LAC DU FLAMBEAU BAND
OF LAKE SUPERIOR
CHIPPEWA INDIANS

TRIBAL NATURAL RESOURCE DEPARTMENT

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Fish Culture - Fisheries Management - Wildlife Management - Water Resources - Environmental Protection - Conservation Law - Energy - Air Quality

October 23, 2015

William and Linda Kozak
8760 W SQUAW LAKE RD
LAC DU FLAMBEAU WI 54538

Re: TNR Site # 4-2015
14267 W State Highway 70, Lac du Flambeau
September 2015 Field Work Results

Dear Bill and Linda,
There are some concerning results that warrant your attention from soil and groundwater samples collected from your property this September. These results were recently discussed at a meeting with USEPA on October 21st and with USEPA, WDNR, the Tribe and your contractor on October 22nd, 2015. You were given an invitation to these meeting in our phone call on October 18th. Although you were not able to attend these meetings, I hope to see you in future meetings. You are also welcome at the Natural Resource Department to meet with staff or review project files anytime during business hours.

This letter includes results from September 14th-15th field work completed by your contractor and observed by the Tribal Natural Resource Department and USEPA. In addition, preliminary soil data collected by USEPA and the Tribe has been received from the USEPA lab. We have included preliminary results and will provide you with final results once completed.

Groundwater Results/ Vapor Intrusion Concern
Groundwater was collected adjacent to your building at BH17 (map attached). The analytical results show concentrations of Volatile Organic Compounds including benzene, toluene, ethylbenzene, xylenes, trimethyl benzenes, and naphthalene (table attached). All of these detections are well above cleanup standards and quite high. There is a possibility the contamination is migrating into your building through vapor.

These concentrations confirm the plume is closer to your private well than originally thought. We understand you declined USEPA offer to sample your private well this September. We encourage you to sample your well through the PECFA resources available to you. We strongly recommend your private well be sampled.

EPA-R5-2017-010506_0000458

Table 3
Summary of Groundwater Analytical Results
Geoprobe Event
Tower Standard
Lac du Flambeau, Wisconsin

	Sample Location-->			BH-17	BH-22A	BH-25 @ 27'	BH-26 @ 27'	BH-30 @25'	BH-35B	BH-36 @ 39'	BH-37B @ 4(
			Date ->								
VOC Parameters											
Benzene	5	0.5	µg/l	**115**	**10,500**	< 0.40	**133**	< 0.40	< 0.40	*1.6*	< 0.40
Toluene	800	160	µg/l	**9,650**	**47,500**	< 0.39	*451*	< 0.39	< 0.39	< 0.39	< 0.39
Ethylbenzene	700	140	µg/l	**2,150**	**4,080**	< 0.39	*301*	18.4	6.1	< 0.39	< 0.39
Xylenes (mixed isomers)	2,000	400	µg/l	**9,520**	**21,360**	< 0.80	*1,156*	14.0	16.4	4.2	< 0.80
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 24.2	< 121	< 0.48	2.9[J]	< 0.48	< 0.48	2.0	< 0.48
Trimethylbenzenes (mixed isomers)	480	96	µg/l	**2,900**	**4,163**	< 0.42	*473*	21.9	*120.2*	2.9	< 0.42
Naphthalene	100	10	µg/l	**532**	**927**	< 0.42	*76.4*	5.6	6.5	1.5	< 0.42
PAH Parameters			µg/l								
Acenaphthene			µg/l	NA	NA	NA	NA	NA	0.045[J]	NA	NA
Acenaphthylene			µg/l	NA	NA	NA	NA	NA	0.021[J]	NA	NA
Anthracene	3,000	600	µg/l	NA	NA	NA	NA	NA	< 0.0073	NA	NA
Benzo(a)Anthracene			µg/l	NA	NA	NA	NA	NA	< 0.0092	NA	NA
Benzo(a)Pyrene	0.2	0.02	µg/l	NA	NA	NA	NA	NA	< 0.0080	NA	NA
Benzo(b)Fluoranthene	0.2	0.02	µg/l	NA	NA	NA	NA	NA	< 0.0096	NA	NA
Benzo(ghi)Perylene			µg/l	NA	NA	NA	NA	NA	< 0.0063	NA	NA
Benzo(k)Fluoranthene			µg/l	NA	NA	NA	NA	NA	< 0.010	NA	NA
Chrysene	0.2	0.02	µg/l	NA	NA	NA	NA	NA	< 0.0076	NA	NA
Dibenzo(a,h)anthracene			µg/l	NA	NA	NA	NA	NA	< 0.010	NA	NA
Fluoranthene	400	80	µg/l	NA	NA	NA	NA	NA	< 0.017	NA	NA
Fluorene	400	80	µg/l	NA	NA	NA	NA	NA	0.024[J]	NA	NA
Indeno(1,2,3-cd)Pyrene			µg/l	NA	NA	NA	NA	NA	< 0.0065	NA	NA
1-Methyl Naphthalene			µg/l	NA	NA	NA	NA	NA	11.7	NA	NA
2-Methyl Naphthalene			µg/l	NA	NA	NA	NA	NA	18.5	NA	NA
Naphthalene	100	10	µg/l	NA	NA	NA	NA	NA	0.9	NA	NA
Phenanthrene			µg/l	NA	NA	NA	NA	NA	0.020[J]	NA	NA
Pyrene	250	50	µg/l	NA	NA	NA	NA	NA	< 0.014	NA	NA

