.91	0.24	1	8.58	24.43	0.92	2	8.8
4/25/2019	9.02	36.72	0.43	1	8.49	24.31	1.04	2	9.3
5/29/2019	9.07	36.67	0.48	1	8.42	24.26	1.09	2	9.3
6/12/2019	8.92	ND	Trace	0	8.67	23.96	1.39	2	9.0
6/30/2019	8.66	ND	Trace	0	9.36	23.77	1.58	2	9.8
7/16/2019	8.62	ND	Trace	0	9.29	23.62	1.73	2	10.5
8/2/2019	8.67	ND	Trace	0	9.34	23.57	1.78	2	8.0
8/15/2019	8.69	ND	0	0	9.42	23.06	2.29	2	12.0
8/28/2019	8.72	ND	Trace	0	9.51	23.01	2.34	2	12.0
9/17/2019	8.61	ND	Trace	0	9.39	22.76	2.59	2	13.0
10/2/2019	8.53	ND	Trace	0	9.27	22.58	2.77	2	10.5
10/16/2019	NM	NM	NM	0	10.16	21.63	3.72	2	8.0
10/31/2019	NM	NM	NM	0	10.41	21.79	3.56	2.5	8.5
11/15/2019	7.91	ND	0	0	8.01	21.62	3.73	1.5	5.0
12/3/2019	8.24	ND	0	0	8.41	22.12	3.23	2	6.5
12/18/2019	4.99	ND	0	0	8.38	ND	0	0	2.1
12/30/2019	7.79	35.3	1.85	0	9.16	19.93	5.42	1.5	3.3
1/7/2020	--	--	--	--	--	--	--	--	--
1/15/2020	6.47	36.4	0.75	0	8.79	24.9	0.45	0.1	4.1
1/27/2020	5.92	34.6	2.55	0.1	7.06	24.06	1.29	0	3.8
2/13/2020	7.88	35.08	2.07	0.1	8.01	24.08	1.27	0	3.3
2/25/2020	5.82	ND	0	0	7.84	21.86	3.49	0.3	2.6
3/13/2020	8.24	34.9	2.25	0.1	NM	NM	NM	0	2.3
3/31/2020	4.79	ND	0	0	7.82	23.1	2.25	0.1	5.9
4/9/2020	8.52	ND	0	0	7.52	22.5	2.85	0.1	7.3
4/27/2020	9.07	ND	0	0	8.33	23.2	2.15	0.5	7.7
5/14/2020	7.74	37.1	0.05	0	8.05	23.22	2.13	0.5	8.3
5/28/2020	5.06	ND	0	0	7.59	23.69	1.66	0.5	8.6
6/11/2020	5.79	37	0.15	TR	7.39	24.96	0.39	0.1	5.6
6/25/2020	4.87	ND	0	0	6.28	19.9	5.45	1.5	6.5
7/9/2020	8.91	ND	0	0	8.41	19.7	5.65	2.5	7.3
7/23/2020	8.71	ND	0	0	7.85	20.91	4.44	1.0	8.8
8/6/2020	6.74	ND	0	0	7.81	22.05	3.3	1.0	6.3
8/20/2020	6.01	ND	0	0	7.21	21.88	3.47	0.5	3.9
9/2/2020	8.61	ND	0	0	6.98	22.6	2.75	1.0	4.4
9/17/2020	8.52	ND	0	0	8.05	22.21	3.14	0.5	3.1
10/1/2020	7.33	37.1	Trace	0	8.01	24.1	1.25	1.0	3.9
10/14/2020	8.26	37.2	Trace	TR	8.11	24.9	0.45	0.5	8.3
10/28/2020	8.11	ND	0	0	7.99	25.08	0.27	0.3	6.3
11/12/2020	8.41	36.78	0.37	0.3	8.42	25.0	0.35	0.1	5.6
11/23/2020	8.62	36.04	1.11	0.3	9.19	25.08	0.27	0.3	3.3
12/10/2020	7.94	36.54	0.61	0.1	8.79	25.12	0.23	TR	4.8
12/21/2020	6.15	36.84	0.31	0.1	6.43	25.21	0.14	TR	3.9
1/7/2021	6.81	37.01	0.14	0.1	7.31	ND	0	0	4.1
1/21/2021	7.85	35.5	1.65	2.0	7.71	ND	0	0	7.8
2/4/2021	8.19	35.2	1.95	2.0	7.63	ND	0	0	7.8
2/23/2021	7.64	34.59	2.56	1.0	7.52	ND	0	0	6.5
3/11/2021	7.82	35.1	2.05	1.0	7.42	ND	0	0	6.5
3/25/2021	7.91	36.81	0.34	0.3	7.28	ND	0	0	5.3
4/8/2021	7.08	36.53	0.62	0	7.41	ND	0	0	5.0
4/22/2021	8.59	36.8	0.35	0.3	7.02	ND	0	0	4.4
5/4/2021	7.83	ND	0	0	7.22	ND	0	0	6.8
5/20/2021	8.06	37.1	0.05	0.3	8.04	ND	0	0	5.5

