February 12, 2021 Project No. 19119232

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 – 4TH QUARTER 2020
UNION PACIFIC RAILROAD HOUSTON WOOD PRESERVING WORKS FACILITY
4910 LIBERTY ROAD FACILITY, HOUSTON, TEXAS
POST-CLOSURE CARE PERMIT NO. HW-50343; INDUSTRIAL SWR NO. 31547

Dear Ms. Hatfield:

Golder Associates Inc. (Golder), on behalf of Union Pacific Railroad Company (UPRR), submits this 4th Quarter 2020 summary report for the dense non-aqueous phase liquid (DNAPL) recovery activities conducted at the UPRR Houston Wood Preserving Works Facility (the Site). 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-49B*	B-CZ
MW-57B	B-CZ
MW-68B*	B-TZ
MW-70B	B-CZ
MW-75B	B-CZ
MW-23C	C-TZ
MW-34CR	C-TZ
MW-44C	C-TZ
MW-45C	C-TZ
MW-46C	C-TZ

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*Wells MW-49B and MW-68B were added to the list of recovery wells beginning in January 2020 after measurable DNAPL was noted during site-wide gauging activities. The locations of the DNAPL recovery wells are shown on Figure 1.

The 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 found in MW-12B and MW-41B was becoming too thick for the submersible pump to efficiently recover the DNAPL. 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 increasingly 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 pending disposal at the Clean Harbors Deer Park TCEQ-permitted 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.

A summary of the DNAPL recovery measurements from February 2013 through December 2020 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 prior to each recovery effort over time from February 2013 through December 2020 is presented on Figure 2, with individual graphs for each zone and/or portion of the Site discussed below. Observations from the 4th Quarter 2020 gauging and recovery activities are provided below for each of the groundwater bearing units (GWBUs):

- A-TZ Wells: Two monitoring wells in the A-TZ have had measurable DNAPL detected: MW-57A and MW-78A (graph of DNAPL thickness from July 2018 through December 2020 shown on Figure 3).

    - **MW-57A:** No measurable DNAPL has been detected in MW-57A since August 2015. A trace of DNAPL was noted at MW-57A in January 2019 through May 2019, but not enough had accumulated in the well to be measured. No DNAPL was detected in MW-57A during the 4th Quarter 2020.

    - **MW-78A:** During the first three quarters of 2020, DNAPL thickness in MW-78A fluctuated between 0.39 to 5.65 feet. DNAPL thickness decreased from 1.25 feet at the beginning of October 2020 to 0.14 feet in late-December 2020. Approximately 2 gallons of DNAPL were recovered from MW-78A during the 4ht Quarter 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 December 2020 shown on Figure 4).

    MW-12B: Beginning in early October 2019, DNAPL thickness in MW-12B increased to a historical peak of 27.08 feet thick (November 15, 2019) after the submersible pump used to

recovery DNAPL from the well could no longer pump the NAPL, which appeared to become more viscous over time. NAPL thickness decreased to 18.08 feet thick through the end of December 2019. During the 1st Quarter of 2020, DNAPL thicknesses in MW-12B ranged from 19.08 feet (January 15, 2020) to 25.78 feet in February 2020. Recovery activities resumed at the end of March 2020 with the installation of the new pneumatic NAPL recovery pump. DNAPL thicknesses in MW-12B were measured between 24.19 and 27.08 feet during the first three recovery events with the new pump in the 2nd Quarter of 2020. Since mid-May 2020, the DNAPL thickness in MW-12B has steadily decreased from 13.04 feet to 4.81 feet at the end of June 2020. During the 3rd and 4th Quarter 2020 recovery events, the groundwater/DNAPL interface was below the top of the pump at MW-12B. As a result, the interface probe cannot get past the pump assembly and it was not possible to record a DNAPL thickness in the well. Based on the depth to the top of the pump assembly, there is less than 2 feet of DNAPL in the well. DNAPL was recovered from MW-12B throughout the 4th Quarter 2020 recovery events (Table 1). Approximately 9 gallons of DNAPL were recovered from MW-12B during the 4th Quarter 2020.

- **MW-41B:** From December 2019 through March 2020, DNAPL thickness has fluctuated between 1.31 feet thick to approximately 5.82 feet in MW-41B. By end of March 2020, DNAPL was measured to be 2.69 feet thick in MW-41B. At the end of March 2020, a new pneumatic NAPL recovery pump was installed in MW-41B. The DNAPL thickness in MW-41B was estimated at 2.7 feet at the end of June 2020.

  Similar to MW-12B, the top of the groundwater/DNAPL interface in MW-41B was below the top of the pneumatic pulse pump, so it was not possible to record a DNAPL thickness during the 3rd and 4th Quarter 2020 recovery events. Based on the depth to the top of the pump assembly, there is less than 2 feet of DNAPL in the well. DNAPL was recovered from MW-41B during this reporting period (Table 1). Based on recent field observations, the DNAPL appeared to be more viscous similar to observations at MW-12B. Approximately 7 gallons of DNAPL were recovered from MW-41B during the 4th Quarter 2020.

- 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 December 2020 shown on Figure 5).

  - **MW-32B:** During the 1st Quarter 2020 through 3rd Quarter 2020, DNAPL thicknesses fluctuated between 1 foot (mid-January 2020) to 6.26 feet (early April 2020), which was the thickest measurement recorded in the well since the beginning of DNAPL recovery efforts in February 2013. DNAPL thicknesses in MW-32B have increased from 1.22 feet in early-October 2020 to 3.58 feet in late-December 2020 during the 4th Quarter 2020 recovery events. Approximately 7 gallons of DNAPL were recovered from MW-32B during the 4th Quarter 2020.