Notes:
ES = NR140.10 Enforcement Standards
PAL = NR140.10 Preventive Action Limits
Enforcement Standard exceeded **BOLD**
Preventive Action Limit exceeded *Italics*
NA = Not Analyzed
NS = Not Sampled
J = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

Table 1a
Soil Sample Analytical Results
Tower Standard
Lac du Flambeau, Wisconsin

		Date -->	9/14/2015		9/14/2015		9/14/2015		9/14/2015		9/14/2015		9/14/2015		9/14/2015		9/14/2015		9/14/2015	
		Sample ID -->	BH-1		BH-2		BH-3		BH-4		BH-5		BH-6		BH-7		BH-7		BH-8	
		Sample Depth (Feet) -->	2-4	7-8	2-4	7-8	2-4	7-8	1-2	6-7	1-2	6-7	1-2	6-7	1.5-2.5	6-7	1-2	5.5-6.5	1.5-2.6	5.5-6.7
		PID Detection Result -->																		
		Percent Moisture -->	9.0%	8.2%	7.4%	9.9%	6.8%	8.3%	7.7%	9.2%	4.2%	6.0%	5.7%	5.0%	8.0%	5.7%	7.7%	7.3%	5.7%	7.4%
Petroleum VOC's (µg/kg)	Non-Industrial Not-To-Exceed DC RCL	NR 140 Groundwater Pathway Protection (DF=2)																		
Benzene	1,490	5.1	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Ethylbenzene	7,470	1,570	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Toluene	818,000	1,107	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Xylenes (Total)	258,000	3,940	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Methly tert Butyl Ether	59,400	27	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
1,2,4-Trimethylbenzene	89,800	NS	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
1,3,5-Trimethylbenzene	182,000	NS	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Trimethylbenzenes (Total)	NS	1,379	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Naphthalene	5,150	658.7	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Number of Individual Exceedances (DC)-->			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative Hazard Index (DC)-->			0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Cumulative Cancer Risk (DC)-->			2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08

		Date -->	9/14/2015	9/14/2015		9/14/2015		9/14/2015		9/14/2015	9/14/2015	9/14/2015	9/15/2015		9/15/2015		9/15/2015		9/15/2015	9/15/2015	
		Sample ID -->	BH-10	BH-11		BH-12		BH-13		BH-15	BH-16	BH-17			BH-18		BH-19		BH-20	BH-21	
		Sample Depth (Feet) -->	9-9.5	1-2	8.5-9.0	0.5-1.5	8.5-9.5	1-2	8-9	0.0-1.5	5-6	1.5-2.5	7-8	1-2	5.5-6.5	5-7	7-9	5.7	1-2	6.5-7.5
		PID Detection Result -->																			
		Percent Moisture -->	6.7%	6.7%	8.5%	7.8%	4.0%	4.6%	7.8%	8.1%	6.9%	6.7%	11.3%	6.5%	5.6%	8.2%	8.4%	10.3%	3.8%	4.9%
Petroleum VOC's (µg/kg)	Non-Industrial Not-To-Exceed DC RCL	NR 140 Groundwater Pathway Protection (DF=2)																			
Benzene	1,490	5.1	< 25	< 25	< 25	***15.1***[J]	***< 125***	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Ethylbenzene	7,470	1,570	< 25	< 25	< 25	30.9[J]	1,380	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	665
Toluene	818,000	1,107	< 25	< 25	< 25	132	130[J]	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	165
Xylenes (Total)	258,000	3,940	< 50	< 50	< 50	216.3	***9,670***	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	80.0[J]	3,283
Methly tert Butyl Ether	59,400	27	< 25	< 25	< 25	< 25	< 125	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
1,2,4-Trimethylbenzene	89,800	NS	< 25	< 25	< 25	35.9[J]	26,100	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	49.8[J]	2,810
1,3,5-Trimethylbenzene	182,000	NS	< 25	< 25	< 25	33.9[J]	8,300	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	919
Trimethylbenzenes (Total)	NS	1,379	< 50	< 50	< 50	< 50	***34,400***	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	49.8[J]	***3,729***
Naphthalene	5,150	658.7	< 25	< 25	< 25	< 25	***6,760***	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	527
Number of Individual Exceedances (DC)-->			0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative Hazard Index (DC)-->			0.0007	0.0007	0.0007	0.0013	0.3496	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0010	0.0394
Cumulative Cancer Risk (DC)-->			2.5E-08	2.5E-08	2.5E-08	4.0E-08	1.6E-06	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.5E-08	2.1E-07