TABLE 1

**SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS**

DNAPL Recovery Date	MW-75B				MW-78A				Approx DNAPL Recovered (gal)
	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	
6/3/2021	3.71	37.02	0.13	0.1	7.49	ND	0	0	4.9
6/17/2021	5.21	ND	0	0	6.81	ND	0	0	3.9
7/1/2021	7.33	ND	0	0	NM	NM	NM	0	4.4
7/19/2021	5.16	ND	0	0	NM	NM	NM	0	4.0
7/29/2021	7.48	ND	0	0	7.18	ND	0	0	3.9
8/12/2021	7.58	ND	0	0	6.84	ND	0	0	4.4
8/26/2021	8.19	37.01	0.14	TR	6.92	ND	0	0	5.0
9/10/2021	8.63	ND	0	0	6.58	ND	0	0	2.6
9/22/2021	8.09	ND	0	0	NM	NM	NM	0	1.3
10/8/2021	8.03	ND	0	0	7.14	ND	0	0	1.0
10/20/2021	8.21	ND	0	0	NM	NM	NM	0	1.3
11/4/2021	7.70	ND	0	0	7.01	ND	0	0	2.0
11/18/2021	7.70	ND	0	0	7.11	ND	0	0	0.3
12/3/2021	7.94	ND	0	0	7.46	ND	0	0	1.3
12/16/2021	8.12	ND	0	0	7.80	ND	0	0	1.3
12/30/2021	NM	NM	NM	0	8.09	ND	Trace	0	1.5
1/14/2022	NM	NM	NM	0	8.16	ND	Trace	0	1.5
1/26/2022	NM	NM	NM	0	8.27	ND	Trace	0	1.5
2/10/2022	NM	NM	NM	0	8.88	ND	0	0	0.9
2/24/2022	NM	NM	NM	0	8.51	ND	0	0	1.1
3/10/2022	NM	NM	NM	0	8.67	ND	0	0	1.2
3/24/2022	NM	NM	NM	0	8.65	ND	0	0	0.3
4/7/2022	NM	NM	NM	0	8.90	ND	0	0	0.5
4/18/2022	NM	NM	NM	0	8.96	ND	0	0	2.3
5/2/2022	NM	NM	NM	0	9.02	ND	0	0	2.5
5/20/2022	NM	NM	NM	0	9.13	ND	0	0	2.5
6/2/2022	NM	NM	NM	0	9.26	ND	0	0	2.5
6/16/2022	NM	NM	NM	0	9.13	ND	Trace	0	1.8
6/30/2022	NM	NM	NM	0	9.23	ND	Trace	0	1.4
7/15/2022	NM	NM	NM	0	9.26	ND	Trace	0	2.5
7/28/2022	NM	NM	NM	0	9.36	ND	Trace	0	2.5
8/12/2022	NM	NM	NM	0	9.59	ND	Trace	0	0.4
8/29/2022	NM	NM	NM	0	9.41	ND	0	0	3.5
9/16/2022	NM	NM	NM	0	NM	NM	NM	0	4.5
9/30/2022	NM	NM	NM	0	9.20	ND	Trace	0	8.0
10/17/2022	NM	NM	NM	0	9.21	ND	Trace	0	5.1
10/27/2022	NM	NM	NM	0	9.34	ND	Trace	0	5.5
11/10/2022	NM	NM	NM	0	9.17	ND	Trace	0	5.5
11/30/2022	NM	NM	NM	0	5.81	ND	0	0	5.0
12/16/2022	NM	NM	NM	0	5.72	ND	0	0	5.0
12/27/2022	NM	NM	NM	0	6.17	ND	0	0	5.0
1/13/2023	NM	NM	NM	0	6.79	ND	0	0	5.0
1/27/2023	NM	NM	NM	0	8.6	ND	0	0	2.8
2/9/2023	NM	NM	NM	0	8.65	ND	Trace	0	0.9
2/23/2023	NM	NM	NM	0	8.61	ND	0	0	3.3
3/9/2023	NM	NM	NM	0	8.51	ND	0	0	3.5
3/23/2023	NM	NM	NM	0	8.47	ND	Trace	0	3.3
4/6/2023	NM	NM	NM	0	8.59	ND	0	0	4.5
4/19/2023	7.11	NM	NM	0	8.5	ND	0	0	4.0
5/5/2023	8.01	NM	NM	0	8.42	ND	0	0	4.0
5/18/2023	6.72	NM	NM	0	7.82	ND	0	0	3.0
6/1/2023	NM	NM	NM	0	7.50	ND	0	0	2.4
6/15/2023	NM	NM	NM	0	7.54	ND	0	0	3.6
6/29/2023	7.85	ND	Trace	0	7.57	ND	0	0	1.7
7/13/2023	7.8	ND	Trace	0	7.44	ND	0	0	1.6
7/27/2023	8.15	ND	Trace	0	7.52	ND	0	0	0.0
8/10/2023	8.2	ND	Trace	0	7.89	ND	Trace	0	2.2
8/24/2023	9.75	ND	Trace	0	9.03	ND	Trace	0	1.3
9/7/2023	9.82	ND	Trace	0	9.07	ND	Trace	0	1.4
9/21/2023	8.50	ND	Trace	0.00	8.51	ND	Trace	0	0.9
Total DNAPL Pumped (gal)				60.9				151.3	1065.7

* - indicates DNAPL and groundwater mixture

ND - Not detected

--- - No DNAPL pumped

NM - Not measured

DTW - Depth to water (feet Below Top of Casing (BTOC))

PoP - Product on probe, not measureable

DTD - Depth to DNAPL (feet BTOC)

