REI
CIVIL & ENVIRONMENTAL
ENGINEERING, SURVEYING

May 5, 2017

Wisconsin Department of Natural Resources
Attn: Gina Keenan
1300 W Clairemont Ave.
Eau Claire, WI 54702

Subject:

Update Report
O-W Sports and Liquor
107 Central Avenue
Owen, WI
BRRTS #03-10-182097
PECFA #54460-0147-07

Dear Ms. Keenan:

Enclosed please find a copy of the above mentioned Update Report. This report documents the completion of the recently approved scope of services which included redeveloping and resurveying the well network, complete a well integrity determination and a single round of groundwater sampling.

If you have any questions or comments, please contact our office at (715) 675-9784.

Sincerely,
REI Engineering, Inc.

David N. Larsen P.G.
Hydrogeologist/Project Manager

CC: Ms. Jackie Reinke, 107 Central Avenue, Owen, WI 54460

REI

CIVIL & ENVIRONMENTAL
ENGINEERING, SURVEYING

Update Report
O-W Sports and Liquor
107 Central Avenue
Owen, WI 54460

BRRTS #03-10-182097
PECFA #54460-0147-07
REI Project #1687

COMPREHENSIVE SERVICES WITH PRACTICAL SOLUTIONS

UPDATE REPORT

O-W SPORTS AND LIQUOR
107 CENTRAL AVENUE
OWEN, WI 5460

BRRTS#03-10-182097
PECFA#54460-0147-07

REI #1687

PREPARED FOR:

Jacalyn Reinke
107 Central Avenue
Owen, WI 54460

MAY 2017

UPDATE REPORT

O-W SPORTS AND LIQUOR
107 CENTRAL AVENUE
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BRRTS#03-10-182097
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REI #1687

The recommendations contained in this report are based on the information obtained from our study of the site and were arrived at in accordance with accepted hydrogeologic and engineering practices at this time and location.

"I, David N. Larsen, hereby certify that I am a registered Professional Geologist in the State of Wisconsin as defined in the Wisconsin Statutes Chapter 470.01. I am also a hydrogeologist as that term is defined in s. NR 712.03 (3), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

"I, Brian J. Bailey, hereby certify that I am a scientist as that term is defined in s. NR 712.03 (3), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

Brian J. Bailey — 5-5-17 Date

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107 CENTRAL AVENUE
OWEN, WI 5460

BRRTS#03-10-182097
PECFA#54460-0147-07

REI #1687

1.0 WORK PERFORMED THIS PERIOD

REI is submitting an Update Report covering the site activities that have taken place at the above referenced location. Events that have taken place during this period include redevelopment and resurvey of the existing monitoring wells, well integrity determination a single groundwater sampling event and report. The location of the site is shown on Figure 1. The location of the existing monitoring wells are presented in Figure 2.

2.0 SITE LOCATION AND INVESTIGATION HISTORY

The O-W Sports and Liquor site is located at the intersection of 107 Central Avenue in the NW¼ of the SE ¼ of Section 36, Township 29 North, Range 02 West, Village of Owen, Clark County, Wisconsin (Figure 1). Figure 2 presents the locations of the monitoring well network and site boundaries. Following the completion of the site investigation in 2003, the project had stalled and minimal site work had been completed until 2017.

3.0 SUMMARY OF WORK

3.1 Well Integrity Determination

Monitoring well integrity was a concern due to known frost jacking and the extended period of minimal to no activity from October 2002 to April 2017. REI personnel inspected each well and documented concerns with the existing well conditions and completed repairs of made recommendations for future repairs. Photo

documentation of the initial well conditions, completed repairs and well condition at departure are presented in Appendix A. Well specific concerns are listed below:

- **MW1**: Both bollards had been backed into and damaged and the stick-up pipe was pushed up approximately twelve (12) inches from frost jacking. REI personnel removed, repaired and reinstalled the damaged bollards and reset the stick-up pipe. REI recommends the bollards and stick-up pipe have a replacement concrete pad installed.
- **MW2**: The compression cap was missing, frost jacking had pushed the well up into the flushmount cap, which resulted in the casing becoming cracked. REI personnel trimmed the casing and installed a replacement compression cap. All the flushmount lid bolts are stripped and missing. REI recommends the replacement of the entire flushmount.
- **MW3**: The entire top of the flushmount was missing and all that remained was the steel skirt. Frost jacking had pushed the well up grade with the concrete surface and the compression cap was also missing. REI personnel dug out the well vault, trimmed the casing and installed a replacement compression cap. REI personnel packed the well vault with gravel to preserve the well. REI recommends the replacement of the entire flushmount.
- **MW4**: The entire top of the flushmount detached from the steel skirt. Frost jacking had pushed the well into the bottom of the flushmount lid REI personnel dug out the well vault, trimmed the casing and reinstalled the compression cap. REI personnel set the flushmount lid in the steel skirt to preserve the well. REI recommends the replacement of the entire flushmount.
- **MW5**: MW5 appeared to be in acceptable condition, no significant repairs were necessary.
- **MW6**: The flushmount was damaged, likely from snow removal efforts, and the concrete was cracked and missing. The compression cap was missing and frost jacking had pushed the well into the bottom of the flushmount lid. REI personnel dug out the well vault, trimmed the casing and installed a replacement compression cap. REI personnel set the flushmount lid in the steel skirt to preserve the well. REI recommends the replacement of the entire flushmount.

3.2 Groundwater Sampling and Analytical Results

The single approved round of groundwater sampling was completed by REI personnel on April 25, 2017. Each well was redeveloped prior to sampling. Well development forms are included in Appendix B. All development water waste generated during this scope of services was temporarily stored in 55-gallon WDOT approved drums before final disposal at the City of Wausau waste water treatment facility. Free product was again observed in monitoring well MW4. Table 3 presents the depth to free product and free product thickness data.

Water elevation measurements from the REI sampling events are presented in Table 1. Water levels were recorded at an all-time high level during the April 25, 2017 sample event. Figure 3 presents a groundwater contour map from the data collected on April 25, 2017. Groundwater is depicted flowing from the northeast to the southwest and is consistent with historical flow directions. Groundwater samples were submitted to a state certified laboratory for analysis. Groundwater analytical results are summarized in Tables 2a-g. The laboratory analytical report is included as Appendix C.

The results from the groundwater sampling events are summarized below for each monitoring well.

MW1: Analytical results have been historically non-detect.

MW2: Analytical results have been historically non-detect.

MW3: Analytical results continue to document significant groundwater contamination.

MW4: Only well with free product. Analytical results continue to document significant groundwater contamination.

MW5: Analytical results have been historically non-detect.

MW6: Analytical results have been historically non-detect.

3.3 Vapor Intrusion Screening Analysis

Vapor intrusion screening is used to determine the potential for vapor migration from a contaminated property. Vapor intrusion of petroleum compounds most often

occurs when free phase petroleum compounds are located near building foundations, where petroleum impacted groundwater has entered a building, or when petroleum contaminated groundwater is in contact with a building foundation.

Vapor intrusion from petroleum releases tend to occur near the source of the petroleum release and are often detected by smelling petroleum odors in the building. When petroleum odors are not detected, vapor intrusion concerns can be dismissed if there is more than five (5) feet of clean unsaturated and aerated (greater than 5% oxygen content) soil separating the residual contamination from the building.

An investigation into the potential for vapor migration should be completed in situations when there is not more than five (5) feet of clean unsaturated and aerated (greater than 5% oxygen content) soil separating the residual contamination from the building or any of the following conditions:

- **Free phase product that has the potential for off gassing vapors underlies a building or is within 30 feet, horizontally or vertically of a building foundation.**

  Free product has been observed in MW4, located approximately thirty-five (35) feet from the on-site building.
- **Petroleum contaminated soils with the potential for off gassing vapors are within 5 feet or less of a building foundation.**

  The existing petroleum underground storage tank system is located adjacent to the building foundation. Historic soil samples GP3 and SS2 were heavily impacted and each was located adjacent to the building.
- **Benzene concentrations in groundwater underlying a building is >1,000 ppb and there is less than 20 feet of unsaturated soil between the groundwater and the building.**

  Benzene concentrations exceeding 1,000 ppb were reported in MW3 groundwater sample collected adjacent to the existing building. Depth to groundwater near the building is currently less than five (5) feet bls.
- **Groundwater contaminated with petroleum product above Wisconsin's groundwater preventive action limit (PAL) is entering a building or in**

contact with a buildings foundation or is in water intercepted by the buildings foundation drainage system, including sumps.

The building was constructed as a slab on grade structure. No known petroleum impacted groundwater is entering the building.

- **Petroleum vapors are present that may migrate from the petroleum source and move through preferential pathways (utility lines, fractured bedrock, etc.) into a building.**

  Petroleum vapors are likely present in the soils above the shallow water table. Utility corridors are a known conduit for petroleum vapors.

Based on the recorded depth to groundwater, soil types and contaminants of concern, it can be concluded that the threat for vapor migration from the petroleum release at the O-W Sport and Liquor site is a possibility and further investigation into vapor migration should be conducted.