Notes:

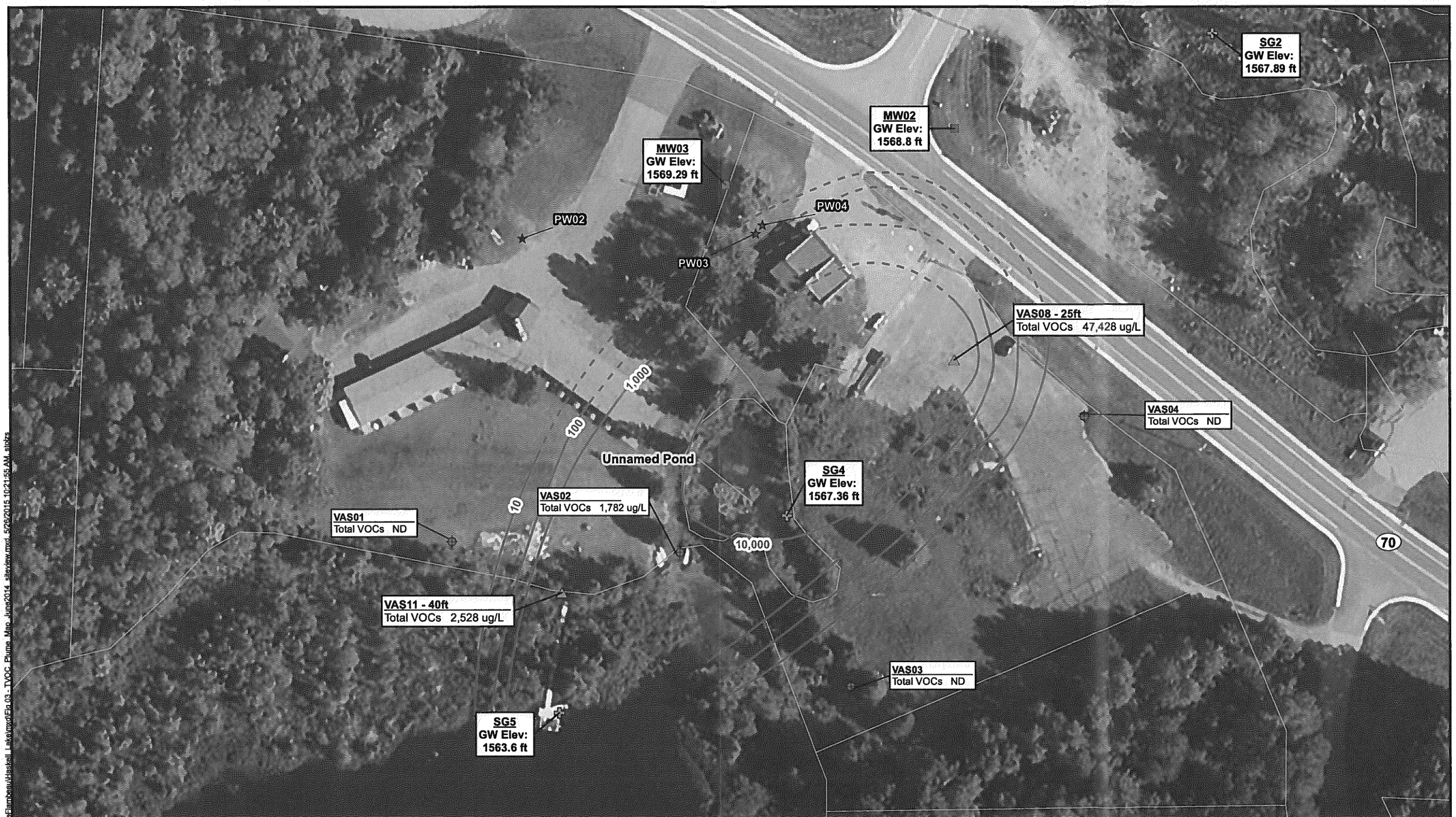
NR720 Standards Obtained From WDNR Online Excel Database
RCL - NR 720 Proposed Soil Residual Contaminant Level
DC - Direct Contact
Exceeds Non-Industrial Not-To-Exceed DC RCL — **Bold**
Exceeds NR 140 Groundwater Pathway Protection — *Italic*
NS - No Standard
[J] - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
< - Concentration below listed laboratory detection limit
NA - Not Analyzed