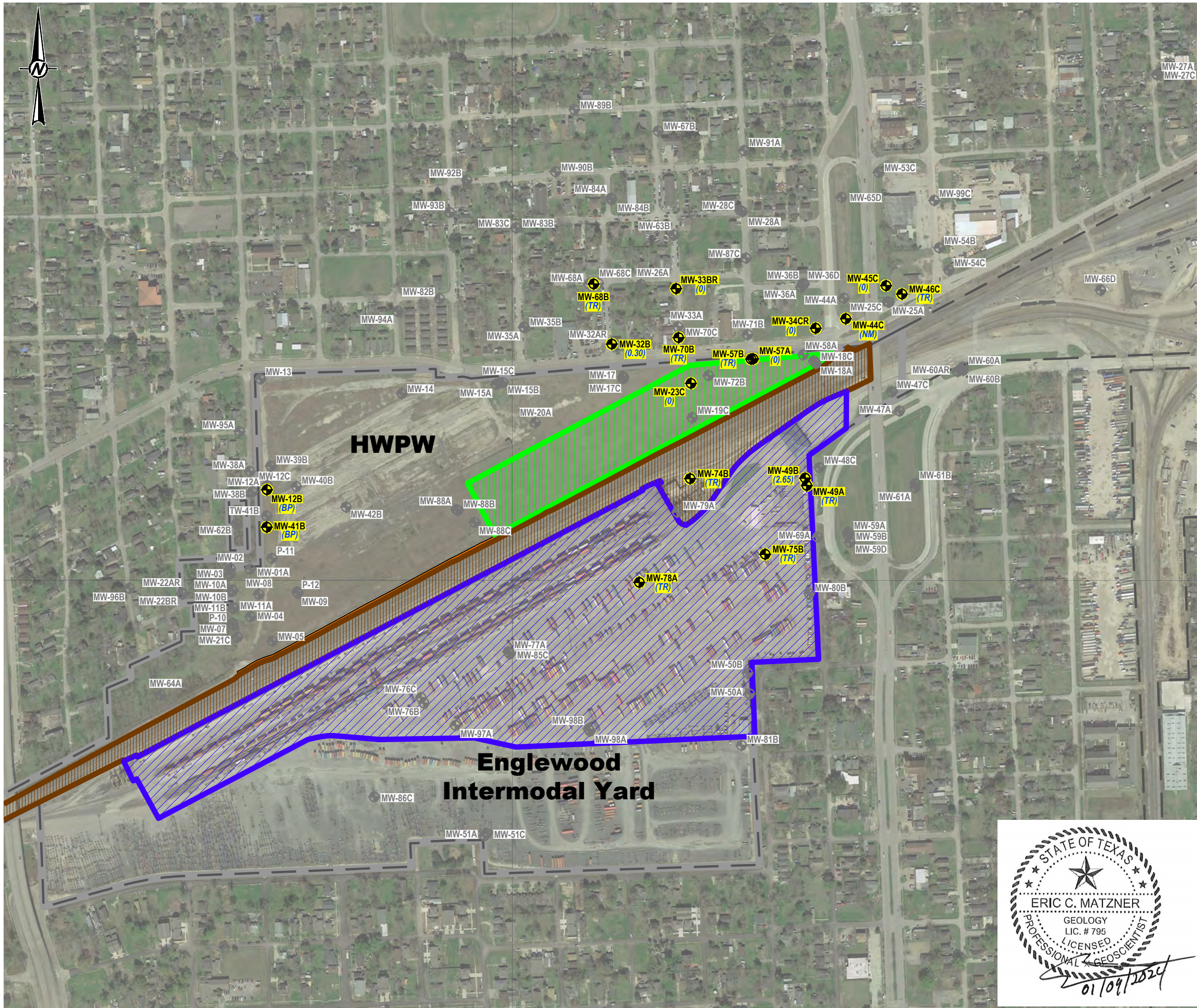
TR- Trace amount of DNAPL Extracted

MW-78A not measured 7/1/21, 7/19/21, 9/22/21, 10/20/21; well inaccessible due to container operations

MW-75B not measured 12/30/21; well inaccessible due to container operations

FIGURES

Path: \\golder-gis-complex\data\office\Tear\HWPW\Projects - Round Rock\ 2019\01\10232 - HWPW\2023\11\1 - File Name: 1 - In-Well DNAPL Thickness (September 2023).dwg | Last Edited By: adamand | Date: 2023-11-27 | Time: 12:53 PM



LEGEND

- UPRR PROPERTY BOUNDARY
- MONITORING WELL LOCATION
- MONITORING WELL LOCATION USED FOR DNAPL RECOVERY
- (0.59) IN WELL DNAPL THICKNESS (FT)
- RAILROAD BALLAST CAP AREA
- ASPHALT CAP AREA
- SOIL CAP AREA
- CONCRETE CAP AREA

NOTE(S)

- BP - BELOW PUMP; DEPTH TO DNAPL NOT MEASURED BECAUSE DNAPL IS BELOW TOP OF IN-WELL PUMP.
- IN-WELL THICKNESS MEASURED SEPTEMBER 21, 2023.
- NM - NOT MEASURED; MW-44C DAMAGED.
- TR - TRACE, NOT MEASURABLE.

REFERENCE(S)

PARCEL BOUNDARIES: CITY OF HOUSTON GEOGRAPHIC INFORMATION & MANAGEMENT SYSTEMS (GIMS).
AERIAL: GOOGLE EARTH, IMAGERY DATED 2/23/19.



CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
HOUSTON WOOD PRESERVING WORKS

TITLE
IN-WELL DNAPL THICKNESS
SEPTEMBER 21, 2023

CONSULTANT	YYYY-MM-DD	2023-11-27
	DESIGNED	AJD
	PREPARED	AJD
	REVIEWED	MH
	APPROVED	ECM

PROJECT NO.
31406585.016

REV.
0

FIGURE
1



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

Figure 2
DNAPL Recovery Activities February 2013 - September 2023
UPRR Houston Wood Preserving Works