- **MW-57B:** Since June 2016, no measurable DNAPL has been detected in MW-57B. A trace amount of DNAPL was noted in MW-57B in January 2019 through May 2019, but no DNAPL has been detected since May 2019.

- **MW-68B:** DNAPL was measured in MW-68B at approximately 3.59 feet thick in January 2020. DNAPL had not been detected in the well since installation in 2011; however, the boring log for the well indicated that NAPL was noted in the soil core from 34.5 to 35 feet below ground surface. Following bi-weekly recovery events from this well, the DNAPL thickness decreased to 0.79 feet thick by the end of December 2020. During the 4th Quarter 2020, DNAPL thickness fluctuated between 0.41 feet (early-October 2020) and 1.28 feet (late-October 2020). Approximately 3.7 gallons of DNAPL from MW-68B were recovered since January 2020.

- **MW-70B:** During the 1st and 2nd Quarter 2020, DNAPL thicknesses increased to levels fluctuating between 3.14 feet and 5.15 feet thick, which were some of the thickest measurements observed in the well. From mid-May 2020 to the end of the 3rd Quarter 2020, DNAPL thickness had decreased from 5.02 feet to 0.66 feet. DNAPL thickness fluctuated between 0.46 feet (late-November 2020) and 1.44 feet (mid-November 2020) during the 4th Quarter 2020. Approximately 2 gallons of DNAPL were recovered from MW-70B during the 4th Quarter 2020.

- B-TZ/B-CZ Wells (Englewood Intermodal Yard): Recovery wells MW-49B and MW-75B in the Englewood Intermodal Yard completed in the B-CZ were evaluated for DNAPL recovery during this period (graph of DNAPL thickness from July 2018 through December 2020 shown on Figure 6).

  - **MW-49B:** DNAPL had been previously measured in MW-49B in January and July 2013 (1.19 feet and 0.84 feet, respectively) and in July 2019 (0.24 feet). During the January 2020 semi-annual monitoring event, the measured apparent thickness of DNAPL in MW-49B was approximately 14.77 feet. Well MW-49B was added to the DNAPL recovery well network and recovery efforts began in mid-January 2020. DNAPL thickness decreased to 5.47 feet thick by the end of the 1st Quarter 2020. Approximately 8 gallons of DNAPL were recovered from MW-49B during the first quarter of 2020. During the 2nd Quarter 2020 and 3rd Quarter 2020, DNAPL thicknesses fluctuated between 2.38 feet and 4.62 feet, and approximately 4.3 gallons of DNAPL were removed. During the 4th Quarter 2020, DNAPL thicknesses fluctuated from 2.56 feet (late-November) to 5.26 feet (mid-October), and approximately 5.3 gallons of DNAPL were recovered.

  - **MW-75B:** Measured DNAPL thicknesses during the 1st Quarter 2020 were greater than 2 feet in MW-75B in late-January, mid-February, and mid-March of 2020. However, in late-February and late-March, no DNAPL was observed in MW-75B. Trace DNAPL was detected in mid-March (0.05 feet-thick) and mid-June (0.15 feet thick) in MW-75B but was not detected in MW-75B during the other 2nd Quarter 2020 recovery events or throughout the 3rd Quarter 2020. DNAPL thickness fluctuated between trace amounts of DNAPL (early to mid-October 2020) and 1.11 feet (late-November 2020) during the 4th Quarter 2020 recovery

events. Approximately 1 gallon of DNAPL was recovered from MW-75B during the 4th Quarter 2020.

- 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 December 2020 shown on Figure 7).

  - **MW-23C:** During the 1st, 2nd, and 3rd Quarter 2020 recovery events, DNAPL thickness in MW-23C fluctuated between a trace amount and 2.4 feet. During the 4th Quarter 2020, DNAPL thickness fluctuated between 1.6 (early-December) and 2.72 (early to mid-October) feet thick. Approximately 1 gallon of DNAPL was recovered from MW-23C during the 4th Quarter 2020.

  - **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. The well pad was damaged in April 2019. In March 2020, MW-34CR well pad was repaired and no DNAPL was observed during the 2nd, 3rd, and 4th Quarter of 2020. 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) to May 2020. DNAPL was noted (0.39 feet thick) in MW-44C at the end of May 2020. However, it was discovered that 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 MW-44C and was unsuccessful. The well will be plugged, abandoned, and replaced with a proposed recovery well as detailed in the Revised Response Action Plan (RAP) dated August 31, 2020.

  - **MW-45C:** DNAPL had not been detected in MW-45C between August 2015 and May 2020. During the May 2020 recovery events, DNAPL was 1.3 feet and 0.6 feet thick. DNAPL was not detected in June 2020. In late-July 2020, DNAPL thickness in MW-45C was 0.9 feet, and trace amounts of DNAPL were recovered. During the 4th Quarter 2020, trace amounts of DNAPL were noted in late-October 2020. DNAPL was 1.56 feet thick in MW-45C during late-December 2020. Less than 1 gallon of DNAPL was recovered from MW-45C during the 4th Quarter 2020.

  - **MW-46C:** No measurable DNAPL has been observed in MW-46C since June 2019 (trace DNAPL noted in mid-June 2019).

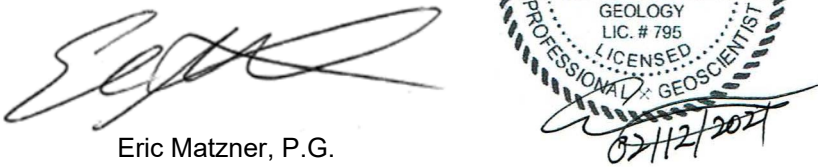
DNAPL Recovery: From February 2013 to December 2020, an estimated cumulative total of 842 gallons of creosote DNAPL have been recovered from the wells. Monthly DNAPL recovery volumes increased after the January 2015 event due to a change in pumping techniques. DNAPL recovery volumes ranged from approximately 3.3 to 8.3 gallons per bi-weekly event, and a total of approximately 36 gallons were recovered during the 4th Quarter 2020 (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 me at (512) 671-3434 or Mr. Kevin Peterburs of UPRR at (414) 267-4164.

