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Wisconsin Department of Natural Resources (WDNR) Project Manager

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**DATE:** December 20, 2017

**PROJECT:** WDNR BRRTS#02-16-00475  
Magellan Pipeline Company, L.P. Superior Station  
2301 Winter Street, Superior, Wisconsin

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### **Introduction**

The Magellan Pipeline Company, L.P. (Magellan) Superior Station (Station) is being monitored in accordance with the NR 700 Remediation and Redevelopment program. On October 30, 2017, free-phase product (free product) was observed for the first time at the Superior Station. Free product was observed in MW-4 while the water table was at a historically high elevation. An initial project status memorandum was submitted to the Wisconsin Department of Natural Resources (WDNR) on November 15, 2017 to provide a written notification of the free product detection and a synopsis of the groundwater monitoring activities conducted from October 30, 2017 through November 2, 2017. Additional site monitoring activities were conducted after the initial project status memorandum was submitted to the WDNR. Therefore, this project status update memorandum was prepared to provide a synopsis of the recent groundwater sampling activities and recommend future actions for the Superior Station. The Station is located near 2301 Winter Street (**Figure 1**).

### **Synopsis of Recent Site Activities**

On November 3, 2017, LBG's sampling technician measured the fluid level and collected a groundwater sample from MW-4 for laboratory analysis. Only a sheen was observed in MW-4 during this monitoring event (**Table 1**). The other eight Magellan monitoring wells had been previously sampled on October 30, 2017; however, free product was observed in MW-4 during the previous event so a groundwater sample had not been collected.

The analytical report for the November 3<sup>rd</sup> groundwater sample from MW-4 indicated that the benzene concentration was 890 micrograms per liter (ug/l), which is less than the previous

concentration reported in August 2011 of 1,400 ug/l. The recent petroleum volatile organic compound (VOC) analytical data are summarized on **Table 2** and **Figure 2** (benzene). The historical petroleum VOC analytical data are summarized on **Table 3**. Polynuclear aromatic hydrocarbons (PAHs) were not detected above the Preventive Action Limits in groundwater samples collected during Fall 2017 (**Table 4**).

Fluid-levels were measured on a bi-weekly basis during November 2017 to monitor the free product thickness and water-table elevation trends at the Station. Historical fluid-level data are summarized on **Table 1**. A hydrograph (**Figure 3**) documents that the groundwater elevation was higher than historical levels when free product was observed in MW-4 during late October/early November 2017. A hydrograph of the Fall 2017 monitoring events (**Figure 4**) depicts a slight decline in groundwater elevations during November 2017.

The groundwater flow direction has remained consistent with historical flow patterns. A groundwater elevation contour map for the November 29, 2017 monitoring event is attached as **Figure 5**.

#### **Summary and Proposed Path Forward:**

The results of the recent Station monitoring activities indicate the following:

- The water table was at a historically high elevation during the October 2017 sampling event;
- Free product was observed in MW-4 on October 30<sup>th</sup> and November 2<sup>nd</sup>. A product sheen was observed on November 3<sup>rd</sup>. Free product was not detected in MW-4 on November 17<sup>th</sup> and 29<sup>th</sup>; and,
- Analytical results for benzene, toluene, ethylbenzene and xylenes (BTEX) illustrate declining concentration trends between the August 2011 and the Fall 2017 sampling events.

Based on the above findings, Magellan recommends the following path forward for the Site:

- Conduct a quarterly groundwater sampling event for petroleum VOCs and PAHs in January 2018;
- Evaluate groundwater quality concentration trends following the sampling event;
- If groundwater quality trends are declining or remaining stable, request concurrence from the WDNR project manager that the process of preparing the Case Closure submittal and the landowner notification documents should resume; and,
- Submit the Case Closure request to the WDNR for approval and provide the landowner notification documents to BNSF Railroad.

**Attachments:**

Table 1 – Fluid-Level Measurements

Table 2 – Recent Groundwater Results-VOCs

Table 3 – Historical Groundwater Results-VOCs

Table 4 – Recent Groundwater Results-PAHs

Figure 1 – Area Location

Figure 2 – Benzene Concentration in Groundwater, October/November 2017

Figure 3 – Historical Monitoring Well Hydrograph

Figure 4 – Fall 2017 Monitoring Well Hydrograph

Figure 5 – Groundwater Elevation Contour Map

## **TABLES**

**TABLE 1**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**FLUID-LEVEL MEASUREMENTS**

(All measurements in feet)

Well	Date	Well Depth from TOC	TOC Elevation*	Depth to Product	Depth to Water	Product Thickness	Corrected Water Elevation**
MW-01	10/12/2006	35.50	631.35	--	15.46	--	615.89
MW-01	10/25/2006	35.50	631.35	--	15.00	--	616.35
MW-01	1/11/2007	33.00	631.35	--	14.75	--	616.60
MW-01	2/1/2007	33.00	631.35	--	15.30	--	616.05
MW-01	5/22/2007	33.00	631.35	--	14.98	--	616.37
MW-01	8/9/2007	33.00	631.35	--	15.71	--	615.64
MW-01	11/20/2007	33.00	631.35	--	14.04	--	617.31
MW-01	2/19/2008	33.00	631.35	--	15.66	--	615.69
MW-01	5/7/2008	33.00	631.35	--	13.64	--	617.71
MW-01	8/19/2008	33.00	631.35	--	14.87	--	616.48
MW-01	11/25/2008	33.00	631.35	--	13.01	--	618.34
MW-01	2/18/2009	33.00	631.35	--	14.85	--	616.50
MW-01	8/11/2009	33.00	631.35	--	14.24	--	617.11
MW-01	2/23/2010	33.00	631.35	--	14.86	--	616.49
MW-01	8/10/2010	33.00	631.35	--	12.41	--	618.94
MW-01	2/22/2011	33.00	631.35	--	13.59	--	617.76
MW-01	8/2/2011	33.00	631.35	--	12.68	--	618.67
MW-01	10/30/2017	33.00	631.35	--	10.64	--	620.71
MW-01	11/2/2017	33.00	631.35	--	11.70	--	619.65
MW-01	11/17/2017	33.00	631.35	--	11.71	--	619.64
MW-01	11/29/2017	33.00	631.35	--	12.02	--	619.33
MW-02	6/8/2006	34.65	632.01	--	13.22	--	618.79
MW-02	10/12/2006	34.65	632.01	--	15.37	--	616.64
MW-02	10/25/2006	34.65	632.01	--	14.90	--	617.11
MW-02	1/11/2007	32.00	632.01	--	14.62	--	617.39
MW-02	2/1/2007	32.00	632.01	--	15.31	--	616.70
MW-02	5/22/2007	32.00	632.01	--	15.00	--	617.01
MW-02	8/9/2007	32.00	632.01	--	15.72	--	616.29
MW-02	11/20/2007	32.00	632.01	--	13.96	--	618.05
MW-02	2/19/2008	32.00	632.01	--	15.76	--	616.25
MW-02	5/7/2008	32.00	632.01	--	13.48	--	618.53
MW-02	8/19/2008	32.00	632.01	--	14.84	--	617.17
MW-02	11/25/2008	32.00	631.73	--	12.97	--	618.76
MW-02	2/18/2009	32.00	631.73	--	15.04	--	616.69
MW-02	8/11/2009	32.00	631.73	--	14.27	--	617.46
MW-02	2/23/2010	32.00	631.73	--	15.23	--	616.50
MW-02	8/10/2010	32.00	631.73	--	13.06	--	618.67
MW-02	2/22/2011	32.00	631.73	--	14.66	--	617.07
MW-02	8/2/2011	32.00	631.73	--	12.91	--	618.82
MW-02	10/30/2017	32.00	631.73	--	11.57	--	620.16
MW-02	11/2/2017	32.00	631.73	--	11.85	--	619.88
MW-02	11/17/2017	32.00	631.73	--	11.93	--	619.80
MW-02	11/29/2017	32.00	631.73	--	12.34	--	619.39
MW-03	6/8/2006	30.45	631.47	--	14.36	--	617.11
MW-03	10/12/2006	30.45	632.29	--	16.31	--	615.98
MW-03	10/25/2006	30.45	631.59	--	15.91	--	615.68
MW-03	1/11/2007	28.00	631.59	--	15.75	--	615.84

**TABLE 1**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**FLUID-LEVEL MEASUREMENTS**

(All measurements in feet)

