

**Enbridge Superior Terminal
Facility-Wide Continuing Obligation Package
Response Activity Update
BRRTS#: 16-16-560657**

SUBMITTAL DATE: January 29, 2021
RELEASE OR ACTIVITY NAME: ENBRIDGE ENERGY – LINE 6
ORIGINAL BRRTS / SRRTS # (if applicable): 02-16-558991

SITE INFORMATION			
Date of Discovery (if applicable)	5/8/2012	Date of Rediscovery (if applicable)	2/2017; 9/2020
WDNR Notification/ Start Date	5/31/2012	WDNR NFA Date	2/5/2015
Coordinates of Current Activity (decimal degrees)	Lat: 46.6896423 Lon: -92.0610032	Coordinates of Current Activity (WTM91)	X: 362408.46127 Y: 692739.35864
Enbridge Contact and Email	Karl Beaster Karl.Beaster@enbridge.com	Consultant Contact and Email	Ryan Erickson rerickson@barr.com
Previous Report and Memorandum References (if applicable)	<p><i>Superior Terminal Line 6 Hydrotest Excavation – Historical Crude Oil Impacts</i>, Barr Engineering Technical Memorandum, Submitted to Enbridge on January 27, 2014.</p> <p><i>Update and Request - Enbridge Superior Terminal Sites</i>. WDNR email regarding Facility-wide Status, Submitted to Enbridge on February 10, 2015.</p> <p><i>Enbridge Historical Release Technical Memorandum Addendum, Superior Terminal Contamination: Line 6 Historical Impacts</i>, Barr Engineering Technical Memorandum, Submitted to Enbridge on May 24, 2017.</p> <p><i>Superior Terminal Line 6A Valve Excavation</i>, Barr Engineering Technical Memorandum, Submitted to Enbridge on November 23, 2020.</p>		
Release/Discovery Description and Notification	<p>In 2012, 2017, and 2020, isolated areas of hydrocarbon impacted soil (e.g., hydrocarbon odor, sheen, discoloration, and/or product) were discovered within Line 6 pipeline infrastructure project excavations south of the Line 6 Pump House Building (Figures 1 and 2). No active release source was identified in any of the excavations; therefore, Enbridge inferred that the impacted soil was associated with an unidentified historical release. Observed impacts in the western half of the 2012 excavation may have been associated with a July 2000 (BRRTS#: 0216279246) 1,200 barrel (bbl) crude oil release that was located 120 feet northwest of the 6-BV-1 valve.</p>		

The Wisconsin Department of Natural Resources (WDNR) was notified of the identified historical contamination and summary reports were prepared by Barr and submitted to the WDNR in January 2014, May 2017, and December 2020.

In 2019, the site was transferred to the Facility-wide Continuing Obligation BRRTS site. This document serves as an update to the 2019 submittal.

Response Action Summary

Date of Excavation, extent and soil disposal

The 2012, 2017, and the 2020 Line 6 project activities that were conducted involved the excavation of subsurface infrastructure. In each case, the excavations were open for multiple months to complete the infrastructure work. The 2012 excavation was approximately 275 feet long by up to 50 feet wide and up to 15 feet deep (Table 1-Sheets 1, 2; Figure 2). The 2017 excavation was approximately 150 feet long by up to 40 feet wide and up to 15 feet deep (Table 1-Sheet 4). The 2020 excavation was approximately 50 feet long by up to 40 feet wide and up to 14 feet deep (Table 1-Sheet 6). All three excavations were backfilled with clean fill following completion of the project work.

The impacted soil that was excavated was segregated for offsite disposal at a local landfill facility. A total of 562.82 tons of soil was managed offsite in 2012, 274.25 tons in 2017, and 33.98 tons in 2020.

Groundwater Depth and Nearest Monitoring Well

Groundwater was encountered between 3 and 6 feet below ground surface (bgs). Water with evidence of hydrocarbon contamination (e.g., rainbow sheen) was observed within the excavation. Water with apparent hydrocarbon impacts removed from the excavation was containerized and managed at an offsite disposal facility. The nearest downgradient facility monitoring well is MW-24, which is located approximately 1,200 feet to the east (Figure 2).

Soil Field Screening Results Summary

In 2012, Barr collected 51 field screening samples from the final excavation sidewalls and bottom, where accessible (Table 1-sheets 1, 2, 3). Isolated pockets of soil with residual hydrocarbon impacts were identified at depths greater than 4 feet bgs. Soil headspace readings from sidewall field screening locations 11, 18, 19, 20, S-7 and S-12 were between 15.6 and 696 parts per million (ppm). The soil with identified residual impacts could not be excavated further due to the presence of pipeline infrastructure. Samples from the direct contact zone and the excavation bottom had headspace readings below 10 ppm.

In 2017, Barr collected nine field screening soil samples from the sidewalls of the final construction excavation from areas where the historical impacts had been observed by the contractors (Table 1-sheets 4, 5). The headspace detections were at or below 1.3 ppm and no other evidence of residual contamination was identified.