4.0 CONCLUSIONS AND RECOMMENDATIONS

REI has identified recommended repairs to the current monitoring well network. The groundwater degree and extent appears to be adequately defined in the lateral component, but not in the vertical. This site investigation does not have a piezometer installed and REI is recommending the installation of a piezometer near MW3. Additionally, another monitoring well may be necessary WEST OF mw3, ON THE WEST SIDE OF Central Avenue. Vapor intrusion has not been investigated, but subject property structure appears to be at risk for potential vapor intrusion concerns.

REI is further recommending continued quarterly groundwater sampling from the well network. REI is recommending that the wells be analyzed for PVOC and naphthalene compounds. REI is recommending soil excavation as the primary remedial approach to eliminate the continued contaminant loading from the petroleum impacted soil to the groundwater. The source of the observed free product should also be removed during the completion of the proposed soil excavation. REI will continue to work with the WDNR project manager to complete the investigation before the 2020 PECFA sunset date.

Table 1
Depth to Water and Water Table Elevations
O-W Sports and Liquor
Owen, WI

Depth to Water (feet) below Reference Elevation

Date	MW1	MW2	MW3	MW4	MW5	MW6
12/7/2000	9.57	7.10	7.04	7.43	7.21	6.59
4/17/2001	6.32	5.62	5.68		5.72	4.35
7/17/2001	8.54	6.84	6.94		7.10	5.91
10/17/2001	8.03	6.71	6.76		6.88	5.26
2/15/2002	9.59	7.17	7.22		7.36	7.23
5/21/2002	6.82	5.92	5.98		6.06	4.89
10/2/2002	7.98	6.66	6.71		6.86	5.23
4/5/2004	6.45	6.22	6.23		6.14	5.13
4/9/2008	6.09	5.55	5.31	5.90	5.24	4.80
4/25/2017	6.19	4.81	5.20	5.22	4.02	4.10

Measuring Point Elevations

Elevations referenced to an onsite benchmark

Initial Survey	102.67	99.32	99.14	98.99	98.64	99.02
Resurvey (4-9-08)			99.08	98.98		99.13
Resurvey (4-25-17)	1244.59	1241.16	1241.02	1240.70	1240.66	1240.75

Ground Surface Elevation

Initial Survey	100.72	99.80	99.55	99.42	99.03	99.52
Resurvey (4-25-17)	1242.10	1241.56	1241.37	1241.14	1240.83	1241.11

Depth to Water (feet) below Ground Surface

Average	5.61	6.74	6.72	6.61	6.65	5.85
Maximum	7.64	7.65	7.63	7.86	7.75	7.73
Minimum	4.14	5.29	5.61	5.65	4.41	4.60
Range	3.50	2.36	2.02	2.21	3.34	3.13

Water Level Elevation (feet MSL)

Date	MW1	MW2	MW3	MW4	MW5	MW6
12/7/2000	93.10	92.22	92.10	91.56	91.43	92.43
4/17/2001	96.35	93.70	93.46		92.92	94.67
7/17/2001	94.13	92.48	92.20		91.54	93.11
10/17/2001	94.64	92.61	92.38		91.76	93.76
2/15/2002	93.08	92.15	91.92		91.28	91.79
5/21/2002	95.85	93.40	93.16		92.58	94.13
10/2/2002	94.69	92.66	92.43		91.78	93.79
4/5/2004	96.22	93.10	92.91		92.50	93.89
4/9/2008	96.58	93.77	93.77	93.08	93.40	94.33
4/25/2017	1238.40	1236.35	1235.82	1235.48	1236.64	1236.65

LNAPL in the well

Table 2a
Summary of Groundwater Analytical Results
Geoprobes
O-W Sports and Liquor
107 Central Avenue
Owen, WI

Parameter	ES	PAL	Units	GP1	GP2	GP5	GP8	GP9	GP10
			Date	10/25/2000	10/25/2000	10/25/2000	10/25/2000	10/25/2000	10/25/2000
GRO				< 50	< 50	71,300	3,190	54,600	9,710
VOC Parameters									
Benzene	5	0.5	µg/l	< 0.15	< 0.15	**18,600**	**155**	**5,360**	**63.5**
Toluene	800	160	µg/l	< 0.4	< 0.4	**13,300**	*183*	**19,500**	**1,290**
Ethylbenzene	700	140	µg/l	0.562 *	< 0.5	**3,080**	111	**4,620**	553
Xylenes (mixed isomers)	2,000	400	µg/l	0.750 *	< 0.55	**11,410**	*450*	**24,640**	**3,330**
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 0.3	< 0.3	< 600	< 6	< 300	< 30
Trimethylbenzenes (mixed isomers)	480	96	µg/l	2.37	< 0.55	**3,259**	*242.1*	**9,960**	**1,371**
Naphthalene	100	10	µg/l	1.80 *	< 0.8	< 1,600	*29.5*	**2,750**	**415**
n-Butylbenzene			µg/l	2.69	< 0.15	< 300	< 3	< 150	< 15
sec-Butlybenzene			µg/l	0.578	< 0.15	< 300	17.1	419	56.5
tert-Butylbenzene			µg/l	0.203 *	< 0.15	< 300	< 3	< 150	< 15
Isopropylbenzene			µg/l	< 0.15	< 0.15	< 300	23.2	401	60.7
n-Propylbenzene			µg/l	< 0.15	< 0.15	< 300	41	1,330	151
1,2-Dichloroethane	5	0.5	µg/l	< 0.15	< 0.15	< 300	**5.66**	< 150	< 15

Parameter	ES	PAL	Unit	GP11	GP12	GP13	GP14	GP15	GP16
			Date	11/27/2000	11/27/2000	11/27/2000	11/27/2000	11/27/2000	11/27/2000
VOC Parameters									
Benzene	5	0.5	µg/l	< 0.15	< 0.15	< 0.15	**420**	**108**	0.175 *
Toluene	800	160	µg/l	< 0.4	0.481*	< 0.4	94.8	152	0.527 *
Ethylbenzene	700	140	µg/l	< 0.5	< 0.5	< 0.5	**1,390**	**407**	< 0.5
Xylenes (mixed isomers)	2,000	400	µg/l	< 0.55	< 0.55	< 0.55	**3,758.8**	*1,380*	0.984 *
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 0.3	< 0.3	< 0.3	< 6	< 30	< 0.3
Trimethylbenzenes (mixed isomers)	480	96	µg/l	< 0.55	< 0.55	< 0.55	**3,918**	**781**	1.748 *

ES = NR140.10 Enforcement Standards
PAL = NR140.10 Preventive Action Limits
NA = Not Analyzed
* = Result between Limit of Detection and Limit of Quantitation (Considered an Estimate)
Enforcement Standard exceeded **BOLD**
Preventive Action Limit exceeded *Italics*

Table 2b
Summary of Groundwater Analytical Results
MW1
O-W Sports and Liquor
107 Central Avenue
Owen, WI

Parameter	ES	PAL	Units	12/7/2000	4/17/2001	7/17/2001	10/17/2001	2/5/2002	5/21/2002	10/2/2002	4/5/2004	4/9/2008	4/25/2017
GRO			µg/l	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC Parameters													
Benzene	5	0.5	µg/l	< 0.15	< 0.15	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.14	< 0.31	< 0.40
Toluene	800	160	µg/l	< 0.4	< 0.4	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.36	< 0.30	< 0.39
Ethylbenzene	700	140	µg/l	0.575 *	< 0.5	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.40	< 0.50	< 0.39
Xylenes (mixed isomers)	2,000	400	µg/l	0.948 *	< 0.55	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 0.74	< 0.62	< 0.80
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 0.3	< 0.3	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.36	< 0.30	< 0.48
Trimethylbenzenes (mixed isomers)	480	96	µg/l	1.33 *	< 0.55	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.40	< 0.40	< 0.42
Naphthalene	100	10	µg/l	< 0.8	NA	NA	NA	NA	NA	NA	< 0.47	< 0.80	< 0.42
Methylene Chloride	5	0.5	µg/l	< 0.39	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene			µg/l	< 0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene			µg/l	< 0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl Ether			µg/l	< 0.25	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyl toluene			µg/l	0.212 *	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics													
Lead	15	1.5	µg/l	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate+Nitrite (as N)	10	2	mg/l	1.21	1.17	0.97	NA	0.99	1.1	NA	NA	NA	NA
Sulfate	250	125	mg/l	20.1	47.6	24	NA	26	56	NA	NA	NA	NA
Iron (filtered)	0.3	0.15	mg/l	**0.759**	0.05	NA	NA	0.049	NA	NA	NA	NA	NA
Field Measurements													
Temperature			°F	NA	40.26	57.86	NA	47.51	NA	NA	NA	NA	45.97
Conductivity			µS/cm	NA	253	375	NA	165	NA	NA	NA	NA	165
Dissolved Oxygen			mg/l	NA	9.39	9.16	NA	6.38	NA	NA	NA	NA	10.33
pH				NA	6.47	7.74	NA	8.29	NA	NA	NA	NA	6.76
Redox Potential			mV	NA	244.6	1.2	NA	44.7	NA	NA	NA	NA	248.4