Well	Date	Well Depth from TOC	TOC Elevation*	Depth to Product	Depth to Water	Product Thickness	Corrected Water Elevation**
MW-03	2/1/2007	28.00	631.59	--	16.34	--	615.25
MW-03	5/22/2007	28.00	631.59	--	15.96	--	615.63
MW-03	8/9/2007	28.00	631.59	--	16.68	--	614.91
MW-03	11/20/2007	28.00	631.59	--	15.01	--	616.58
MW-03	2/19/2008	28.00	631.59	--	16.59	--	615.00
MW-03	5/7/2008	28.00	631.59	--	14.63	--	616.96
MW-03	8/19/2008	28.00	631.59	--	15.77	--	615.82
MW-03	11/25/2008	28.00	631.47	--	14.82	--	616.65
MW-03	2/18/2009	28.00	631.47	--	16.57	--	614.90
MW-03	8/11/2009	28.00	631.47	--	15.99	--	615.48
MW-03	2/23/2010	28.00	631.47	--	16.83	--	614.64
MW-03	8/10/2010	28.00	631.47	--	14.95	--	616.52
MW-03	2/22/2011	28.00	631.47	--	16.39	--	615.08
MW-03	8/2/2011	28.00	631.47	--	14.92	--	616.55
MW-03	10/30/2017	28.00	631.47	--	13.19	--	618.28
MW-03	11/2/2017	28.00	631.47	--	14.01	--	617.46
MW-03	11/17/2017	28.00	631.47	--	14.09	--	617.38
MW-03	11/29/2017	28.00	631.47	--	14.40	--	617.07
MW-04	6/8/2006	30.35	632.89	--	13.54	--	619.35
MW-04	10/12/2006	30.35	632.89	--	15.81	--	617.08
MW-04	10/25/2006	30.35	632.89	--	15.41	--	617.48
MW-04	1/11/2007	28.00	632.89	--	15.06	--	617.83
MW-04	2/1/2007	28.00	632.89	--	15.84	--	617.05
MW-04	5/22/2007	28.00	632.89	--	15.49	--	617.40
MW-04	8/9/2007	28.00	632.89	--	16.27	--	616.62
MW-04	11/20/2007	28.00	632.89	--	14.48	--	618.41
MW-04	2/19/2008	28.00	632.89	--	16.41	--	616.48
MW-04	5/7/2008	28.00	632.89	--	13.90	--	618.99
MW-04	8/19/2008	28.00	632.89	--	15.59	--	617.30
MW-04	11/25/2008	28.00	632.29	--	13.50	--	618.79
MW-04	2/18/2009	28.00	632.29	--	15.74	--	616.55
MW-04	8/11/2009	28.00	632.29	--	14.73	--	617.56
MW-04	2/23/2010	28.00	632.29	--	16.02	--	616.27
MW-04	8/10/2010	28.00	632.29	--	13.54	--	618.75
MW-04	2/22/2011	28.00	632.29	--	15.48	--	616.81
MW-04	8/2/2011	28.00	632.29	--	13.41	--	618.88
MW-04	10/30/2017	28.00	632.29	FP	12.47	NM	619.82
MW-04	11/2/2017	28.00	632.29	12.29	12.30	0.01	620.00
MW-04	11/3/2017	28.00	632.29	12.33	12.33	Sheen	619.96
MW-04	11/17/2017	28.00	632.29	--	12.41	--	619.88
MW-04	11/29/2017	28.00	632.29	--	12.89	--	619.40
MW-05	6/8/2006	29.45	633.19	--	15.35	--	617.84
MW-05	10/12/2006	29.45	633.19	--	17.52	--	615.67
MW-05	10/25/2006	29.45	633.19	--	17.16	--	616.03
MW-05	1/11/2007	27.00	633.19	--	17.00	--	616.19
MW-05	2/1/2007	27.00	633.19	--	17.75	--	615.44
MW-05	5/22/2007	27.00	633.19	--	17.27	--	615.92

**TABLE 1**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**FLUID-LEVEL MEASUREMENTS**

(All measurements in feet)

Well	Date	Well Depth from TOC	TOC Elevation*	Depth to Product	Depth to Water	Product Thickness	Corrected Water Elevation**
MW-05	8/9/2007	27.00	633.19	--	17.91	--	615.28
MW-05	11/20/2007	27.00	633.19	--	16.22	--	616.97
MW-05	2/19/2008	27.00	633.19	--	18.14	--	615.05
MW-05	5/7/2008	27.00	633.19	--	15.78	--	617.41
MW-05	8/19/2008	27.00	633.19	--	17.29	--	615.90
MW-05	11/25/2008	27.00	633.19	--	15.25	--	617.94
MW-05	2/18/2009	27.00	633.19	--	17.27	--	615.92
MW-05	8/11/2009	27.00	633.19	--	16.59	--	616.60
MW-05	2/23/2010	27.00	633.19	--	17.50	--	615.69
MW-05	8/10/2010	27.00	633.19	--	15.38	--	617.81
MW-05	2/22/2011	27.00	633.19	--	17.07	--	616.12
MW-05	8/2/2011	27.00	633.19	--	15.30	--	617.89
MW-05	10/30/2017	27.00	633.19	--	14.24	--	618.95
MW-05	11/2/2017	27.00	633.19	--	14.37	--	618.82
MW-05	11/17/2017	27.00	633.19	--	14.51	--	618.68
MW-05	11/29/2017	27.00	633.19	--	14.85	--	618.34
MW-06	6/8/2006	29.55	632.57	--	15.10	--	617.47
MW-06	10/12/2006	29.55	632.57	--	17.02	--	615.55
MW-06	10/25/2006	29.55	632.57	--	16.67	--	615.90
MW-06	1/11/2007	28.00	632.57	--	16.52	--	616.05
MW-06	2/1/2007	28.00	632.57	--	17.68	--	614.89
MW-06	5/22/2007	28.00	632.57	--	16.92	--	615.65
MW-06	8/9/2007	28.00	632.57	--	17.57	--	615.00
MW-06	11/20/2007	28.00	632.57	--	15.91	--	616.66
MW-06	2/19/2008	28.00	632.57	--	17.41	--	615.16
MW-06	5/7/2008	28.00	632.57	--	15.61	--	616.96
MW-06	8/19/2008	28.00	632.57	--	16.64	--	615.93
MW-06	11/25/2008	28.00	632.57	--	14.81	--	617.76
MW-06	2/18/2009	28.00	632.57	--	16.74	--	615.83
MW-06	8/11/2009	28.00	632.57	--	16.08	--	616.49
MW-06	2/23/2010	28.00	632.57	--	17.20	--	615.37
MW-06	8/10/2010	28.00	632.57	--	15.22	--	617.35
MW-06	2/22/2011	28.00	632.57	--	16.56	--	616.01
MW-06	8/2/2011	28.00	632.57	--	15.08	--	617.49
MW-06	10/30/2017	28.00	632.57	--	13.85	--	618.72
MW-06	11/2/2017	28.00	632.57	--	13.98	--	618.59
MW-06	11/17/2017	28.00	632.57	--	14.08	--	618.49
MW-06	11/29/2017	28.00	632.57	--	14.43	--	618.14
MW-07	1/11/2007	28.00	628.59	--	13.73	--	614.86
MW-07	2/1/2007	28.00	628.59	--	14.23	--	614.36
MW-07	5/22/2007	28.00	628.59	--	13.96	--	614.63
MW-07	8/9/2007	28.00	628.59	--	14.59	--	614.00
MW-07	11/20/2007	28.00	628.59	--	13.02	--	615.57
MW-07	2/19/2008	28.00	628.59	--	14.51	--	614.08
MW-07	5/7/2008	28.00	628.59	--	12.73	--	615.86
MW-07	8/19/2008	28.00	628.59	--	13.87	--	614.72
MW-07	11/25/2008	28.00	628.59	--	12.21	--	616.38

**TABLE 1**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**FLUID-LEVEL MEASUREMENTS**

(All measurements in feet)