In 2020, Barr collected ten field screening samples from the sidewalls and bottom of the final construction excavation in the area where the historical impacts had been initially observed (Table 1-sheet 6). The headspace detections

	<p>were at or below 4.5 ppm and no other evidence of residual contamination was identified.</p> <p>The field screening samples from the direct contact zone in each excavation had headspace readings below 10 ppm and no other evidence of residual soil impacts.</p>
Analytical Sampling Results Summary	<p>In 2012, 19 analytical confirmation soil samples were collected from the final excavation sidewalls and bottom (Table 1-sheets 1, 2, 3; Figure 2) and were analyzed for diesel range organics, benzene, ethyl benzene, toluene, xylenes, 1,2,4-trimethyl benzene, 1,3,5-trimethyl benzene, and naphthalene. All individual compound concentrations were below WDNR Direct Contact Residual Contaminant Levels (RCLs). Three sidewall samples (<i>LINE 6-S7</i>, <i>LINE 6-S11</i>, and <i>LINE 6-S12</i>) had individual compound concentrations that exceeded WDNR Groundwater RCLs (Table 2).</p> <p>In 2017, no confirmation analytical samples were collected based on the field screening results and the 2012 analytical data.</p> <p>In 2020, no confirmation analytical samples were collected based on the field screening results and the 2012 analytical data.</p>

Risk Assessment Discussion	
Direct Contact Receptor	There is little to no direct contact risk based on the field screening and analytical assessment results, the presence of clean backfill, and Enbridge employee awareness and safety requirements.
Surface Water Receptor	There is little to no risk to surface water receptors from the documented residual contamination based on the assessment results, the release site location, and the location of the nearest downgradient surface water body (stormwater pond 1,600 feet to the southeast).
Groundwater Receptor	The nearest private water well receptor is located more than 1,800 feet to the southwest. Although hydrocarbon analytes were detected in soil above the Groundwater RCL, the groundwater pathway at the Superior Terminal is addressed on a facility-wide basis through the established hydrogeologic performance standard approved by the WDNR. The nearest downgradient monitoring well is MW-24 (Figure 2) which is located approximately 1,200 feet to the east.
Vapor Receptor	Two buildings are located within or adjacent to the <i>area with potential residual contamination</i> that is associated with identified historical releases (Figure 2). The Pump House 6 building is located along the northeast side of the identified area and a small building is located in the northwest corner of the area. The Pump House building was defined as a potential vapor receptor in the <i>Facility-Wide SI/RAP</i> and <i>Addendum</i> and the small building was not considered a vapor receptor based on construction and occupancy.

	<p>Per the <i>Facility-Wide SI/RAP and Addendum</i> and vapor guidance in WDNR document <i>RR-800</i> (January 2018), it was determined that the risk of vapor intrusion into the Pump House building was low based on the following observations from the <i>Line 6</i> excavation (BRRS #0216558991) and the <i>Line 6 Pump House</i> excavation (BRRS #0216577307):</p> <ul style="list-style-type: none"> • Non-Aqueous Phase Liquids (NAPL; free-product) was not identified in the final excavations within 30 feet of the building, • No petroleum volatile organic compounds (PVOC) impacted soil was identified within 5 feet of the building and analytical soil sampling results in the vicinity of the building were below the <i>NAPL Indicator</i> values (RR-800), and • The source of the impacts was likely from older, heavier-end petroleum products that “are not likely to be a source of vapors” (RR-800).
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Residual Contamination and Facility-Wide Eligibility Discussion	
Residual Contamination and Structural Impediments	<p>Based on field screening results and the 2012 analytical sampling, there is no evidence of residual soil contamination exceeding WDNR Direct Contact RCL criteria. Some residual soil contamination exceeding the 10 ppm field screening level and Groundwater RCL criteria may remain in the area below the direct contact zone. The extent of potential residual contamination is shown on Figure 2. Additional excavation was not feasible due to the presence of pipeline infrastructure. The construction excavation was backfilled with clean fill.</p>
Response Action Approval and Continuing Obligations	<p>There is no identified risk to direct contact, surface water, or vapor receptors associated with the residual contamination from this release. The risk to groundwater from the residual contamination will be addressed through the facility-wide hydrogeologic performance standard established for the Superior Terminal.</p> <p>On February 5, 2015, the site was transferred to the Superior Terminal Facility-Wide Site (BRRS#: 02-16-560657). The WDNR will be notified about any identified change in environmental conditions at the site. As part of this hydrogeologic performance standard Enbridge will continue to monitor groundwater conditions at the facility and, if evidence of contamination is identified, it will be reported to the WDNR and managed in accordance with the approved <i>Facility-wide SI/RAP and Addendum</i>.</p> <p>Based on the <i>Facility-Wide SI/RAP and Addendum</i> site classification and the conditions encountered in the field, the Lin 6 site will remain in the Superior Terminal Facility-Wide Site (BRRS#: 02-16-560657) and no additional response, investigation, or reporting will be required.</p>

Attachments:

Table 1	Site Investigation Field Sampling and Screening Logs
Table 2	Soil Sample Analytical Results
Figure 1	Site Location
Figure 2	Site Layout

SITE INVESTIGATION FIELD SCREENING AND SAMPLING LOG

Location: Facility or Milepost Enbridge Terminal Line 6 Hydrotest ExcavationEquipment used: PID -ionization detector with 10.6 eV lampBackground Headspace: 0 ppm

