ASHLAND/NSP LAKEFRONT SITE
JANUARY 15, 2004 PROGRESS REPORT (No. 2)
WDNR BRRTS #02-02-00013
CERCLA Docket No. V-W-04-C-764

This is the second progress report prepared in accordance with the Administrative Order on Consent (AOC) for the Ashland/NSP Lakefront Site, effective November 14, 2003. This report covers activities completed in December 2003 after the submission of Progress Report No. 1. Hereafter, each monthly progress report will reflect the activities of the prior calendar month and will be submitted by the 15th of the ensuing month. It is intended to meet the requirements described in Task 8 of the Statement of Work appended to the AOC.

Field Activities Completed

In accordance with the September 25, 2003 USEPA conditional (partial) approval of the URS RI/FS work plan submitted on August 22, 2003, URS installed monitoring wells MW-15A, MW-15B, MW-21B and MW-2C at the Upper Bluff/Filled Ravine area between December 8 and December 18, 2003. Monitoring wells MW-15A, -15B and -21B were installed and developed the week of December 8, 2003 in accordance with the approved work plan.

Monitoring well MW-2C was begun the week of December 8, 2003 with the installation of a six-inch diameter cast iron outer casing placed to a depth of sixty feet. The well was completed through the outer casing the following week as a deep bedrock well. The approved work plan specified a bedrock piezometer installed with a five-foot screen at a depth of 10 feet below the bedrock surface. During drilling, WDNR requested a deviation from the plan for the screen location, preferring the screen be placed above the bedrock surface. The state agency expressed concern that any potential dense non-aqueous phase liquid may not be captured if the screen was installed below the bedrock surface.

Previous subsurface investigations had not advanced to the bedrock surface. Regional information on the surficial bedrock unit indicated it consisted of Precambrian sandstone. The MW-2C sampling effort encountered weathered bedrock at a depth of 192 feet, and competent bedrock at 194 feet. No samples of bedrock were recovered because of the material's resistance.

Calls between WDNR, USEPA and URS were made on December 17, 2003. An agreement was reached specifying that the well screen would be installed at the 197 foot depth. Consequently, the top of the screen would be placed at a depth of 192 feet. With the additional two feet of sand pack above the screen between 192 and 190 feet, an effective screen length of seven feet intersecting the interface zone between the unconsolidated and the overburden deposits would be provided. The well was then installed on December 18, 2003 in accordance with these revised screen depth intervals.

Quarterly sampling of the well network in accordance with the conditionally approved work plan was completed concurrent with well installation. The four newly installed wells were included with this monitoring. Samples were collected and submitted to Northern Lakes Service for analysis. The analyses results for the majority of samples are pending. However, the lab was able to complete analyses on MW-2C, and the data was received on January 6, 2004. The organic analyses results yielded trace levels of benzene (9.1 μg/l), toluene (11 μg/l), naphthalene

(7.7 µg/l) and 2-methylnaphthalene (3 µg/l). The well will continue to be monitored on quarterly intervals. The organic and inorganic analyses results are appended to this report.

Boring logs and well construction diagrams for the four newly installed wells are attached to this report. Also included are water level and product level measurements for all wells, including the September 2003 water level measurements which were not included with Progress Report No. 1. These measurements include all wells at the Lakefront site, in addition to the wells monitored for water quality as part of the Copper Falls monitoring program. Note that free-product levels are shown for wells MW-3(NET) and TW-11 at Kreher Park, beginning June 2003. These measurements were not identified until recently. (The information from the field notes for the product levels first measured in June 2003 at the Kreher Park wells was not transcribed until the ARCGIS platform and supporting database of all historic data was prepared in November/December 2003.) These recent findings will necessitate revisions to the Kreher Park investigation which will be described in the Revision 01 to the URS work plan.

The tar removal system continued to operate since the previous monthly report. The system was shut down briefly by Coleman Engineering for routine cleaning of a screen in the oil-water separator in late December. The tar removal tank contained 212 gallons of free-product as of December 29, 2003. The most recent monitoring data for the system is attached to this report.

Reporting Activities Completed

Xcel Energy submitted the Technical Letter Report (TLR) along with Progress Report No. 1 to USEPA on December 12, 2003. The TLR formed the basis for the Technical Scoping Meeting held among USEPA, WDNR and Xcel Energy and its consultants (URS/Newfields) on January 8, 2004 at Region V headquarters in Chicago. Although the meeting occurred in January, this progress report offers an overview for the purpose of assisting the USEPA and the WDNR in summarizing the meeting. The primary issues discussed at the meeting included the following:

- There was general agreement between the URS and SEH work plans for the Upper Bluff/Filled Ravine, Kreher Park and Copper Falls Aquifers areas of investigation at the site. Subsurface investigation proposals between the two plans are very similar, and minor differences between proposed sample locations can be resolved.

- The Parties agreed to not undertake groundwater modeling of the Copper Falls Aquifer at this time. Xcel Energy indicated it will consider collecting TOC data in the event groundwater modeling may be performed in the future; however, the value of groundwater modeling would be further evaluated at that time.

- Although there are considerable differences with regard to the number and media for forensics analyses (fingerprinting) proposed in the work plans, the agencies agreed to consider Xcel Energy's proposal to limit forensics analyses on a small portion of the sediment samples recovered.

- The Parties agreed that test pits can be advanced in lieu of trenches for subsurface identification of potential source areas at Kreher Park.

- Considerable differences exist between the two work plans with regard to vapor intrusion sampling. The Parties discussed the review comments of the Wisconsin Department of Health and Family Services. The Parties agreed that both vapor sampling and surface water sampling for groundwater intrusion would not be necessary inside the former waste water treatment plant (WWTP). However, soil vapor sampling outside the former WWTP should be considered.

- The primary focus of discussion dealt with the sediments. Considerable time was spent discussing the problem formulation process as proposed in the URS work plan. This process as proposed in the work plan would involve convening stakeholder meetings to seek input prior to developing a final sampling plan. Conversely, the SEH plan proposed a definitive sampling plan, which could be used as a model for circulating to stakeholders for review. No resolution on the merits of either approach was made at the time. Consequently, the group agreed to present two alternatives in the Revision 01 work plan. The first alternative will consist of a conventional sampling and analyses plan for the sediments. The second alternative will include a problem formulation process, its rationale and a schedule for implementation for meeting(s) with stakeholders to seek input for a proposed sampling program. This second alternative is consistent with the outcome of discussions held among Xcel Energy, WDNR and USEPA on March 27, 2003.

- USEPA's representatives for electronic data submittals discussed the GEOS (groundwater evaluation and optimization system, f.k.a. EDMAN) format. USEPA provided a copy of the historic data submittal template for Xcel Energy's guidance. The Agency indicated an electronic version of the template is currently being finalized, and should be available on the USEPA website within the next few weeks. The Agency also stated that its current data submittal template is available for downloading from the website. Accordingly, the Agency requested that Xcel Energy's consultant (URS/NewFields) coordinate directly with the laboratories and other subcontract data providers to establish the correct submittal format for the electronic data packages. The consultant should then submit this information to USEPA in the correct format. USEPA agreed that the first data submittals in the GEOS format, including the December water quality and boring information, can be provided with Progress Report No. 3.

- USEPA agreed that a complete Tier 3 data validation review will be required on only 10 percent of analytical data generated for the RI/FS. A Tier 2 data validation summary will be required for the remainder of the analytical results.

- URS/NewFields provided an overview of the ARCGIS platform and the database that

have been prepared for all site historic data. Future data generated for the RI/FS and all subsequent monitoring data will be input into the database as it is produced. The database on which the ARCGIS platform is supported will conform to the Agency's GEOS format.

- The WDNR agreed that it will provide copies of field notes concerning the sediment samples collected during March 2003. This information will be needed to further refine the site information database.

In addition to the technical scoping meeting, USEPA requested a copy of the chain of custody form to complete its review of the QAPP as part of the Upper Bluff/Filled Ravine and Copper Falls subsurface investigations, submitted with the URS August 22, 2003 draft work plan. The Agency indicated this form was all that was needed to complete review of the QAPP and QMP (submitted during November 2003). URS provided USEPA a copy of this form in late December 2003.

Field Activities Planned

Coleman Engineering will continue to monitor the tar removal system on a weekly basis for the next reporting period. No other field activities are planned during this time.

Reporting Activities Planned

USEPA indicated it will provide a summary of the technical scoping meeting within 30 days of the meeting following discussions with the state and review by USEPA's internal technical review staff of hydrogeologists, ecological risk and health risk assessors. That summary will include a spreadsheet comparing the proposed sampling plans of the URS and SEH work plans. The meeting summary will also include a memo of the vapor sampling review prepared by DHFS. In accordance with the AOC, Xcel Energy will submit its Revision 01 work plan within 30 days of receipt of USEPA's scoping meeting summary.

Attachments:

Table 1 - Summary of Groundwater Elevations
Table 2 - Summary of Free Phase Hydrocarbon Thickness
Table 3 – December 2003 Groundwater Monitoring Results – VOCs and SVOCs – Well MW-2C
Table 4 - Remediation System Water Quality Monitoring Results
Table 5 – Remediation System Air Monitoring Results
Table 6 – Summary of Coal Tar and Groundwater Volumes Removed
Appendix A – Laboratory Reporting Forms (Partial List)
Appendix B – Boring Logs, Well Construction Diagrams, Well Development Forms for MW-2C, MW-15A, MW-15B, MW-21B

Table 1
Summary of Groundwater Elevations
Northern States Power, Ashland, Wisconsin

Well Location	Reference Elevation	Sep. 10, 2001		Dec. 3 , 2001		Mar. 18, 2002		June 28, 2002		Sept 16, 2002		Dec 16, 2002		Mar. 24, 2003	
		Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations
MW-1	634.18	15.08	619.10	14.26	619.92	--	--	14.79	619.39	17.43	616.75	15.28	618.90	15.51	618.67
MW-2	634.85	14.92	619.93	--	--	--	--	--	--	--	--	--	--	--	--
MW-2A	634.24	19.50	614.74	--	--	--	--	--	--	--	--	--	--	--	--
MW-2B	634.68	10.52	624.16	--	--	--	--	--	--	--	--	--	--	--	--
MW-2R	637.43	--	--	--	--	14.70	622.73	15.00	622.43	14.75	622.68	16.21	621.22	16.43	621.00
MW-2AR	636.28	--	--	--	--	20.13	616.15	20.25	616.03	14.87	621.41	20.24	616.04	20.28	616.00
MW-2BR	636.24	--	--	--	--	11.97	624.27	12.03	624.21	12.14	624.10	10.86	625.38	10.61	625.63
MW-3	637.83	3.14	634.69	0.00	637.83	--	--	2.72	635.11	2.16	635.67	3.69	634.14	5.09	632.74
MW-4	640.92	6.40	631.63	4.98	636.05	5.60	635.43	5.02	636.01	5.86	635.17	6.60	634.43	5.78	634.43
MW-4A	641.22	14.28	626.94	14.20	627.02	13.50	627.72	13.10	628.12	14.01	627.21	14.02	627.20	14.36	626.86
MW-4B	640.98	16.61	624.37	15.32	625.66	16.27	624.71	16.73	624.25	17.16	623.82	15.98	625.00	15.93	625.05
MW-5	633.82	18.15	615.67	17.95	615.87	19.44	614.38	17.80	616.02	18.58	615.24	--	--	19.70	614.12
MW-5A	633.72	19.38	614.34	19.26	614.46	19.60	614.12	19.05	614.67	19.17	614.55	--	--	19.09	614.63
MW-5B	633.89	19.14	614.75	19.25	614.64	19.37	614.52	19.03	614.86	19.13	614.76	--	--	18.98	614.91
MW-5C	634.33	9.90	624.43	9.47	624.86	9.33	625.00	9.51	624.82	9.94	624.39	--	--	8.97	625.36
MW-6	644.88	17.01	627.87	15.95	628.93	--	--	14.25	630.63	16.58	628.30	17.04	627.84	15.54	629.34
MW-6A	644.79	20.31	624.48	19.76	625.03	--	--	20.02	624.77	20.63	624.16	19.51	625.28	19.52	625.27
MW-7	612.60	3.92	608.68	4.00	608.60	4.17	608.43	--	--	--	--	--	--	--	--
MW-7A	613.25	flowing	--	flowing	--	flowing	--	--	--	flowing	flowing	flowing	flowing	flowing	flowing
MW-8	634.42	4.79	629.63	4.46	629.96	8.09	626.33	4.52	629.90	3.79	630.63	5.81	628.61	frozen	--
MW-8A	634.62	15.68	618.94	15.24	619.38	15.27	619.35	15.47	619.15	15.72	618.90	15.02	619.60	14.94	619.68
MW-9	637.98	5.92	632.06	--	--	--	--	4.58	633.40	4.50	633.48	6.79	631.19	--	--
MW-9A	637.86	13.66	624.20	13.25	624.61	13.21	624.65	13.92	623.94	13.58	624.28	--	--	12.94	--
MW-9B	638.02	13.80	624.22	13.28	624.74	13.30	624.72	13.86	624.16	14.42	623.60	13.09	624.93	12.96	625.06
MW-9C	637.95	13.67	624.28	13.28	624.67	13.22	624.73	14.06	623.89	14.40	623.55	13.07	624.88	12.97	624.98
MW-10	638.20	4.64	633.56	4.33	633.87	4.59	633.61	3.40	634.80	4.17	634.03	5.06	633.14	8.93	629.27
MW-10A	638.07	15.55	622.52	14.19	623.88	14.21	623.86	14.61	623.46	14.98	623.09	13.91	624.16	14.05	624.02
MW-10B	638.40	22.42	615.98	22.33	616.07	21.25	617.15	21.75	616.65	21.45	616.95	21.71	616.69	frozen	--
MW-11	636.13	8.62	627.51	6.23	629.90	--	--	6.20	629.93	7.03	629.10	9.16	626.97	--	--