Well	Date	Well Depth from TOC	TOC Elevation*	Depth to Product	Depth to Water	Product Thickness	Corrected Water Elevation**
MW-07	2/18/2009	28.00	628.59	--	13.85	--	614.74
MW-07	8/11/2009	28.00	628.59	--	13.47	--	615.12
MW-07	2/23/2010	28.00	628.59	--	14.13	--	614.46
MW-07	8/10/2010	28.00	628.59	--	12.30	--	616.29
MW-07	2/22/2011	28.00	628.59	--	13.68	--	614.91
MW-07	8/2/2011	28.00	628.59	--	12.37	--	616.22
MW-07	10/30/2017	28.00	628.59	--	11.64	--	616.95
MW-07	11/2/2017	28.00	628.59	--	11.76	--	616.83
MW-07	11/17/2017	28.00	628.59	--	11.84	--	616.75
MW-07	11/29/2017	28.00	628.59	--	12.13	--	616.46
MW-08	1/11/2007	29.00	629.41	--	13.82	--	615.59
MW-08	2/1/2007	29.00	629.41	--	14.45	--	614.96
MW-08	5/22/2007	29.00	629.41	--	14.18	--	615.23
MW-08	8/9/2007	29.00	629.41	--	14.88	--	614.53
MW-08	11/20/2007	29.00	629.41	--	13.96	--	615.45
MW-08	2/19/2008	29.00	629.41	--	14.70	--	614.71
MW-08	5/7/2008	29.00	629.41	--	12.83	--	616.58
MW-08	8/19/2008	29.00	629.41	--	14.02	--	615.39
MW-08	11/25/2008	29.00	629.41	--	12.31	--	617.10
MW-08	2/18/2009	29.00	629.41	--	14.02	--	615.39
MW-08	8/11/2009	29.00	629.41	--	13.61	--	615.80
MW-08	2/23/2010	29.00	629.41	--	14.28	--	615.13
MW-08	8/10/2010	29.00	629.41	--	12.45	--	616.96
MW-08	2/22/2011	29.00	629.41	--	13.74	--	615.67
MW-08	8/2/2011	29.00	629.41	--	12.37	--	617.04
MW-08	10/30/2017	29.00	629.41	--	11.22	--	618.19
MW-08	11/3/2017	29.00	629.41	--	11.47	--	617.94
MW-08	11/17/2017	29.00	629.41	--	11.54	--	617.87
MW-08	11/29/2017	29.00	629.41	--	11.84	--	617.57
PZ-01	6/8/2006	47.00	632.50	--	15.25	--	617.25
PZ-01	10/12/2006	47.00	632.50	NM		--	--
PZ-01	10/25/2006	47.00	632.50	--	16.78	--	615.72
PZ-01	1/11/2007	45.00	632.50	--	16.67	--	615.83
PZ-01	2/1/2007	45.00	632.50	--	17.21	--	615.29
PZ-01	5/22/2007	45.00	632.50	--	16.87	--	615.63
PZ-01	8/9/2007	45.00	632.50	--	17.45	--	615.05
PZ-01	11/20/2007	45.00	632.50	--	15.92	--	616.58
PZ-01	2/19/2008	45.00	632.50	--	17.41	--	615.09
PZ-01	5/7/2008	45.00	632.50	--	15.54	--	616.96
PZ-01	8/19/2008	45.00	632.50	--	16.61	--	615.89
PZ-01	11/25/2008	45.00	632.50	--	14.96	--	617.54
PZ-01	2/18/2009	45.00	632.50	--	16.97	--	615.53
PZ-01	8/11/2009	45.00	632.50	--	16.24	--	616.26
PZ-01	2/23/2010	45.00	632.50	--	16.99	--	615.51
PZ-01	8/10/2010	45.00	632.50	--	15.12	--	617.38
PZ-01	2/22/2011	45.00	632.50	--	16.53	--	615.97
PZ-01	8/2/2011	45.00	632.50	--	15.02	--	617.48



**TABLE 1**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**FLUID-LEVEL MEASUREMENTS**

(All measurements in feet)

Well	Date	Well Depth from TOC	TOC Elevation*	Depth to Product	Depth to Water	Product Thickness	Corrected Water Elevation**
PZ-01	10/30/2017	45.00	632.50	--	14.04	--	618.46
PZ-01	11/2/2017	45.00	632.50	--	14.16	--	618.34
PZ-01	11/17/2017	45.00	632.50	--	14.27	--	618.23
PZ-01	11/29/2017	45.00	632.50	--	14.61	--	617.89

TOC : Top of casing.

NM : Not measured.

FP : Free product observed.

\* : Feet above the National Geodetic Vertical Datum.

\*\* : Corrected water level elevation based on a free-phase hydrocarbon specific gravity of 0.79.

Note : Elevations for MW-2, MW-3 and MW-4 were re-surveyed in January 2009 after the top of the well casings were removed to accommodate the excavation.

**TABLE 2**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**Recent Groundwater Results - VOCs**  
(micrograms per liter (ug/L))

Sampling Location	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Gasoline Range Organics	Diesel Range Organics	TPH as Gas	TPH as Fuel Oil	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methyl tert-butyl ether	Naphthalene
WAC NR 140 ES		<b>5</b>	<b>800</b>	<b>700</b>	<b>2,000</b>	NSS	NSS	NSS	NSS	<b>480 *</b>	<b>480 *</b>	<b>60</b>	<b>100</b>
WAC NR 140 PAL		<b>0.5</b>	<b>160</b>	<b>140</b>	<b>400</b>	NSS	NSS	NSS	NSS	<b>96 *</b>	<b>96 *</b>	<b>12</b>	<b>10</b>
MW-1	10/30/2017	<b>41</b>	< 0.33	1.5	< 0.58	-	-	-	-	< 0.30	< 0.30	1.0	< 0.23
MW-2	10/30/2017	< 0.36	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	< 0.24	< 0.23
MW-3	10/30/2017	<b>23</b>	0.36 J	3.6	0.90 J	-	-	-	-	0.89	0.45 J	2.9	< 0.23
MW-4	11/3/2017	<b>890</b>	23	150	33	-	27,000	-	-	70	40	53	8.3
MW-5	10/30/2017	1.1	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	2.0	< 0.23
MW-6	10/30/2017	<b>1,200</b>	17	260	13 J	-	-	-	-	3.8 J	5.5	<b>68</b>	2.7
MW-6 DUP	10/30/2017	<b>1,200</b>	16	250	12 J	-	-	-	-	4.0 J	5.3	<b>60</b>	-
MW-7	10/30/2017	< 0.36	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	1.0	< 0.23
MW-8	10/30/2017	< 0.36	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	< 0.24	< 0.23
PZ-1	10/30/2017	< 0.36	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	< 0.24	< 0.23
Trip Blank	10/30/2017	< 0.36	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	< 0.24	-

WAC NR 140 ES : Wisconsin Administrative Code Chapter NR 140, Enforcement Standards, revised February 2017.

WAC NR 140 PAL : Wisconsin Administrative Code Chapter NR 140, Preventive Action Limits, revised February 2017.

< : Not detected above laboratory method detection limit.

9.1 : Meets or exceeds Enforcement Standard.

69 : Exceeds Preventive Action Limit.

- : Constituent not analyzed.

\* : Wisconsin NR 140 standards are for the combined concentration of 1,2,4 and 1,3,5 Trimethylbenzene.

NSS : No standard set.

J : Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

VOCs : Volatile organic compounds.

**TABLE 3**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**Historical Groundwater Results - VOCs**  
(micrograms per liter (ug/L))

Sampling Location	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range Organics	Diesel Range Organics	TPH as Gas	TPH as Fuel Oil	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methyl tert-butyl ether	Naphthalene
WAC NR 140 ES		5	800	700	2,000	NSS	NSS	NSS	NSS	480 *	480 *	60	100
WAC NR 140 PAL		0.5	160	140	400	NSS	NSS	NSS	NSS	96 *	96 *	12	10
MW-1	6/8/2006	360	1.9	89	14	780	<100	-	-	1.4	1.0	<0.50	2.1
MW-1	10/25/2006	1,100	37	140	89	1,800	160	-	-	15	7.9	<0.23	4.3
MW-1	2/1/2007	780	3.8	100	25	1,500	<100	-	-	7.1 J	2.9 J	<2.3	2.8
MW-1	5/22/2007	730	8.2	100	21	1,400	160	-	-	4.8	0.70	<0.23	3.2
MW-1	8/9/2007	760	4.1	98	19	1,200	<100	-	-	3.9 J	<1.9	<2.3	10
MW-1	11/20/2007	840	4.4	110	20	-	-	-	-	5.5 J	<1.9	<2.3	3.0
MW-1	2/19/2008	750	2.3 J	87	7.6 J	-	-	-	-	3.7 J	<1.9	<2.3	2.5
MW-1	5/7/2008	690	5.4	91	18.0	-	-	-	-	6.5 J	<1.9	<2.3	2.8
MW-1	8/19/2008	680	<2.5	65	6.9 J	-	-	-	-	5.6 J	<1.9	<2.3	1.7
MW-1	11/25/2008	570	3.1	48	9.4	-	-	-	-	5.8	0.83	<0.23	1.3 J
MW-1	2/18/2009	730	2.4 J	43	11.0	-	-	-	-	5.0	1.0 J	<1.2	1.2 J
MW-1 Dup	2/18/2009	700	<1.2	40	10.0	-	-	-	-	4.6	1.0 J	<1.2	1.0 J
MW-1	8/11/2009	540	1.2 J	18	5.0 J	-	-	-	-	5.9	1.8 J	<1.2	<0.40
MW-1	2/23/2010	510	<2.3	16	<3.9	-	-	-	-	<2.5	<1.9	<2.3	<0.40
MW-1	8/10/2010	510	<2.0	19	5.3 J	-	-	-	-	2.2 J	<1.5	<1.8	<0.40
MW-1	2/22/2011	370	<0.25	17	3.1 Ja	-	-	-	-	0.99 Ja	0.37 Ja	<0.23	0.105 J
MW-1	8/2/2011	380	1.4 Ja	27	10.0	-	-	-	-	NA	NA	<0.23	0.0895 J
MW-1 Dup	8/2/2011	390	1.5 Ja	27	10.0	-	-	-	-	NA	NA	NA	NA
MW-1	10/30/2017	41	< 0.33	1.5	< 0.58	-	-	-	-	< 0.30	< 0.30	1.0	< 0.23
MW-2	6/8/2006	<0.20	<0.20	<0.50	1.6 J	<50	<100	-	-	0.97	0.55 J	<0.50	<0.25
MW-2	10/25/2006	<0.25	<0.11	<0.22	<0.39	<50	<100	-	-	<0.25	<0.19	<0.23	<0.40
MW-2	2/1/2007	<0.25	<0.11	<0.22	<0.39	<50	<100	-	-	<0.25	<0.19	<0.23	<0.41
MW-2	5/22/2007	<0.25	<0.11	<0.22	<0.39	<50	<100	-	-	<0.25	<0.19	<0.23	<0.40
MW-2	8/9/2007	<0.25	<0.11	<0.22	<0.39	<50	<100	-	-	<0.25	<0.19	<0.23	1.5
MW-2	11/20/2007	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-2 Dup	11/20/2007	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-2	2/19/2008	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<1.0
MW-2	5/7/2008	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-2 Dup	5/7/2008	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-2	8/19/2008	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-2	11/25/2008	0.25 J	<0.25	0.91	1.9	-	-	-	-	3.0	1.2	<0.23	<0.91
MW-2	2/18/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-2	8/11/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-2	2/23/2010	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-2	8/10/2010	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-2	2/22/2011	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.0329