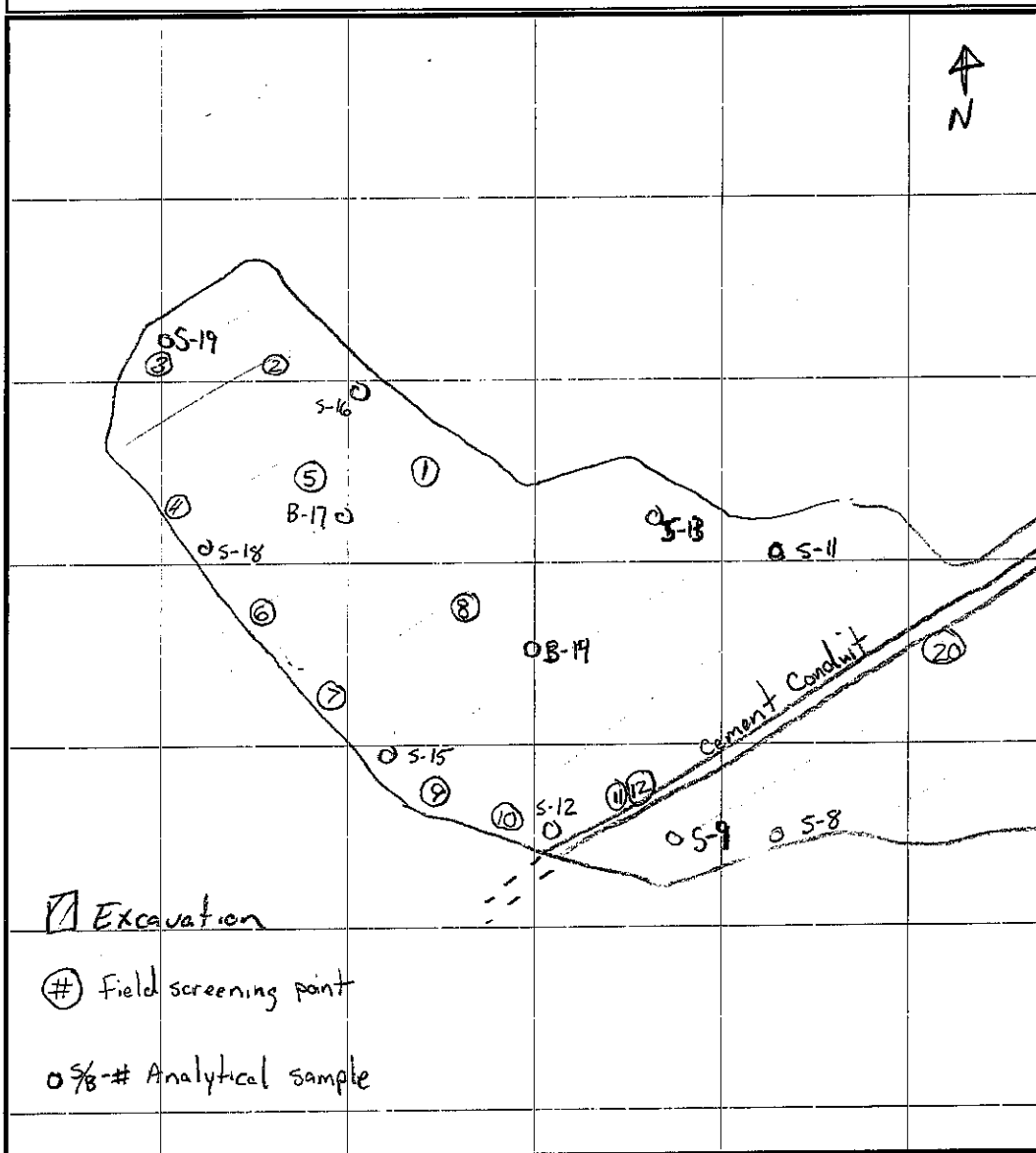
Page 1 of 3

Date: 5/9 - 5/11/12Sampler: REE/CTF/BLJ2Calibration Time: —Sample Nomenclature (Location - sample type - #): Line 6 -

Soil Sample Types: R = Removed/Screening Sample ; S = Sidewall Sample ; B = Bottom Sample ; Stockpile = Stockpile Sample

Sample ID	Depth (FT)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example: R-1	4	16:30	CL	Reddish brown	Petroleum/ Rainbow	275
1	8		Fill/SP	Brown /N	N/-	0
2	8		SP	Brown /N		0
3	3		CL	Reddishbrown/N		0.1
4	3		CL	RB/N		0
5	12		SP	Brown/N		0
6	4		CL	RB/N		0
7	3		CL	RB/N		0
8	16		SP	Brown/N		0
9	4		CL	RB/N		0
10	3		CL	RB/N		0
11	6		SP	Darkbrown/Y	Petroleum/-	330+
12	4		SP	Brown /N	N/-	0.5
S-8	4			/N	N/-	7.7
S-9	7			/N		0.6
S-10	12			/N		1.3
S-11	3			/N	▽	9.2
S-12	5			/N	V/-	696
S-13	12		CL	RB/N	N/-	0.4
B-14	15		CL	RB/N		0.4
S-15	2		CL	RB/N		0.2
S-16	4		CL	RB/N		0.5
B-17	8		SP	Brown/N		4.3
S-18	6		CL	RB/N		0.7
S-19	7					0.9

SITE SKETCH: north is top of page; excavotien extent & depth, impacted area, sample locations, borings, wells, structures, utilities, natural features... **1 inch/grid = 25 FT**