Notes:
ES = NR140.10 Enforcement Standards
PAL = NR140.10 Preventive Action Limits
NA = Not Analyzed
Enforcement Standard exceeded **BOLD**
Preventive Action Limit exceeded *Italics*
* = Result between laboratory Limit of Detection and Limit of Quantitation (consider an estimated value)

Table 2c
Summary of Groundwater Analytical Results
MW2
O-W Sports and Liquor
107 Central Avenue
Owen, WI

Parameter	ES	PAL	Units	12/7/2000	4/17/2001	7/17/2001	10/17/2001	2/5/2002	5/21/2002	10/2/2002	4/5/2004	4/9/2008	4/25/2017
GRO			µg/l	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC Parameters													
Benzene	5	0.5	µg/l	< 0.15	< 0.15	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.14	< 0.31	< 0.40
Toluene	800	160	µg/l	< 0.4	< 0.4	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.36	< 0.30	< 0.39
Ethylbenzene	700	140	µg/l	< 0.5	< 0.5	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.40	< 0.50	< 0.39
Xylenes (mixed isomers)	2,000	400	µg/l	0.579 *	< 0.55	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 0.74	< 0.62	< 0.80
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 0.3	< 0.3	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.36	< 0.30	< 0.48
Trimethylbenzenes (mixed isomers)	480	96	µg/l	< 0.820 *	< 0.55	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.40	< 0.40	< 0.42
Naphthalene	100	10	µg/l	< 0.8	NA	NA	NA	NA	NA	NA	< 0.47	< 0.80	< 0.42
Methylene Chloride	5	0.5	µg/l	< 0.39	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene			µg/l	< 0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene			µg/l	< 0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl Ether			µg/l	< 0.25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics													
Lead	15	1.5	µg/l	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate+Nitrite (as N)	10	2	mg/l	0.526	*3.63*	NA	NA	3.1	6.3	NA	NA	NA	NA
Sulfate	250	125	mg/l	41.2	43.7	NA	NA	35	54	NA	NA	NA	NA
Iron (filtered)	0.3	0.15	mg/l	*0.759*	0.035	NA	NA	0.099	NA	NA	NA	NA	NA
Field Measurements													
Temperature			°F	NA	44.46	55.22	NA	49.13	NA	NA	NA	NA	49.4
Conductivity			µS/cm	NA	717	484	NA	488	NA	NA	NA	NA	753
Dissolved Oxygen			mg/l	NA	5.6	5.36	NA	6.1	NA	NA	NA	NA	10.61
pH				NA	6.13	8.49	NA	8.12	NA	NA	NA	NA	7.12
Redox Potential			mV	NA	254.3	60.5	NA	35.7	NA	NA	NA	NA	222.2

Notes:
ES = NR140.10 Enforcement Standards
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NA = Not Analyzed
Enforcement Standard exceeded **BOLD**
Preventive Action Limit exceeded *Italics*
* = Result between laboratory Limit of Detection and Limit of Quantitation (consider an estimated value)

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Table 2d
Summary of Groundwater Analytical Results
MW3
O-W Sports and Liquor
107 Central Avenue
Owen, WI

Parameter	ES	PAL	Units	12/7/2000	4/17/2001	7/17/2001	10/17/2001	2/5/2002	5/21/2002	10/2/2002	4/5/2004	4/9/2008	4/25/2017
GRO			µg/l	2,370				NA	NA	NA			NA
VOC Parameters													
Benzene	5	0.5	µg/l	**1,190**	**6,530**	**11,000**	**9,600**	**9,800**	**11,000**	**10,000**	**9,500**	**3,070**	**3,240**
Toluene	800	160	µg/l	< 80	*561*	*420*	*170*	*230*	*190*	*290*	*330*	46.8	111
Ethylbenzene	700	140	µg/l	*140*	*424*	**710**	*660*	*610*	**920**	**750**	**710**	*254*	*354*
Xylenes (mixed isomers)	2,000	400	µg/l	89.3	*1,315*	*1,290*	*761*	*1,028*	*1,980*	*1,110*	*1,120*	257.3	*565*
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 60	< 30	**61**	**72**	< 22	**88***	< 43	36*	< 3.0	< 19.4
Trimethylbenzenes (mixed isomers)	480	96	µg/l	< 110	*416*	*430*	*320*	*440*	**910**	**490**	*440*	*153.5*	*279.8*
Naphthalene	100	10	µg/l	< 160	NA	NA	NA	NA	NA	NA	**180**	NA	*64.5*
Methylene Chloride	5	0.5	µg/l	< 78	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene			µg/l	< 30	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene			µg/l	< 30	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl Ether			µg/l	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5	0.5	µg/l	**47.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics													
Lead	15	1.5	µg/l	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate+Nitrite (as N)	10	2	mg/l	< 0.3	< 0.3	NA	NA	NA	1.1	NA	NA	NA	NA
Sulfate	250	125	mg/l	33.2	27.2	NA	NA	NA	56	NA	NA	NA	NA
Iron (filtered)	0.3	0.15	mg/l	**4.23**	**0.409**	NA	NA	**5.7**	NA	NA	NA	NA	NA
Field Measurements													
Temperature			°F	NA	43.66	57.59	NA	NA	NA	NA	NA	NA	48.35
Conductivity			µS/cm	NA	198	1026	NA	NA	NA	NA	NA	NA	388
Dissolved Oxygen			mg/l	NA	7.62	3.34	NA	NA	NA	NA	NA	NA	0.82
pH				NA	7.09	7.23	NA	NA	NA	NA	NA	NA	6.18
Redox Potential			mV	NA	236.3	98.3	NA	NA	NA	NA	NA	NA	80.6

Notes:
ES = NR140.10 Enforcement Standards
PAL = NR140.10 Preventive Action Limits
NA = Not Analyzed
Enforcement Standard exceeded **BOLD**
Preventive Action Limit exceeded *Italics*
* = Result between laboratory Limit of Detection and Limit of Quantitation (consider an estimated value)

Table 2e
Summary of Groundwater Analytical Results
MW4
O-W Sports and Liquor
107 Central Avenue
Owen, WI

Parameter	ES	PAL	Units	12/7/2000	4/17/2001	7/17/2001	10/17/2001	2/5/2002	05/21/02	10/02/02	4/5/2004	4/9/2008	4/25/2017
GRO			µg/l	27,900					NA			NA	NA
VOC Parameters													
Benzene	5	0.5	µg/l	**1,450**	**Not**	**Not**	**Not**	**Not**	**1,200**	**Not**	**Not**	**592**	**71.5**
Toluene	800	160	µg/l	**3,150**	**Sampled**	**Sampled**	**Sampled**	**Sampled**	**1,100**	**Sampled**	**Sampled**	*784*	85.3
Ethylbenzene	700	140	µg/l	**1,370**					**1,300**			**1,090**	**631**
Xylenes (mixed isomers)	2,000	400	µg/l	**6,910**	**Free**	**Free**	**Free**	**Free**	**5,700**	**Free**	**Free**	**6,710**	**2,826**
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 150	**Product**	**Product**	**Product**	**Product**	*43*	**Product**	**Product**	< 30	< 9.7
Trimethylbenzenes (mixed isomers)	480	96	µg/l	**1,553**					**2,050**			**3,950**	**2,333**
Naphthalene	100	10	µg/l	< 400					NA			**524**	**460**
Methylene Chloride	5	0.5	µg/l	< 195					NA			NA	NA
sec-Butylbenzene			µg/l	< 75					NA			NA	NA
n-Propylbenzene			µg/l	282					NA			NA	NA
Isopropylbenzene			µg/l	75.6					NA			NA	NA
n-Butylbenzene			µg/l	196					NA			NA	NA
Inorganics													
Lead	15	1.5	µg/l	**22.2**					NA			NA	NA
Nitrate+Nitrite (as N)	10	2	mg/l	< 0.3					NA			NA	NA
Sulfate	250	125	mg/l	7.94					NA			NA	NA
Iron (filtered)	0.3	0.15	mg/l	**3.73**					NA			NA	NA
Field Measurements													
Temperature			°F	NA					NA			NA	**Not**
Conductivity			µS/cm	NA					NA			NA	**Sampled**
Dissolved Oxygen			mg/l	NA					NA			NA	
pH				NA					NA			NA	**Free**
Redox Potential			mV	NA					NA			NA	**Product**

Notes:
ES = NR140.10 Enforcement Standards
PAL = NR140.10 Preventive Action Limits
NS = Not Sampled
NA = Not Analyzed
* = Result between Limit of Detection and Limit of Quantitation (Considered an Estimate)

Enforcement Standard exceeded	**BOLD**
Preventive Action Limit exceeded	*Italics*

Free Product in Well

Table 2f
Summary of Groundwater Analytical Results
MW5
O-W Sports and Liquor
107 Central Avenue
Owen, WI