**TABLE 3**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**Historical Groundwater Results - VOCs**  
 (micrograms per liter (ug/L))

Sampling Location	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range Organics	Diesel Range Organics	TPH as Gas	TPH as Fuel Oil	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methyl tert-butyl ether	Naphthalene
WAC NR 140 ES		5	800	700	2,000	NSS	NSS	NSS	NSS	480 *	480 *	60	100
WAC NR 140 PAL		0.5	160	140	400	NSS	NSS	NSS	NSS	96 *	96 *	12	10
MW-2	8/2/2011	<0.25	<0.25	<0.22	<0.39	-	-	-	-	NA	NA	<0.23	<0.0460
MW-2	10/30/2017	<0.36	<0.33	<0.37	<0.58	-	-	-	-	<0.30	<0.30	<0.24	<0.23
MW-3	6/8/2006	460	26	160	110	2,000	640	-	-	49	23	1.9	10
MW-3 Dup	6/8/2006	450	26	150	99	2,300	520	-	-	43	20	1.6 J	8.9
MW-3	10/25/2006	250	6.6	67	120	3,000	1,900	-	-	160	61	<8.4 RL1	46
MW-3 Dup	10/25/2006	260	8.7	99	170	-	-	-	-	240	88	<11 RL1	9.2
MW-3	2/1/2007	470	<8.6	110	210	5,200	6,100	-	-	400	150	<2.3	24
MW-3	5/22/2007	590	<1.1	72	120	3,600	4,400	-	-	150	62	<2.3	12
MW-3	8/9/2007	160	1.3 J	22	28	1,300	8,600	-	-	46	23	<2.3	5
MW-3 Dup	8/9/2007	160	1.3 J	26	32	1,500	7,100	-	-	52	26	<2.3	3.7
MW-3	11/20/2007	350 P	2.6 P	82 P	20 P	-	-	-	-	29 P	13 P	<0.46 P	1.4
MW-3	2/19/2008	110	0.54 J	12	10	-	-	-	-	23	9.9	<0.46	3.4
MW-3 Dup	2/19/2008	100	0.60 J	12	11	-	-	-	-	23	10	<0.46	2.8
MW-3	5/7/2008	260	5.5	100	49	-	-	-	-	120	40	<0.92	7.5
MW-3	8/19/2008	330	3.4 J	70	32	-	-	-	-	39	10	<1.2	3.2
MW-3 Dup	8/19/2008	330	3.0 J	68	29	-	-	-	-	34	8.1	<2.3	3.7
MW-3	11/25/2008	260	3.1 J	81	22	-	-	-	-	48	16	<0.92	0.55 J
MW-3	2/18/2009	100	0.82 J	11	9.6	-	-	-	-	22	6.5	<0.23	0.99 J
MW-3	8/11/2009	290	3.9	66	40	-	-	-	-	57	15	<0.23	2.7
MW-3	2/23/2010	59	<0.25	7.1	7	-	-	-	-	34	7.0	<0.23	0.73 J
MW-3	8/10/2010	390	2.9	120	27	-	-	-	-	28	<0.19	<0.23	<0.80
MW-3	2/22/2011	200	1.2 J	20	11 J	-	-	-	-	27	<0.76	<0.92	0.585
MW-3	8/2/2011	420	4.3	90	10	-	-	-	-	NA	NA	<0.23	0.365
MW-3	10/30/2017	23	0.36 J	3.6	0.90 J	-	-	-	-	0.89	0.45 J	2.9	<0.23
MW-4	6/8/2006	380	53	130	70	2,400	320	-	-	51	17	<0.50	27
MW-4	10/25/2006	900	76	320	120	5,500	1,800	-	-	91	51	<2.3	46
MW-4	2/1/2007	830	62	260	82	3,500	1,400	-	-	62	36	<1.2	36
MW-4 Dup	2/1/2007	820	60	260	81	3,400	1,400	-	-	60	35	<1.2	39
MW-4	5/22/2007	940	60	300	82	4,700	3,000	-	-	92	52	<2.3	38
MW-4	8/9/2007	910	71	310	130	5,700	6,300	-	-	200	76	<2.3	71
MW-4	11/20/2007	1,000	62	310	76	-	-	-	-	53	45	<2.3	34
MW-4	2/19/2008	1,000	60	320	85	-	-	-	-	78	59	<4.6	34
MW-4	5/7/2008	1,100	71	390	160	-	-	-	-	350	130	<2.3	30
MW-4	8/19/2008	1,000	63	350	180	-	-	-	-	360	120	<4.6	26
MW-4	11/25/2008	1,100	110	470	300	-	-	-	-	580	180	<2.3	73
MW-4 Dup	11/25/2008	1,100	83	370	200	-	-	-	-	380	120	<4.6	56

**TABLE 3**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**Historical Groundwater Results - VOCs**  
 (micrograms per liter (ug/L))

Sampling Location	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range Organics	Diesel Range Organics	TPH as Gas	TPH as Fuel Oil	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methyl tert-butyl ether	Naphthalene
WAC NR 140 ES		5	800	700	2,000	NSS	NSS	NSS	NSS	480 *	480 *	60	100
WAC NR 140 PAL		0.5	160	140	400	NSS	NSS	NSS	NSS	96 *	96 *	12	10
MW-4	2/18/2009	1,200	74	370	160	-	-	-	-	300	100	<2.3	37
MW-4	8/11/2009	1,200	73	360	140	-	-	-	-	310	110	<2.3	19
MW-4	2/23/2010	1,300	55	370	170	-	-	-	-	350	110	<4.6	53
MW-4 Dup	2/23/2010	1,300	54	370	160	-	-	-	-	370	120	<4.6	-
MW-4	8/10/2010	1,300	59	440	210	-	-	-	-	630	190	<4.6	81
MW-4 Dup	8/10/2010	1,200	46	280	100 J	-	-	-	-	250	70	<4.6	44
MW-4	2/22/2011	1,500	70	500	210	-	-	-	-	630	190	<4.6	19.7
MW-4 Dup	2/22/2011	1,500	68	490	220	-	-	-	-	660	200	<4.6	-
MW-4	8/2/2011	1,400	70	430	150	-	-	-	-	NA	NA	<4.6	4.32
MW-4	11/3/2017	890	23	150	33	-	27,000	-	-	70	40	53	8.3
MW-5	6/8/2006	9.1	0.22 J	130	100	870	550	-	-	79	33	<0.50	28
MW-5	10/26/2006	5.1	0.11 J	32	3.1	310	360	-	-	2.9	<0.19	<1.3 RL1	1.4
MW-5	2/1/2007	3.5	<0.11	3.0	<0.39	86	240	-	-	0.52 J	<0.19	0.74 J	<0.41
MW-5	5/22/2007	3.5	0.12 J	0.76	<0.39	<50	190	-	-	0.59 J	<0.19	0.93	<0.40
MW-5	8/9/2007	2.2	<0.11	<0.22	<0.39	<50	<100	-	-	<0.25	<0.19	0.68 J	<0.40
MW-5	11/20/2007	2.1	<0.11	0.35 J	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-5	2/19/2008	1.5	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-5	5/7/2008	1.4	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	0.56 J	<0.40
MW-5	8/19/2008	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	0.64 J	<0.40
MW-5	11/25/2008	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	0.49 J	<0.41
MW-5	2/18/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	0.60 J	<0.40
MW-5	8/11/2009	.028 J	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	0.58 J	<0.40
MW-5	2/23/2010	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	0.55 J	<0.40
MW-5	8/10/2010	0.29 J	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	0.36 J	<0.40
MW-5	2/22/2011	0.34 Ja, P	<0.25P	<0.22 P	<0.39P	-	-	-	-	<0.25P	<0.19P	0.80 Ja,P	<0.0329
MW-5	8/2/2011	0.98 Ja	<0.25	<0.22	<0.39	-	-	-	-	NA	NA	1.9 Ja	<0.0460
MW-5	10/30/2017	1.1	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	2.0	< 0.23
MW-6	6/8/2006	5,000	48	690	280	10,000	2,500	-	-	110	84	<0.50	44
MW-6	10/26/2006	3,200	32	460	180	8,200	3,200	-	-	40	63	<9.2	38
MW-6	2/1/2007	3,200	35	570	180	9,000	2,700	-	-	36 J	80	<12	45
MW-6	5/22/2007	2,500	19	410	86	6,000	1,300	-	-	19 J	52	<9.2	21
MW-6	8/9/2007	2,400	19	480	94	13,000	6,900	-	-	88	110	<9.2	25
MW-6	11/20/2007	2,500	19	430	73	-	-	-	-	18 J	57	<9.2	12
MW-6	2/19/2008	1,700	10 J	350	36 J	-	-	-	-	22 J	46	<9.2	24
MW-6	5/7/2008	2,100	22	500	80	-	-	-	-	19 J	63	<9.2	22
MW-6	8/19/2008	1,900	15 J	410	110	-	-	-	-	34	66	<9.2	23