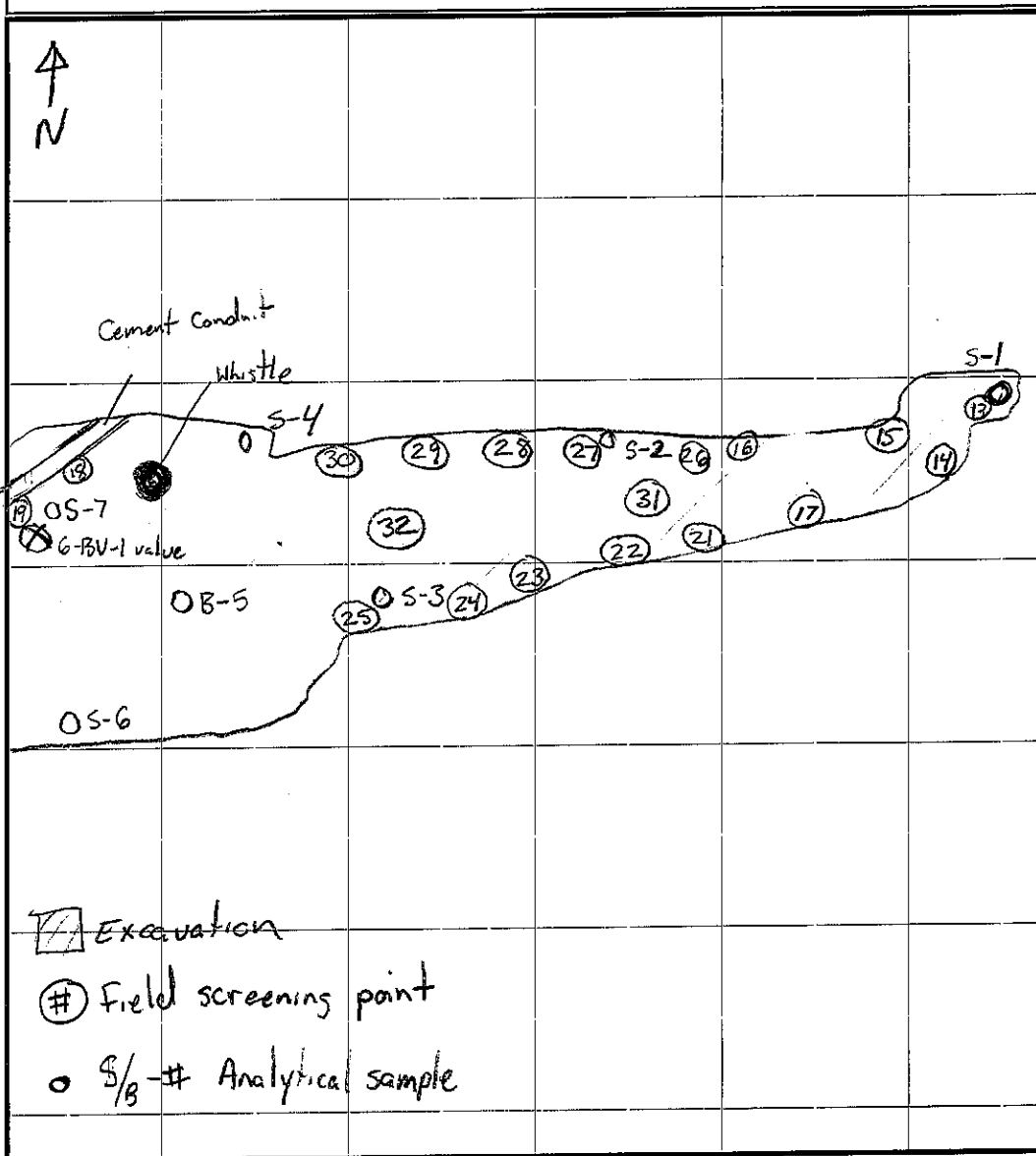
SITE INVESTIGATION FIELD SCREENING AND SAMPLING LOG

Location: Facility or Milepost Enbridge Terminal Line 6 ExcavationEquipment used: PID -ionization detector with 10.6 eV lampBackground Headspace: 0.0 ppmDate: 5/9-5/11/12Sampler: REE/CTE/BIL2Calibration Time: -Sample Nomenclature (Location - sample type - #): Line 6 -

Soil Sample Types: R = Removed/Screening Sample ; S = Sidewall Sample ; B = Bottom Sample ; Stockpile = Stockpile Sample

Sample ID	Depth (FT)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example: R-1	4	16:30	CL	Reddish brown	Petroleum/ Rainbow	275
13	2		Fill/CL	RB/ N	N/-	0.1
14	2		CL	RB/ N		0.2
15	2		CL	RB/ N		0.0
16	2		CL	RB/ N		0.1
17	2		CL	RB/ N		0.5
18	7		SP	Brown/ N		15.6
19	5		SP	Brown/ N		79
20 ^{Other} _{shot}	7		SP	Brown/ N		23
21	2		CL	RB/ N		0.5
22	2		SP	Brown/ N		0.4
23	3		SP	Brown/ N		0.7
24	4		CL	RB/ N		0.2
25	3		CL	RB/ N		0.2
26	2		CL	RB/ N		0.3
27	4		SP	Brown/ N		0.2
28	5		SP	Brown/ N		0.2
29	6		SP	Brown/ N		0.3
30	4		CL	RB/ N		0.2
31	6		SP	Brown/ N		0.3
32	8		CL	RB/ N		0.2
S-1	2			/ N		0.2
S-2	5			/ N		0.0
S-3	8			/ N		0.0
S-4	2			/ N		0.2