Parameter	ES	PAL	Units	12/7/2000	4/17/2001	7/17/2001	10/17/2001	2/5/2002	5/21/2002	10/2/2002	4/5/2004	4/9/2008	4/25/2017
GRO			µg/l	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC Parameters													
Benzene	5	0.5	µg/l	< 0.412 *	< 0.15	< 0.45	< 0.45	0.62 *	< 0.45	0.82 *	< 0.14	< 0.31	< 0.40
Toluene	800	160	µg/l	< 0.4	< 0.4	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.36	< 0.30	< 0.39
Ethylbenzene	700	140	µg/l	< 0.5	< 0.5	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.40	< 0.50	< 0.39
Xylenes (mixed isomers)	2,000	400	µg/l	< 0.55	< 0.55	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 0.74	< 0.62	< 0.80
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 0.3	< 0.3	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.36	< 0.30	< 0.48
Trimethylbenzenes (mixed isomers)	480	96	µg/l	< 0.55	< 0.55	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.40	< 0.40	< 0.42
Naphthalene	100	10	µg/l	< 0.8	NA	NA	NA	NA	NA	NA	< 0.47	< 0.80	< 0.42
Methylene Chloride	5	0.5	µg/l	< 0.39	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene			µg/l	< 0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene			µg/l	< 0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene			µg/l	< 0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics													
Lead	15	1.5	µg/l	< 1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate+Nitrite (as N)	10	2	mg/l	< 0.3	1.19	0.48	NA	0.23	NA	NA	NA	NA	NA
Sulfate	250	125	mg/l	30.2	18.8	68	NA	22	NA	NA	NA	NA	NA
Iron (filtered)	0.3	0.15	mg/l	**3.5**	0.053	NA	NA	0.061	NA	NA	NA	NA	NA
Field Measurements													
Temperature			°F	NA	43.26	56.94	NA	47.6	NA	NA	NA	NA	48.93
Conductivity			µS/cm	NA	198	177	NA	151	NA	NA	NA	NA	257
Dissolved Oxygen			mg/l	NA	7.62	4.19	NA	5.17	NA	NA	NA	NA	1.77
pH				NA	7.09	8.39	NA	7.25	NA	NA	NA	NA	6.48
Redox Potential			mV	NA	236.3	69.3	NA	-5.1	NA	NA	NA	NA	92.0

Notes:
ES = NR140.10 Enforcement Standards
PAL = NR140.10 Preventive Action Limits
NA = Not Analyzed
Enforcement Standard exceeded **BOLD**
Preventive Action Limit exceeded *Italics*
* = Result between laboratory Limit of Detection and Limit of Quantitation (consider an estimated value)

Table 2g
Summary of Groundwater Analytical Results
MW6
O-W Sports and Liquor
107 Central Avenue
Owen, WI

Parameter	ES	PAL	Units	12/07/00	04/17/01	07/17/02	10/17/01	02/05/02	5/21/2002	10/2/2002	4/5/2004	4/9/2008	4/25/2017
GRO			µg/l	< 50			NA	NA	NA	NA	NA	NA	NA
VOC Parameters													
Benzene	5	0.5	µg/l	0.774	< 0.15	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.14	< 0.31	< 0.40
Toluene	800	160	µg/l	0.536 *	< 0.4	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.36	< 0.30	< 0.39
Ethylbenzene	700	140	µg/l	0.691 *	< 0.5	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.40	< 0.50	< 0.39
Xylenes (mixed isomers)	2,000	400	µg/l	1.171 *	< 0.55	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 0.74	< 0.62	< 0.80
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 0.3	< 0.3	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.36	< 0.30	< 0.48
Trimethylbenzenes (mixed isomers)	480	96	µg/l	< 0.55	< 0.55	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.40	< 0.40	< 0.42
Naphthalene	100	10	µg/l	< 0.8	NA	NA	NA	NA	NA	NA	< 0.47	< 0.80	< 0.42
Methylene Chloride	5	0.5	µg/l	< 0.39	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene			µg/l	< 0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene			µg/l	< 0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene			µg/l	< 0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics													
Lead	15	1.5	µg/l	< 1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate+Nitrite (as N)	10	2	mg/l	*6.97*	*4.8*	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	125	mg/l	16.3	23.8	NA	NA	NA	NA	NA	NA	NA	NA
Iron (filtered)	0.3	0.15	mg/l	0.038	0.121	NA	NA	NA	NA	NA	NA	NA	NA
Field Measurements													
Temperature			°F	NA	42.15	56	NA	NA	NA	NA	NA	NA	43.91
Conductivity			µS/cm	NA	150	164	NA	NA	NA	NA	NA	NA	523
Dissolved Oxygen			mg/l	NA	6.22	7.06	NA	NA	NA	NA	NA	NA	9.64
pH				NA	6.33	8.06	NA	NA	NA	NA	NA	NA	6.4
Redox Potential			mV	NA	253.7	94.3	NA	NA	NA	NA	NA	NA	223.5

Notes:
ES = NR140.10 Enforcement Standards
PAL = NR140.10 Preventive Action Limits
NA = Not Analyzed
Enforcement Standard exceeded **BOLD**
Preventive Action Limit exceeded *Italics*
* = Result between laboratory Limit of Detection and Limit of Quantitation (consider an estimated value)

P:\1600-1699\1687-OW-Sports-Liquor\Reports\Update 3\[1687U3t2.xls]MW6

Table 3
Depth to Free Product and Free Product Thickness
O-W Sports and Liquor
Owen, WI

Depth To Free Product (feet) below Reference Elevation

Well Name	MW4				
	Depth to	Depth to	Product	Product Volume	Comments and
Date	Product	Groundwater	Thickness (ft)	in Well (gal)	Product Removed
12/14/2000			0.33		
2/14/2001			0.25		
12/13/2001			0.25		
2/13/2002			0.33		
5/12/2002			0.17		
6/26/2002			0.04		
10/2/2002			0.04		
9/30/2003			0.50		
1/30/2004			0.33		
4/5/2004			0.25		
4/25/2017	5.09	5.22	0.13	0.02	0.25

Estimated Minimum Amount Removed **0.02**

Estimated Amount Actually Removed (gal) **0.25**

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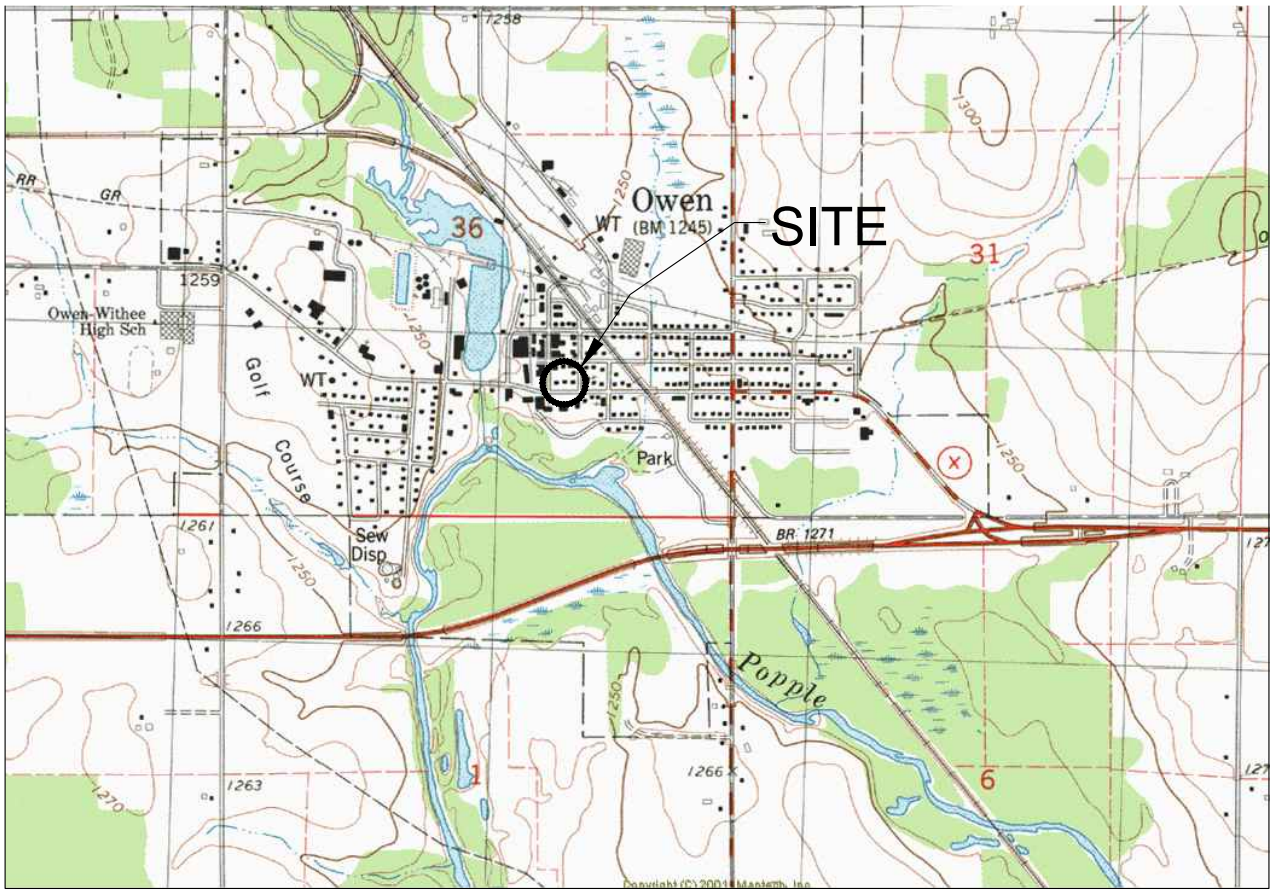