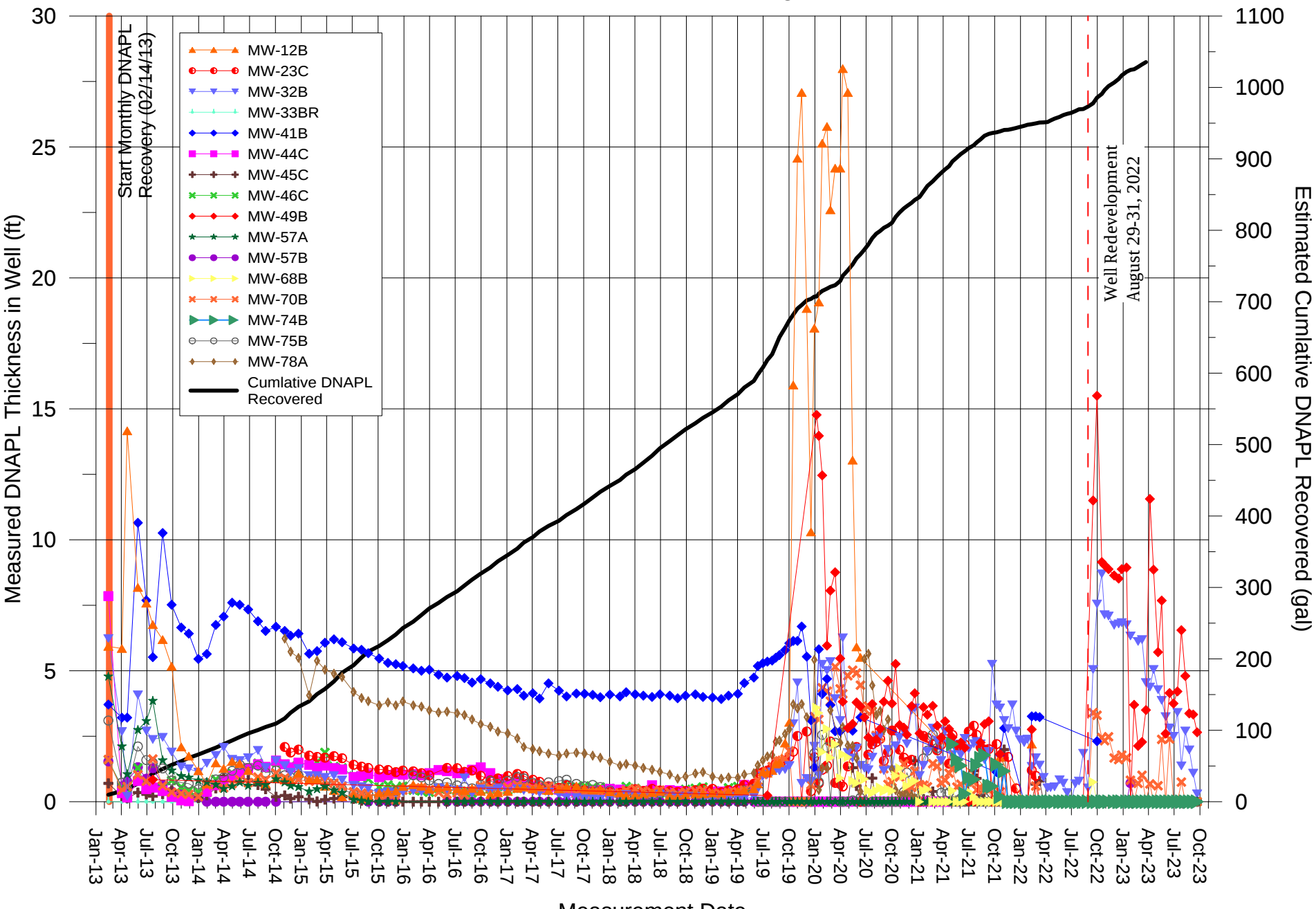


Figure 3
A-TZ Wells - DNAPL Recovery Activities July 2018 - September 2023
UPRR Houston Wood Preserving Works