**TABLE 3**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**Historical Groundwater Results - VOCs**  
(micrograms per liter (ug/L))

Sampling Location	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range Organics	Diesel Range Organics	TPH as Gas	TPH as Fuel Oil	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methyl tert-butyl ether	Naphthalene
WAC NR 140 ES		5	800	700	2,000	NSS	NSS	NSS	NSS	480 *	480 *	60	100
WAC NR 140 PAL		0.5	160	140	400	NSS	NSS	NSS	NSS	96 *	96 *	12	10
MW-6	11/25/2008	1,900	17	460	120	-	-	-	-	26	58	<4.6	45
MW-6	2/18/2009	1,500	11 J	340	65	-	-	-	-	32	62	<4.6	13
MW-6	8/11/2009	1,900	24	540	200	-	-	-	-	47	81	<4.6	29
MW-6	2/23/2010	1,500	7.8 J	410	100	-	-	-	-	36	78	<4.6	13
MW-6	8/10/2010	1,800	11 J	650	250	-	-	-	-	90	170	<4.6	46
MW-6	2/22/2011	1,700	9.2 J	560	130	-	-	-	-	49	83	<4.6	8.96
MW-6	8/2/2011	1,700	20 Ja	570	180	-	-	-	-	NA	NA	<4.6	11.5
MW-6	10/30/2017	1,200	17	260	13 J	-	-	-	-	3.8 J	5.5	68	2.7
MW-6 DUP	10/30/2017	1,200	16	250	12 J	-	-	-	-	4.0 J	5.3	60	-
MW-7	2/1/2007	<0.20	<0.20	<0.50	<0.50	<50	130	-	-	<0.20	<0.20	<0.50	<0.25
MW-7	5/22/2007	<0.25	<0.11	<0.22	<0.39	<50	170	-	-	<0.25	<0.19	0.34 J	<0.40
MW-7 Dup	5/22/2007	<0.25	<0.11	<0.22	<0.39	<50	100	-	-	<0.25	<0.19	0.33 J	<0.40
MW-7	8/9/2007	<0.25	<0.11	<0.22	<0.39	<50	110	-	-	<0.25	<0.19	<0.23	<1.0
MW-7	11/20/2007	<0.25	<0.11	<0.22	<0.39	-	-	-	-	0.59 J	<0.19	<0.23	<0.40
MW-7	2/19/2008	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-7	5/7/2008	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-7	8/19/2008	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-7	11/25/2008	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-7	2/18/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-7	8/11/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-7 Dup	8/11/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-7	2/23/2010	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-7	8/10/2010	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-7	2/22/2011	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.0329
MW-7	8/2/2011	0.37 Ja	<0.25	<0.22	<0.39	-	-	-	-	NA	NA	<0.23	<0.0460
MW-7	10/30/2017	< 0.36	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	1.0	< 0.23
MW-8	2/1/2007	<0.20	<0.20	<0.50	<0.50	<50	<100	-	-	<0.20	<0.20	<0.50	<0.25
MW-8	5/22/2007	<0.25	<0.11	<0.22	<0.39	<50	100	-	-	<0.25	<0.19	<0.23	<0.40
MW-8	8/9/2007	<0.25	<0.11	<0.22	<0.39	<50	<100	-	-	<0.25	<0.19	<0.23	<0.40
MW-8	11/20/2007	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-8	2/19/2008	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-8	5/7/2008	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-8	8/19/2008	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-8	11/25/2008	<0.25	<0.25	<0.22	<0.39	-	-	2	-	<0.25	<0.19	<0.23	<0.40
MW-8	2/18/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-8	8/11/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40

**TABLE 3**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**Historical Groundwater Results - VOCs**  
**(micrograms per liter (ug/L))**

Sampling Location	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range Organics	Diesel Range Organics	TPH as Gas	TPH as Fuel Oil	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methyl tert-butyl ether	Naphthalene
WAC NR 140 ES		5	800	700	2,000	NSS	NSS	NSS	NSS	480 *	480 *	60	100
WAC NR 140 PAL		0.5	160	140	400	NSS	NSS	NSS	NSS	96 *	96 *	12	10
MW-8	2/23/2010	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-8	8/10/2010	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
MW-8	2/22/2011	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.0329
MW-8	8/2/2011	<0.25	<0.25	<0.22	<0.39	-	-	-	-	NA	NA	<0.23	<0.0460
MW-8	10/30/2017	< 0.36	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	< 0.24	< 0.23
PZ-1	6/8/2006	1.3	0.36 J	0.97 J	1.8	<50	<100	-	-	0.49 J	0.36 J	<0.50	<0.25
PZ-1	10/26/2006	<0.25	0.12 J	<0.22	<0.39	<50	120	-	-	<0.25	<0.19	<0.23	<0.40
PZ-1	2/1/2007	<0.25	<0.11	<0.22	<0.39	<50	<100	-	-	<0.25	<0.19	<0.23	<0.41
PZ-1	5/22/2007	<0.25	0.11 J	<0.22	<0.39	<50	<100	-	-	<0.25	<0.19	<0.23	<0.40
PZ-1	8/9/2007	<0.25	<0.11	<0.22	<0.39	<50	<100	-	-	<0.25	<0.19	<0.23	<0.40
PZ-1	11/20/2007	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
PZ-1	2/19/2008	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
PZ-1	5/7/2008	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
PZ-1	8/19/2008	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
PZ-1	11/25/2008	<0.25	0.84	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
PZ-1	2/18/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
PZ-1	8/11/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<1.0
PZ-1	2/23/2010	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<1.0
PZ-1	8/10/2010	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.40
PZ-1	2/22/2011	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	<0.0329
PZ-1	8/2/2011	<0.25	<0.25	<0.22	<0.39	-	-	-	-	NA	NA	<0.23	<0.0460
PZ-1	10/30/2017	< 0.36	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	< 0.24	< 0.23
Equipment Blank	6/8/2006	<0.20	<0.20	<0.50	<0.50	<50	<100	-	-	<0.20	<0.20	<0.50	<0.25
Field Blank	10/25/2006	<0.25	0.15 J	<0.22	<0.39	-	-	-	-	<0.25	<0.19	-	-
Equipment Blank	2/1/2007	<0.25	0.11 J	<0.22	<0.39	-	-	-	-	<0.25	<0.19	-	-
Equipment Blank	5/22/2007	<0.25	9.0	0.48 J	0.80 J	<50	<100	-	-	<0.25	<0.19	<0.23	<0.40
Equipment Blank	8/9/2007	<0.25	0.82	<0.22	0.45 J	<50	<100	-	-	<0.25	<0.19	<0.23	<0.40
Equipment Blank	11/20/2007	<0.25	0.27 J	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	-
Equipment Blank	2/19/2008	<0.25	0.41	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	-
Equipment Blank	5/7/2008	<0.25	<0.11	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	-
Equipment Blank	8/19/2008	<0.25	0.3	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	-
Equipment Blank	2/18/2009	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	-
Equipment Blank	8/11/2009	0.25 CF6, J	0.81 CF6, J	0.30 CF6, J	0.58 CF6, J	-	-	-	-	<0.25	<0.19	<0.23	-
Equipment Blank	8/10/2010	0.30 J	2.4	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	-
Equipment Blank	2/22/2011	<0.25	<0.25	<0.22	<0.39	-	-	-	-	<0.25	<0.19	<0.23	-
Equipment Blank	8/2/2011	<0.25	0.52 Ja	0.27 Ja	0.52 Ja	-	-	-	-	NA	NA	NA	-

**TABLE 3**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**Historical Groundwater Results - VOCs**  
(micrograms per liter (ug/L))

Sampling Location	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range Organics	Diesel Range Organics	TPH as Gas	TPH as Fuel Oil	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methyl tert-butyl ether	Naphthalene
WAC NR 140 ES		5	800	700	2,000	NSS	NSS	NSS	NSS	480 *	480 *	60	100
WAC NR 140 PAL		0.5	160	140	400	NSS	NSS	NSS	NSS	96 *	96 *	12	10
Trip Blank	10/30/2017	< 0.36	< 0.33	< 0.37	< 0.58	-	-	-	-	< 0.30	< 0.30	< 0.24	-
SB-1	8/26/2003	5	<2	4	23	-	230	90	1,800	26	11	7	10
SB-2	8/26/2003	<2	<2	<2	<4	-	<100	<50	<250	<3	<2	<2	<5
SB-3	8/26/2003	2	<2	<2	<4	-	<100	<50	<250	<3	<2	<2	<5
SB-4	8/27/2003	<2	<2	<2	<4	-	<100	<50	<250	<3	<2	<2	<5
SB-6**	8/27/2003	1,200	21	150	252	-	-	2,800	<1,250	89	49	40	30
SB-6***	8/27/2003	7	3	41	104	-	540	510	6,700	69	45	2	28
SB-9	8/28/2003	150	12	68	239	-	860	2,900	<250	110	49	4	27
SB-10	8/28/2003	430	<2	<2	2	-	<100	460	<250	<3	<2	<2	<5
SB-21	1/10/2007	<0.25	0.19 J	<0.22	<0.39	<50	<100 S6	-	-	<0.25	<0.19	<0.23	<0.42
SB-22	1/10/2007	3.6	0.20 J	1.7	2.0	<50	<100 S6	-	-	0.82 J	0.29 J	<0.23	-

WAC NR 140 ES : Wisconsin Administrative Code Chapter NR 140, Enforcement Standards, revised February 2017.