SITE SKETCH: north is top of page; excavation extent & depth, impacted area, sample locations, borings, wells, structures, utilities, natural features... **1 inch/grid = 2.5 FT**



Additional Analytical results on Page 3

Table 1 - 2017 Excavation - Sheet 4 of 6
SITE INVESTIGATION FIELD SCREENING AND SAMPLING LOG

Page 1 of 2

Location: Milepost or Facility Superior Terminal - Line 6 Trap Date: 4-21-17

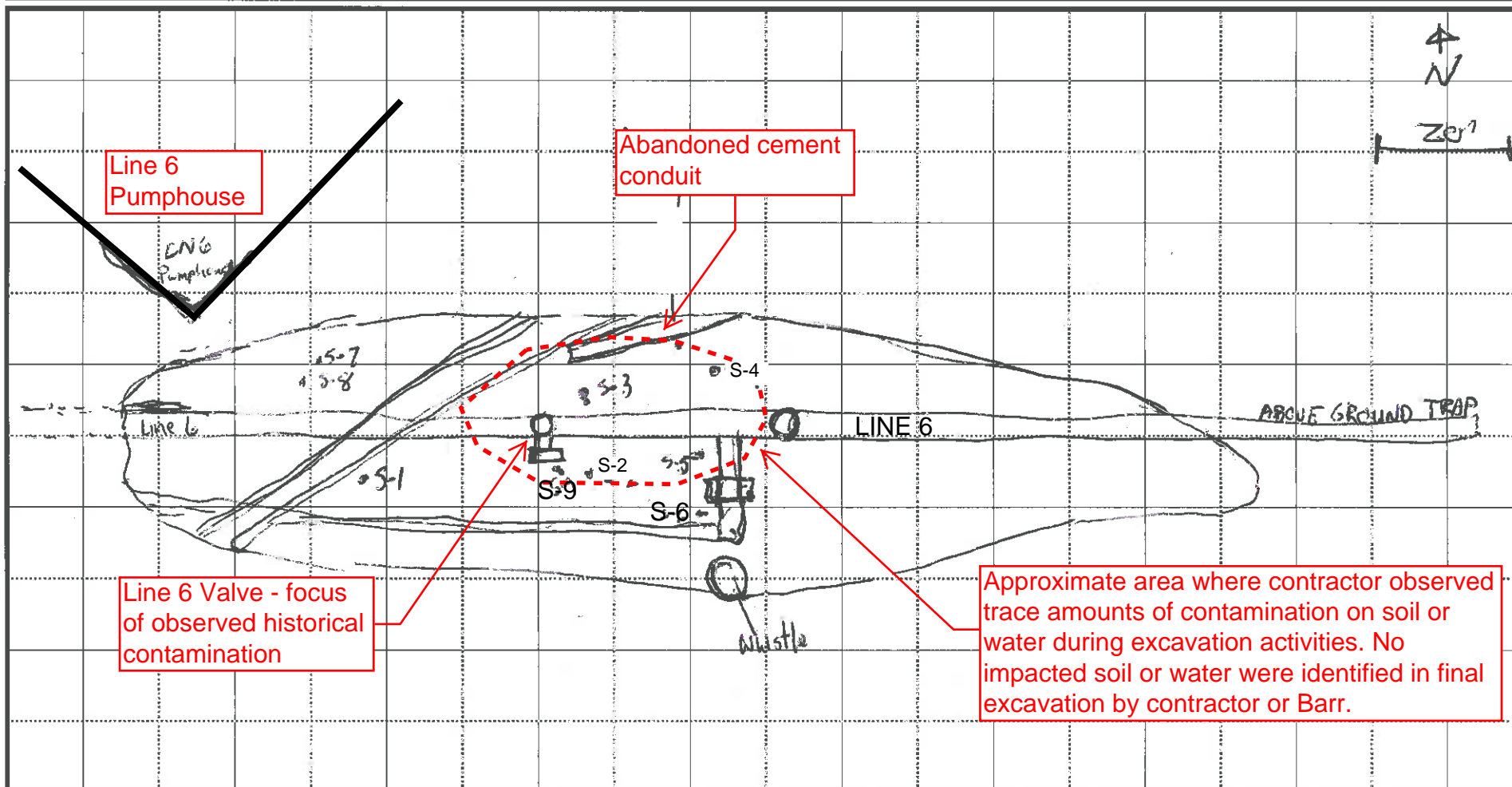
Barr Personnel: RRE & REE

Was a GPS used to document the location of site features? YES or NO

Identify the GPS unit: _____



SITE SKETCH: north is up; DRAW (to scale) AND LABEL THE LOCATION OF THE FOLLOWING SITE FEATURES, if applicable: release location, maximum extent of release impacts, roads, structures, pipelines and pipeline infrastructure, excavations, stockpiles, borings, wells, water tankers/frac tanks, roll-off containers, equipment staging areas, municipal utilities (electric, water, sewer...), culverts, natural features (water bodies, forested areas...), surface water drainage pathways/direction, other site features 1 inch/grid = 20 FEET



SITE NOTES/LEGEND: Soil in the sidewalls consisted of clay and sand fill. Gravel was on the ground surface and was used to cover the excavation sidewalls. Excavation depths were variable but were up to 15 feet bgs near the contractor observed contamination.