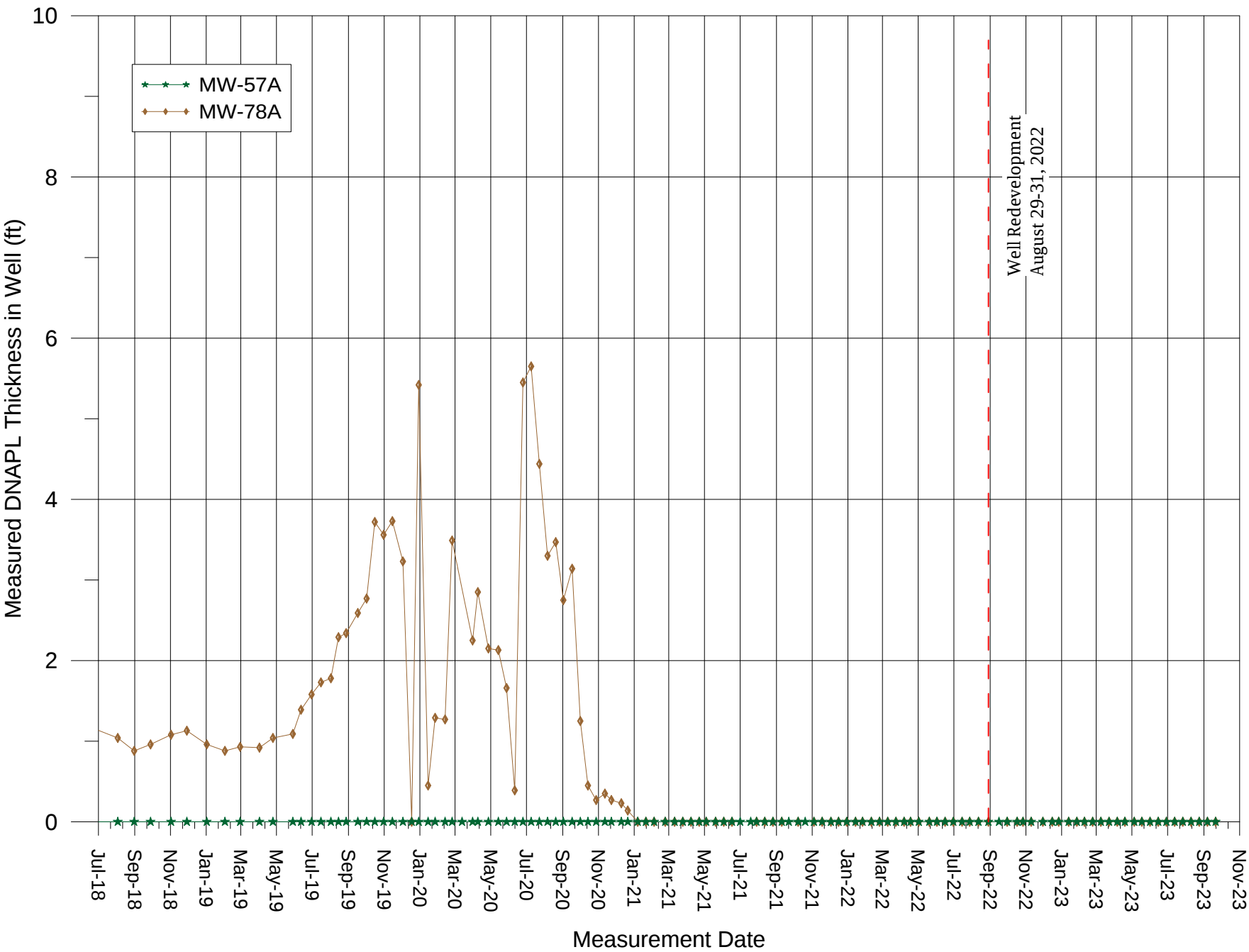
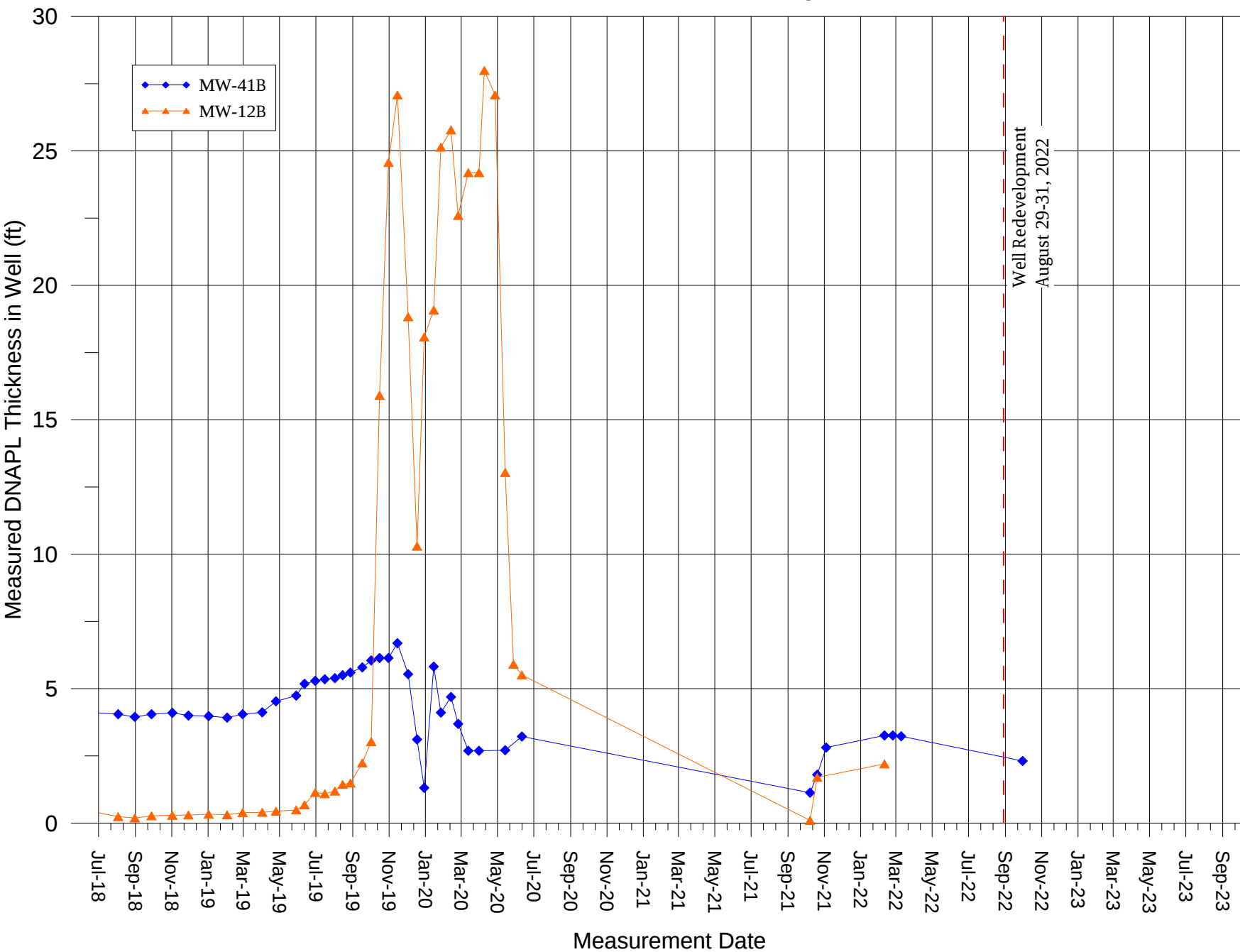


Figure 4
B-TZ Wells (West Side) - DNAPL Recovery Activities July 2018 - September 2023
UPRR Houston Wood Preserving Works



Note: DNAPL has been below top of in-well pumps for a majority of recovery events since the 3rd Q 2020 (not measurable).