Notes: Reference elevation surveyed by Dames & Moore/URS

Table 1

Summary of Groundwater Elevations

Northern States Power, Ashland, Wisconsin

Well Location	Reference Elevation	Sep. 10, 2001		Dec. 3 , 2001		Mar. 18, 2002		June 28, 2002		Sept 16, 2002		Dec 16, 2002		Mar. 24, 2003	
		Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations
TW-13	635.72	9.54	626.29	4.58	631.25	4.71	631.12	3.86	631.97	4.50	631.33	--	--	6.06	629.66
MW-13A	635.94	20.79	615.15	21.58	614.36	21.00	614.94	20.70	615.24	20.46	615.48	20.75	615.19	20.50	615.44
MW-13B	635.90	20.83	615.07	21.21	614.69	20.75	615.15	20.62	615.28	20.13	615.77	20.25	615.65	19.98	615.92
MW-13C	636.11	11.73	624.38	11.32	624.79	11.24	624.87	11.95	624.16	12.40	623.71	11.08	625.03	11.03	625.08
MW-13D	637.09	11.81	625.28	11.39	625.70	11.39	625.70	12.03	625.06	12.52	624.57	11.16	625.93	11.08	626.01
MW-14	639.15	4.33	634.82	4.92	634.23	--	--	--	--	3.00	636.15	4.35	634.80	--	--
MW-15	641.21	4.52	636.69	4.33	636.88	3.60	637.61	3.52	637.69	3.73	637.48	5.10	636.11	4.68	636.53
MW-16	642.20	1.74	640.46	1.05	641.15	--	--	0.40	641.80	1.66	640.54	4.20	638.00	8.03	634.17
MW-17	633.88	2.64	631.24	--	--	3.29	630.59	2.56	631.32	2.24	631.64	4.98	628.90	--	--
MW-17A	633.68	19.94	613.74	--	--	20.18	613.50	19.90	613.78	19.77	613.91	19.32	614.36	19.80	613.88
MW-18A	635.57	--	--	--	--	20.50	615.07	20.22	615.35	20.24	615.33	19.93	615.64	20.16	615.41
MW-18B	635.52	--	--	--	--	13.46	622.06	13.75	621.77	13.98	621.54	13.12	622.40	13.31	622.21
MW-19A	636.76	--	--	--	--	21.27	615.49	20.41	616.35	20.90	615.86	20.58	616.18	20.66	616.10
MW-19B	636.65	--	--	--	--	11.74	624.91	11.58	625.07	12.38	624.27	11.25	625.40	10.90	625.75
MW-20A	642.65	--	--	--	--	24.30	618.35	24.25	618.40	24.81	617.84	24.37	618.28	24.85	617.80
MW-21A	637.82	--	--	--	--	21.75	616.07	20.87	616.95	21.57	616.25	21.26	616.56	21.7	616.12
MW-22A	638.34	--	--	--	--	--	--	19.11	619.23	19.44	618.90	19.16	619.18	19.56	618.78
MW-22B	638.50	--	--	--	--	--	--	14.56	623.94	14.79	623.71	13.80	624.70	13.87	624.63
MW-1(NET)	608.40	7.30	601.10	7.47	600.93	8.00	600.40	7.17	601.23	7.09	601.31	7.67	600.73	8.27	600.13
MW-2(NET)	608.23	7.11	601.12	7.24	600.99	7.79	600.44	6.95	601.28	--	--	--	--	7.98	600.25
MW-2A(NET)	607.99	--	--	--	--	--	--	--	--	flowing	flowing	flowing	flowing	flowing	flowing
MW-2B(NET)	608.50	--	--	--	--	--	--	--	--	flowing	flowing	flowing	flowing	flowing	flowing
MW-3(NET)	612.10	7.17	604.93	11.25	600.85	11.38	600.72	10.75	601.35	10.38	601.72	11.52	600.58	12.24	599.86
TW-11	606.80	5.75	601.05	5.75	601.05	5.74	601.06	3.58	603.22	3.75	603.05	6.00	600.80	5.99	600.81
TW-12	608.45	--	--	--	--	--	--	7.38	601.07	--	--	--	--	8.48	599.97

Notes: Reference elevation surveyed by Dames & Moore/URS

Table 1

Summary of Groundwater Elevations

Northern States Power, Ashland, Wisconsin

Well Location	Reference Elevation	June 23, 2003		September 29, 2003		December 15, 2003	
		Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations
MW-1	634.18	14.51	619.67	14.80	619.38	NM	--
MW-2R	637.43	15.59	621.84	15.58	621.85	15.52	621.91
MW-2AR	636.28	21.09	615.19	20.95	615.33	20.21	616.07
MW-2BR	636.24	11.67	624.57	11.10	625.14	10.41	625.83
MW-2C[1]		--	--	--	--	2.45	--
MW-3	637.83	2.60	635.23	2.62	635.21	NM	--
MW-4	640.92	5.07	635.85	6.34	634.58	5.74	635.18
MW-4A	641.22	13.74	627.48	14.69	626.53	14.14	627.08
MW-4B	640.98	16.72	624.26	16.35	624.63	16.03	624.95
MW-5	633.82	19.20	614.62	18.73	615.09	NM	--
MW-5A	633.72	19.18	614.54	19.17	614.55	NM	--
MW-5B	633.89	19.15	614.74	19.09	614.80	NM	--
MW-5C	634.33	10.07	624.26	9.42	624.91	NM	--
MW-6	644.88	15.28	629.60	16.41	628.47	NM	--
MW-6A	644.79	20.10	624.69	20.02	624.77	NM	--
MW-7	612.60	--	--	--	--	--	--
MW-7A	613.25	flowing	--	flowing	--	flowing	flowing
MW-8	634.42	4.29	630.13	4.30	630.12	5.28	629.14
MW-8A	634.62	15.67	618.95	15.19	619.43	NM	--
MW-9	637.98	4.54	633.44	5.60	632.38	NM	--
MW-9A	637.86	14.21	623.65	13.40	624.46	12.98	624.88
MW-9B	638.02	13.23	624.79	13.37	624.65	13.20	624.82
MW-9C	637.95	14.28	623.67	13.41	624.54	13.05	624.90
MW-10	638.20	3.98	634.22	6.29	631.91	5.84	632.36
MW-10A	638.07	14.67	623.40	14.31	623.76	14.06	624.01
MW-10B	638.40	22.52	615.88	22.85	615.55	22.27	--
MW-11	636.13	6.62	629.51	6.60	629.53	NM	--

Notes: Reference elevation surveyed by Dames & Moore/URS

[1] New Monitoring Wells installed in December 2003. MW-2C not surveyed at the time of this report

Table 1

Summary of Groundwater Elevations

Northern States Power, Ashland, Wisconsin

Well Location	Reference Elevation	June 23, 2003		September 29, 2003		December 15, 2003	
		Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations	Depth to Water	Groundwater Elevations
TW-13	635.72	4.74	630.98	5.26	630.46	5.10	630.62
MW-13A	635.94	21.55	614.39	21.27	614.67	20.60	615.34
MW-13B	635.90	21.38	614.52	--	--	20.12	615.78
MW-13C	636.11	12.21	623.90	11.47	624.64	11.07	625.04
MW-13D	637.09	12.25	624.84	11.53	625.56	11.11	625.98
MW-14	639.15	3.78	635.37	4.33	634.82	NM	--
MW-15	641.21	4.22	636.99	5.30	635.91	4.77	636.44
MW-15A[1]	641.44	--	--	--	--	NM	--
MW-15B[1]	641.47	--	--	--	--	16.48	624.99
MW-16	642.20	0.73	641.47	1.82	640.38	NM	--
MW-17	633.88	2.26	631.62	2.52	631.36	2.65	631.23
MW-17A	633.68	19.82	613.86	19.61	614.07	19.48	614.20
MW-18A	635.57	20.35	615.22	20.26	615.31	20.12	615.45
MW-18B	635.52	13.74	621.78	13.37	622.15	14.66	620.86
MW-19A	636.76	21.05	615.71	20.96	615.80	NM	--
MW-19B	636.65	12.15	624.50	11.58	625.07	NM	--
MW-20A	642.65	24.85	617.80	24.85	617.80	24.82	617.83
MW-21A	637.82	21.84	615.98	21.92	615.90	21.53	616.29
MW-21B[1]	636.83	--	--	--	--	20.78	616.05
MW-22A	638.34	19.47	618.87	19.77	618.57	19.40	618.94
MW-22B	638.50	14.58	623.92	14.15	624.35	13.88	624.62
MW-1(NET)	608.40	7.41	600.99	7.73	600.67	7.80	600.60
MW-2(NET)	608.23	7.16	601.07	7.48	600.75	7.56	600.67
MW-2A(NET)	607.99	flowing	--	flowing	--	flowing	flowing
MW-2B(NET)	608.50	flowing	--	flowing	--	flowing	flowing
MW-3(NET)	612.10	11.76	600.34	11.68	600.42	11.68	600.42
TW-11	606.80	6.09	600.71	5.43	601.37	5.21	601.59
TW-12	608.45	7.66	600.79	7.91	600.54	7.99	600.46

Notes: Reference elevation surveyed by Dames & Moore/URS

[1] New monitoring wells installed in December 2003.

Table 2
Summary of Free Phase Hydrocarbon Thickness
Northern States Power, Ashland, Wisconsin

Well Location	Depth to Bottom	October 6, 1998			November 23, 1998			June 2, 1999		
		Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape
EW-1	53.51	41.45	12.06	12.25	40.09	13.42	13.5	35.25	18.26	18.2
MW-7	17.88	(1)	(1)	10.14	(1)	(1)	10.01	(1)	(1)	9.91
MW-9	14.62	13.78	0.84	2.73	14.2	0.42	3.6	14.03	0.59	--
TW-13	14.82	(2)	(2)	(2)	(2)	(2)	(2)	18.10	0.31	2.2
MW-13A	45.33	43.22	2.11	4.73	43.36	1.97	3	43.37	1.96	--
MW-13B	69.82	43.56	26.26	26.1	43.56	26.26	27.6	52.28	17.54	--
MW-15	15.59	14.78	0.81	2.94	13.93	1.66	2.09	13.26	2.33	2.6

Well Location	Depth to Bottom	August 23, 1999			November 29, 1999			September 27, 2000		
		Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape
EW-1	53.51	34.31	19.2		(2)	(2)	16.2	(2)	(2)	(2)
MW-7	17.88	(1)	(1)	10.44	(2)	(2)	0	(2)	(2)	(2)
MW-9	14.62	13.02	1.6		(2)	(2)	<1 inch	(2)	(2)	(2)
TW-13	14.82	(2)	< 6 inches	< 6 inches	(2)	(2)	<1 inch	14.32	0.5	0.5
MW-13A	45.33	(1)	(1)	8.5	(2)	(2)	2.1	44.33	1.0	1.0
MW-13B	69.82	(1)	(1)	26	(2)	(2)	12.1	57.49	12.33	12.33
MW-15	15.59	(1)	(1)	10.6	(2)	(2)	0.67	(2)	(2)	(2)

Well Location	Depth to Bottom	December 4, 2000			March 27, 2001			June 11, 2001		
		Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape
EW-1	53.51	Not Measured	--	--	Not Measured	--	--	47.51	6.00	6.00
EW-2	50.00	Not Measured		--	Not Measured	--	--	40.5	9.50	9.50
EW-3	70.00	Not Measured	--	--	Not Measured	--	--	68.58	1.42	1.42
MW-2A	44.41	Not Measured	--	--	41.66	2.75	2.75	40.37	4.04	4.04
MW-7	17.88	Frozen	--	--	Frozen	--	--	Damaged	--	--
MW-9	14.62	14.5	0.1	0.1	(2)	(2)	(2)	(2)	(2)	(2)
MW-10B	34.91				34.66	0.25	0.25	34.33	0.58	0.58
TW-13	14.82	14.57	0.25	0.25	14.74	0.08	0.08	(2)	(2)	(2)
MW-13A	45.33	44.25	1.08	1.08	44.25	1.08	1.08	44.83	0.50	0.50
MW-13B	69.82	57.24	12.58	12.58	55.86	13.96	13.96	58.65	11.17	11.17
MW-15	15.59	15.17	0.42	0.25	12.84	2.75	2.75	15.34	0.25	0.25

(1) Free-phase hydrocarbons not detected by interface probe; free-phase hydrocarbons observed on tape.
(2) Product not encountered.
Hydrocarbon thickness in well is difference between depth to bottom and depth to hydrocarbon/water interface.
Hydrocarbon thickness on tape measure after probe removed from the well.