\\wimgineering.com\data\projects\0900-0999\0903-Tower\GP Summary Tables\[Tower - soil data.xls]Soil - Geoprobe (1)

6/21 – EPA Soil Krelim Results

Sample	Benzene	Toluene	Ethylbenzene	m+p Xylene	o-Xylene	Naphthalene
BH5 10ft	ND	ND	ND	ND	ND	ND
BH9 10ft	ND	ND	ND	ND	ND	ND
BH10 10-11ft	ND <187	640	3010	12700	4030	1290
BH11 9-10ft	ND	ND	ND	ND	ND	ND
BH12 9-10ft	2850	80700	36700	1.53E5	58200	29200
BH17 13-14ft	ND	98700	52600	2.02E5	69300	15700
BH21 9-10ft	ND	23900	55900	2.18E5	82400	29400
BH22B 6.5-7.5ft	ND <807	18400	17800	69900	28700	8830
BH25 7-8ft	ND	ND	ND	ND	ND	ND
BH29 8-9ft	ND	ND	ND	ND	ND	ND
BH31B 4-5ft	ND	ND	ND	ND	ND	ND
BH31B 6.5-7.5ft	ND	ND	ND	ND	ND	ND
BH32B 6-7ft	ND	48600	69200	3.11E5	1.26E5	50000
BH33 8-9ft	ND	ND	ND	ND	ND	ND
BH34 8-9ft	ND	ND	ND	ND	ND	ND
BH35 9-10ft	ND	ND	ND	ND	ND	ND
BH36 13-14ft	ND	ND	ND	ND	ND	ND

EPA-R5-2017-010506_0000458



Legend

- Vertical Aquifer Sample (VAS) December 2013
- Staff Gauge
- Residential Well
- Monitoring Well
- Sand Point Screen
- VAS June 2014
- Parcel Boundary
- Petroleum Release Groundwater Plume Footprint (micrograms per liter)

- VAS08 & VAS11 were sampled for perchlorate in 2011 and were redrilled and sampled for petroleum constituents in December 2013
- Total VOCs listed are for the VAS interval with the highest detections

N

0 75 '

WESTON SOLUTIONS

Prepared By:
WESTON SOLUTIONS, INC.
2501 Jolly Road, Suite 100
Okemos, Michigan 48864

Figure 3
Total VOC Plume Map
Haskell Lake Area
Lac du Flambeau, Vilas County, Wisconsin

Path: G:\GIS_Projects\LacDeFlambeau\Haskell_Lake\mxd\Fig_03_TVOC_Plume_Map_June2014_siteview.mxd, 5/28/2015 10:21:55 AM, stokes