WAC NR 140 PAL : Wisconsin Administrative Code Chapter NR 140, Preventive Action Limits, revised February 2017.

< : Not detected above laboratory method detection limit.

9.1 : Meets or exceeds Enforcement Standard.

69 : Exceeds Preventive Action Limit.

- : Constituent not analyzed.

\* : Wisconsin NR 140 standards are for the combined concentration of 1,2,4 and 1,3,5 Trimethylbenzene.

NSS : No standard set.

J : Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

VOCs : Volatile organic compounds.



**TABLE 4**  
**MAGELLAN PIPELINE COMPANY, L.P.**  
**SUPERIOR STATION**  
**SUPERIOR, WISCONSIN**

**Recent Groundwater Results - PAHs**  
(results are in micrograms per liter (ug/L))

Sampling Location	Sampling Date	Acenaphthalene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Benzo (ghi) perylene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene
WAC NR 140 ES		NSS	NSS	3,000	NSS	0.20	NSS	0.2	NSS	0.20	NSS	400	400	NSS	NSS	NSS	100	NSS	250
WAC NR 140 PAL		NSS	NSS	600	NSS	0.02	NSS	0.02	NSS	0.02	NSS	80	80	NSS	NSS	NSS	10	NSS	50
MW-1	10/30/2017	< 0.23	< 0.20	< 0.25	< 0.042	< 0.060	< 0.047	< 0.073	< 0.28	< 0.050	< 0.038	< 0.34	< 0.18	< 0.055	< 0.22	< 0.048	< 0.23	< 0.22	< 0.32
MW-2	10/30/2017	< 0.23	< 0.20	< 0.25	< 0.042	< 0.060	< 0.047	< 0.073	< 0.28	< 0.050	< 0.038	< 0.34	< 0.18	< 0.055	< 0.22	< 0.048	< 0.23	< 0.22	< 0.32
MW-3	10/30/2017	< 0.23	< 0.20	< 0.25	< 0.042	< 0.059	< 0.047	< 0.073	< 0.28	< 0.050	< 0.037	< 0.33	< 0.18	< 0.055	0.47 J	0.10 J	< 0.23	< 0.22	< 0.31
MW-4	11/3/2017	5.8	1.1	< 0.83	0.066 J	< 0.17	< 0.17	< 0.17	< 0.83	0.079 J	< 0.25	< 0.83	7.1	< 0.17	67	5.8	8.3	17	0.79 J
MW-5	10/30/2017	< 0.23	< 0.20	< 0.25	< 0.042	< 0.060	< 0.047	< 0.073	< 0.28	< 0.050	< 0.038	< 0.34	< 0.18	< 0.055	2.6	< 0.048	< 0.23	< 0.22	< 0.32
MW-6	10/30/2017	0.91	< 0.20	< 0.25	< 0.042	< 0.060	< 0.047	< 0.073	< 0.28	< 0.051	< 0.038	< 0.34	0.84	< 0.055	5.3	0.23 J	2.7	1.4	< 0.32
MW-7	10/30/2017	< 0.23	< 0.20	< 0.25	< 0.042	< 0.060	< 0.047	< 0.073	< 0.28	< 0.050	< 0.038	< 0.34	< 0.18	< 0.055	< 0.22	< 0.048	< 0.23	< 0.22	< 0.32
MW-8	10/30/2017	< 0.23	< 0.20	< 0.25	< 0.042	< 0.059	< 0.047	< 0.073	< 0.28	< 0.050	< 0.037	< 0.33	< 0.18	< 0.055	< 0.22	< 0.048	< 0.23	< 0.22	< 0.31
PZ-1	10/30/2017	< 0.23	< 0.20	< 0.25	< 0.042	< 0.060	< 0.047	< 0.073	< 0.28	< 0.050	< 0.038	< 0.34	< 0.18	< 0.055	< 0.22	< 0.048	< 0.23	< 0.22	< 0.32

PAH : Polynuclear aromatic hydrocarbons.

WAC NR 140 ES : Wisconsin Administrative Code Chapter NR 140, Enforcement Standards, revised February 2017.

WAC NR 140 PAL : Wisconsin Administrative Code Chapter NR 140, Preventive Action Limits, revised February 2017.

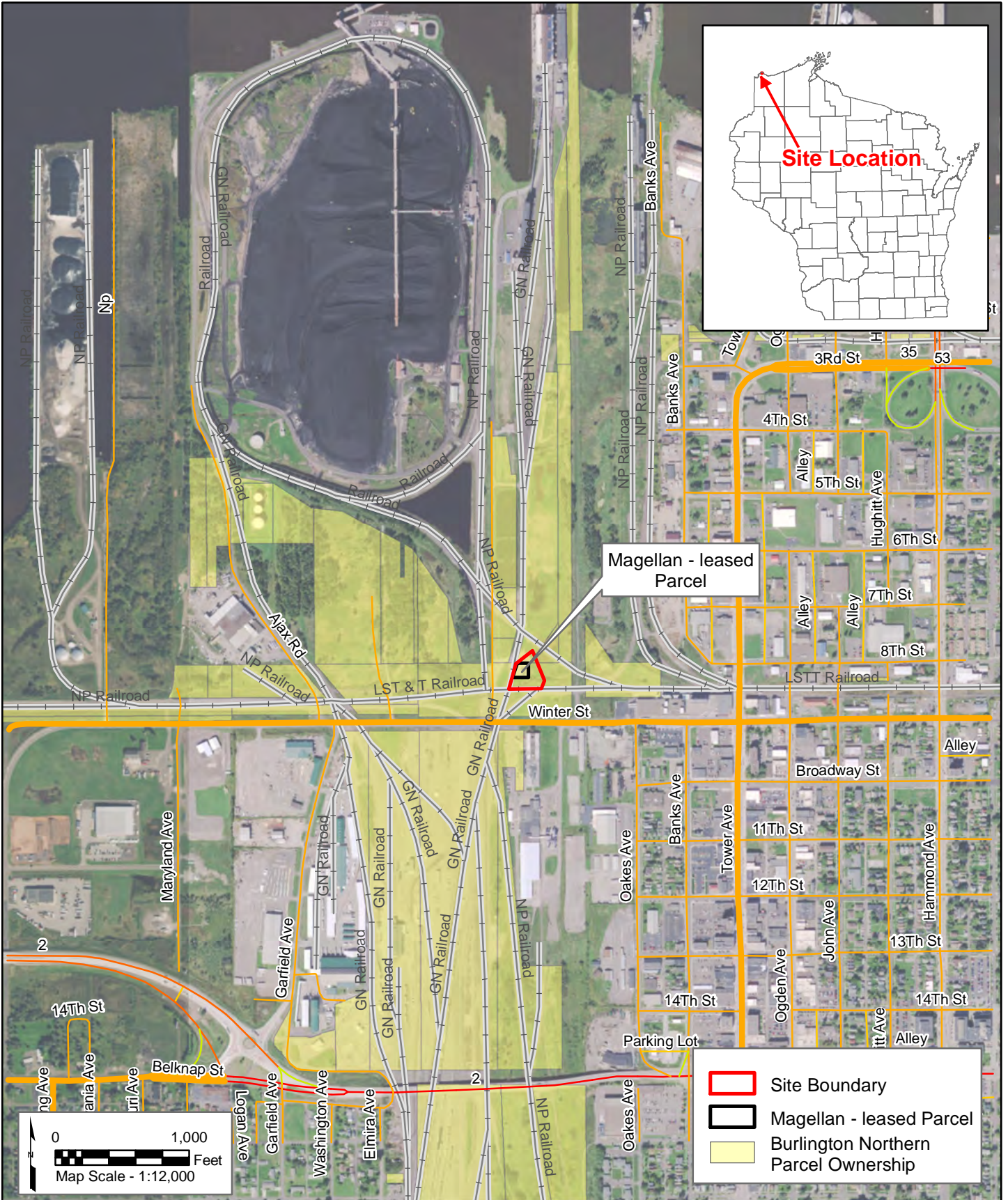
NSS : No standard set.