Table 2
Summary of Free Phase Hydrocarbon Thickness
Northern States Power, Ashland, Wisconsin

Well Location	Depth to Bottom	September 10, 2001			December 3, 2001			March 18, 2002		
		Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape
EW-1	53.51	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
EW-2	50.00	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
EW-3	70.00	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
MW-2A*	44.41	41.33	3.08	3.08	Not Measured	--	--	43.45**	1.63	1.63
MW-7	17.88	Damaged	--	--	Damaged	--	--	Damaged	--	--
MW-9	14.62	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
MW-10B	34.91	34.41	0.5	0.5	34.58	0.33	0.33	34.58	0.33	0.33
TW-13	14.82	(2)	(2)	(2)	14.74	0.08	0.08	14.74	0.08	0.08
MW-13A	45.33	43.83	0.58	0.58	43.91	0.5	0.5	44.75	0.58	0.58
MW-13B	69.82	58.99	10.83	10.83	59.65	10.17	10.17	58.32	11.50	11.50
MW-15	15.59	15.26	0.33	0.33	15.34	0.25	0.25	15.51	0.08	0.08
MW-18A*	44.86	--	--	--	--	--	--	(2)	(2)	(2)
MW-19A*	45.20	--	--	--	--	--	--	(2)	(2)	(2)
MW-21A*	46.26	--	--	--	--	--	--	46.25*	0.01*	0.01*

Well Location	Depth to Bottom	June 28, 2002			September 16, 2002			December 16, 2002		
		Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape
EW-1	53.51	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
EW-2	50.00	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
EW-3	70.00	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
EW-4	29.50	29.25	0.25	0.25	(2)	(2)	(2)	Not Measured	--	--
MW-2R*	29.40	28.23	1.17	1.17	(2)	(2)	(2)	(2)	(2)	(2)
MW-2AR**	45.08	44.31	0.77	0.77	41.08	4.00	4.00	39.88	5.20	5.20
MW-7	17.88	Abandoned	--	--	Abandoned	--	--	Abandoned	--	--
MW-9	14.62	Not Measured	--	--	(2)	(2)	(2)	Not Measured	--	--
MW-10B	34.91	34.08	0.83	0.73	33.74	1.17	1.17	33.40	1.51	1.51
TW-13	14.82	Trace	--	--	Trace	--	--	Trace	--	--
MW-13A	45.33	45.25	0.08	0.08	44.33	1.00	1.00	44.33	1.00	1.00
MW-13B	69.82	67.99	1.83	1.83	59.40	10.42	10.42	58.32	11.50	11.50
MW-15	15.59	15.46	0.13	0.13	15.55	0.04	0.04	15.46	0.13	0.13
MW-18A*	44.86	(2)	(2)	1	(2)	(2)	(2)	(2)	(2)	(2)
MW-19A*	45.20	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
MW-21A*	46.26	Trace	--	--	Trace	--	--	(2)	(2)	(2)
MW-22A*	27.55	(2)	(2)	(2)	(2)	(2)	(2)	27.42	0.13	0.13

(1) Free-phase hydrocarbons not detected by interface probe; free-phase hydrocarbons observed on tape.
(2) Product not encountered.
Hydrocarbon thickness in well is difference between depth to bottom and depth to hydrocarbon/water interface.
Hydrocarbon thickness on tape measure after probe removed from the well.
* New wells installed in February and June of 2002.
** MW-2A was replaced by MW-2AR in February 2002.

Table 2
Summary of Free Phase Hydrocarbon Thickness
Northern States Power, Ashland, Wisconsin

Well Location	Depth to Bottom	March 24, 2003			June 23, 2003			September 29, 2003			December 15, 2003		
		Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape
EW-1	53.51	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
EW-2	50.00	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
EW-3	70.00	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
EW-4	29.50	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
MW-2R	29.40	27.32	2.08	2.08	28.02	1.38	1.38	27.53	1.87	1.87	27.90	1.5	1.5
MW-2AR	45.08	40.91	4.17	4.17	38.08	7.00	7.00	41.96	3.12	3.12	40.63	4.45	4.45
MW-3 (NET)	17.60	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--	11.68	trace [4]	trace [4]
MW-7	17.88	Abandoned	--	--	Abandoned	--	--	Abandoned	--	--	Abandoned	--	--
MW-9	14.62	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--	Not Measured	--	--
MW-10B	34.91	Not Measured	--	--	33.24	1.67	1.67	33.83	1.08	1.08	32.31	2.6	2.6
TW-11	14.00	Not Measured	--	--	13.50	0.5	0.5	13.17	0.83	0.83	12.92	1.08	1.08
TW-13	14.82	Trace	--	--	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
MW-13A	45.33	44.06	1.27	1.27	44.33	Trace	Trace	45.31	0.02	0.02	45.08	0.25	0.25
MW-13B	69.82	58.00	11.82	11.82	(3)	(3)	(3)	(3)	(3)	(3)	58.57	11.25	11.25
MW-15	15.59	15.49	0.10	0.10	15.14	0.45	0.45	15.43	0.16	0.16	15.57	0.02	0.02
MW-15A		--	--	--	--	--	--	--	--	--	--	3.75	3.75
MW-18A	44.86	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
MW-19A	45.20	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	Not Measured	--	--
MW-21A	46.26	(2)	(2)	(2)	Trace	Trace	Trace	(2)	(2)	(2)	46.24	0.02	0.02
MW-22A	27.55	27.26	0.29	0.29	(2)	(2)	(2)	(2)	(2)	(2)	27.51	0.04	0.04

(1) Free-phase hydrocarbons not detected by interface probe; free-phase hydrocarbons observed on tape.
(2) Product not encountered.
(3) Measuring device did not reach the well bottom. Suspected obstruction near well screen.
(4) Trace floating LNAPL encountered in well.
Hydrocarbon thickness in well is difference between depth to bottom and depth to hydrocarbon/water interface.
Hydrocarbon thickness on tape measure after probe removed from the well.

Table 3

December 2003

Groundwater Monitoring Results - VOCs SVOCs - well MW-2C

Northern States Power, Ashland, Wisconsin

Analyte	Units	MW-2C	PAL	ES
VOCs				
Benzene	µg/L	**9.1**	0.5	5
sec-Butylbenzene	µg/L	<1.0	--	--
Ethylbenzene	µg/L	<0.82	140	700
Toluene	µg/L	**11**	200	1,000
1,2,4-Trimethylbenzene	µg/L	<0.96	96	480
1,3,5-Trimethylbenzene	µg/L	<1.1		
Total Trimethylbenzene	µg/L	<0.96		
o-Xylene	µg/L	**<2.0>**	1,000	10,000
m,p-Xylene	µg/L	**<3.5>**		
Xylene, Total	µg/L	**<5.5>**		
Total VOCs	µg/L	**25.6**		

< - Less Than Limit of Detection
<> Between Limit of Detection and Limit of Quantification
Concentrations exceeding the ES have been shaded

Analyte	Units	MW-2C	PAL	ES
SVOCs				
Acenaphthene	µg/L	<0.67	--	--
Acenaphthylene	µg/L	<1.3	--	--
Anthracene	µg/L	<0.41	600	3,000
Benzo(a)anthracene	µg/L	<0.43	--	--
Benzo(a)pyrene	µg/L	<0.42	0.02	0.2
Benzo(b)fluoranthene	µg/L	<0.56	0.02	0.2
Benzo(g,h,i)perylene	µg/L	<0.91	--	--
Benzo(k)fluoranthene	µg/L	<0.90	--	--
Chrysene	µg/L	<1.2	0.02	0.2
Dibenzo(a,h,)anthracene	µg/L	<0.56	20	100
Dibenzofuran	µg/L	<1.3	--	--
Fluoranthene	µg/L	<0.42	80	400
Fluorene	µg/L	<0.61	80	400
Indeno(1,2,3-cd) Pyrene	µg/L	<0.54	--	--
1-Methylnaphthalene	µg/L	**<2.1>**	--	--
2-Methylnaphthalene	µg/L	**3.0**	--	--
2-Methylphenol	µg/L	<1.2	--	--
3 & 4-Methylphenol	µg/L	<1.3	--	--
Naphthalene	µg/L	**7.7**	8	40
Phenanthrene	µg/L	**<0.54>**	--	--
Phenol	µg/L	<0.51	--	--
Pyrene	µg/L	<0.98	50	250
Benzo(e)pyrene	µg/L	<5.0	--	--
Total SVOCs	µg/L	**13.3**		

Table 4
Remediation System Water Quality Monitoring Results
Northern States Power, Ashland, Wisconsin

December 2003

Analyte	Units	Influent	Precarbon	Effluent	(1)POTW	Method	Frequency
PVOCs							
Benzene	µg/L	**2,100**	**2,900**	<0.23	--	EPA 8260	Monthly
Bromoform	ug/L	<88	<44	<0.18	--	EPA 8260	Monthly
n-Butylbenzene	µg/L	<120	<58	<0.23	--	EPA 8260	Monthly
sec-Butylbenzene	µg/L	<130	<63	<0.25	--	EPA 8260	Monthly
Ethylbenzene	µg/L	<100	**310**	<0.21	--	EPA 8260	Monthly
Isopropylbenzene	µg/L	<92	<46	<0.18	--	EPA 8260	Monthly
p-Isopropyltoluene	µg/L	<110	<57	<0.23	--	EPA 8260	Monthly
Methylene Chloride	µg/L	<120	<59	<0.24	--	EPA 8261	Monthly
Naphthalene	µg/L	**6,900**	**2,400**	<0.39	--	EPA 8260	Monthly
n-Propylbenzene	µg/L	<140	<68	<0.27	--	EPA 8260	Monthly
Toluene	µg/L	**1,500**	**1,400**	<0.23	--	EPA 8260	Monthly
1,2,4-Trimethylbenzene	µg/L	<120	**<65>**	<0.24	--	EPA 8260	Monthly
1,3,5-Trimethylbenzene	µg/L	<140	<68	<0.27	--	EPA 8260	Monthly
Total Trimethylbenzene	µg/L	<120	**<65>**	<0.51	--	EPA 8260	Monthly
ortho-xylene	ug/L	**<210>**	**180**	<0.18	--	EPA 8260	Monthly
meta, para-xylene	ug/L	**<340>**	**330**	<0.37	--	EPA 8260	Monthly
Xylene, Total	µg/L	**<550>**	**520**	<0.55	--	EPA 8260	Monthly
Styrene	ug/L	**660**	**230**	<0.17	--	EPA 8260	Monthly
Total PVOCs	µg/L	**11,710**	**7,815**	**0.00**	(2)1000		

Collected December 17, 2003
< - Less Than Limit of Detection
<> Between Limit of Detection and Limit of Quantification
Concentrations exceeding the POTW have been shaded
(1)- POTW standards for effluent discharge
(2)1000 - POTW standard for total BTEX for effluent discharge

Table 5
Remediation System Air Monitoring Results
Northern States Power, Ashland, Wisconsin

December 2003

Analyte	Units	Air Stripper	1st Stage Carbon	Effluent	Method	Frequency
VOCs						
Volume Collected	Liters	3.0	3.0	5.0		Monthly
Benzene	mg	<0.02	<0.02	<0.02	NIOSH 1501	Monthly
Benzene	mg/m^3	<6.67	<6.67	<4.0		Monthly
Ethylbenzene	mg	<0.02	<0.02	<0.02	NIOSH 1501	Monthly
Ethylbenzene	mg/m^3	<6.67	<6.67	<4.0		Monthly
Hydrocarbons (total)	mg	<0.03	<0.03	**0.049**	NIOSH 1550	Monthly
Hydrocarbons (total)	mg/m^3	<10.0	<10.0	**9.8**		Monthly
Toluene	mg	<0.02	<0.02	<0.02	NIOSH 1501	Monthly
Toluene	mg/m^3	<6.67	<6.67	<4.0		Monthly
Xylene, Total	mg	<0.03	<0.03	<0.03	NIOSH 1501	Monthly
Xylene, Total	mg/m^3	<10.0	<10.0	<6.0		Monthly

Collected December 17, 2003
< - Less Than Limit of Detection
<> Between Limit of Detection and Limit of Quantification

Table 6
Summary of Coal Tar and Groundwater Volumes Removed

Date	Cumulative Volume of Coal Tar Removed (gals)	Cumulative Volume of Coal Tar Removed (lbs)	Cummulative Volume of Groundwater Removed from Wells EW-1, EW-2, EW-3 (gals)	Cummulative Volume of Groundwater Removed from well EW-4 (gals)	Cumulative Volume of Groundwater Removed (gals)
2/20/2001	554.2	4,853	22,826	0	22,826
3/30/2001	850.0	7,443	44,613	0	44,613
4/26/2001	915.2	8,014	56,978	0	56,978
5/17/2001	1,078.2	9,442	58,967	0	58,967
6/11/2001	1,291.2	11,307	61,094	0	61,094
7/31/2001	1,535.2	13,444	65,758	0	65,758
8/15/2001	1,578.0	13,819		0	
9/12/2001			81,524	0	81,524
9/28/2001	1,789.9	15,674	104,500	0	104,500
11/12/2001*	2,486.4	21,773	104,900	0	104,900
11/13/2001	2,551.6	22,344	106,200	0	106,200
11/14/2001	2,559.7	22,415	107,600	0	107,600
11/19/2001	2,600.5	22,772	114,200	0	114,200
11/28/2001	2,682.0	23,486	125,200	0	125,200
12/3/2001	2,779.8	24,342	131,500	0	131,500
12/12/2001	2,877.6	25,199	142,300	0	142,300
12/19/2001	2,975.4	26,055	155,328	0	155,328
1/3/2002	3,105.8	27,197	172,000	0	172,000
2/5/2002	3,105.7	27,197	173,116	0	173,116
2/11/2002	3,122.0	27,340	178,300	0	178,300
2/12/2002	3,122.1	27,340	180,100	0	180,100
2/19/2002	3,122.1	27,340	182,900	0	182,900
3/6/2002	3,138.4	27,483	183,000	0	183,000
3/12/2002	3,187.3	27,911	194,400	0	194,400
3/18/2002	3,219.9	28,196	199,400	0	199,400
3/27/2002	3,317.7	29,053	210,500	0	210,500
4/3/2002	3,350.3	29,338	216,600	0	216,600
4/9/2002	3,399.2	29,767	224,000	0	224,000
4/23/2002	3,473.6	30,419	238,100	0	238,100
4/30/2002	3,514.3	30,775	246,700	0	246,700
5/8/2002	3,538.8	30,989	256,900	0	256,900
5/15/2002	3,587.7	31,418	264,500	0	264,500
5/20/2002	3,612.1	31,631	266,900	0	266,900
5/24/2002	3,636.5	31,845	268,365	10,935	279,300
5/28/2002	3,652.8	31,988	272,215	13,185	285,400
6/17/2002	3,669.1	32,131	287,693	28,507	316,200
6/25/2002	3,726.2	32,631	295,908	35,492	331,400
7/2/2002	3,766.9	32,987	299,147	42,153	341,300