Sincerely,

Golder Associates Inc.



Michelle Hermiston, P.G.
Project Hydrogeologist

Eric Matzner, P.G.
Principal / Practice Leader

Texas Geoscience Firm No. 50369

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 – December 2020
Figure 2 - DNAPL Recovery Activities February 2013 – December 2020
Figure 3 – A-TZ Wells – DNAPL Recovery Activities July 2018 – December 2020
Figure 4 – B-TZ Wells (West Side) – DNAPL Recovery Activities July 2018 – December 2020
Figure 5 – B-CZ/B-TZ Wells (North (On-Site and Off-Site) – DNAPL Recovery Activities July 2018 – December 2020
Figure 6 – B-CZ/B-TZ Wells (Englewood Intermodal Yard) – DNAPL Recovery Activities July 2018 – December 2020
Figure 7 – C-TZ Wells – DNAPL Recovery Activities July 2018 – December 2020
Attachment 1 – Recovered DNAPL Waste Manifest

TABLES

TABLE 1

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

	MW-12B				MW-23C				MW-32B			
DNAPL Recovery Date	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

TABLE 1

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

	MW-12B				MW-23C				MW-32B			
DNAPL Recovery Date	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)
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
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
Total DNAPL Pumped (gal)				***123.8***				***44.7***				***83.0***

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

	MW-33BR				MW-34C/MW-34CR (July 2014)				MW-41B			
DNAPL Recovery Date	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

TABLE 1

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

	MW-33BR				MW-34C/MW-34CR (July 2014)				MW-41B			
DNAPL Recovery Date	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)
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
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
Total DNAPL Pumped (gal)				***0***				***0***				***245.8***

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

	MW-44C				MW-45C				MW-46C			
DNAPL Recovery Date	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

TABLE 1

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

	MW-44C				MW-45C				MW-46C			
DNAPL Recovery Date	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)
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
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	1769	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
Total DNAPL Pumped (gal)				***26.7***				***6.2***				***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)

ND - Not detected

NM - Not measured

PoP - Product on probe, not measureable

TR- Trace amount of DNAPL Extracted

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

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

TABLE 1

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

	MW-49B				MW-57A				MW-57B			
DNAPL Recovery Date	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

TABLE 1

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

	MW-49B				MW-57A				MW-57B			
DNAPL Recovery Date	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)
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
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
Total DNAPL Pumped (gal)				***17.5***				***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

	MW-68B				MW-70B			
DNAPL Recovery Date	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

TABLE 1

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

	MW-68B				MW-70B			
DNAPL Recovery Date	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)
4/2/2018					6.61	35.16	0.49	0.5
5/1/2018					7.22	35.23	0.42	1.3
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
Total DNAPL Pumped (gal)				***3.7***				***51.4***

* - 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

	MW-75B				MW-78A				Approx
DNAPL Recovery Date	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DNAPL Recovered (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