Figure 5
B-CZ/B-TZ Wells (North (On-site and Off-site) - DNAPL Recovery Activities July 2018 - September 2023
UPRR Houston Wood Preserving Works

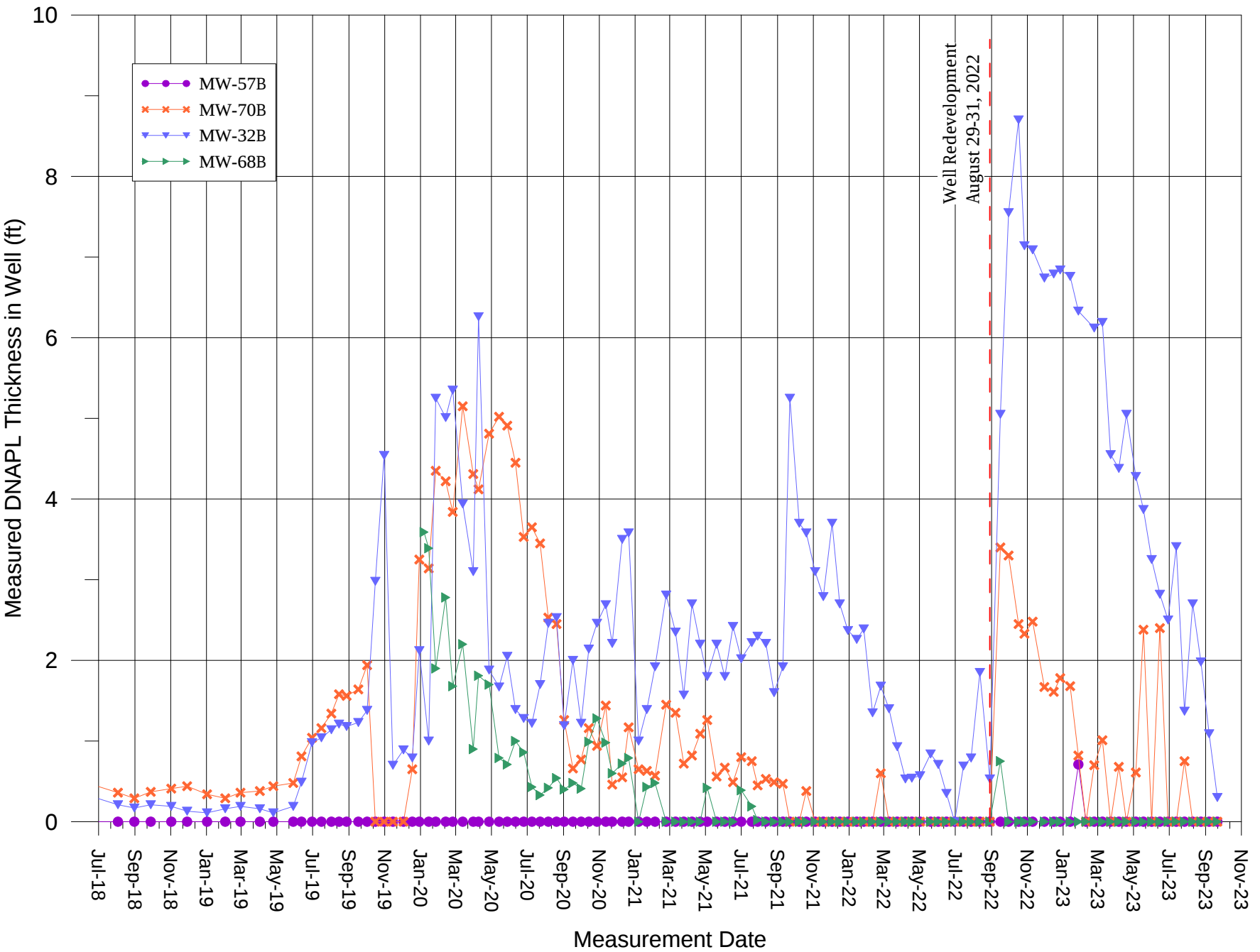


Figure 6
B-CZ/B-TZ Wells (Englewood Intermodal Yard) - DNAPL Recovery Activities July 2018 - September 2023
UPRR Houston Wood Preserving Works