SITE INVESTIGATION FIELD SCREENING AND SAMPLING LOG

Location: Milepost or Facility Superior Terminal Line 6 Trap

Equipment used: Photo-ionization detector with 11.7 eV lamp

Background Headspace: 0.0 ppm

Date: 4/21/17

Sample Nomenclature (Location - sample type - #): LNG Tree

Sampler: REF/RRE

Soil Sample Types: R = Removed Sample ; S = Sidewall Sample ; B = Bottom Sample ; Stockpile = Stockpile Sample

Calibration Time: 900

[illegible]

Table 2
Soil Sample Analytical Results
Line 6
Enbridge Energy Terminal - Superior, Wisconsin
Units, mg/kg (unless otherwise noted)

Parameter				Moisture	Benzene	Ethyl benzene	Toluene	Xylene, total	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Diesel Range Organics-silica gel cleanup	Naphthalene	WDNR RCL Determinations ¹			
													Exceedance Count	Hazard Index	Cumulative Cancer Risk	Pass or Fail
		Effective Date	Exceedance Key													
Groundwater RCL			Bold		0.0051	0.785	0.5536	1.97 XYL	1.3793 TR	1.3793 TR		0.3294				
Industrial Direct Contact RCL		05/01/2012	No Exceed		7.41	37	818	258	219	182		26	0	1.0	0.00001	Pass
Sample Name	Location (Figure 2)	Date	Depth (ft)													
LINE 6 - S1	S-1	5/11/2012	2	13.7 %	< 0.057	< 0.057	< 0.057	< 0.17	< 0.057	< 0.057	< 10.6	--	0	0.0003	9.2E-09	Pass
LINE 6 - S2	S-2	5/11/2012	5	7.4 %	< 0.061	< 0.061	< 0.061	< 0.18	< 0.061	< 0.061	< 9.4	--	0	0.0003	9.9E-09	Pass
LINE 6 - S3	S-3	5/11/2012	8	22.5 %	< 0.066	< 0.066	< 0.066	< 0.20	< 0.066	< 0.066	< 13.8	--	0	0.0003	1.1E-08	Pass
LINE 6 - S4	S-4	5/11/2012	2	21.8 %	< 0.064	< 0.064	< 0.064	< 0.19	< 0.064	< 0.064	< 13.5	--	0	0.0003	1.0E-08	Pass
LINE 6 - B5	B-5	5/11/2012	15	29.3 %	< 0.071	< 0.071	< 0.071	< 0.21	< 0.071	< 0.071	< 12.8	--	0	0.0004	1.2E-08	Pass
LINE 6 - S6	S-6	5/11/2012	5	19.4 %	< 0.060	< 0.060	< 0.060	< 0.18	< 0.060	< 0.060	< 12.7	--	0	0.0003	9.7E-09	Pass
LINE 6 - S7	S-7	5/11/2012	6	3.4 %	0.28 *	1.6 *	0.43 *	11.6 *	10.6 *	5.6 *	7960	2.18	0	0.0348	5.8E-06	Pass
LINE 6 - S8	S-8	5/11/2012	4	6.0 %	< 0.055	< 0.055	< 0.055	< 0.17	< 0.055	< 0.055	46.5	--	0	0.0003	8.9E-09	Pass
LINE 6 - S9	S-9	5/11/2012	7	20.8 %	< 0.060	< 0.060	< 0.060	< 0.18	< 0.060	< 0.060	< 12.1	--	0	0.0003	9.7E-09	Pass
LINE 6 - S10	S-10	5/14/2012	12	20.3 %	< 0.074	< 0.074	< 0.074	< 0.22	< 0.074	< 0.074	< 10.5	--	0	0.0004	1.2E-08	Pass
LINE 6 - S11	S-11	5/14/2012	3	22.8 %	0.18	< 0.063	< 0.063	< 0.19	< 0.063	< 0.063	< 14.2	--	0	0.0005	2.6E-08	Pass
LINE 6 - S12	S-12	5/14/2012	5	3.6 %	< 1.1 *	1.3 *	1.8 *	32.6 *	18.2 *	11.4 *	5500	< 0.517	0	0.0603	5.9E-06	Pass
LINE 6 - S13	S-13	5/14/2012	12	26.8 %	< 0.076	< 0.076	< 0.076	< 0.23	< 0.076	< 0.076	< 13.3	--	0	0.0004	1.2E-08	Pass
LINE 6 - B14	B-14	5/14/2012	15	18.4 %	< 0.060	< 0.060	< 0.060	< 0.18	< 0.060	< 0.060	< 12.8	--	0	0.0003	9.7E-09	Pass
LINE 6 - S15	S-15	5/14/2012	2	23.5 %	< 0.067	< 0.067	< 0.067	< 0.20	< 0.067	< 0.067	< 13.4	--	0	0.0003	1.1E-08	Pass
LINE 6 - S16	S-16	5/14/2012	4	12.5 %	< 0.055	< 0.055	< 0.055	< 0.17	< 0.055	< 0.055	40.9	--	0	0.0003	8.9E-09	Pass
LINE 6 - B17	B-17	5/14/2012	8	18.0 %	< 0.062	< 0.062	< 0.062	< 0.19	< 0.062	< 0.062	< 9.7	--	0	0.0003	1.0E-08	Pass
LINE 6 - S18	S-18	5/14/2012	6	15.1 %	< 0.060	< 0.060	< 0.060	< 0.18	< 0.060	< 0.060	< 11.8	--	0	0.0003	9.7E-09	Pass
LINE 6 - S19	S-19	5/14/2012	7	16.5 %	< 0.062	< 0.062	< 0.062	< 0.19	< 0.062	< 0.062	< 11.3	--	0	0.0003	1.0E-08	Pass