TABLE 1

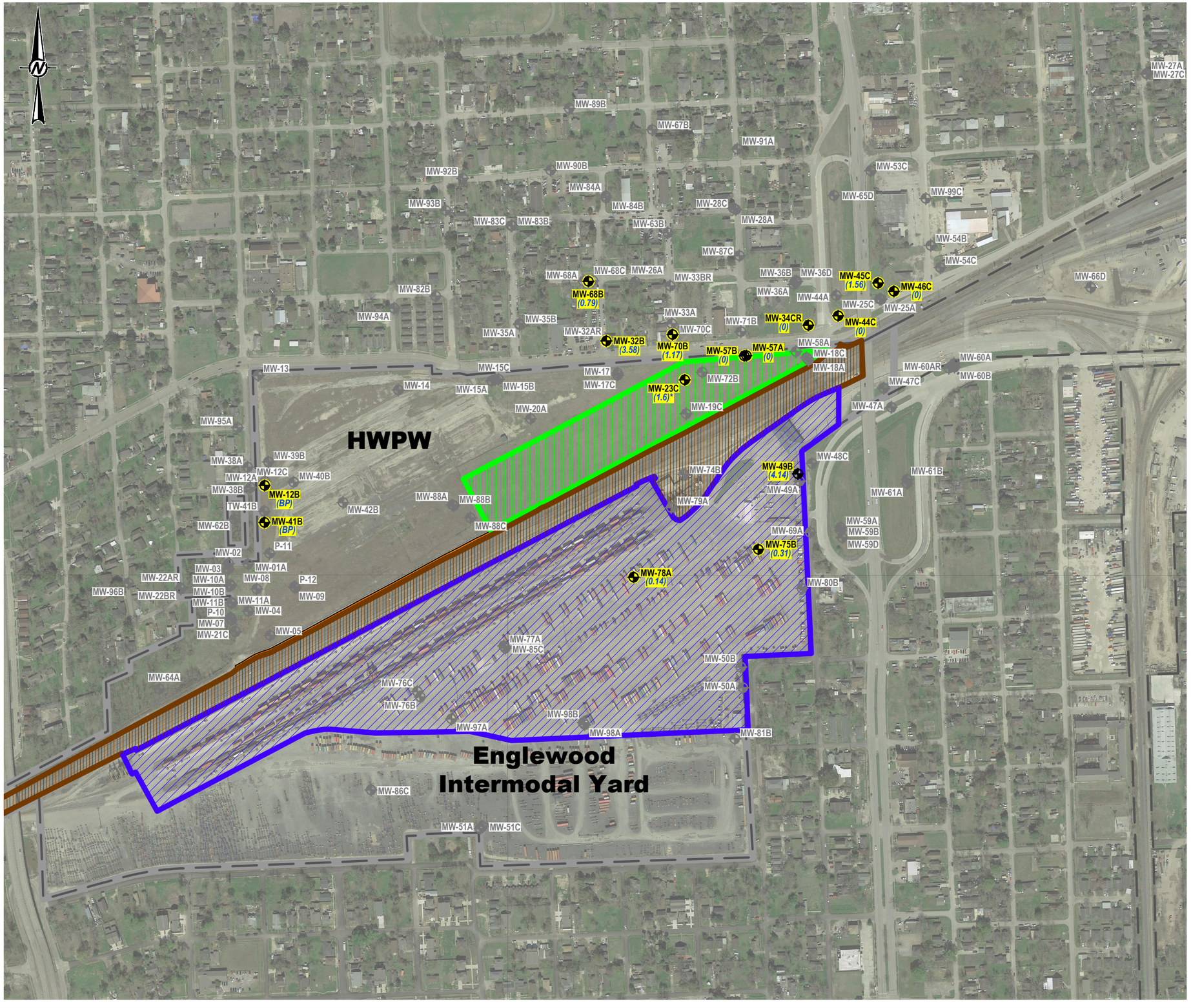
SUMMARY OF DNAPL RECOVERY MEASUREMENTS
UPRR HOUSTON, TX - WOOD PRESERVING WORKS

	MW-75B				MW-78A				Approx
DNAPL Recovery Date	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DTW (ft BTOC)	DTD (ft BTOC)	DNAPL Thickness (ft)	DNAPL Pumped (gal)	DNAPL Recovered (gal)
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
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	ND	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
Total DNAPL Pumped (gal)				***53.9***				***151.3***	***842.4***

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

FIGURES



LEGEND

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

NOTE(S)

1. BP - BELOW PUMP; DEPTH TO DNAPL NOT MEASURED BECAUSE DNAPL IS BELOW TOP OF IN-WELL PUMP.
2. * - IN-WELL THICKNESS MEASURED DECEMBER 10, 2020 AT MW-23C.

REFERENCE(S)

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

0 200 400
1" = 400' FEET

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
HOUSTON WOOD PRESERVING WORKS

TITLE
IN-WELL DNAPL THICKNESS
DECEMBER 21, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2021-01-06
DESIGNED	AJD
PREPARED	AJD
REVIEWED	JJ
APPROVED	ECM

PROJECT NO. 19119232 | REV. 0 | FIGURE 1

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

Path: \\texarkana\data\Projects - Round Rock\ 20191911922 - HWPW\2021-1 Jan\ | File Name: FIG 1 - In-Well DNAPL Thickness (December 2020).dwg | Last Edited By: adiamond Date: 2021-01-06 Time:9:37:31 AM | Printed By: adiamond Date: 2021-01-06 Time:9:38:12 AM

Figure 2
DNAPL Recovery Activities February 2013 - December 2020
UPRR Houston Wood Preserving Works