Table 6

Summary of Coal Tar and Groundwater Volumes Removed

Date	Cumulative Volume of Coal Tar Removed (gals)	Cumulative Volume of Coal Tar Removed (lbs)	Cummulative Volume of Groundwater Removed from Wells EW-1, EW-2, EW-3 (gals)	Cummulative Volume of Groundwater Removed from well EW-4 (gals)	Cumulative Volume of Groundwater Removed (gals)
7/9/2002	3,783.2	33,130	306,783	42,717	349,500
7/17/2002	3,799.5	33,272	314,710	49,990	364,700
7/22/2002	3,824.0	33,487	319,384	54,516	373,900
7/29/2002	3,864.7	33,843	326,542	57,158	383,700
8/8/2002	3,905.5	34,201	334,406	68,394	402,800
8/15/2002	3,921.8	34,343	340,391	68,609	409,000
9/9/2002	3,942.1	34,521	343,084	79,816	422,900
9/19/2002	4,003.3	35,057	350,659	91,441	442,100
9/26/2002	4,003.3	35,057	356,565	91,535	448,100
10/4/2002	4,003.3	35,057	363,135	93,265	456,400
10/11/2002	4,003.3	35,057	374,863	94,737	469,600
10/18/2002	4,027.8	35,272			485,600
10/25/2002	4,158.2	36,414	379,459	116,901	496,360
10/31/2002	4,166.3	36,484	381,556	121,045	502,600
11/8/2002	4,166.3	36,484			511,800
11/21/2002	4,753.3	41,625	387,629	124,272	511,900
11/26/2002	4,773.6	41,803	391,434	127,566	519,000
12/4/2002	4,789.9	41,945	398,205	129,795	528,000
12/10/2002	4,802.2	42,053	403,230	130,971	534,200
12/18/2002	4,826.6	42,267	410,356	132,444	542,800
12/23/2002	4,842.9	42,409	412,967	133,333	546,300
12/30/2002	4,855.1	42,516	415,842	134,458	550,300
1/10/2003	4,883.7	42,767	425,575	136,125	561,700
1/15/2003	4,900.0	42,910	429,541	136,859	566,400
1/20/2003	4,920.3	43,087	434,133	137,567	571,700
1/30/2003	4,952.9	43,373	442,556	138,844	581,400
2/13/2003	4,989.6	43,694	454,019	140,881	594,900
2/19/2003	5,007.8	43,854	456,851	141,149	598,000
2/26/2003	5,036.3	44,103	463,081	142,019	605,100
3/4/2003			468,458	142,742	611,200
3/27/2003			471,979	143,488	615,467
4/2/2003	5,097.5	44,639	478,430	144,870	623,300
4/9/2003	5,158.7	45,175	483,745	145,855	629,600
4/16/2003	5,219.9	45,711	487,333	148,267	635,600
4/23/2003	5,281.1	46,247	492,504	152,796	645,300
4/29/2003	5,342.3	46,783	495,729	155,771	651,500
5/7/2003	5,403.5	47,319	499,877	158,223	658,100
5/15/2003	5,464.7	47,855	0		
5/21/2003	5,525.9	48,391	515,230	172,470	687,700
5/28/2003	5,587.1	48,926	522,943	175,357	698,300

Table 6

Summary of Coal Tar and Groundwater Volumes Removed

Date	Cumulative Volume of Coal Tar Removed (gals)	Cumulative Volume of Coal Tar Removed (lbs)	Cummulative Volume of Groundwater Removed from Wells EW-1, EW-2, EW-3 (gals)	Cummulative Volume of Groundwater Removed from well EW-4 (gals)	Cumulative Volume of Groundwater Removed (gals)
6/3/2003	5,648.3	49,462	524,602	176,598	701,200
6/10/2003	5,709.5	49,998	529,728	178,472	708,200
6/17/2003	5,770.7	50,534	534,411	179,789	714,200
6/26/2003	5,831.9	51,070	540,050	180,950	721,000
7/2/2003	5,893.1	51,606	543,291	181909	725,200
7/9/2003	5,954.3	52,142	731,900	0	731,900
7/16/2203	6,015.5	52,678	553,174	185,526	738,700
7/22/2003	6,076.7	53,214	556,643	186,957	743,600
7/30/2003	6,137.9	53,750	560,726	188,074	748,800
8/6/2003	6,199.1	54,286	562,275	188,825	751,100
8/20/2003	6,260.3	54,822	567,361	191,139	758,500
8/28/2003	6,321.5	55,358	761,700	0	761,700
9/4/2003	6,382.7	55,894	572,759	191,841	764,600
9/11/2003	6,443.9	56,429	576,361	191,139	767,500
9/19/2003	6,505.1	56,965	579,259	191,841	771,100
9/25/2003	6,566.3	57,501	578,399	197,101	775,500
10/3/2003	6,627.5	58,037	781,500	0	781,500
10/9/2003	6,688.7	58,573	583,771	198,229	782,000
10/24/2003	6,749.9	59,109	588,551	201,950	790,500
10/29/2003	6,811.1	59,645	591,451	201,950	793,400
11/6/2003	6,872.3	60,181	595,851	201,950	797,800
11/13/2003	6,933.5	60,717	597,636	201,964	799,600
11/192003	6,994.7	61,253	597,753	202,147	799,900
11/25/2003	7,055.9	61,789	600,218	203,382	803,600
12/3/2003	7,117.1	62,325	602,201	205,999	808,200
12/11/2003	7,178.3	62,861	602,966	209,734	812,700
12/19/2003	7,239.5	63,397	603,699	214,401	818,100
12/26/2003	7,300.7	63,932	601,674	219,726	821,400
12/29/2003	7,361.9	64,468	596,405	225,095	821,500

APPENDIX A

LABORATORY REPORTS

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105 000330
EPA Laboratory ID No. WI00034

Printed: 01/06/04 Code: S

NLS Project: 78536
NLS Customer: 91206
Fax: 414 831 4101 Phone: 414 831 4100

Client: URS Corporation (Milwaukee)
Attn: Ben Nelson
10200 West Innovation Drive #500
Milwaukee,WI 53226 4827

Project: NSP-Ashland Lake Front Site

Post-it® Fax Note 7671	Date 1-6-04	# of pages ▶ 4
To David Trauner	From Steve Mikejnek	
Co./Dept. New Fields	Co. NLS	
Phone #	Phone #	
Fax # 608-342-9013	Fax #	

NS-GWMW02C NLS ID: 328417
Ref. Line 1 COC 66248 NS-GWMW02C Matrix: GW
Collected: 12/19/03 12:30 Received: 12/20/03

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Aluminum, tot. as Al by ICP-Trace	11	mg/L	1	0.0076	0.025	01/05/04	SW846 6010	721026460
Aluminum, dis. as Al by ICP-Trace	[0.020]	mg/L	1	0.0076	0.025	01/05/04	SW846 6010	721026460
Antimony, dis. as Sb by furnace AAS	ND	ug/L	1	3.2	11	12/30/03	SW846 7041	721026460
Antimony, tot. as Sb by furnace AAS	ND	ug/L	1	3.2	11	12/31/03	SW846 7041	721026460
Arsenic, dis. as As by furnace AAS	ND	ug/L	1	2.6	9.1	12/23/03	SW846 7060	721026460
Arsenic, tot. as As by furnace AAS	[5.7]	ug/L	1	2.6	9.1	12/30/03	SW846 7060	721026460
Barium, tot. as Ba by ICP-Trace	140	ug/L	1	2.5	5.0	01/05/04	SW846 6010	721026460
Barium, dis. as Ba by ICP-Trace	110	ug/L	1	2.5	5.0	12/31/03	SW846 6010	721026460
Beryllium, tot. as Be by ICP-Trace	0.66	ug/L	1	0.17	0.50	01/06/04	SW846 6010	721026460
Beryllium, dis. as Be by ICP-Trace	ND	ug/L	1	0.17	0.50	12/31/03	SW846 6010	721026460
Cadmium, tot. as Cd by ICP-Trace	ND	ug/L	1	0.21	0.73	01/05/04	SW846 6010	721026460
Cadmium, dis. as Cd by ICP-Trace	ND	ug/L	1	0.21	0.73	12/31/03	SW846 6010	721026460
Calcium, tot. as Ca by ICP-Trace	31	mg/L	1	0.15	0.30	01/05/04	SW846 6010	721026460
Calcium, dis. as Ca by ICP-Trace	34	mg/L	1	0.15	0.30	12/31/03	SW846 6010	721026460
Chromium, Hex. as Cr+6	ND	ug/L	1	3.6*		12/20/03	SW846 7196A	721026460
Chromium, trivalent as Cr+3	6.1	ug/L	1	3.6*		01/06/04	Calc.	721026460
Chromium, tot. as Cr by ICP-Trace	6.1	ug/L	1	0.64	2.2	01/05/04	SW846 6010	721026460
Chromium, dis. as Cr by ICP-Trace	ND	ug/L	1	0.64	2.2	12/31/03	SW846 6010	721026460
Cobalt, tot. as Co by ICP-Trace	[1.5]	ug/L	1	0.71	2.5	01/05/04	SW846 6010	721026460
Cobalt, dis. as Co by ICP-Trace	ND	ug/L	1	0.71	2.5	12/31/03	SW846 6010	721026460
Copper, tot. as Cu by ICP-Trace	12	ug/L	1	1.3	4.0	01/05/04	SW846 6010	721026460
Copper, dis. as Cu by ICP-Trace	ND	ug/L	1	1.3	4.0	12/31/03	SW846 6010	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	1	0.0050	0.015	12/23/03	EPA 335.4	721026460
Iron, tot. as Fe by ICP-Trace	5.8	mg/L	1	0.029	0.099	01/05/04	SW846 6010	721026460
Iron, dis. as Fe by ICP-Trace	ND	mg/L	1	0.029	0.099	12/31/03	SW846 6010	721026460
Lead, tot. as Pb by ICP-Trace	11	ug/L	1	1.0	3.5	01/05/04	SW846 6010	721026460
Lead, dis. as Pb by ICP-Trace	ND	ug/L	1	1.0	3.5	12/31/03	SW846 6010	721026460
Magnesium, tot. as Mg by ICP-Trace	12	mg/L	1	0.15	0.30	01/05/04	SW846 6010	721026460
Magnesium, dis. as Mg by ICP-Trace	12	mg/L	1	0.15	0.30	12/31/03	SW846 6010	721026460
Manganese, tot. as Mn by ICP-Trace	170	ug/L	1	1.0	2.0	01/05/04	SW846 6010	721026460
Manganese, dis. as Mn by ICP-Trace	130	ug/L	1	1.0	2.0	12/31/03	SW846 6010	721026460
Mercury, dis. as Hg	ND	ug/L	1	0.025	0.050	12/30/03	245.7M/ 1631M	721026460
Mercury, tot. as Hg	ND	ug/L	1	0.025	0.050	12/30/03	245.7M/ 1631M	721026460
Nickel, tot. as Ni by ICP-Trace	7.0	ug/L	1	0.61	2.0	01/05/04	SW846 6010	721026460
Nickel, dis. as Ni by ICP-Trace	ND	ug/L	1	0.61	2.0	12/31/03	SW846 6010	721026460
Potassium, dis. as K	6.2	mg/L	1	0.48	1.8	01/05/04	SW846 6010	721026460
Potassium, tot. as K	6.6	mg/L	1	0.48	1.8	01/05/04	SW846 6010	721026460
Selenium, dis. as Se by furnace AAS	ND	ug/L	1	2.7	9.5	12/30/03	SW846 7740	721026460
Selenium, tot. as Se by furnace AAS	ND	ug/L	1	2.7	9.5	01/02/04	SW846 7740	721026460
Silver, tot. as Ag by ICP-Trace	ND	ug/L	1	0.77	2.7	01/05/04	SW846 6010	721026460
Silver, dis. as Ag by ICP-Trace	ND	ug/L	1	0.77	2.7	12/31/03	SW846 6010	721026460
Sodium, dis. as Na	37	mg/L	1	0.020	0.072	01/05/04	SW846 6010	721026460
Sodium, tot. as Na	33	mg/L	1	0.020	0.072	01/05/04	SW846 6010	721026460
Thallium, dis. as Tl by furnace AAS	ND	ug/L	1	2.5	8.7	12/22/03	SW846 7841	721026460
Thallium, tot. as Tl by furnace AAS	ND	ug/L	1	2.5	8.7	12/29/03	SW846 7841	721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105 000330
EPA Laboratory ID No. WI00034