0.059 : Exceeds Preventive Action Limit.

< : Not detected above laboratory method detection limit.

J : Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

## **FIGURES**



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community and the City of Superior

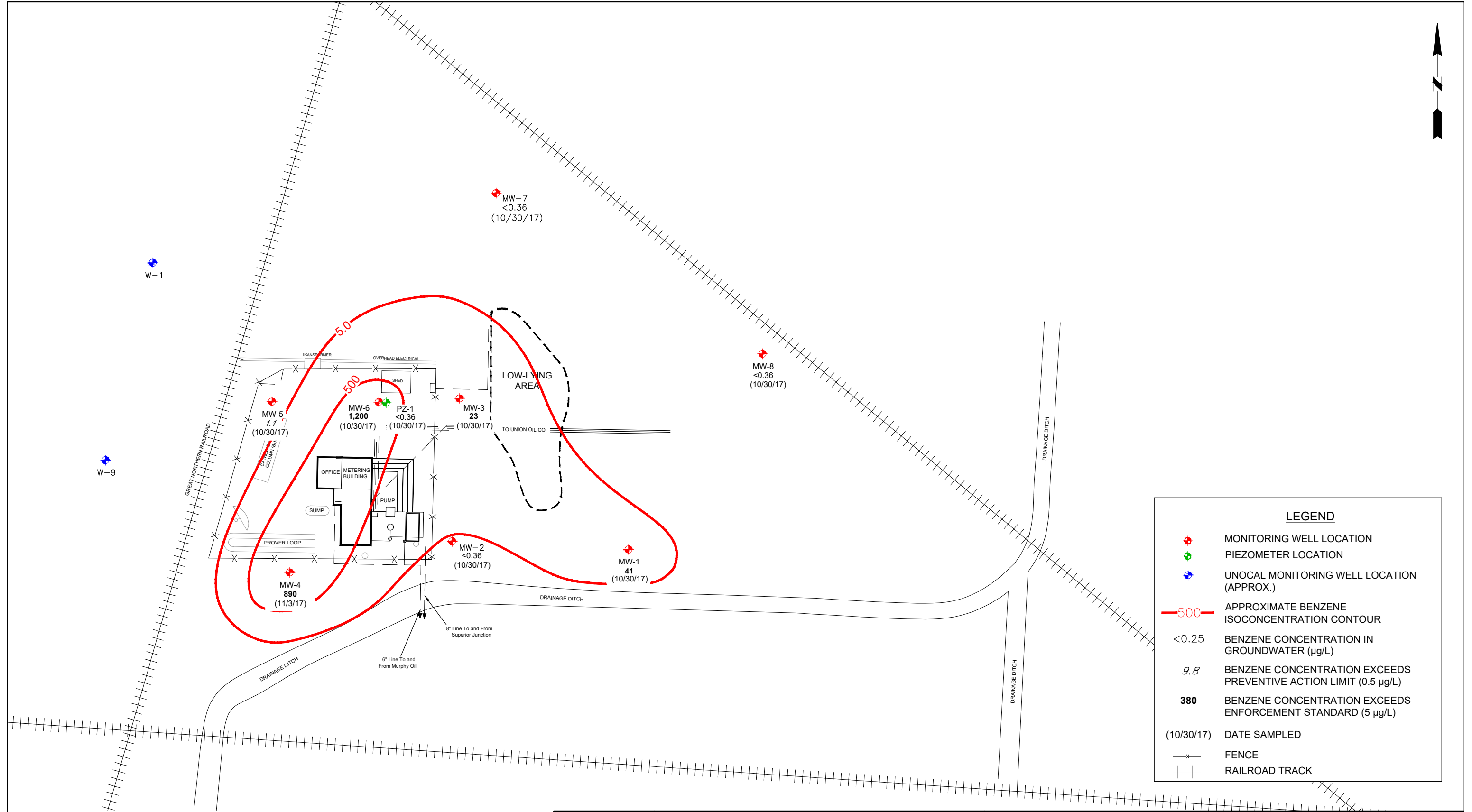


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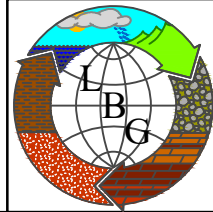
**MAGELLAN PIPELINE COMPANY, L.P.**  
 SUPERIOR STATION  
 SUPERIOR, WISCONSIN

AREA LOCATION

FILE:	G3RTSUP01t.MXD	DATE:	12/8/2017	FIGURE:	1
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LEGEND	
	MONITORING WELL LOCATION
	PIEZOMETER LOCATION
	UNOCAL MONITORING WELL LOCATION (APPROX.)
	APPROXIMATE BENZENE ISOCONCENTRATION CONTOUR
<0.25	BENZENE CONCENTRATION IN GROUNDWATER (µg/L)
9.8	BENZENE CONCENTRATION EXCEEDS PREVENTIVE ACTION LIMIT (0.5 µg/L)
380	BENZENE CONCENTRATION EXCEEDS ENFORCEMENT STANDARD (5 µg/L)
(10/30/17)	DATE SAMPLED
	FENCE
	RAILROAD TRACK



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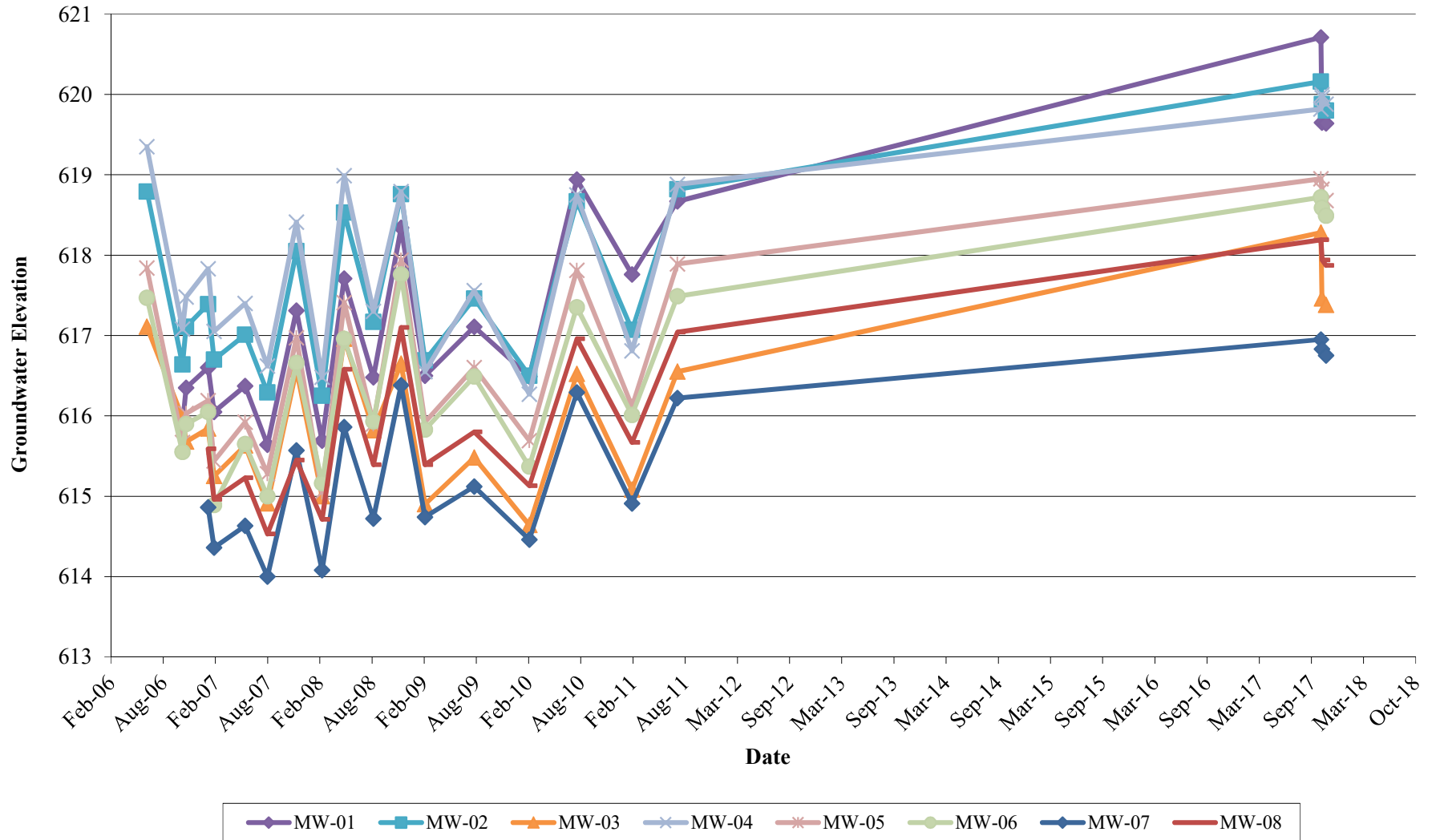
**MAGELLAN PIPELINE COMPANY, L.P.**  
 SUPERIOR STATION  
 SUPERIOR, WISCONSIN