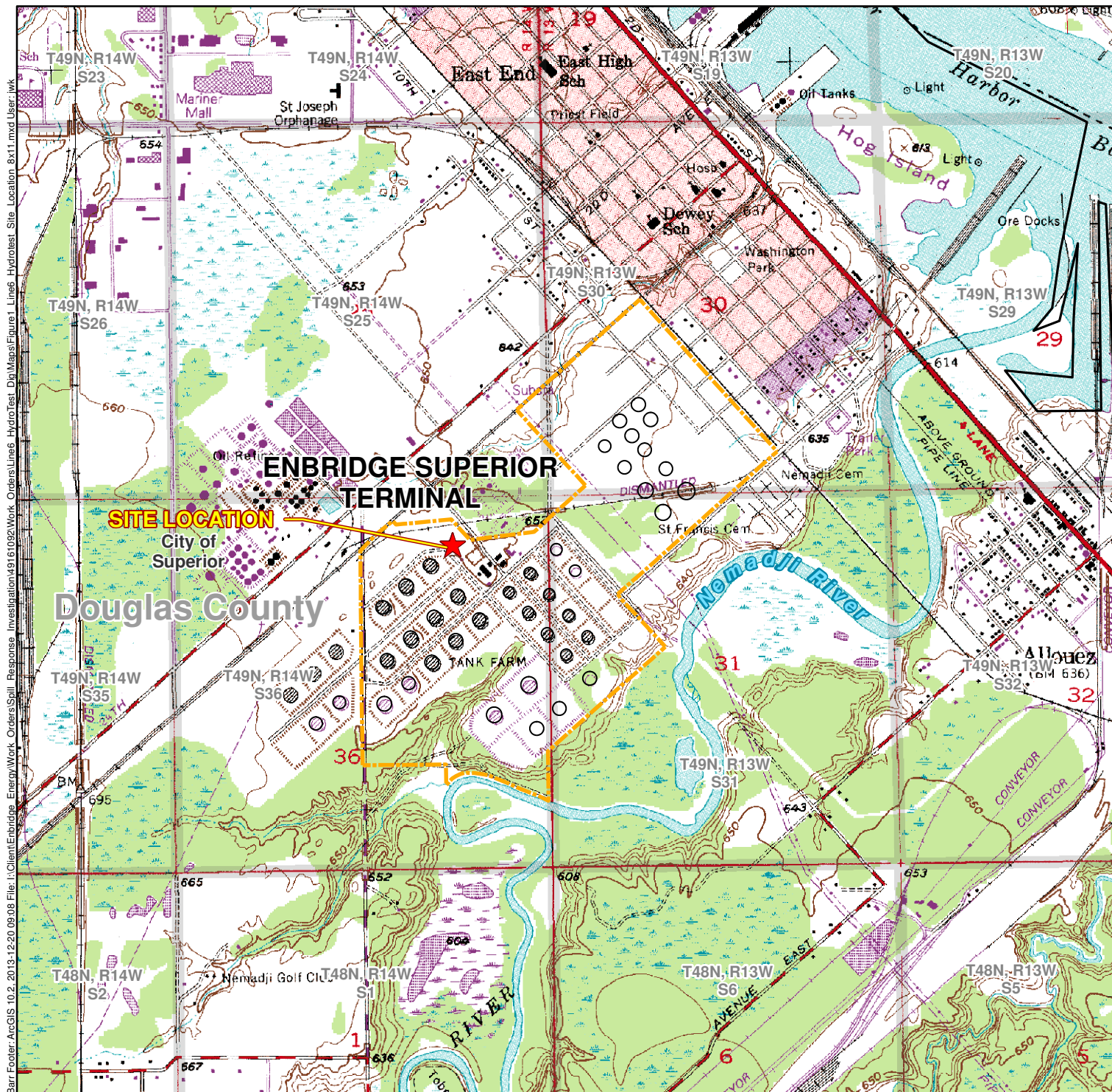
PAH analyses were completed for LINE 6 - S12 and LINE 6 - S7. Only the PAH parameters that exceeded WDNR groundwater or industrial direct contact RCL's are shown on this table. All other PAH results can be found in Pace lab report 10192287 in Attachment C.

¹WDNR RCL Determinations based on guidance criteria described in WDNR document PUB-RR-890. Hazard index is based a cumulative direct contact standard.

XYL - Based on Xylenes (m-, o-, p- combined).

TR - Based on Trimethylbenzenes (1,2,4 - and 1,3,5- combined).

* Estimated value, QA/QC criteria not met.