Printed: 01/06/04 Code: S

NLS Project: 78536
NLS Customer: 91206

Client: URS Corporation (Milwaukee)
Attn: Ben Nelson
10200 West Innovation Drive #500
Milwaukee,WI 53226 4827

Fax: 414 831 4101 Phone: 414 831 4100

Project: NSP-Ashland Lake Front Site

NS-GWMW02C NLS ID: 328417
Ref. Line 1 COC 66248 NS-GWMW02C Matrix: GW
Collected: 12/19/03 12:30 Received: 12/20/03

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Vanadium, tot. as V by ICP-Trace	9.3	ug/L	1	0.58	2.0	01/05/04	SW846 6010	721026460
Vanadium, dis. as V by ICP-Trace	[1.1]	ug/L	1	0.58	2.0	12/31/03	SW846 6010	721026460
Zinc, tot. as Zn by ICP-Trace	37	ug/L	1	5.0	10	01/05/04	SW846 6010	721026460
Zinc, dis. as Zn by ICP-Trace	ND	ug/L	1	5.0	10	12/31/03	SW846 6010	721026460
Metals digestion - total, water ICP	yes					12/20/03	SW846 3010	721026460
Metals digestion - total, water GF	yes					12/21/03	SW846 3020	721026460
Metals digestion - dissolved ICP	yes					12/20/03	SW846 3005	721026460
Metals digestion - dissolved Furnace	yes					12/21/03	SW846 3005	721026460
VOCs (water) by EPA 8260	see attached					12/29/03	SW846 8260	721026460
Base/Neutral/Acid Extraction by 3510C	yes					12/23/03	SW846 3510	721026460
Semivolatile GC/MS by 8270C	see attached					12/30/03	SW846 8270C	721026460

Values in brackets represent results greater than or equal to the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation". Results greater than or equal to the LOQ are considered to be in the region of "Certain Quantitation". LOD and LOQ tagged with an asterisk(*) are considered Reporting Limits. All LOD/LOQs adjusted to reflect dilution.

LOD = Limit of Detection LOQ = Limit of Quantitation ND = Not Detected 1000 ug/L = 1 mg/L
DWB = Dry Weight Basis NA = Not Applicable %DWB = (mg/kg DWB) / 10000
MCL = Maximum Contaminant Levels for Drinking Water Samples

Reviewed by: _____

Authorized by:
R. T. Krueger
President

ANALYTICAL RESULTS: VOC's by EPA 8260 - Water - (Saturn 2)

Customer: URS Corporation (Milwaukee) **NLS Project: 78536**
Project Description: NSP-Ashland Lake Front Site
Project Title: **Template: SAT2NSP** **Printed: 01/06/2004 11:57**

Sample: 328313 **NS-GWMW02BRMS/MSD** **Collected: 12/18/03** **Analyzed: 12/29/03**

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ
Benzene	2700	ug/L	500	110	390
sec-Butylbenzene	ND	ug/L	500	130	430
Ethylbenzene	720	ug/L	500	100	360
ortho-Xylene	990	ug/L	500	92	320
Styrene	1800	ug/L	500	86	300
Toluene	6900	ug/L	500	120	400
1,2,4-Trimethylbenzene	[260]	ug/L	500	120	410
1,3,5-Trimethylbenzene	ND	ug/L	500	140	470
meta,para-Xylene	1900	ug/L	500	190	640
Dibromofluoromethane (SURR**)	113%				
Toluene-d8 (SURR**)	111%				
1-Bromo-4-Fluorobenzene (SURR**)	106%				

Sample: 328314 **NS-GWMW15B** **Collected: 12/18/03** **Analyzed: 12/29/03**

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ
Benzene	420	ug/L	50	11	39
sec-Butylbenzene	ND	ug/L	50	13	43
Ethylbenzene	[16]	ug/L	50	10	36
ortho-Xylene	40	ug/L	50	9.2	32
Styrene	110	ug/L	50	8.6	30
Toluene	280	ug/L	50	12	40
1,2,4-Trimethylbenzene	[28]	ug/L	50	12	41
1,3,5-Trimethylbenzene	ND	ug/L	50	14	47
meta,para-Xylene	82	ug/L	50	19	64
Dibromofluoromethane (SURR**)	105%				
Toluene-d8 (SURR**)	106%				
1-Bromo-4-Fluorobenzene (SURR**)	99%				

Sample: 328417 **NS-GWMW02C** **Collected: 12/19/03** **Analyzed: 12/29/03**

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ
Benzene	9.1	ug/L	4	0.90	3.1
sec-Butylbenzene	ND	ug/L	4	1.0	3.5
Ethylbenzene	ND	ug/L	4	0.82	2.9
ortho-Xylene	[2.0]	ug/L	4	0.74	2.5
Styrene	ND	ug/L	4	0.69	2.4
Toluene	11	ug/L	4	0.94	3.2
1,2,4-Trimethylbenzene	ND	ug/L	4	0.96	3.3
1,3,5-Trimethylbenzene	ND	ug/L	4	1.1	3.7
meta,para-Xylene	[3.5]	ug/L	4	1.5	5.1
Dibromofluoromethane (SURR**)	108%				
Toluene-d8 (SURR**)	107%				
1-Bromo-4-Fluorobenzene (SURR**)	99%				

Sample was diluted due to a high level of Naphthalene.

** Surrogates are used to evaluate a method's Quality Control.

ANALYTICAL RESULTS: Semi-Volatile Organic Compounds by EPA 8270C - Water

Customer: URS Corporation (Milwaukee) **NLS Project: 78536**
Project Description: NSP-Ashland Lake Front Site
Project Title: **Template: 8270WNSP** **Printed: 01/06/2004 09:51**

Sample: 328417 **NS-GWMW02C** **Collected: 12/19/03** **Analyzed: 12/30/03**

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ
Acenaphthene	ND	ug/L	1	0.67	2.2
Acenaphthylene	ND	ug/L	1	1.3	4.3
Anthracene	ND	ug/L	1	0.41	1.4
Benzo[a]anthracene	ND	ug/L	1	0.43	1.4
Benzo[a]pyrene	ND	ug/L	1	0.42	1.4
Benzo[b]fluoranthene	ND	ug/L	1	0.56	1.9
Benzo[g,h,i]perylene	ND	ug/L	1	0.91	2.9
Benzo[k]fluoranthene	ND	ug/L	1	0.90	3.0
Chrysene	ND	ug/L	1	1.2	3.7
Dibenzo[a,h]anthracene	ND	ug/L	1	0.56	1.9
Dibenzofuran	ND	ug/L	1	1.3	4.4
Fluoranthene	ND	ug/L	1	0.42	1.4
Fluorene	ND	ug/L	1	0.61	2.0
Indeno[1,2,3-cd]pyrene	ND	ug/L	1	0.54	1.8
1-Methylnaphthalene	[2.1]	ug/L	1	0.76	2.5
2-Methylnaphthalene	3.0	ug/L	1	0.76	2.5
2-Methylphenol	ND	ug/L	1	1.2	4.0
3 & 4-Methylphenol	ND	ug/L	1	1.3	4.2
Naphthalene	7.7	ug/L	1	0.73	2.4
Phenanthrene	[0.54]	ug/L	1	0.41	1.4
Phenol	ND	ug/L	1	0.51	1.7
Pyrene	ND	ug/L	1	0.98	3.1
Benzo[e]pyrene	ND	ug/L	1	5.0	5.0
2-Fluorophenol (SURR**)	32%				
Phenol-d5 (SURR**)	21%				
Nitrobenzene-d5 (SURR**)	84%				
2-Fluorobiphenyl (SURR**)	72%				
2,4,6-Tribromophenol (SURR**)	75%				
Terphenyl-d14 (SURR**)	67%				

Matrix spike and matrix spike duplicate recoveries for Phenol were below in-house QC limits.

** Surrogates are used to evaluate a method's Quality Control.

ANALYTICAL RESULTS: VOC's by EPA 8260 - Water - (Saturn 2)

Customer: URS Corporation (Milwaukee) **NLS Project: 78507**
Project Description: NSP-Ashland Lakefront Site
Project Title: **Template: SAT2W** **Printed: 01/12/2004 08:45**

Sample: 328133 **Influent** **Collected: 12/17/03** **Analyzed: 12/24/03**

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ
Benzene	2100	ug/L	500	110	390
Bromobenzene	ND	ug/L	500	94	330
Bromochloromethane	ND	ug/L	500	100	350
Bromodichloromethane	ND	ug/L	500	96	330
Bromoform	ND	ug/L	500	88	300
Bromomethane	ND	ug/L	500	120	420
n-Butylbenzene	ND	ug/L	500	120	400
sec-Butylbenzene	ND	ug/L	500	130	430
tert-Butylbenzene	ND	ug/L	500	130	440
Carbon Tetrachloride	ND	ug/L	500	88	300
Chlorobenzene	ND	ug/L	500	91	310
Chloroethane	ND	ug/L	500	500	1700
Chloroform	ND	ug/L	500	110	360
Chloromethane	ND	ug/L	500	91	310
2-Chlorotoluene	ND	ug/L	500	110	380
4-Chlorotoluene	ND	ug/L	500	79	270
Dibromochloromethane	ND	ug/L	500	84	290
1,2-Dibromo-3-Chloropropane	ND	ug/L	500	100	360
1,2-Dibromoethane	ND	ug/L	500	100	350
Dibromomethane	ND	ug/L	500	100	350
1,2-Dichlorobenzene	ND	ug/L	500	87	300
1,3-Dichlorobenzene	ND	ug/L	500	100	350
1,4-Dichlorobenzene	ND	ug/L	500	110	370
Dichlorodifluoromethane	ND	ug/L	500	130	430
1,1-Dichloroethane	ND	ug/L	500	110	370
1,2-Dichloroethane	ND	ug/L	500	100	350
1,1-Dichloroethene	ND	ug/L	500	130	460
cis-1,2-Dichloroethene	ND	ug/L	500	110	370
trans-1,2-Dichloroethene	ND	ug/L	500	120	400
1,2-Dichloropropane	ND	ug/L	500	96	330
1,3-Dichloropropane	ND	ug/L	500	90	310
2,2-Dichloropropane	ND	ug/L	500	130	440
1,1-Dichloropropene	ND	ug/L	500	86	300
cis-1,3-Dichloropropene	ND	ug/L	500	120	400
trans-1,3-Dichloropropene	ND	ug/L	500	120	400
Ethylbenzene	ND	ug/L	500	100	360
Hexachlorobutadiene	ND	ug/L	500	93	320
Isopropylbenzene	ND	ug/L	500	92	320
p-Isopropyltoluene	ND	ug/L	500	110	390
Methylene chloride	ND	ug/L	500	120	380
Naphthalene	6900	ug/L	500	200	680
n-Propylbenzene	ND	ug/L	500	140	470
ortho-Xylene	[210]	ug/L	500	92	320
Styrene	660	ug/L	500	86	300
1,1,1,2-Tetrachloroethane	ND	ug/L	500	97	330
1,1,2,2-Tetrachloroethane	ND	ug/L	500	100	350
Tetrachloroethene	ND	ug/L	500	91	310
Toluene	1500	ug/L	500	120	400
1,2,3-Trichlorobenzene	ND	ug/L	500	150	510
1,2,4-Trichlorobenzene	ND	ug/L	500	120	420
1,1,1-Trichloroethane	ND	ug/L	500	110	400
1,1,2-Trichloroethane	ND	ug/L	500	68	230

Post-it® Fax Note 7671
To Derrick Zoellner
Co./Dept. New Fields
Phone #
Fax # 608-442-9013
Date 1-12-04 # of pages ▶ 6
From Steve Majnek
Co. NLS
Phone #
Fax #

ANALYTICAL RESULTS: VOC's by EPA 8260 - Water - (Saturn 2)

Customer: URS Corporation (Milwaukee) **NLS Project: 78507**
Project Description: NSP-Ashland Lakefront Site
Project Title: **Template: SAT2W** **Printed: 01/12/2004 08:45**

Sample: 328133 **Influent** **Collected: 12/17/03** **Analyzed: 12/24/03**

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ
Trichloroethene	ND	ug/L	500	110	370
Trichlorofluoromethane	ND	ug/L	500	110	390
1,2,3-Trichloropropane	ND	ug/L	500	110	370
1,2,4-Trimethylbenzene	ND	ug/L	500	120	410
1,3,5-Trimethylbenzene	ND	ug/L	500	140	470
Vinyl chloride	ND	ug/L	500	69	340
meta,para-Xylene	[340]	ug/L	500	190	640
MTBE	ND	ug/L	500	54	170
Isopropyl ether	ND	ug/L	500	94	320
Dibromofluoromethane (SURR**)	106%				
Toluene-d8 (SURR**)	109%				
1-Bromo-4-Fluorobenzene (SURR**)	103%				

Check standard recovery was outside QC limits for MTBE, Isopropyl Ether, and N-Butylbenzene at 79%, 76%, and 78% .