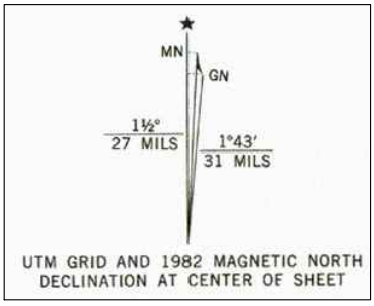
SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

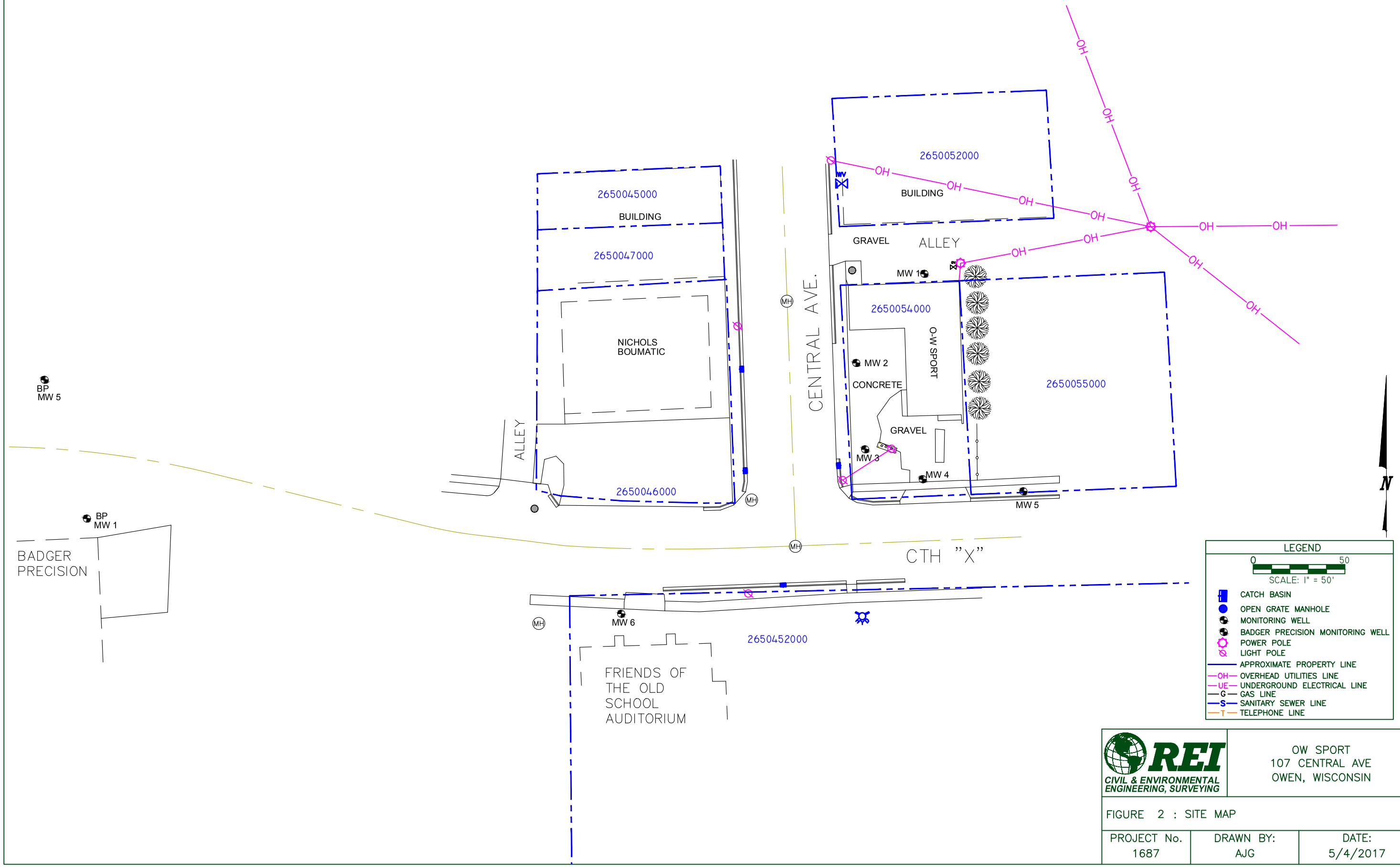
OWEN, WIS.
NE/4 OWEN 15' QUADRANGLE
N4452.5–W9030/7.5
1982
DMA 2873 I NE–SERIES V861

QUADRANGLE LOCATION

REI Engineering, INC.

OW SPORT 107 CENTRAL AVE OWEN, WISCONSIN	FIGURE 1 : SITE VICINITY MAP		
	PROJECT NO. 1687	DRAWN BY: AJG	DATE: 5/3/2017

DRAWING FILE: P:\1600-1699\1687-OW-SPORTS-LIQUOR\DWG\1687-VICN.DWG LAYOUT: VICN PLOTTED: MAY 03, 2017 - 4:04PM PLOTTED BY: ALANG



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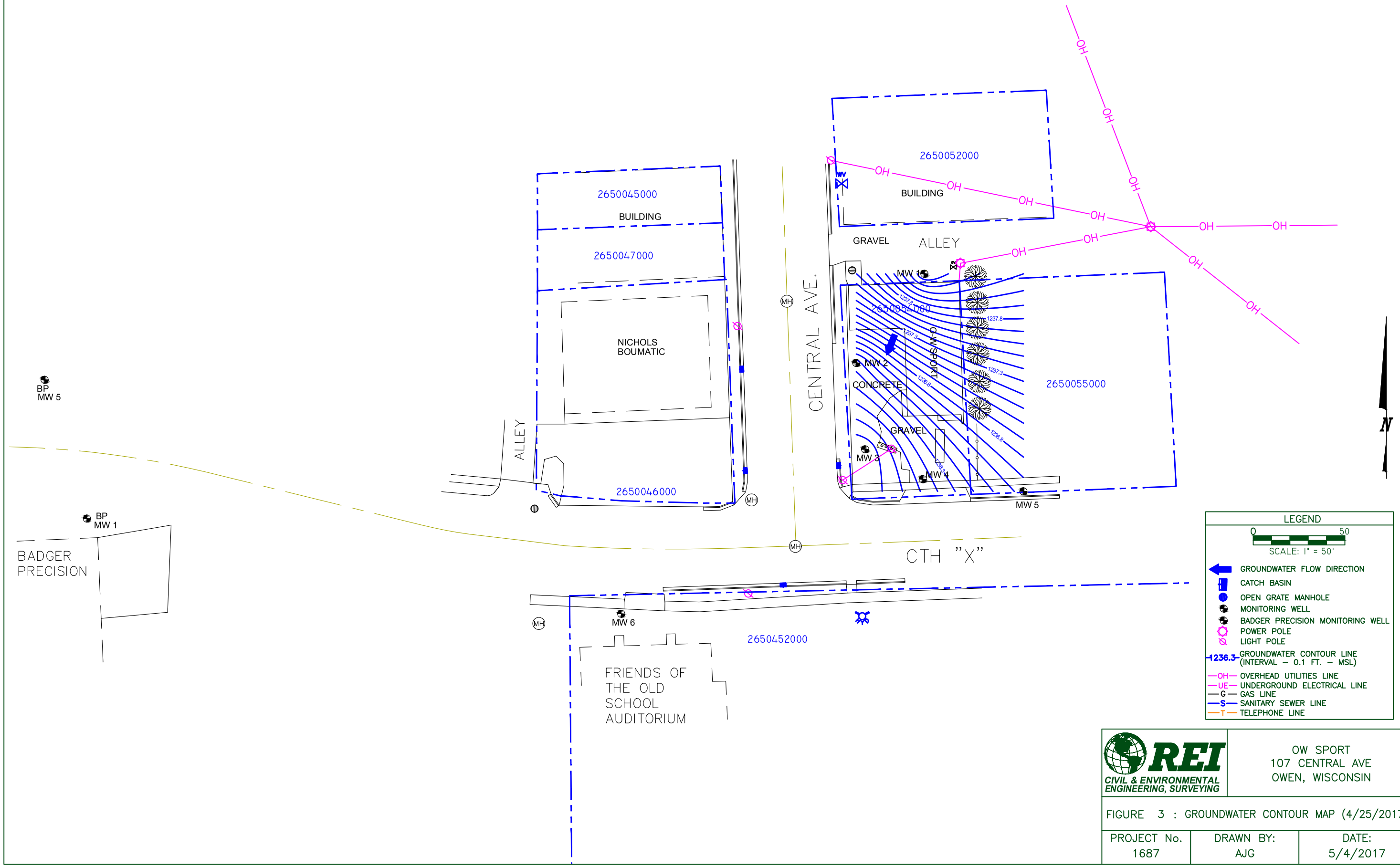
OW SPORT
107 CENTRAL AVE
OWEN, WISCONSIN