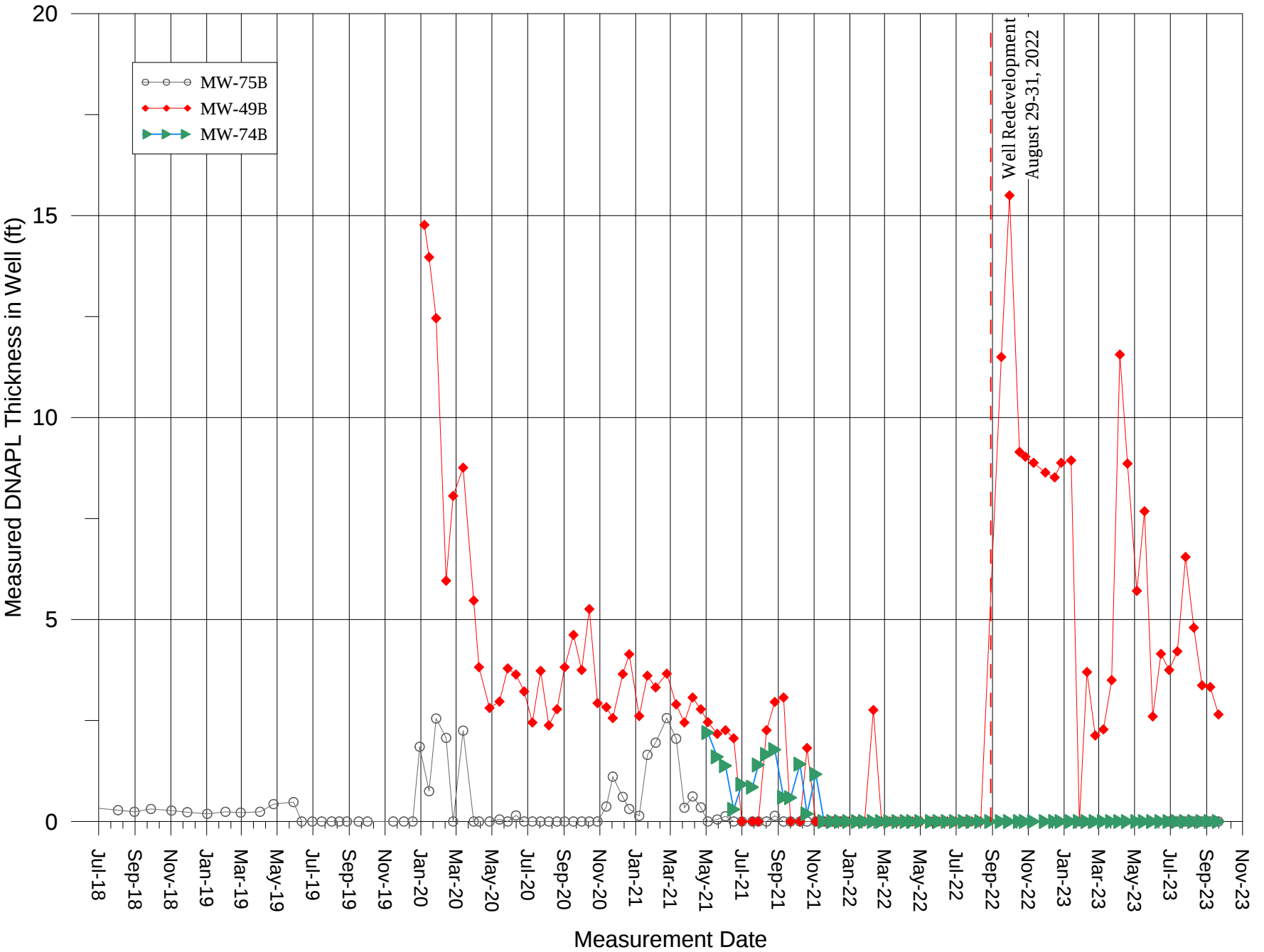
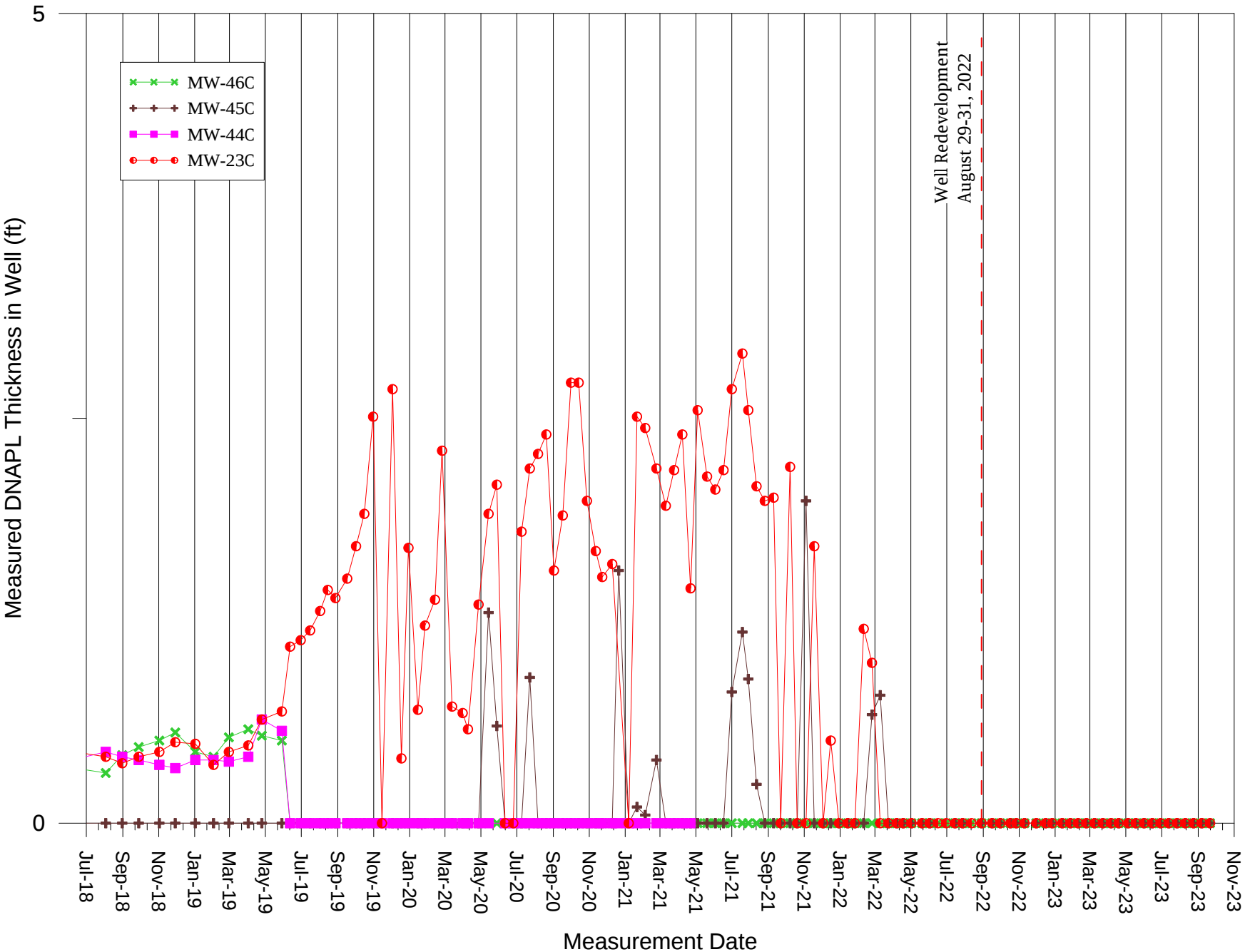