- ★ Site Location
- Terminal Property Boundary



0 2,000 4,000

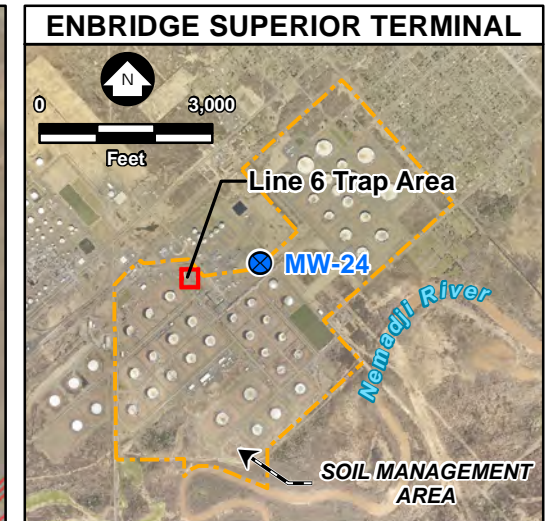
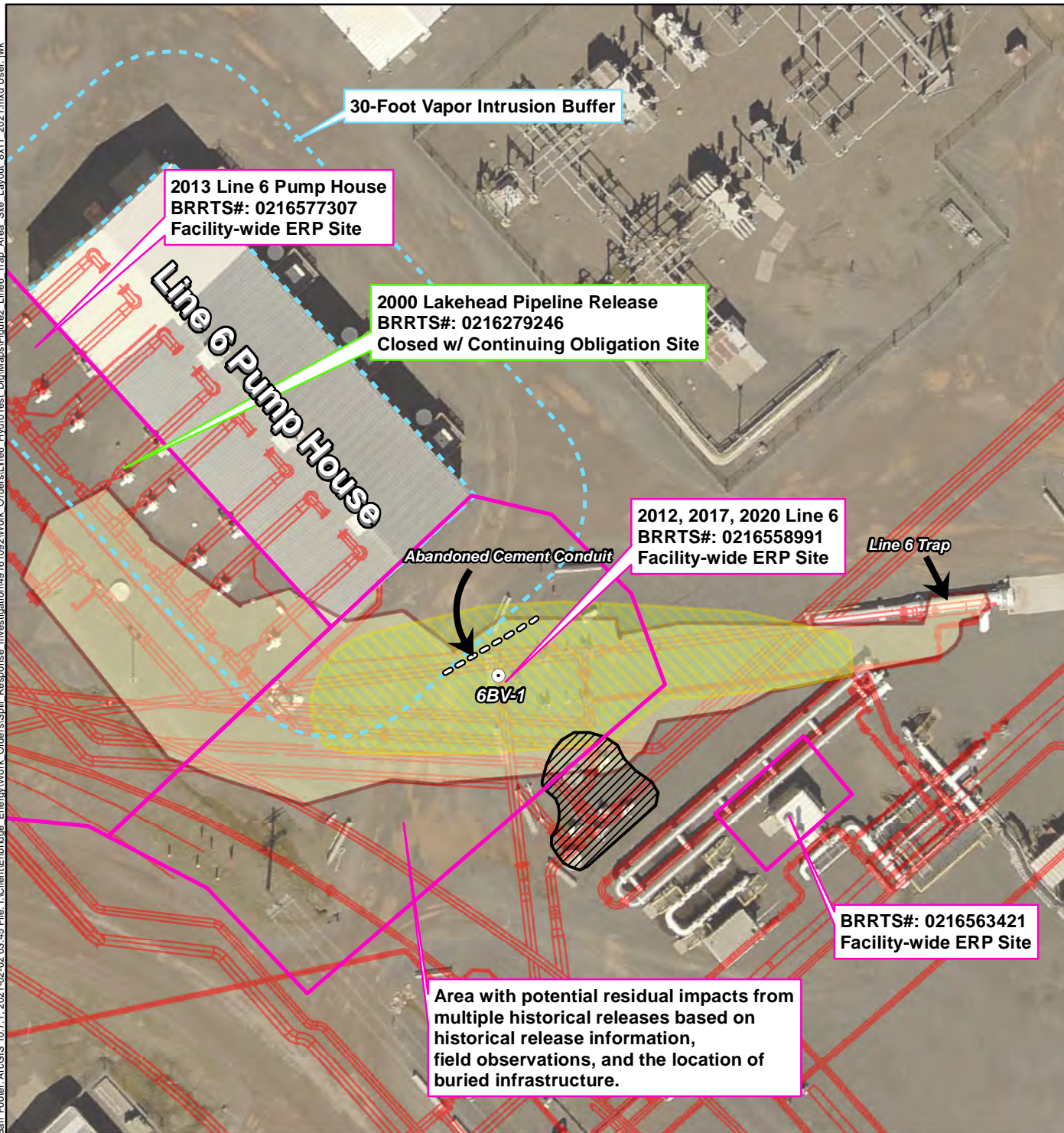
Feet

1 Inch = 2,000 Feet

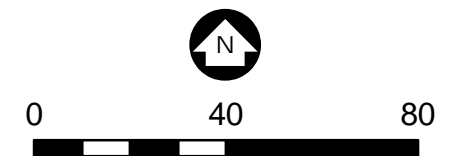
Figure 1

**SITE LOCATION
LINE 6
SUPERIOR TERMINAL**
Enbridge Energy, L.P.
Superior, Wisconsin





- ⊗ Monitoring Wells
- ⊙ 6BV-1 Valve
- Hydrotest Excavation Extent (2012)
- Excavation Extent (2017)
- Excavation Extent (2020)
- Terminal Property Boundary
- Pipeline Infrastructure



Feet
1 Inch = 40 Feet
Douglas County Imagery Circa May, 2019

Figure 2

**SITE LAYOUT
LINE 6 TRAP AREA
SUPERIOR TERMINAL**
Enbridge Energy, L.P.
Superior, Wisconsin