FIGURE 2 : SITE MAP

PROJECT No.	DRAWN BY:	DATE:
1687	AJG	5/4/2017



LEGEND

0 50

SCALE: 1" = 50'

- GROUNDWATER FLOW DIRECTION
- CATCH BASIN
- OPEN GRATE MANHOLE
- MONITORING WELL
- BADGER PRECISION MONITORING WELL
- POWER POLE
- LIGHT POLE
- 1236.3 GROUNDWATER CONTOUR LINE (INTERVAL – 0.1 FT. – MSL)
- OH OVERHEAD UTILITIES LINE
- UE UNDERGROUND ELECTRICAL LINE
- G GAS LINE
- S SANITARY SEWER LINE
- T TELEPHONE LINE

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OW SPORT
107 CENTRAL AVE
OWEN, WISCONSIN

FIGURE 3 : GROUNDWATER CONTOUR MAP (4/25/2017)

PROJECT No.	DRAWN BY:	DATE:
1687	AJG	5/4/2017

APPENDIX A

PHOTOGRAPHS OF WELL REPAIRS

MW1 - Initial Condition

Resetting Elevation of Stick-up Well Pipe

Resetting Protective Bollards

MW2 - Before and After. MW2 will need a new flushmount well vault installed

MW3 - Before and After. MW3 will need a new flushmount well vault installed

MW4 - Initial Condition

MW4 - flushmount lid detatched from skirt and vault filled with debris

MW4 - Debris removed and well casing trimmed

MW4 - Flushmount lid temporary placed on skirt, flushmount to be replaced

MW5 - well in acceptable condition

MW6 - Initial Condition

MW6 well hit by snow plow. Flushmount damaged, compression cap lost and casing badly kinked about 9.5' below top of casing

MW6 flushmount temporarily repaired. Flushmouont to be replaced.

O-W Sports and Liquor 107 Central Avenue, Owen, Wisconsin	Appendix A REI Project Number: 1687	Photographs of Well Repairs p:\1600-1699\1687-ow-sports-liquor\reports\update 3\[1687u3appa.xls]photo sheet 4

APPENDIX B

WELL DEVELOPMENT FORMS

State of Wisconsin
Department of Natural Resources

Route To: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4.90

Facility/Project Name	County Name	Well Name	
O-W Sports and Liquor	Clark	MW1	
Facility Licence, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well Number**

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☒ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 6.19 *ft.*	16.15 *ft.*
Data *mm/dd/yy*	b. 4/25/17	4/25/17
Time	c. 9:52 ☐ p.m. ☒ a.m.	10:10 ☐ p.m. ☒ a.m.
12. Sediment in well bottom	6 *inches*	0 *inches*
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 10 Turbid ☒ 15 (Describe)

3. Time spent developing well	18 *min.*
4. Depth of well (from top of Casing)	17.17 *ft.*
5. Inside diameter of well	2.07 *in.*
6. Volume of water in filter pack and well casing	10.5 *gal.*
7. Volume of water removed from well	10 *gal.*
8. Volume of water added (If any)	*gal.*
9. Source of water added _____	
10. Analysis performed on water added? (If yes. attach results) ☐ Yes ☐ No	

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	*mg/l*	*mg/l*
15. COD	*mg/l*	*mg/l*

16. Additional comments on development:
Well pumped dry multiple times

Well developed by: Person's Name and Firm

Name: Scott Blado (REI)

Firm: REI Engineering, Inc.
4020 N 20th Ave.
Wausau, WI 54401

I hereby certify that the above Information is true and correct to the best of my knowledge.

Signature: Scott Blado

Print Initials: SSB

Firm: REI Engineering, Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more Information Including a list of county codes.

State of Wisconsin
Department of Natural Resources

Route To: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 4.90

Facility/Project Name	County Name	Well Name	
O-W Sports and Liquor	Clark	MW2	
Facility Licence, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well Number**

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and balled	☐ 41
surged with bailer and pumped	☒ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 15 *min.*

4. Depth of well (from top of Casing) 13.57 *ft.*

5. Inside diameter of well 2.07 *in.*

6. Volume of water in filter pack and well casing 9.25 *gal.*

7. Volume of water removed from well 10 *gal.*

8. Volume of water added (If any) *gal.*

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes. attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing	a. 4.81 *ft.*	13.57 *ft.*
Data *mm/dd/yy*	b. 4/25/17	4/25/17
Time	c. 10:55 ☐ p.m. ☒ a.m.	11:10 ☐ p.m. ☒ a.m.
12. Sediment in well bottom	6 *inches*	0 *inches*
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 10 Turbid ☒ 15 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	*mg/l*	*mg/l*
15. COD	*mg/l*	*mg/l*

16. Additional comments on development:
Well pumped dry multiple times

Well developed by: Person's Name and Firm

Name: Scott Blado (REI)

Firm: REI Engineering, Inc.
4020 N 20th Ave.
Wausau, WI 54401

I hereby certify that the above Information is true and correct to the best of my knowledge.

Signature: Scott Blado

Print Initials: S J B

Firm: REI Engineering, Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more Information Including a list of county codes.

State of Wisconsin
Department of Natural Resources

Route To: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4.90

Facility/Project Name	County Name	Well Name	
O-W Sports and Liquor	Clark	MW3	
Facility Licence, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well Number**

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☒ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

		Before Development	After Development
3. Time spent developing well		27 min.	
4. Depth of well (from top of Casing)		14 ft.	
5. Inside diameter of well		2.07 in.	
6. Volume of water in filter pack and well casing		8.5 gal.	
7. Volume of water removed from well		15 gal.	
8. Volume of water added (If any)		gal.	
9. Source of water added			
10. Analysis performed on water added? (If yes. attach results)		☐ Yes ☐ No	
11. Depth to Water (from top of well casing)	a.	5.20 ft.	11.60 ft.
Data mm/dd/yy	b.	4/25/17	4/25/17
Time	c.	11:23 ☐ p.m. ☒ a.m.	11:50 ☐ p.m. ☒ a.m.
12. Sediment in well bottom		6 inches	0 inches
13. Water clarity	Clear / Turbid	☐ 10 / ☒ 15	☐ 10 / ☒ 15
(Describe)			

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Additional comments on development:
Well pumped dry multiple times

Well developed by: Person's Name and Firm

Name: Scott Blado (REI)

Firm: REI Engineering, Inc.
4020 N 20th Ave.
Wausau, WI 54401

I hereby certify that the above Information is true and correct to the best of my knowledge.

Signature: Scott J Blado

Print Initials: SJB

Firm: REI Engineering, Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more Information Including a list of county codes.

State of Wisconsin
Department of Natural Resources

Route To: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4.90

Facility/Project Name	County Name	Well Name
O-W Sports and Liquor	Clark	MW4
Facility Licence, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number** / **DNR Well Number**

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐	41
surged with bailer and pumped	☒	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
Other _____	☐	

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 5.22 *ft.*	13.71 *ft.*
Data *mm/dd/yy*	b. 4/25/17	4/25/17
Time	c. 12:00 ☒ p.m. ☐ a.m.	12:20 ☒ p.m. ☐ a.m.
12. Sediment in well bottom	6 *inches*	0 *inches*
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 10 Turbid ☒ 15 (Describe)

3. Time spent developing well	20 *min.*	
4. Depth of well (from top of Casing)	14.03 *ft.*	
5. Inside diameter of well	2.07 *in.*	
6. Volume of water in filter pack and well casing	8.5 *gal.*	
7. Volume of water removed from well	15 *gal.*	
8. Volume of water added (If any)	*gal.*	

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes. attach results)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	*mg/l*	*mg/l*
15. COD	*mg/l*	*mg/l*

16. Additional comments on development:
Well pumped dry multiple times

Well developed by: Person's Name and Firm

Name: Scott Blado (REI)

Firm: REI Engineering, Inc.
4020 N 20th Ave.
Wausau, WI 54401

I hereby certify that the above Information is true and correct to the best of my knowledge.

Signature: Scott Blado

Print Initials: SJB

Firm: REI Engineering, Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more Information Including a list of county codes.