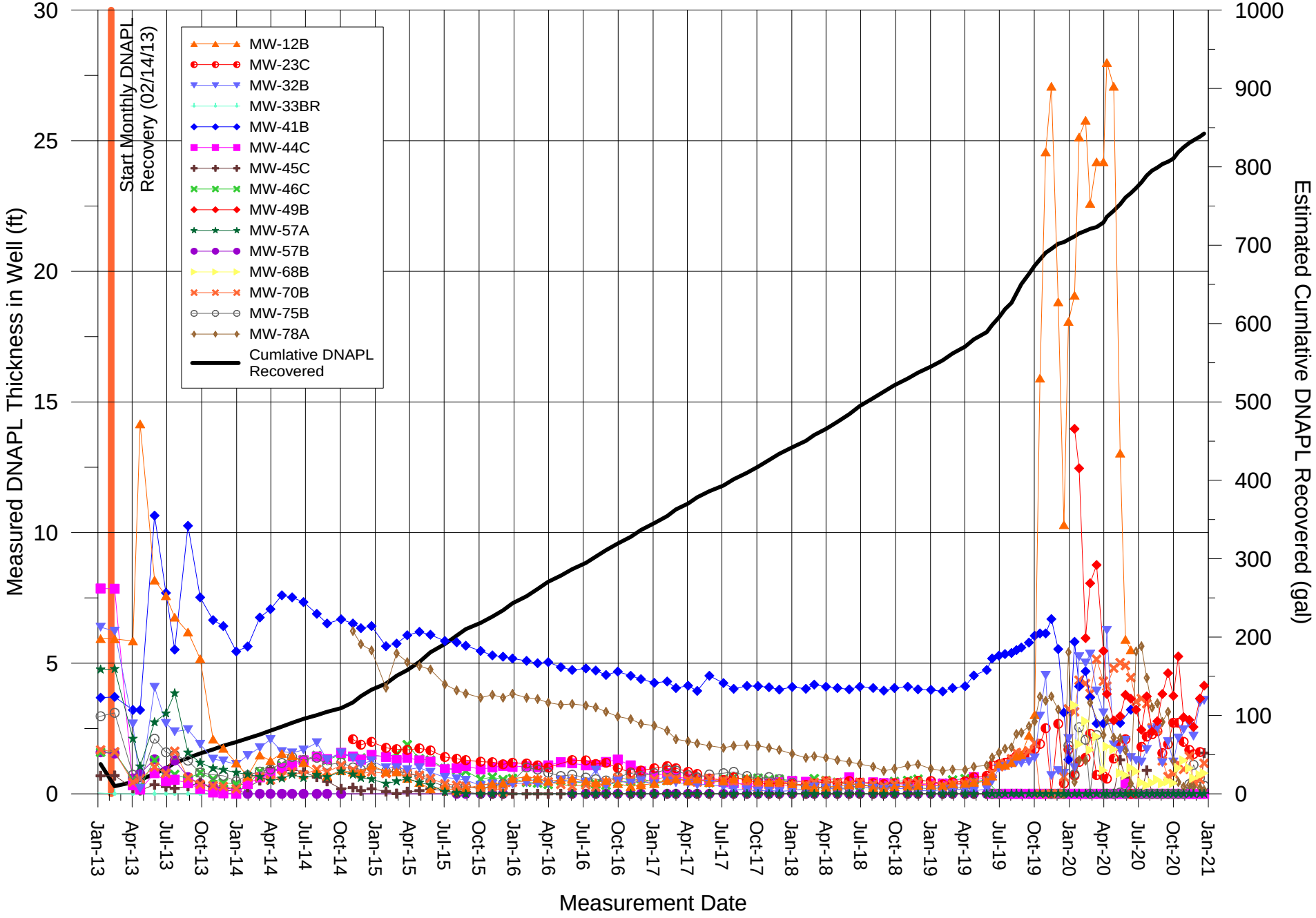


Figure 3
A-TZ Wells - DNAPL Recovery Activities July 2018 - December 2020
UPRR Houston Wood Preserving Works

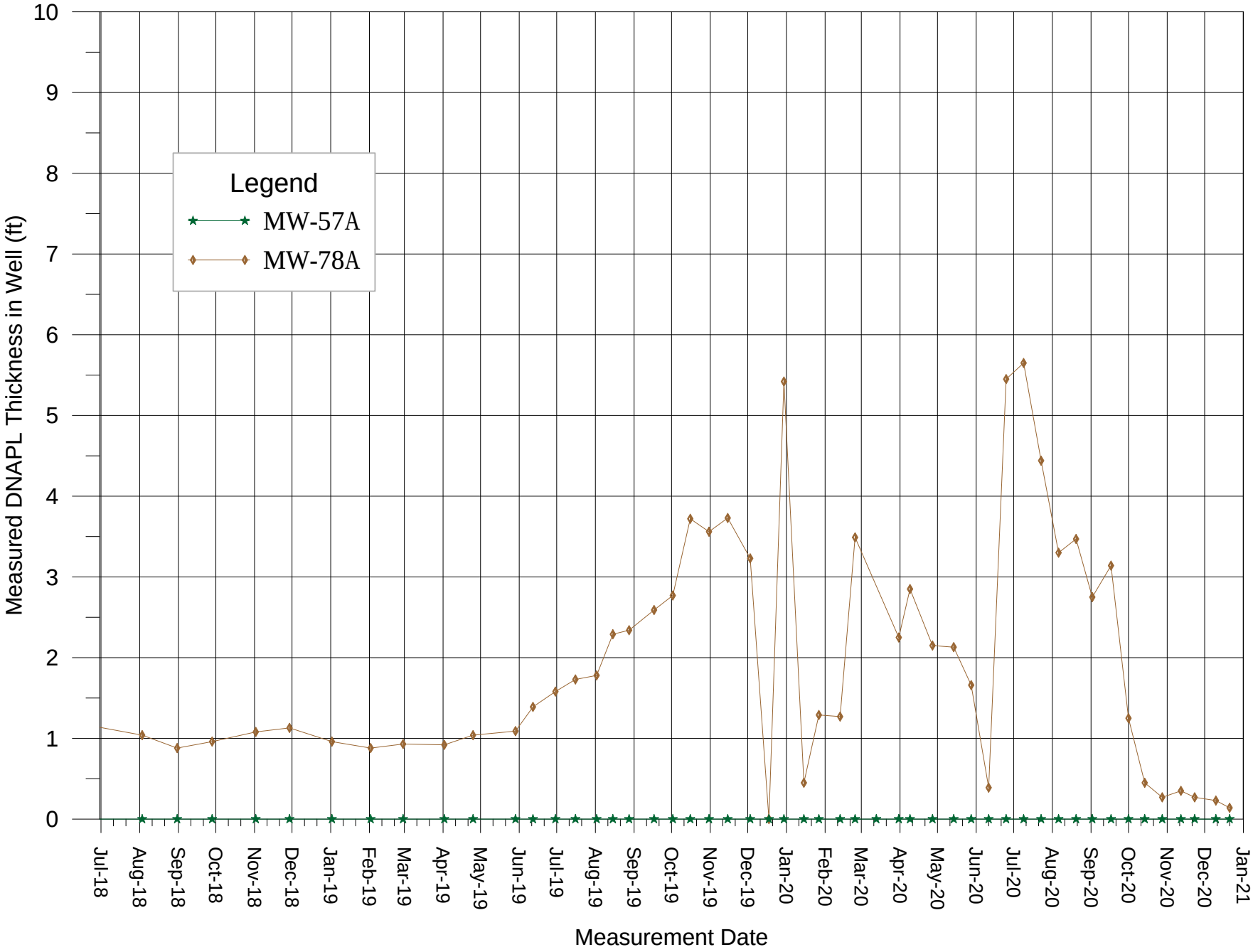
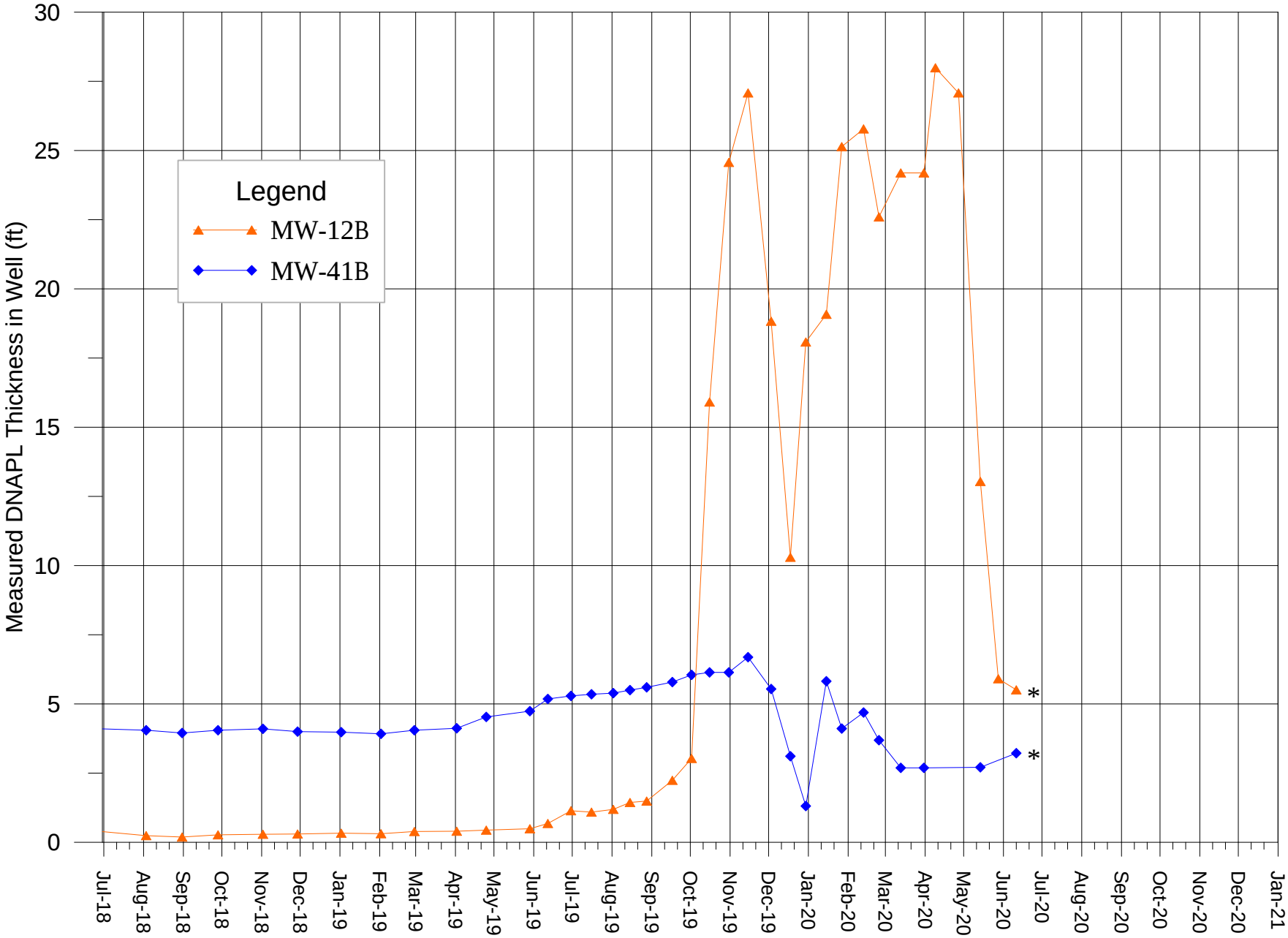