Figure 7
C-TZ Wells - DNAPL Recovery Activities July 2018 - September 2023
UPRR Houston Wood Preserving Works



Note: MW-44C damaged in October 2019

ATTACHMENT 1

Recovered DNAPL Waste Manifest

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number TXD000820266	2. Page 1 of 1	3. Emergency Response Phone 888-877-7267	4. Manifest Tracking Number 025006045 JJK		
5. Generator's Name and Mailing Address UNION PACIFIC RAILROAD 90 GHD SERVICES, INC. UNION PACIFIC RAILROAD (UPRR) 9100 Centre Pointe Drive, Suite 240 WEST CHESTER, OH 45069 (414) 267-4164		Generator's Site Address (if different than mailing address) 4910 LIBERTY ROAD HOUSTON TX 77026					
6. Transporter 1 Company Name E30MI LLC					U.S. EPA ID Number TXD981055163		
7. Transporter 2 Company Name USECOLOGY					U.S. EPA ID Number MIK593743838		
8. Designated Facility Name and Site Address US ECOLOGY 3277 County Road 69 Robstown, TX 78380 (800) 242-3209					U.S. EPA ID Number TXD069452340		
9a. HM		9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No. Type		11. Total Quantity	12. Unit Wt./Vol.
1. NA, 3082, Hazardous Waste, liquid, n.o.s. (CEROSOTE), 9, III, RQ (F034) ERG # 171		4 DM		220 gal.		F034 0914 101H	
2.							
3.							
4.							
14. Special Handling Instructions and Additional Information WR# 015582 B/U E30MI, P.O. Box 1300, Clinton, MS 39060 Profile # 090129643-0 TRB # 035-23-0026 Note: WSP/Purge water 7/5 PO # 35-2023-312							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offoror's Printed/Typed Name SIOK HONG CHEN-SABOT, AGENT				Signature <i>[Signature]</i>		Month Day Year 8 18 23	
16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name Michael Searz				Signature <i>[Signature]</i>		Month Day Year 8 18 23	
Transporter 2 Printed/Typed Name Richard Almaguer				Signature <i>[Signature]</i>		Month Day Year 8 21 23	
18. Discrepancy							
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection Lines 1 & 2 - Revised please see attached copy de per Sioh Hong 8-25-23 b.v.							
Manifest Reference Number:							
18b. Alternate Facility (or Generator) U.S. EPA ID Number							
Facility's Phone:							
18c. Signature of Alternate Facility (or Generator)						Month Day Year	
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. H042		2. U141		3.		4.	
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name Colonel Vela				Signature <i>[Signature]</i>		Month Day Year 8 28 23	

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number TXD000820266	2. Page 1 of 1	3. Emergency Response Phone 888-877-7267	4. Manifest Tracking Number 025006045 JUK	
5. Generator's Name and Mailing Address UNION PACIFIC RAILROAD 90 GHD SERVICES, Inc. 9100 Center Pointe Drive, Suite 240 WEST CHESTER, OH 45069 (414) 267-4164			Generator's Site Address (if different than mailing address) UNION PACIFIC RAILROAD 4910 LIBERTY ROAD HOUSTON TX 77026			
6. Transporter 1 Company Name E3OMI LLC			U.S. EPA ID Number TXD981055163			
7. Transporter 2 Company Name ES ECOLOGY			U.S. EPA ID Number MIK593743838			
8. Designated Facility Name and Site Address US ECOLOGY 3277 County Road 69 Robstown, TX 78380 (800)242-3209			U.S. EPA ID Number TXD069452340			
Facility's Phone: Robstown, TX 78380 (800)242-3209						
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	X	1. NA, 3082, Hazardous Waste, Liquid, n.o.s. (Creosote), 9, III, RQ (F034) ERG # 171	4 DM 220	220	gal.	F034 0914 1314
	X	2. RQ, na3082, Hazardous Waste, Liquid, n.o.s. (Creosote, Benzene), 9, PG III (F034)	1 DM			F034 0918219H D018
14. Special Handling Instructions and Additional Information 1. WR# 015432 Bill E3OMI, P.O. Box 1300, Clinton, MS 39060 Profile# 090129643-0 JRB # 035-23-0026 Note: WSP/Purge water 7/5 2. WR#015433; Profile#090130010-0 PD# 35-2023-372						
15. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Officer's Printed/Typed Name Sgt. HONG CHEN-SABOT, AGENT			Signature <i>[Signature]</i>		Month Day Year 8/15/23	
TRANSPORTER	16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:					
	17. Transporter Acknowledgment of Receipt of Materials					
	Transporter 1 Printed Name Nigel Searcy		Signature <i>[Signature]</i>		Month Day Year 8/15/23	
Transporter 2 Printed Name Richard Almaguez		Signature <i>[Signature]</i>		Month Day Year 8/21/23		
DESIGNATED FACILITY	18. Discrepancy					
	18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection					
	Manifest Reference Number: U.S. EPA ID Number					
	18b. Alternate Facility (or Generator) U.S. EPA ID Number					
	Facility's Phone: 18c. Signature of Alternate Facility (or Generator) Month Day Year					
19. Hazardous Waste Report Management Method Codes (i.e. codes for hazardous waste treatment, disposal, and recycling systems)						
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name			Signature		Month Day Year	