State of Wisconsin
Department of Natural Resources

Route To: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4.90

Facility/Project Name	County Name	Well Name	
O-W Sports and Liquor	Clark	MW5	
Facility Licence, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well Number**

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and balled	☐	41
surged with bailer and pumped	☒	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
Other _____	☐	

3. Time spent developing well 20 *min.*

4. Depth of well (from top of Casing) 14.58 *ft.*

5. Inside diameter of well 2.07 *in.*

6. Volume of water in filter pack and well casing 10 *gal.*

7. Volume of water removed from well 10 *gal.*

8. Volume of water added (If any) *gal.*

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes. attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing	a. 4.02 *ft.*	13.90 *ft.*
Data *mm/dd/yy*	b. 4/25/17	4/25/17
Time	c. 9:15 ☐ p.m. ☒ a.m.	9:35 ☐ p.m. ☒ a.m.
12. Sediment in well bottom	6 *inches*	0 *inches*
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 10 Turbid ☒ 15 (Describe)
14. Total suspended solids	*mg/l*	*mg/l*
15. COD	*mg/l*	*mg/l*

Fill in if drilling fluids were used and well is at solid waste facility:

16. Additional comments on development:
Well pumped dry multiple times

Well developed by: Person's Name and Firm

Name: Scott Blado (REI)

Firm: REI Engineering, Inc.
4020 N 20th Ave.
Wausau, WI 54401

I hereby certify that the above Information is true and correct to the best of my knowledge.

Signature: Scott J Blado

Print Initials: S J B

Firm: REI Engineering, Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more Information Including a list of county codes.

State of Wisconsin
Department of Natural Resources

Route To: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 4.90

Facility/Project Name	County Name	Well Name
O-W Sports and Liquor	Clark	MW6
Facility Licence, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number** / **DNR Well Number**

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☒ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 15 *min.*

4. Depth of well (from top of Casing) *ft.*

5. Inside diameter of well 2.07 *in.*

6. Volume of water in filter pack and well casing *gal.*

7. Volume of water removed from well 5 *gal.*

8. Volume of water added (If any) *gal.*

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes. attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing	a. 4.10 *ft.*	7.58 *ft.*
Data *mm/dd/yy*	b. 4/25/17	4/25/17
Time	c. 10:25 ☐ p.m. ☒ a.m.	10:40 ☐ p.m. ☒ a.m.
12. Sediment in well bottom	6 *inches*	0 *inches*
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 10 Turbid ☒ 15 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	*mg/l*	*mg/l*
15. COD	*mg/l*	*mg/l*

16. Additional comments on development:
Well pumped dry multiple times

Well developed by: Person's Name and Firm

Name: Scott Blado (REI)

Firm: REI Engineering, Inc.
4020 N 20th Ave.
Wausau, WI 54401

I hereby certify that the above Information is true and correct to the best of my knowledge.

Signature: Scott J Blado

Print Initials: SJB

Firm: REI Engineering, Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more Information Including a list of county codes.

APPENDIX C

LABORATORY ANALYTICAL REPORT

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

May 02, 2017

DAVID LARSEN
REI
4080 NORTH 20TH AVENUE
Wausau, WI 54401

RE: Project: 1687 OW SPORTS
Pace Project No.: 40148982

Dear DAVID LARSEN:
Enclosed are the analytical results for sample(s) received by the laboratory on April 27, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: 1687 OW SPORTS
Pace Project No.: 40148982

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
Virginia VELAP ID: 460263
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-16-00157
Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: 1687 OW SPORTS
Pace Project No.: 40148982

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40148982001	**MW-1**	Water	04/25/17 10:10	04/27/17 08:50
40148982002	**MW-2**	Water	04/25/17 11:10	04/27/17 08:50
40148982003	**MW-3**	Water	04/25/17 11:50	04/27/17 08:50
40148982004	**MW-4**	Water	04/25/17 12:20	04/27/17 08:50
40148982005	**MW-5**	Water	04/25/17 09:40	04/27/17 08:50
40148982006	**MW-6**	Water	04/25/17 10:40	04/27/17 08:50

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Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: 1687 OW SPORTS
Pace Project No.: 40148982

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40148982001	**MW-1**	WI MOD GRO	ALD	10
40148982002	**MW-2**	WI MOD GRO	ALD	10
40148982003	**MW-3**	WI MOD GRO	ALD	10
40148982004	**MW-4**	WI MOD GRO	ALD	10
40148982005	**MW-5**	WI MOD GRO	ALD	10
40148982006	**MW-6**	WI MOD GRO	ALD	10

Pace Analytical Services, LLC
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Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: 1687 OW SPORTS
Pace Project No.: 40148982

Sample: MW-1 **Lab ID: 40148982001** Collected: 04/25/17 10:10 Received: 04/27/17 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO								
Benzene	**<0.40**	ug/L	1.0	0.40	1		05/01/17 12:00	71-43-2	
Ethylbenzene	**<0.39**	ug/L	1.0	0.39	1		05/01/17 12:00	100-41-4	
Methyl-tert-butyl ether	**<0.48**	ug/L	1.0	0.48	1		05/01/17 12:00	1634-04-4	
Naphthalene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 12:00	91-20-3	
Toluene	**<0.39**	ug/L	1.0	0.39	1		05/01/17 12:00	108-88-3	
1,2,4-Trimethylbenzene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 12:00	95-63-6	
1,3,5-Trimethylbenzene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 12:00	108-67-8	
m&p-Xylene	**<0.80**	ug/L	2.0	0.80	1		05/01/17 12:00	179601-23-1	
o-Xylene	**<0.45**	ug/L	1.0	0.45	1		05/01/17 12:00	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	104	%	80-120		1		05/01/17 12:00	98-08-8	

Sample: MW-2 **Lab ID: 40148982002** Collected: 04/25/17 11:10 Received: 04/27/17 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO								
Benzene	**<0.40**	ug/L	1.0	0.40	1		05/01/17 12:25	71-43-2	
Ethylbenzene	**<0.39**	ug/L	1.0	0.39	1		05/01/17 12:25	100-41-4	
Methyl-tert-butyl ether	**<0.48**	ug/L	1.0	0.48	1		05/01/17 12:25	1634-04-4	
Naphthalene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 12:25	91-20-3	
Toluene	**<0.39**	ug/L	1.0	0.39	1		05/01/17 12:25	108-88-3	
1,2,4-Trimethylbenzene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 12:25	95-63-6	
1,3,5-Trimethylbenzene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 12:25	108-67-8	
m&p-Xylene	**<0.80**	ug/L	2.0	0.80	1		05/01/17 12:25	179601-23-1	
o-Xylene	**<0.45**	ug/L	1.0	0.45	1		05/01/17 12:25	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	80-120		1		05/01/17 12:25	98-08-8	

Sample: MW-3 **Lab ID: 40148982003** Collected: 04/25/17 11:50 Received: 04/27/17 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO								
Benzene	**3240**	ug/L	40.0	15.8	40		05/01/17 12:51	71-43-2	
Ethylbenzene	**354**	ug/L	40.0	15.7	40		05/01/17 12:51	100-41-4	
Methyl-tert-butyl ether	**<19.4**	ug/L	40.0	19.4	40		05/01/17 12:51	1634-04-4	
Naphthalene	**64.5**	ug/L	40.0	17.0	40		05/01/17 12:51	91-20-3	
Toluene	**111**	ug/L	40.0	15.5	40		05/01/17 12:51	108-88-3	
1,2,4-Trimethylbenzene	**217**	ug/L	40.0	16.7	40		05/01/17 12:51	95-63-6	
1,3,5-Trimethylbenzene	**62.8**	ug/L	40.0	16.6	40		05/01/17 12:51	108-67-8	
m&p-Xylene	**408**	ug/L	80.0	32.0	40		05/01/17 12:51	179601-23-1	
o-Xylene	**157**	ug/L	40.0	18.0	40		05/01/17 12:51	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: 1687 OW SPORTS
Pace Project No.: 40148982

Sample: MW-3 **Lab ID: 40148982003** Collected: 04/25/17 11:50 Received: 04/27/17 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO								
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-120		40		05/01/17 12:51	98-08-8	

Sample: MW-4 **Lab ID: 40148982004** Collected: 04/25/17 12:20 Received: 04/27/17 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO								
Benzene	**71.5**	ug/L	20.0	7.9	20		05/01/17 13:16	71-43-2	
Ethylbenzene	**631**	ug/L	20.0	7.9	20		05/01/17 13:16	100-41-4	
Methyl-tert-butyl ether	**<9.7**	ug/L	20.0	9.7	20		05/01/17 13:16	1634-04-4	
Naphthalene	**460**	ug/L	20.0	8.5	20		05/01/17 13:16	91-20-3	
Toluene	**85.3**	ug/L	20.0	7.8	20		05/01/17 13:16	108-88-3	
1,2,4-Trimethylbenzene	**1900**	ug/L	20.0	8.4	20		05/01/17 13:16	95-63-6	
1,3,5-Trimethylbenzene	**433**	ug/L	20.0	8.3	20		05/01/17 13:16	108-67-8	
m&p-Xylene	**2160**	ug/L	40.0	16.0	20		05/01/17 13:16	179601-23-1	
o-Xylene	**666**	ug/L	20.0	9.0	20		05/01/17 13:16	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	108	%	80-120		20		05/01/17 13:16	98-08-8	