ANALYTICAL RESULTS: VOC's by EPA 8260 - Water - (Saturn 2)

Customer: URS Corporation (Milwaukee) **NLS Project: 78507**
Project Description: NSP-Ashland Lakefront Site
Project Title: **Template: SAT2W** **Printed: 01/12/2004 08:45**

Sample: 328134 **Pre Carbon** **Collected: 12/17/03** **Analyzed: 12/24/03**

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ
Benzene	2900	ug/L	250	56	190
Bromobenzene	ND	ug/L	250	47	160
Bromochloromethane	ND	ug/L	250	51	180
Bromodichloromethane	ND	ug/L	250	48	160
Bromoform	ND	ug/L	250	44	150
Bromomethane	ND	ug/L	250	61	210
n-Butylbenzene	ND	ug/L	250	58	200
sec-Butylbenzene	ND	ug/L	250	63	220
tert-Butylbenzene	ND	ug/L	250	63	220
Carbon Tetrachloride	ND	ug/L	250	44	150
Chlorobenzene	ND	ug/L	250	46	160
Chloroethane	ND	ug/L	250	250	870
Chloroform	ND	ug/L	250	53	180
Chloromethane	ND	ug/L	250	45	160
2-Chlorotoluene	ND	ug/L	250	55	190
4-Chlorotoluene	ND	ug/L	250	40	140
Dibromochloromethane	ND	ug/L	250	42	150
1,2-Dibromo-3-Chloropropane	ND	ug/L	250	52	180
1,2-Dibromoethane	ND	ug/L	250	50	170
Dibromomethane	ND	ug/L	250	51	180
1,2-Dichlorobenzene	ND	ug/L	250	43	150
1,3-Dichlorobenzene	ND	ug/L	250	51	170
1,4-Dichlorobenzene	ND	ug/L	250	53	180
Dichlorodifluoromethane	ND	ug/L	250	63	220
1,1-Dichloroethane	ND	ug/L	250	54	190
1,2-Dichloroethane	ND	ug/L	250	50	170
1,1-Dichloroethene	ND	ug/L	250	66	230
cis-1,2-Dichloroethene	ND	ug/L	250	54	190
trans-1,2-Dichloroethene	ND	ug/L	250	58	200
1,2-Dichloropropane	ND	ug/L	250	48	170
1,3-Dichloropropane	ND	ug/L	250	45	150
2,2-Dichloropropane	ND	ug/L	250	63	220
1,1-Dichloropropene	ND	ug/L	250	43	150
cis-1,3-Dichloropropene	ND	ug/L	250	58	200
trans-1,3-Dichloropropene	ND	ug/L	250	58	200
Ethylbenzene	310	ug/L	250	52	180
Hexachlorobutadiene	ND	ug/L	250	47	160
Isopropylbenzene	ND	ug/L	250	46	160
p-Isopropyltoluene	ND	ug/L	250	57	200
Methylene chloride	ND	ug/L	250	59	190
Naphthalene	2400	ug/L	250	98	340
n-Propylbenzene	ND	ug/L	250	68	230
ortho-Xylene	180	ug/L	250	46	160
Styrene	230	ug/L	250	43	150
1,1,1,2-Tetrachloroethane	ND	ug/L	250	49	170
1,1,2,2-Tetrachloroethane	ND	ug/L	250	51	180
Tetrachloroethene	ND	ug/L	250	45	160
Toluene	1400	ug/L	250	59	200
1,2,3-Trichlorobenzene	ND	ug/L	250	73	250
1,2,4-Trichlorobenzene	ND	ug/L	250	61	210
1,1,1-Trichloroethane	ND	ug/L	250	57	200
1,1,2-Trichloroethane	ND	ug/L	250	34	110

ANALYTICAL RESULTS: VOC's by EPA 8260 - Water - (Saturn 2)

Customer: URS Corporation (Milwaukee) **NLS Project: 78507**

Project Description: NSP-Ashland Lakefront Site

Project Title: **Template: SAT2W** **Printed: 01/12/2004 08:45**

Sample: 328134 **Pre Carbon** **Collected: 12/17/03** **Analyzed: 12/24/03**

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ
Trichloroethene	ND	ug/L	250	54	190
Trichlorofluoromethane	ND	ug/L	250	57	200
1,2,3-Trichloropropane	ND	ug/L	250	53	180
1,2,4-Trimethylbenzene	[65]	ug/L	250	60	210
1,3,5-Trimethylbenzene	ND	ug/L	250	68	230
Vinyl chloride	ND	ug/L	250	44	170
meta,para-Xylene	330	ug/L	250	93	320
MTBE	ND	ug/L	250	27	85
Isopropyl ether	ND	ug/L	250	47	160
Dibromofluoromethane (SURR**)	106%				
Toluene-d8 (SURR**)	110%				
1-Bromo-4-Fluorobenzene (SURR**)	105%				

Check standard recovery was outside QC limits for MTBE, Isopropyl Ether, and N-Butylbenzene at 79%, 76%, and 78% .

ANALYTICAL RESULTS: VOC's by EPA 8260 - Water - (Saturn 2)

Customer: URS Corporation (Milwaukee) **NLS Project: 78507**
Project Description: NSP-Ashland Lakefront Site
Project Title: **Template: SAT2W** **Printed: 01/12/2004 08:45**

Sample: 328135 **Effluent** **Collected: 12/17/03** **Analyzed: 12/29/03**

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ
Benzene	ND	ug/L	1	0.23	0.78
Bromobenzene	ND	ug/L	1	0.19	0.65
Bromochloromethane	ND	ug/L	1	0.21	0.71
Bromodichloromethane	ND	ug/L	1	0.19	0.66
Bromoform	ND	ug/L	1	0.18	0.61
Bromomethane	ND	ug/L	1	0.24	0.84
n-Butylbenzene	ND	ug/L	1	0.23	0.80
sec-Butylbenzene	ND	ug/L	1	0.25	0.87
tert-Butylbenzene	ND	ug/L	1	0.25	0.87
Carbon Tetrachloride	ND	ug/L	1	0.18	0.61
Chlorobenzene	ND	ug/L	1	0.18	0.63
Chloroethane	ND	ug/L	1	1.0	3.5
Chloroform	ND	ug/L	1	0.21	0.72
Chloromethane	ND	ug/L	1	0.18	0.62
2-Chlorotoluene	ND	ug/L	1	0.22	0.76
4-Chlorotoluene	ND	ug/L	1	0.16	0.55
Dibromochloromethane	ND	ug/L	1	0.17	0.58
1,2-Dibromo-3-Chloropropane	ND	ug/L	1	0.21	0.72
1,2-Dibromoethane	ND	ug/L	1	0.20	0.69
Dibromomethane	ND	ug/L	1	0.20	0.70
1,2-Dichlorobenzene	ND	ug/L	1	0.17	0.60
1,3-Dichlorobenzene	ND	ug/L	1	0.20	0.70
1,4-Dichlorobenzene	ND	ug/L	1	0.21	0.74
Dichlorodifluoromethane	ND	ug/L	1	0.25	0.87
1,1-Dichloroethane	ND	ug/L	1	0.22	0.74
1,2-Dichloroethane	ND	ug/L	1	0.20	0.69
1,1-Dichloroethene	ND	ug/L	1	0.26	0.91
cis-1,2-Dichloroethene	ND	ug/L	1	0.22	0.74
trans-1,2-Dichloroethene	ND	ug/L	1	0.23	0.81
1,2-Dichloropropane	ND	ug/L	1	0.19	0.66
1,3-Dichloropropane	ND	ug/L	1	0.18	0.62
2,2-Dichloropropane	ND	ug/L	1	0.25	0.87
1,1-Dichloropropene	ND	ug/L	1	0.17	0.59
cis-1,3-Dichloropropene	ND	ug/L	1	0.23	0.80
trans-1,3-Dichloropropene	ND	ug/L	1	0.23	0.80
Ethylbenzene	ND	ug/L	1	0.21	0.71
Hexachlorobutadiene	ND	ug/L	1	0.19	0.64
Isopropylbenzene	ND	ug/L	1	0.18	0.63
p-Isopropyltoluene	ND	ug/L	1	0.23	0.78
Methylene chloride	ND	ug/L	1	0.24	0.76
Naphthalene	ND	ug/L	1	0.39	1.4
n-Propylbenzene	ND	ug/L	1	0.27	0.93
ortho-Xylene	ND	ug/L	1	0.18	0.64
Styrene	ND	ug/L	1	0.17	0.60
1,1,1,2-Tetrachloroethane	ND	ug/L	1	0.19	0.67
1,1,2,2-Tetrachloroethane	ND	ug/L	1	0.21	0.71
Tetrachloroethene	ND	ug/L	1	0.18	0.62
Toluene	ND	ug/L	1	0.23	0.81
1,2,3-Trichlorobenzene	ND	ug/L	1	0.29	1.0
1,2,4-Trichlorobenzene	ND	ug/L	1	0.24	0.84
1,1,1-Trichloroethane	ND	ug/L	1	0.23	0.79
1,1,2-Trichloroethane	ND	ug/L	1	0.14	0.45

ANALYTICAL RESULTS: VOC's by EPA 8260 - Water - (Saturn 2)

Customer: URS Corporation (Milwaukee) **NLS Project: 78507**

Project Description: NSP-Ashland Lakefront Site

Project Title: **Template: SAT2W** **Printed: 01/12/2004 08:45**

Sample: 328135 **Effluent** **Collected: 12/17/03** **Analyzed: 12/29/03**

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ
Trichloroethene	ND	ug/L	1	0.22	0.75
Trichlorofluoromethane	ND	ug/L	1	0.23	0.78
1,2,3-Trichloropropane	ND	ug/L	1	0.21	0.73
1,2,4-Trimethylbenzene	ND	ug/L	1	0.24	0.83
1,3,5-Trimethylbenzene	ND	ug/L	1	0.27	0.94
Vinyl chloride	ND	ug/L	1	0.18	0.68
meta,para-Xylene	ND	ug/L	1	0.37	1.3
MTBE	ND	ug/L	1	0.11	0.34
Isopropyl ether	ND	ug/L	1	0.19	0.65
Dibromofluoromethane (SURR**)	102%				
Toluene-d8 (SURR**)	105%				
1-Bromo-4-Fluorobenzene (SURR**)	100%				

** Surrogates are used to evaluate a method's Quality Control.

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive • Cedar Falls, IA 50613 • 319-277-2401 • Fax 319-277-2425 • 800-750-2401

ANALYTICAL REPORT

Dave Trainor
URS CORPORATION
5250 East Terrace Drive
Madison, WI 53718

01/09/2004

Date Received: 12/31/2003

URS/XCEL ENERGY
CC: NEW FIELDS ATTN: DAVE TRAINOR

Job Number: 03.17673

	Result	Units	Result Flag	Date Taken	Date Analyzed	Analyst	Analysis Method	Quantitation Limit
777032 Air Stripper								
Air Volume	3.0	Liters		12/29/2003	01/09/2004	sld		
Benzene (UST)	<0.020	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.020
Benzene (UST)	<6.67	mg/m3		12/29/2003	01/09/2004	sld		
Ethyl Benzene (UST)	<0.020	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.020
Ethyl Benzene (UST)	<6.67	mg/m3		12/29/2003	01/09/2004	sld		
Hydrocarbons, Total (UST)	<0.030	mg		12/29/2003	01/08/2004	eee	NIOSH 1550	0.030
Hydrocarbons, Total (UST)	<10.0	mg/m3		12/29/2003	01/09/2004	sld		
Toluene (UST)	<0.020	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.020
Toluene (UST)	<6.67	mg/m3		12/29/2003	01/09/2004	sld		
Xylenes, Total (UST)	<0.030	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.030
Xylenes, Total (UST)	<10.0	mg/m3		12/29/2003	01/09/2004	sld		
777033 1st Stage Carbon								
Air Volume	3.0	Liters		12/29/2003	01/09/2004	sld		
Benzene (UST)	<0.020	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.020
Benzene (UST)	<6.67	mg/m3		12/29/2003	01/09/2004	sld		
Ethyl Benzene (UST)	<0.020	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.020
Ethyl Benzene (UST)	<6.67	mg/m3		12/29/2003	01/09/2004	sld		
Hydrocarbons, Total (UST)	<0.030	mg		12/29/2003	01/08/2004	eee	NIOSH 1550	0.030
Hydrocarbons, Total (UST)	<10.0	mg/m3		12/29/2003	01/09/2004	sld		
Toluene (UST)	<0.020	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.020

TOTAL HYDROCARBONS QUANTIFIED AS: Gasoline

Michael K. McGee, CIH
Division Manager
AIHA Lab Accreditation No. 285

Results are not blank corrected.
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Results relate only to the items tested.