**BENZENE CONCENTRATION IN GROUNDWATER**  
 OCTOBER/NOVEMBER 2017

FILE: 03MSU04B.DWG    DATE: December 2017    FIGURE: 2

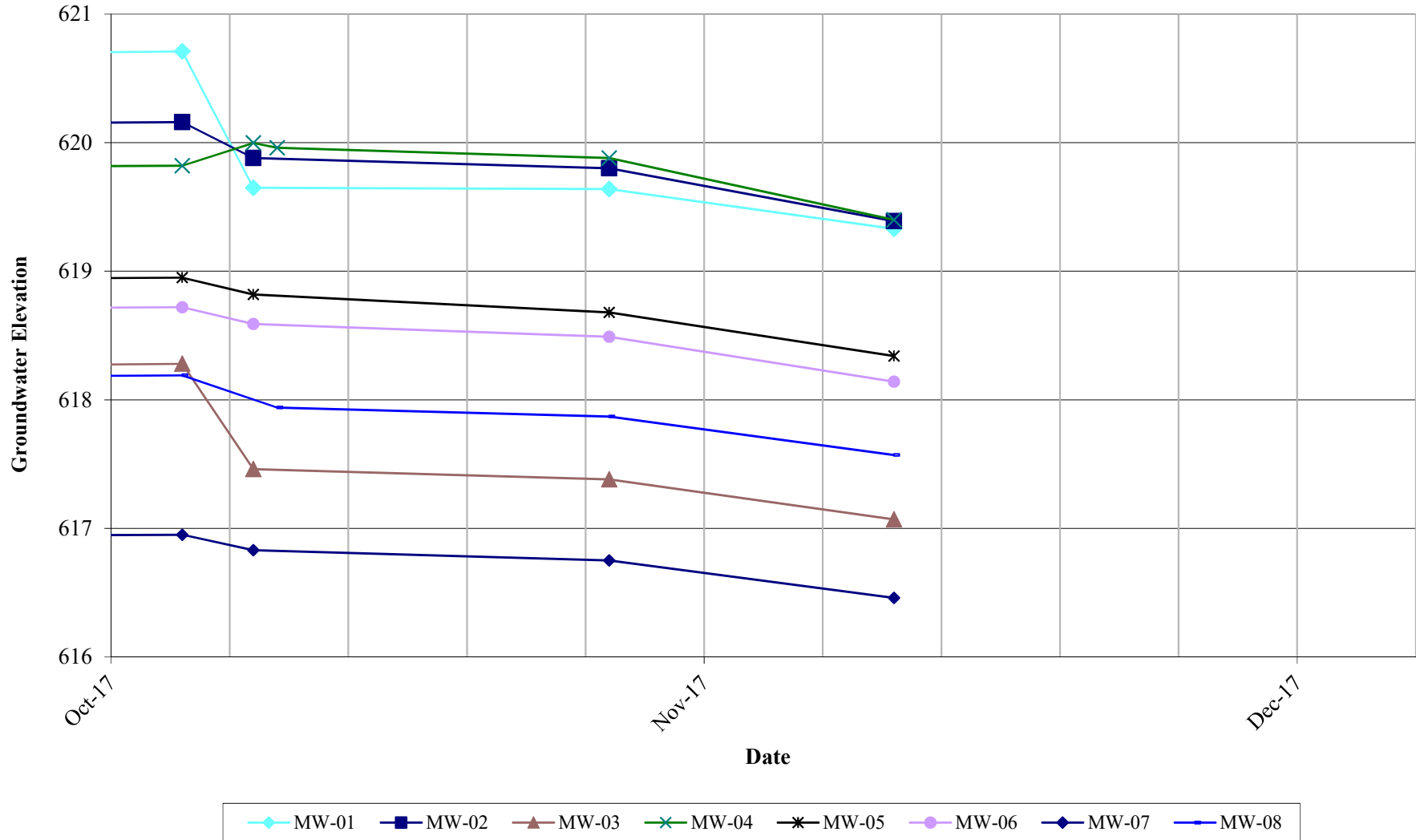
**FIGURE 3  
MAGELLAN PIPELINE COMPANY, L.P.  
SUPERIOR STATION  
SUPERIOR, WISCONSIN**

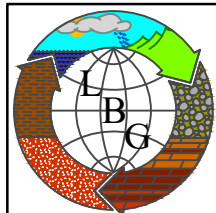
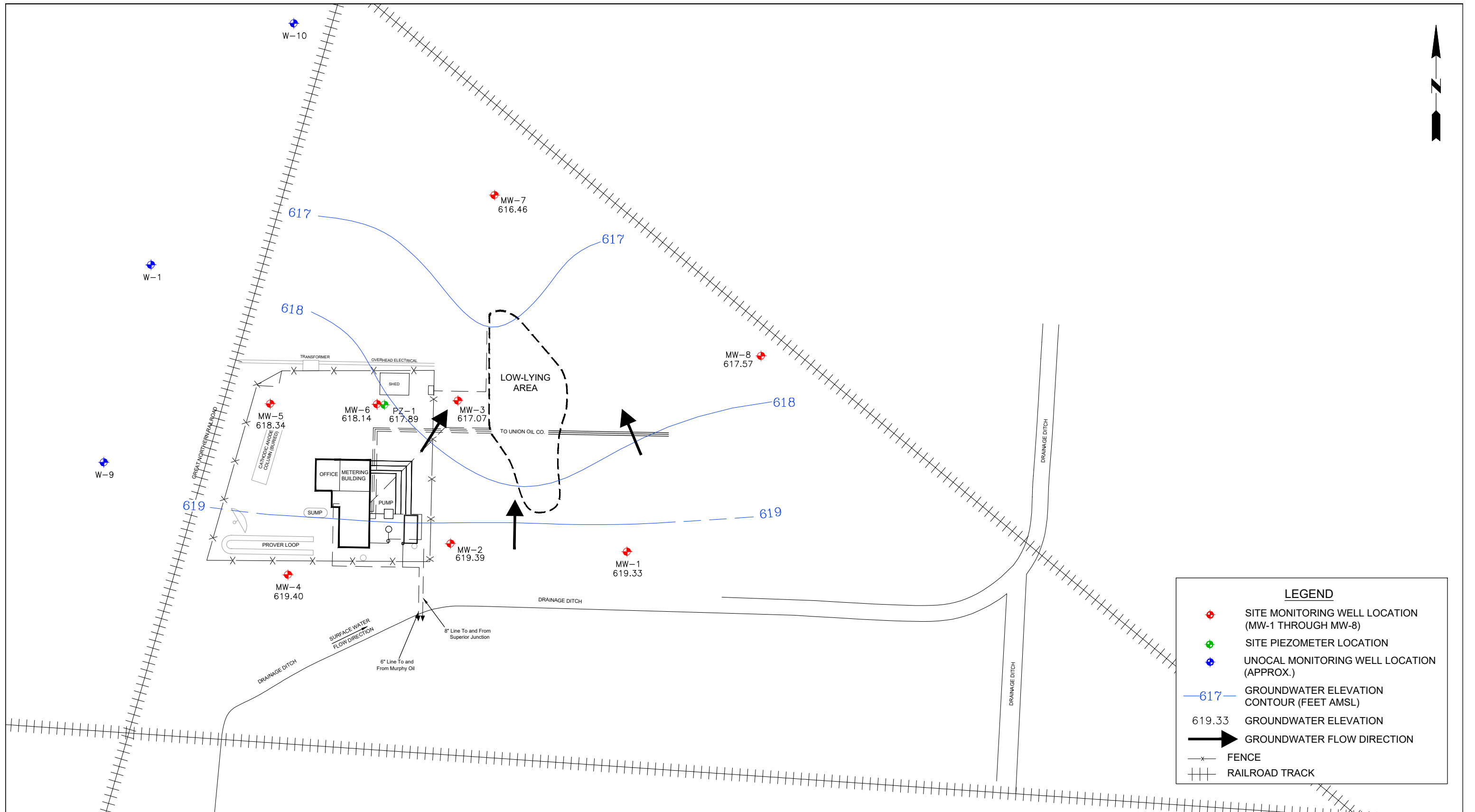
**HISTORICAL MONITORING WELL HYDROGRAPH**



**FIGURE 4  
MAGELLAN PIPELINE COMPANY, L.P.  
SUPERIOR STATION  
SUPERIOR, WISCONSIN**

**RECENT MONITORING WELL HYDROGRAPH**





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**MAGELLAN PIPELINE COMPANY, L.P.**  
 SUPERIOR STATION  
 SUPERIOR, WISCONSIN

GROUNDWATER ELEVATION CONTOUR MAP  
 NOVEMBER 29, 2017

FILE: 03MSU04C.DWG

DATE: December 2017

FIGURE: 5