Figure 4
B-TZ Wells (West Side) - In-Well DNAPL Thickness July 2018 - December 2020
UPRR Houston Wood Preserving Works



*DNAPL below top of in-well pumps in 3rd and 4th Q 2020 (based on depth to top of pump, there is less than 2 feet of DNAPL)

Figure 5
B-CZ/B-TZ Wells (North (On-Site and Off-Site)) - In-Well DNAPL Thickness July 2018 - December 2020
UPRR Houston Wood Preserving Works

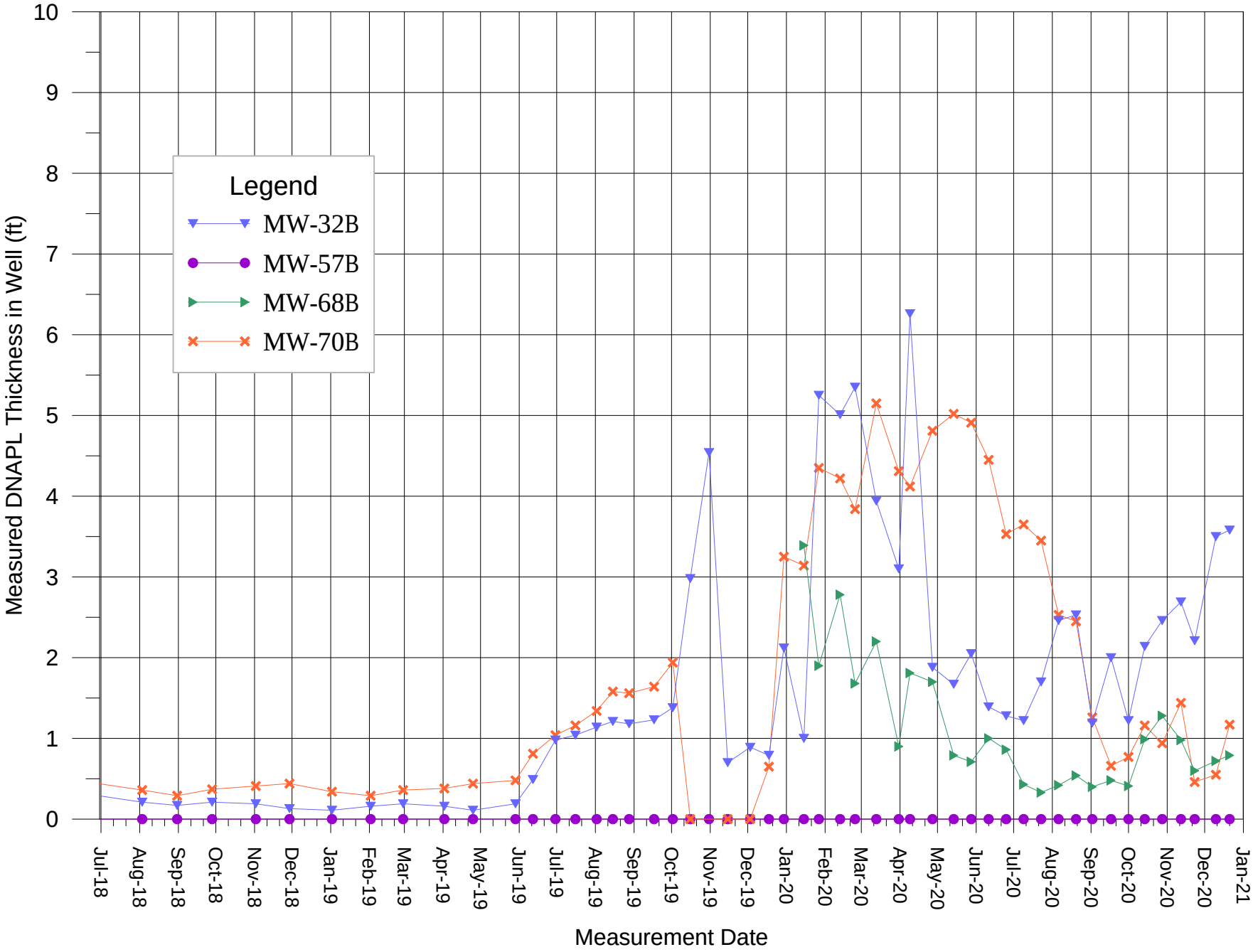


Figure 6
B-CZ/B-TZ Wells (Englewood Intermodal Yard) - In-Well DNAPL Thickness July 2018 - December 2020
UPRR Houston Wood Preserving Works

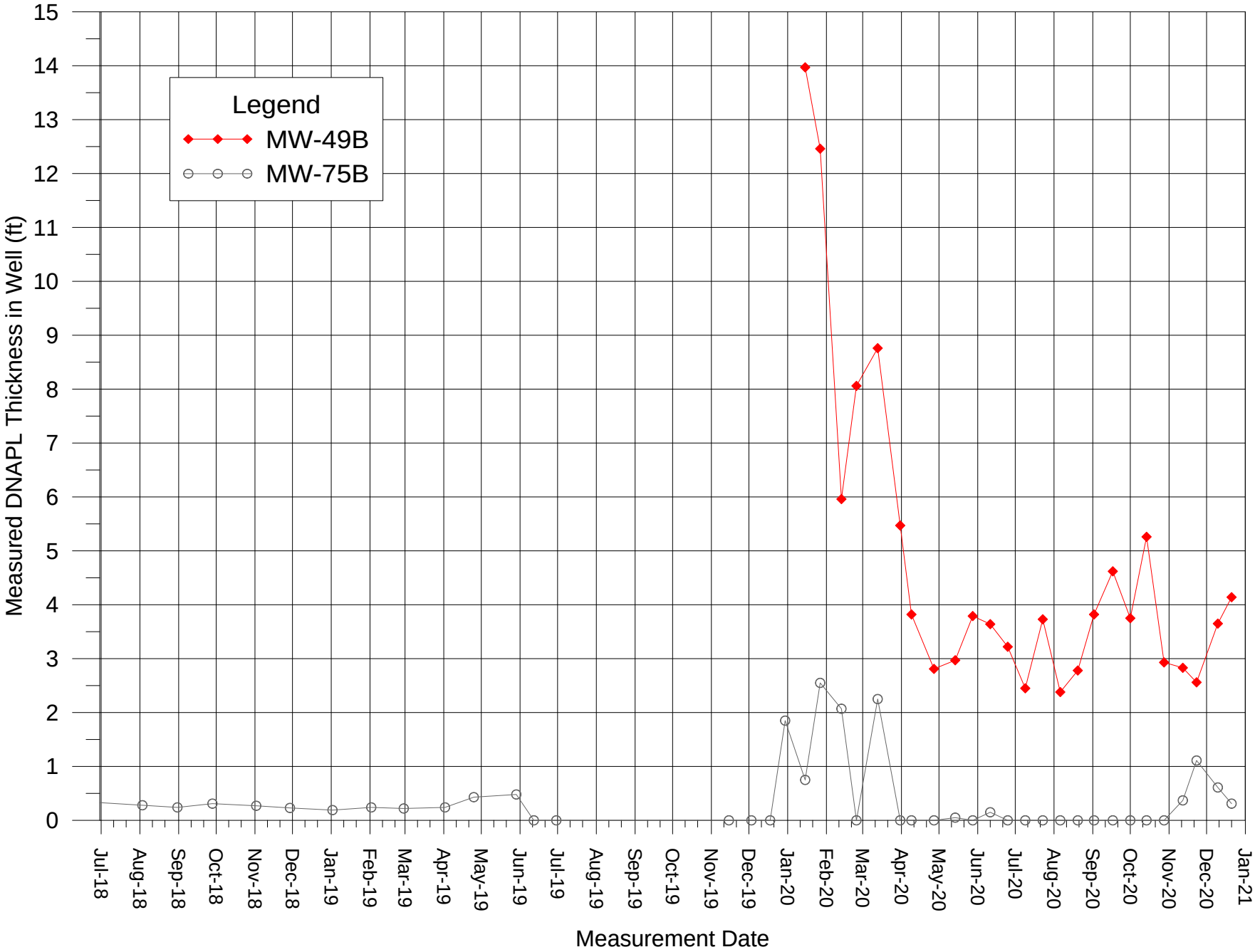
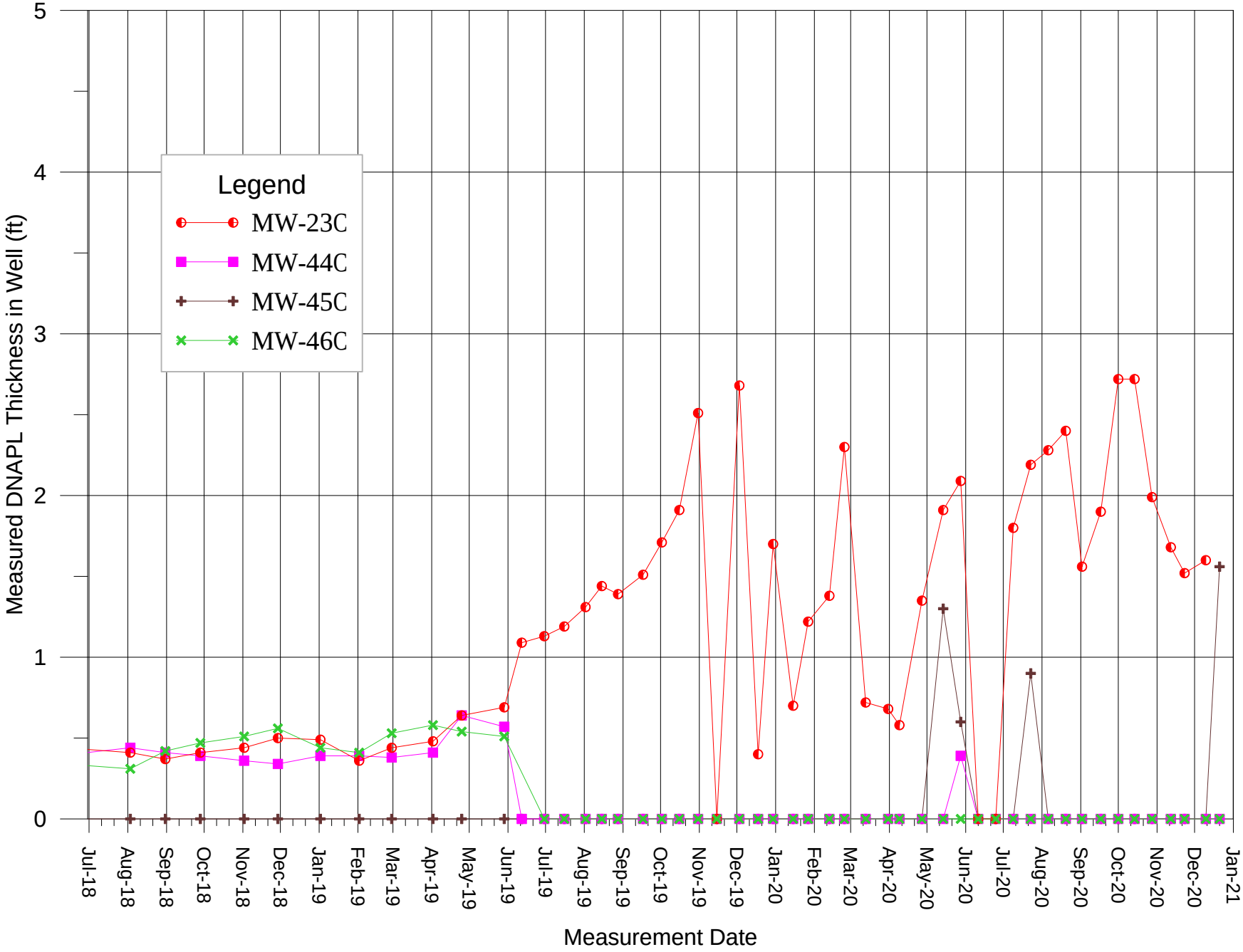