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ANALYTICAL REPORT

Dave Trainor
URS CORPORATION
5250 East Terrace Drive
Madison, WI 53718

01/09/2004

Date Received: 12/31/2003

URS/XCEL ENERGY
CC: NEW FIELDS ATTN: DAVE TRAINOR

Job Number: 03.17673

	Result	Units	Result Flag	Date Taken	Date Analyzed	Analyst	Analysis Method	Quantitation Limit
777033 1st Stage Carbon								
Toluene (UST)	<6.67	mg/m3		12/29/2003	01/09/2004	sld		
Xylenes, Total (UST)	<0.030	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.030
Xylenes, Total (UST)	<10.0	mg/m3		12/29/2003	01/09/2004	sld		
777034 Air Effluent								
Air Volume	5.0	Liters		12/29/2003	01/09/2004	sld		
Benzene (UST)	<0.020	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.020
Benzene (UST)	<4.00	mg/m3		12/29/2003	01/09/2004	sld		
Ethyl Benzene (UST)	<0.020	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.020
Ethyl Benzene (UST)	<4.00	mg/m3		12/29/2003	01/09/2004	sld		
Hydrocarbons, Total (UST)	0.049	mg		12/29/2003	01/08/2004	eee	NIOSH 1550	0.030
Hydrocarbons, Total (UST)	9.80	mg/m3		12/29/2003	01/09/2004	sld		
Toluene (UST)	<0.020	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.020
Toluene (UST)	<4.00	mg/m3		12/29/2003	01/09/2004	sld		
Xylenes, Total (UST)	<0.030	mg		12/29/2003	01/08/2004	eee	NIOSH 1501	0.030
Xylenes, Total (UST)	<6.00	mg/m3		12/29/2003	01/09/2004	sld		

TOTAL HYDROCARBONS QUANTIFIED AS: Gasoline

Michael K. McGee, CIH
Division Manager
AIHA Lab Accreditation No. 285

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APPENDIX B

BORING LOGS
WELL CONSTRUCTION FORMS
WELL DEVELOPMENT FORMS

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 7-91

Route To:
- ☐ Solid Waste
- ☐ Wastewater
- ☐ Emergency Response
- ☐ Haz. Waste
- ☐ Underground Tanks
- ☐ Water Resources
- ☐ Other _____

Facility / Project Name	License/Permit/Monitoring Number	Boring Number
Ashland/NSP Lakefront Superfund Site		MW-2C

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Todd Schmalfeldt Boart Longyear	12 / 11 / 03 MM DD YY	12 / 18 / 03 MM DD YY	10" Rotary 6" Rotary

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		MW-2C	____ Feet MSL	636.2 Feet MSL	10.0 inches

Boring Location
State Plane _____ N. _____ E
SW 1/4 of NW 1/4 of Section 33 T 48 N, R 4 E / W

Lat — — —
Long — — —

Local Grid Location (If Applicable)
_____ Feet ☐ N ☐ S _____ Feet ☐ E ☐ W

County	DNR County Code	Civil Town / City / or Village
Ashland	0 2	City of Ashland

Sample Number	Length Recovered (In)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
				Gravel driveway										
			1											
			2	No samples collected above 65 ft. See following pages for soils information collected from previous borings at this location.										
			3											
			4	10" borehole drilled with mud rotary to 60 feet. Set 6" diameter black iron pipe casing on 12/11/2003.										
			5											
			6	Continued drilling with 6" mud rotary below 60 feet on 12/15/2003.										
			7											
			8											
			9											
			10											
			11											
			12											
			13											
			14											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
Nick L McCollosky	NewFields, Madison, WI

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $4,000 for each violation. Fines not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A 7-91

Boring Number MW-2C

Sample Number	Length Recovered (in)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
1	15	2,6 3,2	15–17	FILL, SAND, some gravel, trace silt, moist, loose, slight petroleum odor, reddish brown	SP GP				8					Soils description from 15 to 21 feet taken from MW-2R boring log drilled 2/12/2002.
2	9	1,1 1,1	18–19	-trace wood fragments					2					
3	8	4,3 1,1	20–21	-strong odor					4					
4	6	1,1 1,10	22					7.5	2					Soils description from 21 to 65 feet taken from MW-2BR boring log drilled 2/4/2002.
2	6	1,7 5,3	23–24	CLAY, silty, wet, stiff, petroleum odor, dark gray.	CL ML			612	12					
3	10	6,5 5,3	25–27	SILT, clayey, little fine to medium sand, hard, slightly moist, non plastic, reddish brown				39.9	10					
4	4	10,10 16,15	28–29					74.0	26					
5	16	6,6 7,10	30–32		ML CL			13.2	13					
6	18	6,6 7,10	33–34					17.0	13					
7	6	2,2 10,6	35–36	SAND, fine grained, trace silt, wet, poorly sorted, medium dense, reddish brown, petroleum odor	SP SM			121	12					

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A 7-91

Boring Number MW-2C

Sample Number	Length Recovered (In)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
			37	SAND, fine grained, trace silt, wet, dense, poorly graded, reddish brown, petroleum odor	SP SM									
			38											
8	24	5,10 15,10	39					911	25					
			40											
9	10	5,4 5,6	41	-Rock fragments @ 41.5 ft.				148	9					
			42											
			43											
10	18	25,32 35,42	44		SP			201	67					
			45											
11	3	12,32 35,30	46					102.9	67					
			47											
			48											
12	24	12,12 17,19	49					513	29					
			50											
13	24	12,20 22,24	51					718	42					
			52											
			53											
			54		SP									
			55	-coal tar staining										
14	24	12,15 19,23	56					410	34					
			57											
			58											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A 7-91

Boring Number MW-2C

Sample Number	Sample Length Recovered (N)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
			58	SAND, fine grained, trace silt, wet, loose, poorly graded, reddish brown, petroleum odor	SP									
			59											
			60											
15	20	5,10 25,25	61					92.6	35					Begin drilling MW-2C boring at 60 feet BGS on 12/15/03
			62											
			63											
			64											
			65	SAND, fine grained, some silt, trace gravel, medium dense, poorly graded, wet, dark reddish brown	SM				10					
1	16	4,4 6,8	66											
			67											
			68											
			69											
			70											
2	6	5,7 9,18	71						16					
			72											
			73											
			74		SM SP									
			75											
3	12	17,18 19,24	76						37					
			77											
			78											
			80											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A 7-91

Boring Number MW-2C

Sample Number	Length Recovered (N)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
4	6/10	22, 50/4"	80–82	SAND, fine grained, trace silt, trace gravel, dense, poorly graded, wet, dark reddish brown (poor recovery – pushing gravel in split spoon)	SP				50+					
5	6	5,6 6,8	84–86	-As above, poor recovery (pushing gravel in split spoon)					12					EOB at 85 feet on 12/15/03. Resume drilling on 12/16/03.
6	8	6,8 10,9	88–92	SAND, fine to medium grained, trace silt, trace gravel, medium dense, poorly graded, wet, dark reddish brown	SP				18					
7	10	12,15 20,22	94–96	-As above, medium grained sand, dense					35					
8	8	12,14 17,20	98–102		SP				31					
9	8	17,19 21,24	104–106						40					
10	8	20,22 23,30	108–112	SAND, fine to medium grained, trace silt, trace gravel, wet, dense, poorly graded, dark reddish brown					45					
11	10	21,25 26,30	114–116	-As above, very dense	SP				51					
12	8	28,29 32,31	118–122	-As above, medium grained sand, very dense					61					

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A 7-91

Boring Number MW-2C

Sample Number	Length Recovered (N)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
			123											
			124											
13	8	20,23 25,28	126	SAND, medium grained, trace silt, trace gravel, very dense, poorly graded, wet, dark reddish brown	SP				48					
			128											
			130											
14	4	21, 50/2"	132	-poor recovery, pushing gravel in split spoon					50+					
			134											
15	8	29,32 33,34	136	-As above, fine to medium grained	SP				65					
			138											
			140											
16	12	20,30 33,35	142	-As above, fine grained -2" fine silty sand layer at 141'					63					
			144											
17	8	17,18 21,24	146	-As above, fine to medium grained, dense					39					
			148											
18	10	19,25 22,24	150 152	SAND, fine to medium grained, trace silt, dense, poorly graded, wet, dark reddish brown	SP				47					
			154											
19	12	17,19 20,26	156 158	-As above, some silt, interbedded silt seams 1-2" thick (silt is hard, wet, non-plastic, dark reddish brown)	SM				39					EOB at 155 feet on 12/16/03. Resume drilling on 12/17/03.
			160											
20	3	6,8 8,9	162	CLAY, silty, very stiff, low plasticity, very moist, dark reddish brown (poor recovery)	CL				16					
					SP									
			164	(Driller reports soft drilling from 155 to 163' and gravel at 164')	SW									

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A 7-91

Boring Number MW-2C

Sample Number	Length Recovered (N)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
				SAND, gravelly, some silt, wet, medium dense, poorly graded, dark reddish brown	SW									
21	18	6,8 9,11	166	CLAY, silty, very stiff, very moist, dark red-brown	CL				17					
				SAND, gravelly, same as above	SW									
			168	Driller reports firm drilling below 168' (dense sand or gravel)										
22	8	16,18 24,26	170 172 174	SAND, fine to medium grained, wet, dense, poorly graded, dark reddish brown	SP				42					
23	12	24,26 27,29	176	SAND AND SILT, fine grained, wet, poorly graded, very dense, dark reddish brown sand interbedded with silt seams 1 to 3" thick	ML				53					
24	12	20,22 23,25	178 180 182	SAND, fine to medium grained, trace silt, trace gravel, wet, dense, poorly graded, dark reddish brown	SP				45					
25	8	25,26 28,30	184 186 188	-very dense					54					
26	8	20,32 34,36	190 192	-As above, small clast of sandstone gravel in split spoon					66					
				Weathered bedrock at 192 feet.										
27	0	50/0"	194 196	Driller reports hard drilling at 194 feet (competent bedrock). -no recovery 195 to 197 feet.					50+					
			198 200 202 204 206 208	EOB at 197 feet, set well MW-2C on 12/18/03.										

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 7-91

Route To:
- ☐ Solid Waste
- ☐ Wastewater
- ☐ Emergency Response
- ☐ Haz. Waste
- ☐ Underground Tanks
- ☐ Water Resources
- ☐ Other _____

Page 1 of 1

Facility / Project Name: Ashland/NSP Lakefront Superfund Site	License/Permit/Monitoring Number: — — — — — — —	Boring Number: **MW-15A**	
Boring Drilled By (Firm name and name of crew chief): Todd Schmalfeldt, Boart Longyear	Date Drilling Started: 12 / 10 / 03 (MM DD YY)	Date Drilling Completed: 12 / 10 / 03 (MM DD YY)	Drilling Method: 4 1/4" HSA
DNR Facility Well No.: — — — / WI Unique Well No.: — — — — —	Common Well Name: **MW-15A**	Final Static Water Level: ____ Feet MSL	Surface Elevation: 641.94 Feet MSL / Borehole Diameter: 8.25 inches
Boring Location State Plane: ____ N. ____ E S/C/N; SW 1/4 of NW 1/4 of Section 33 T 48 N, R 4 E / W	Lat — — — Long — — —	Local Grid Location (If Applicable): ____ Feet ☐ N ☐ S ____ Feet ☐ E ☐ W	
County: Ashland	DNR County Code: 0 2	Civil Town / City / or Village: City of Ashland	

Sample Number	Length Recovered (In)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
			0	No samples collected. For soils description, see log for MW-15B.										
			4											
			8											
			12											
			16											
			20											
			24											
			28											
			32											
			36	EOB at 35 feet BGS, set well MW-15A.										
			40											
			44											
			48											
			52											
			56											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Michael McCollach | Firm: NewFields, Madison, WI

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $4,000 for each violation. Fines not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 7-91

Route To:
- ☐ Solid Waste
- ☐ Wastewater
- ☐ Emergency Response
- ☐ Haz. Waste
- ☐ Underground Tanks
- ☐ Water Resources
- ☐ Other _____

Facility / Project Name	License/Permit/Monitoring Number	Boring Number
Ashland/NSP Lakefront Superfund Site	— — — — — — —	MW-15B

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Todd Schmalfeldt Boart Longyear	12 / 8 / 03 (MM DD YY)	12 / 9 / 03 (MM DD YY)	4 1/4" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
— — —	— — — — — —	MW-15B	_____ Feet MSL	641.97 Feet MSL	8.25 inches

Boring Location
State Plane _____ N. _____ E S/C/N
SW 1/4 of NW 1/4 of Section 33 T 48 N, R 4 E / W

Lat — — —
Long — — —

Local Grid Location (If Applicable)
_____ Feet ☐ N ☐ S _____ Feet ☐ E ☐ W

County	DNR County Code	Civil Town / City / or Village
Ashland	0 2	City of Ashland

Sample Number	Length Recovered (In)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
				0-2" Asphalt drive										
1	3/12	9, 50/3"	1–4	FILL, silt with sand and gravel, dry, loose				0	50+					
2	24	20,10 50/2"	5–7	-As above, concrete fragments				0	50+					
3	4/12	18, 50/2"	8–9					0	50+					
4	18	4,6 7,9	10–14	SILT, clayey, trace gravel, moist, stiff, low plasticity, reddish brown (Miller Creek formation)	CL-ML			0	13					Note: borehole refusal at 13 feet BGS. Resumed drilling in boring advanced 3 feet to the west.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [signature] Firm NewFields, Madison, WI

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $4,000 for each violation. Fines not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A 7-91

Boring Number MW-15B

Sample Number	Length Recovered (in)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
5	24	6,7 7,7	15–16	SILT, clayey, moist, stiff, medium plasticity, reddish brown	CL-ML			0	14					
6	4	20,10 50/2"	17–19	-As above, hard				0	50+					
7	24	6,8 7,10	20–22	-As above, slight coal tar odor				0	15					
8	18	4,9 10,14	23–24	-As above, trace fine sand, decreasing clay content, slight coal tar odor	ML			0	19					
9	12	5,5 6,8	25–27	-As above, with fine sand, seam of coarse sand present, coal tar odor				0	11					EOB at 27 feet on 12/8/03. Resumed drilling on 12/9/03
10	12	3,4 4,2	28–29	SAND, some silt, loose, moist, reddish gray, coal tar odor present (Copper Falls formation)	SM			0	8					
11	12	3,4 4,2	30–36	-As above, stained gray with coal tar				0	8					