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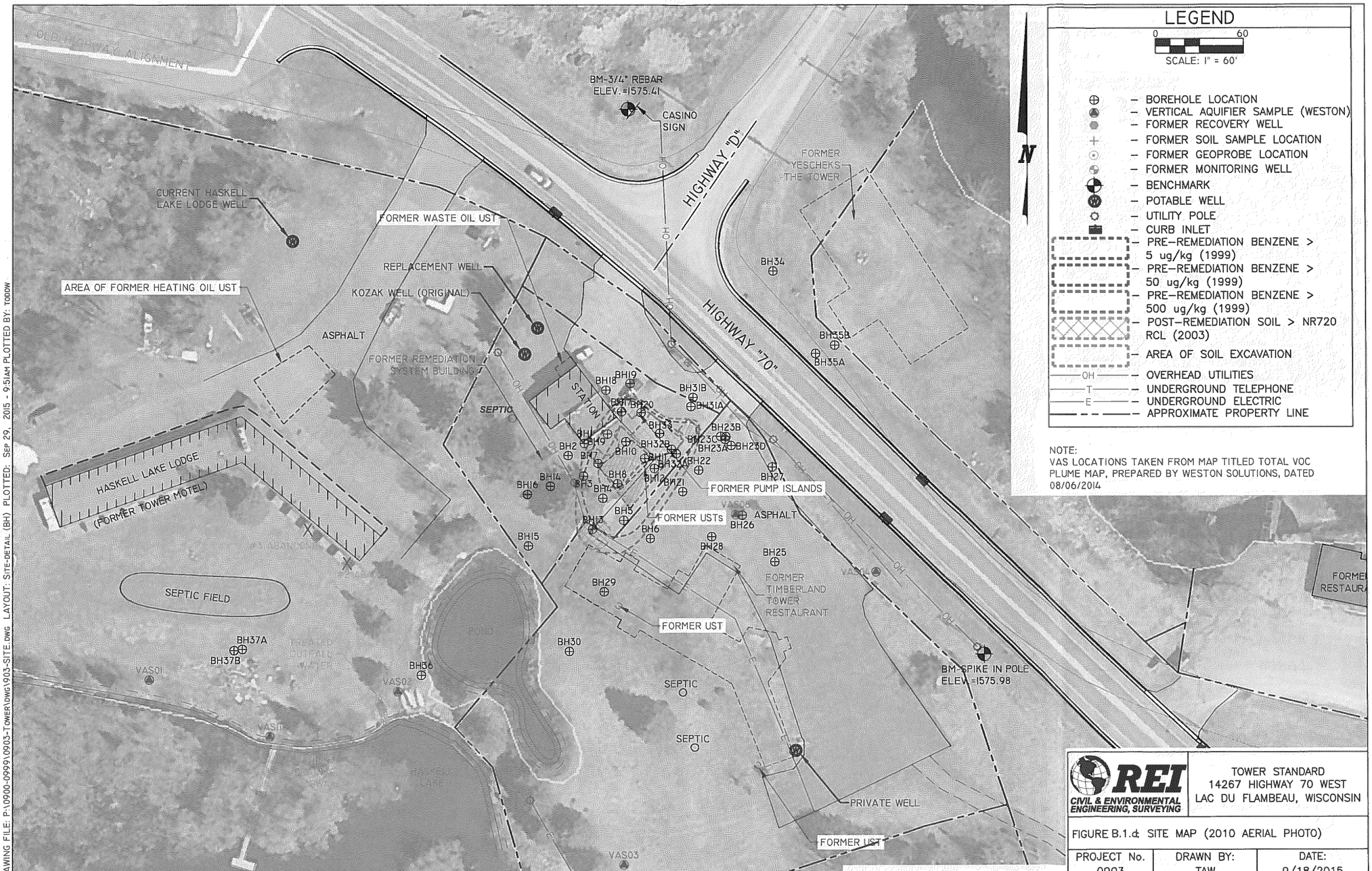

LEGEND

0 60
SCALE: 1" = 60'

- BOREHOLE LOCATION
- VERTICAL AQUIFIER SAMPLE (WESTON)
- FORMER RECOVERY WELL
- FORMER SOIL SAMPLE LOCATION
- FORMER GEOPROBE LOCATION
- FORMER MONITORING WELL
- BENCHMARK
- POTABLE WELL
- UTILITY POLE
- CURB INLET
- PRE-REMEDIATION BENZENE > 5 ug/kg (1999)
- PRE-REMEDIATION BENZENE > 50 ug/kg (1999)
- PRE-REMEDIATION BENZENE > 500 ug/kg (1999)
- POST-REMEDIATION SOIL > NR720 RCL (2003)
- AREA OF SOIL EXCAVATION
- OH — OVERHEAD UTILITIES
- T — UNDERGROUND TELEPHONE
- E — UNDERGROUND ELECTRIC
- APPROXIMATE PROPERTY LINE

NOTE:
VAS LOCATIONS TAKEN FROM MAP TITLED TOTAL VOC PLUME MAP, PREPARED BY WESTON SOLUTIONS, DATED 08/06/2014

REI Engineering, INC.

REI CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING

TOWER STANDARD
14267 HIGHWAY 70 WEST
LAC DU FLAMBEAU, WISCONSIN

FIGURE B.1.d: SITE MAP (2010 AERIAL PHOTO)

PROJECT No.	DRAWN BY:	DATE:
0903	TAW	9/18/2015

DRAWING FILE: P:\0900-0999\0903-TOWER\DWG\903-SITE.DWG LAYOUT: SITE-DETAIL (BH) PLOTTED: SEP 29, 2015 - 9:51AM PLOTTED BY: TODDW