Figure 7
C-TZ Wells - In-Well DNAPL Thickness July 2018 - December 2020
UPRR Houston Wood Preserving Works



ATTACHMENT 1

Recovered DNAPL Waste Manifest

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
TXD000820266	1	888-877-7267	022128279 JJK

GENERATOR

5. Generator's Name and Mailing Address: UPRR. C/O GHO Attn: Manifest Receiving, 1520 Corporate Dr., Indianapolis, IN 46278
Generator's Site Address (if different than mailing address): 4910 Liberty Rd, Houston, Texas 77026
Generator's Phone:

6. Transporter 1 Company Name: NRC Gulf Environmental Services, Inc. KT
U.S. EPA ID Number: TXD981611320 ~~FLR000012823~~

7. Transporter 2 Company Name: EQ Industrial Services
U.S. EPA ID Number: MIK435642742

8. Designated Facility Name and Site Address: US Ecology, 3277 County Rd 69, Robstown, TX 78380, 800-242-3209
U.S. EPA ID Number: TXD069452340
Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. RQ, NA3082, Hazardous waste, liquid, n.o.s. (creosote, benzene) 9, PGIII (F034)	1	DM	55	G	F034 D018	D018	219H
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
WS# 0901179680-0
WR# 002747

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

Generator's/Offeror's Printed/Typed Name: Tyler Parker | Signature | Month | Day | Year

INT'L

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

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: X Arturo Sanchez | Signature: X Arturo Sanchez | Month: 11 | Day: 13 | Year: 20

Transporter 2 Printed/Typed Name: Kenneth Sharpe | Signature | Month: 11 | Day: 13 | Year: 2020

DESIGNATED FACILITY

18. Discrepancy

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

SECTION 15 - Generators DATE (11-13/20) OK Per 11/18/20 GV, Manifest Reference Number:

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

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

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

1.	2.	3.	4.
H141			

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: Gabriel Valdez | Signature | Month: 11 | Day: 18 | Year: 20