Sample: MW-5 **Lab ID: 40148982005** Collected: 04/25/17 09:40 Received: 04/27/17 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO								
Benzene	**<0.40**	ug/L	1.0	0.40	1		05/01/17 14:08	71-43-2	
Ethylbenzene	**<0.39**	ug/L	1.0	0.39	1		05/01/17 14:08	100-41-4	
Methyl-tert-butyl ether	**<0.48**	ug/L	1.0	0.48	1		05/01/17 14:08	1634-04-4	
Naphthalene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 14:08	91-20-3	
Toluene	**<0.39**	ug/L	1.0	0.39	1		05/01/17 14:08	108-88-3	
1,2,4-Trimethylbenzene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 14:08	95-63-6	
1,3,5-Trimethylbenzene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 14:08	108-67-8	
m&p-Xylene	**<0.80**	ug/L	2.0	0.80	1		05/01/17 14:08	179601-23-1	
o-Xylene	**<0.45**	ug/L	1.0	0.45	1		05/01/17 14:08	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	80-120		1		05/01/17 14:08	98-08-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: 1687 OW SPORTS
Pace Project No.: 40148982

Sample: MW-6 **Lab ID: 40148982006** Collected: 04/25/17 10:40 Received: 04/27/17 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO								
Benzene	**<0.40**	ug/L	1.0	0.40	1		05/01/17 14:33	71-43-2	
Ethylbenzene	**<0.39**	ug/L	1.0	0.39	1		05/01/17 14:33	100-41-4	
Methyl-tert-butyl ether	**<0.48**	ug/L	1.0	0.48	1		05/01/17 14:33	1634-04-4	
Naphthalene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 14:33	91-20-3	
Toluene	**<0.39**	ug/L	1.0	0.39	1		05/01/17 14:33	108-88-3	
1,2,4-Trimethylbenzene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 14:33	95-63-6	
1,3,5-Trimethylbenzene	**<0.42**	ug/L	1.0	0.42	1		05/01/17 14:33	108-67-8	
m&p-Xylene	**<0.80**	ug/L	2.0	0.80	1		05/01/17 14:33	179601-23-1	
o-Xylene	**<0.45**	ug/L	1.0	0.45	1		05/01/17 14:33	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	80-120		1		05/01/17 14:33	98-08-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: 1687 OW SPORTS
Pace Project No.: 40148982

QC Batch: 254080 Analysis Method: WI MOD GRO
QC Batch Method: WI MOD GRO Analysis Description: WIGRO GCV Water
Associated Lab Samples: 40148982001, 40148982002, 40148982003, 40148982004, 40148982005, 40148982006

METHOD BLANK: 1498432 Matrix: Water
Associated Lab Samples: 40148982001, 40148982002, 40148982003, 40148982004, 40148982005, 40148982006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.42	1.0	04/28/17 08:05	
1,3,5-Trimethylbenzene	ug/L	<0.42	1.0	04/28/17 08:05	
Benzene	ug/L	<0.40	1.0	04/28/17 08:05	
Ethylbenzene	ug/L	<0.39	1.0	04/28/17 08:05	
m&p-Xylene	ug/L	<0.80	2.0	04/28/17 08:05	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	04/28/17 08:05	
Naphthalene	ug/L	<0.42	1.0	04/28/17 08:05	
o-Xylene	ug/L	<0.45	1.0	04/28/17 08:05	
Toluene	ug/L	<0.39	1.0	04/28/17 08:05	
a,a,a-Trifluorotoluene (S)	%	102	80-120	04/28/17 08:05	

LABORATORY CONTROL SAMPLE & LCSD: 1498433 1498434

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	22.2	22.2	111	111	80-120	0	20	
1,3,5-Trimethylbenzene	ug/L	20	21.3	21.3	107	106	80-120	0	20	
Benzene	ug/L	20	21.3	21.1	106	105	80-120	1	20	
Ethylbenzene	ug/L	20	21.3	21.2	107	106	80-120	0	20	
m&p-Xylene	ug/L	40	42.6	42.4	106	106	80-120	0	20	
Methyl-tert-butyl ether	ug/L	20	20.6	20.1	103	101	80-120	2	20	
Naphthalene	ug/L	20	21.2	21.6	106	108	80-120	2	20	
o-Xylene	ug/L	20	21.5	21.4	108	107	80-120	1	20	
Toluene	ug/L	20	21.2	21.1	106	106	80-120	1	20	
a,a,a-Trifluorotoluene (S)	%				102	103	80-120			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1498604 1498605

Parameter	Units	40148959002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	<0.42	20	20	22.9	23.1	115	116	48-177	1	20	
1,3,5-Trimethylbenzene	ug/L	<0.42	20	20	21.7	22.1	109	110	73-145	2	20	
Benzene	ug/L	<0.40	20	20	22.2	22.2	111	111	74-139	0	20	
Ethylbenzene	ug/L	<0.39	20	20	22.7	22.7	113	114	74-140	0	20	
m&p-Xylene	ug/L	<0.80	40	40	44.8	44.9	112	112	55-165	0	20	
Methyl-tert-butyl ether	ug/L	<0.48	20	20	21.0	21.3	105	106	80-120	1	20	
Naphthalene	ug/L	<0.42	20	20	22.1	23.1	110	115	73-133	4	20	
o-Xylene	ug/L	<0.45	20	20	22.4	22.4	112	112	73-136	0	20	
Toluene	ug/L	<0.39	20	20	22.4	22.4	112	112	80-128	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: 1687 OW SPORTS
Pace Project No.: 40148982

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1498604 1498605

Parameter	Units	40148959002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
a,a,a-Trifluorotoluene (S)	%						102	101	80-120			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALIFIERS

Project: 1687 OW SPORTS
Pace Project No.: 40148982

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1687 OW SPORTS
Pace Project No.: 40148982

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40148982001	**MW-1**	WI MOD GRO	254080		
40148982002	**MW-2**	WI MOD GRO	254080		
40148982003	**MW-3**	WI MOD GRO	254080		
40148982004	**MW-4**	WI MOD GRO	254080		
40148982005	**MW-5**	WI MOD GRO	254080		
40148982006	**MW-6**	WI MOD GRO	254080		

Pace Analytical®
www.pacelabs.com

UPPER MIDWEST REGION
MN: 612-607-1700 WI: 920-469-2436

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LR

CHAIN OF CUSTODY

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

(Please Print Clearly)	
Company Name:	REI
Branch/Location:	Wausau
Project Contact:	Dave Larsen
Phone:	715 675 9784
Project Number:	16687
Project Name:	O-W Sports
Project State:	WI
Sampled By (Print):	Scott Blado
Sampled By (Sign):	Scott Blado
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	Dave Larsen
Mail To Company:	REI
Mail To Address:	DLarsen@reiengineering.com
Invoice To Contact:	SAA
Invoice To Company:	SAA
Invoice To Address:	
Invoice To Phone:	

Data Package Options (billable)
☐ EPA Level III
☐ EPA Level IV

MS/MSD
☐ On your sample (billable)
☐ NOT needed on your sample

Matrix Codes

A = Air	W = Water
B = Biota	DW = Drinking Water
C = Charcoal	GW = Ground Water
O = Oil	SW = Surface Water
S = Soil	WW = Waste Water
Sl = Sludge	WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO)	PRESERVATION (CODE)*	Analyses Requested	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
					Y/N	Pick Letter	PVOC/N			
001	MW-1	4/25	10:10	GW	N	B			3-40mlV	
002	MW-2		11:10							
003	MW-3		11:50							
004	MW-4		12:20							
005	MW-5		9:40							
006	MW-6		10:40							

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Email #1:	
Email #2:	
Telephone:	
Fax:	

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
Dave Larsen-REI	4/26/17 4PM		
Relinquished By:	Date/Time:	Received By:	Date/Time:
Walto	4/27/17 0850		4/27/17 0850
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

PACE Project No.
401489 82

Receipt Temp = 2.0 °C

Sample Receipt pH
OK / Adjusted

Cooler Custody Seal
Present / Not Present
Intact / Not Intact

C019a(27Jun2006)

Version 6.0 06/14/06

ORIGINAL

Sample Condition Upon Receipt

Pace Analytical

Pace Analytical Services, Inc
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Client Name: REI

Project #: WO#: 40148982

40148982

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: WCAR20

Tracking #: 1345791-1

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other

Thermometer Used N/A **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: RO /Corr: **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☒ no

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Person examining contents:
Date: 4/27/17
Initials: TL

		Comments:
Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☒N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☐Yes ☒No ☐N/A	12. 004 collect time 1320
-Includes date/time/ID/Analysis Matrix: W		4/27/17 TL
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	☐Yes ☐No ☒N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ NaOH +ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	☐Yes ☐No ☒N/A	
exceptions: VOA coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	☒Yes ☐No	Initial when completed / Lab Std #ID of preservative / Date/ Time:
Headspace in VOA Vials (>6mm):	☐Yes ☒No ☐N/A	14.
Trip Blank Present:	☐Yes ☒No ☐N/A	15.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:
Person Contacted: Date/Time:
If checked, see attached form for additional comments ☐
Comments/ Resolution:

Project Manager Review: Date: 4-27-17

F-GB-C-031-Rev.03 (9April2015) SCUR Form