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A 7-91

Boring Number MW-15B

Sample Number	Sample Length Recovered (in)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
			37											
			38											
			39											
			40											
12	14	2,5 5,8	41	SAND, trace silt, moist, loose, poorly graded, strong odor, coal tar staining present, reddish brown	SP SM			0	10					
			42											
			43											
			44											
			45											
13	24	2,4 7,7	46	-As above, wet, coal tar sheen present				0	11					
			47											
			48											
			49		SM									
			50											
14	22	2,4 4,2	51	-As above, no odor or staining present				0	8					
			52											
			53											
			54											
			55											
15	10	8,9 9,11	56	SAND, trace silt, wet, loose, poorly graded, reddish brown	SM			0	18					
			57	EOB @ 57 feet BGS. Set well MW-15B										
			58											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 7-91

Route To:
- ☐ Solid Waste
- ☐ Wastewater
- ☐ Emergency Response
- ☐ Haz. Waste
- ☐ Underground Tanks
- ☐ Water Resources
- ☐ Other _____

Facility / Project Name	License/Permit/Monitoring Number	Boring Number
Ashland/NSP Lakefront Superfund Site	— — — — — — —	MW-21B

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Todd Schmalfeldt Boart Longyear	12 / 12 / 03 (MM DD YY)	12 / 12 / 03 (MM DD YY)	4 1/4" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
— — —	— — — — — —	MW-21B	_____ Feet MSL	637.33 Feet MSL	8.25 inches

Boring Location
State Plane _____ N. _____ E S/C/N
SW 1/4 of NW 1/4 of Section 33 T 48 N, R 4 E / W

Lat — — —
Long — — —

Local Grid Location (If Applicable)
_____ Feet ☐ N ☐ S _____ Feet ☐ E ☐ W

County	DNR County Code	Civil Town / City / or Village
Ashland	0 2	City of Ashland

Sample Number	Length Recovered (In)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
1	4	1,1 2,1	1	Grass, topsoil 0-1 feet	ML									
			2	CLAY, some silt, slightly moist, firm to stiff, low plasticity, reddish brown				0	3					
			3		CL ML									
			4											
2	24	1,5 5,5	5	CLAY, silty, trace gravel, stiff, moist, low plasticity, reddish brown				0	10					
			6											
			7											
			8											
			9											
			10											
3	24	4,5 8,9	11		CL ML			0	13					
			12	3" sandy silt seam, non plastic, soft, reddish brown at 12 feet.										
			13											
			14											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [signature] Firm NewFields, Madison, WI

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State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A 7-91

Boring Number MW-21B

Sample Number	Length Recovered (In)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
4	24	5,5 5,5	15–16	CLAY, silty, trace gravel, stiff, moist, low plasticity, reddish brown	CL ML			0	10					
			17–25	-Increasing moisture content with depth, wet at 22 feet										
5	22	4,5 8,9	22–24					0	13					
6	18	4,5 18,50	25–27	-Increasing sand content with depth	ML			0	23					
7	0	6,6 8,8	28–32	-No recovery, cobble in split spoon				0	14					
8	20	8,9 9,9	33–36	SAND, silty, fine grained, medium dense, poorly graded, reddish brown, coal tar odor /sheen present (Copper Falls formation)	SM			0	18					

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A 7-91

Boring Number MW-21B

Sample Number	Length Recovered (in)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	ROD/Comments
			37											
			38		SM									
			39											
			40											
9	24	10,10 10,10	41	SAND, trace silt, medium to coarse grained, wet, medium dense, reddish brown, strong odor/slight sheen present				0	20					
			42											
			43											
			44											
			45											
10	24	9,11 15,18	46	-As above, strong odor/ sheen present				0	26					
			47											
			48											
			49											
			50											
11	6	8,8 9,11	51	-no odor present	SM			0	17					
			52											
			53											
			54											
			55	EOB @ 55 feet BGS. Set well MW-21B										
			56											
			57											
			58											

State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Ashland/NSP Lakefront Superfund Site, Ashland, WI

Local Grid Location of Well: _____ ft. ■ N. ☐ S. _____ ft. ■ E. ☐ W.

Well Name: ***MW-2C***

Facility License, Permit or Monitoring Number: _____

Grid Origin Location
Lat. ____ ____ ____ Long. ____ ____ ____
St. Plane _____ ft. N, _____ ft. E.

Wis. Unique Well Number | DNR Well Number

Type of Well: Water Table Observation Well ☐ 11; Piezometer ■ 12

Date Well Installed: 1 2 / 1 8 / 0 3 (m m d d y y)

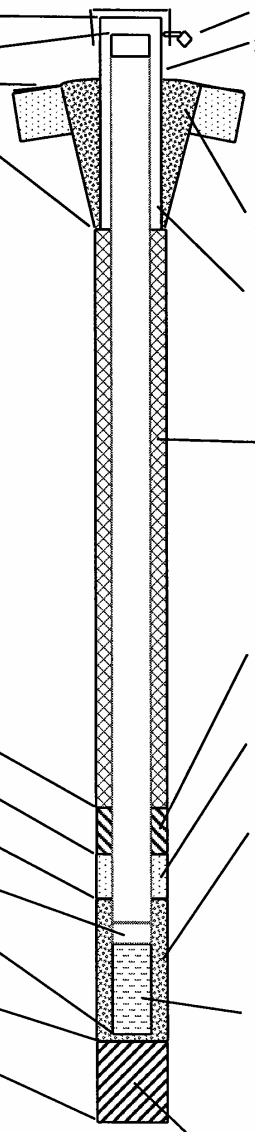
Distance Well Is From Waste/Source Boundary

Section Location of Waste/Source: ☐ E
___ 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ W

Well Installed By: (Person's Name and Firm)
T. Schmalfeldt
Boart Longyear

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source
u ☐ Upgradient s ☐ Sidegradient
d ■ Downgradient n ☐ Not Known



A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation _____ ft. MSL
C. Land surface elevation 6 3 6 . 2 ft. MSL
D. Surface seal, bottom _____ ft MSL or _____ ft

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ■
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ■

13. Sieve analysis attached? ☐ Yes ■ No

14. Drilling method used: Rotary ■ 5 0; Hollow Stem Auger ☐ 4 1; _____ Other ☐

15. Drilling fluid used: Water ☐ 0 2 Air ☐ 0 1; Drilling Mud ■ 0 3 None ☐ 9 9

16. Drilling additives used? ☐ Yes ■ No
Describe: _____

17. Source of water (attached analysis):
_____

E. Bentonite seal, top _____ ft MSL or 1 8 7 . 0 ft
F. Fine sand, top _____ ft MSL or 1 8 9 . 0 ft
G. Filter pack, top _____ ft MSL or 1 8 9 . 0 ft
H. Screen joint, top _____ ft MSL or 1 9 2 . 0 ft
I. Well bottom _____ ft MSL or 1 9 7 . 0 ft
J. Filter pack, bottom _____ ft MSL or 1 9 7 . 0 ft
K. Borehole, bottom _____ ft MSL or 1 9 7 . 0 ft
L. Borehole, diameter 6 . 0 in.
M. O.D. well casing 2 . 3 7 in.
N. I.D. well casing 1 . 9 4 in.

1. Cap and lock? ■ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 9 . 0 in.
b. Length: 1 . 0 ft.
c. Material: Flush Mount — Steel ■; Other ☐
d. Additional protection? ■ Yes ☐ No
If yes, describe: 6" black iron pipe casing to 60 feet BGS.
3. Surface seal: Bentonite ☐ 3 0; Concrete ■ 0 1; _____ Other ☐
4. Material between well casing and protective pipe: Bentonite ☐ 3 0; Annular Space Seal ☐; Bentonite Slurry Other ■
5. Annular space seal: a. Granular Bentonite ☐ 3 3
b. ____ Lbs/gal mud weight ..... Bentonite-sand slurry ☐ 3 5
c. ____ Lbs/gal mud weight ..... Bentonite slurry ■ 3 1
d. ____ % Bentonite ..... Bentonite-cement grout ☐ 5 0
e. _____ Ft³ volume added for any of the above
f. How installed: Tremie ☐ 0 1; Tremie pumped ■ 0 2; Gravity 0 8
350 gals bentonite slurry
6. Bentonite seal: a. Bentonite granules ■ 3 3
b. ☐ 1/4 in. 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 3 2
c. 100 lbs. Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. None
b. Volume added _____ lb
8. Filter pack material: Manufacturer, product name & mesh size
a. #40 Red Flint Sand
b. Volume added 150 lb
9. Well casing: Flush threaded PVC schedule 40 ☐ 2 3; Flush threaded PVC schedule 80 ■ 2 4; _____ Other ☐
10. Screen material: PVC
a. Screen type: Factory cut ■ 1 1; Continuous slot ☐ 0 1; _____ Other ☐
b. Manufacturer Boart Longyear
c. Slot size 0 . 0 1 0 in.
d. Slotted length: 5 . 0 ft.
11. Backfill material (below filler pack): None ☐ 1 4; _____ Other ■

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Michael L. McCulloch | Firm: NewFields, Madison, Wisconsin

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: shaded areas are for DNR use only. See instruction for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Ashland/NSP Lakefront Superfund Site, Ashland, WI

Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W.

Well Name: ***MW-15A***

Facility License, Permit or Monitoring Number: _____

Grid Origin Location
Lat. ____ ____ ____ Long. ____ ____ ____
St. Plane _____ ft. N, _____ ft. E.

Wis. Unique Well Number | DNR Well Number

Type of Well: Water Table Observation Well ☐ 11; Piezometer ■ 12

Date Well Installed: 1 2 / 1 0 / 0 3 (m m d d y y)

Distance Well Is From Waste/Source Boundary

Section Location of Waste/Source: ☐ E
1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ W

Well Installed By: (Person's Name and Firm)
T. Schmalfeldt
Boart Longyear

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source
u ☐ Upgradient s ☐ Sidegradient
d ☐ Downgradient n ☐ Not Known

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation _____ ft. MSL
C. Land surface elevation 6 4 1 . 2 ft. MSL
D. Surface seal, bottom _____ ft MSL or _____ ft

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐ ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ■ No

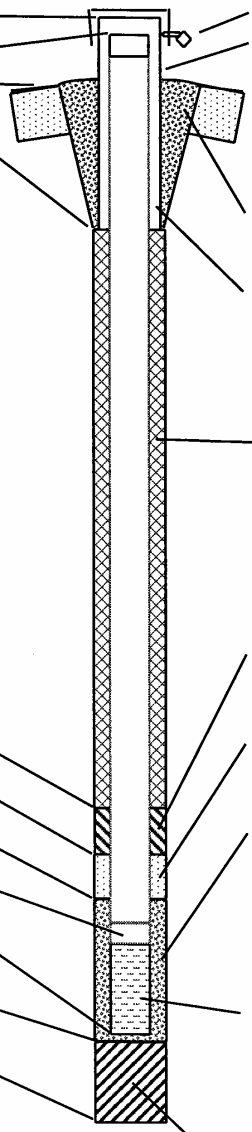
14. Drilling method used: Rotary ☐ 5 0; Hollow Stem Auger ■ 4 1; _____ Other ☐

15. Drilling fluid used: Water ☐ 0 2 Air ☐ 0 1; Drilling Mud ☐ 0 3 None ■ 9 9

16. Drilling additives used? ☐ Yes ■ No
Describe: _____

17. Source of water (attached analysis):
_____

E. Bentonite seal, top _____ ft MSL or 1 0 . 0 ft
F. Fine sand, top _____ ft MSL or 2 7 . 0 ft
G. Filter pack, top _____ ft MSL or 2 8 . 0 ft
H. Screen joint, top _____ ft MSL or 3 0 . 0 ft
I. Well bottom _____ ft MSL or 3 5 . 0 ft
J. Filter pack, bottom _____ ft MSL or 3 5 . 0 ft
K. Borehole, bottom _____ ft MSL or 3 5 . 0 ft
L. Borehole, diameter 8 . 0 in.
M. O.D. well casing 2 . 3 7 in.
N. I.D. well casing 2 . 0 6 in.



1. Cap and lock? ■ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 9 . 0 in.
b. Length: 1 . 0 ft.
c. Material: Flush mount — Steel ■; Other ☐
d. Additional protection? ☐ Yes ■ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 3 0; Concrete ■ 0 1; _____ Other ☐
4. Material between well casing and protective pipe: Bentonite ☐ 3 0; Annular Space Seal ☐; #40 Red Flint Sand Other ■
5. Annular space seal: a. Granular Bentonite ☐ 3 3
b. ____ Lbs/gal mud weight ..... Bentonite-sand slurry ☐ 3 5
c. ____ Lbs/gal mud weight ..... Bentonite slurry ☐ 3 1
d. ____% Bentonite ..... Bentonite-cement grout ☐ 5 0
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 0 1; Tremie pumped ☐ 0 2; Gravity ■ 0 8
6. Bentonite seal: a. Bentonite granules ■ 3 3
b. ☐ 1/4 in. 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 3 2
c. _____ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Mining #7
b. Volume added _____ lb
8. Filter pack material: Manufacturer, product name & mesh size
a. #40 Red Flint Sand
b. Volume added _____ lb
9. Well casing: Flush threaded PVC schedule 40 ■ 2 3; Flush threaded PVC schedule 80 ☐ 2 4; _____ Other ☐
10. Screen material: PVC
a. Screen type: Factory cut ■ 1 1; Continuous slot ☐ 0 1; _____ Other ☐
b. Manufacturer Boart Longyear
c. Slot size 0 . 0 1 0 in.
d. Slotted length: 5 . 0 ft.
11. Backfill material (below filler pack): None ☐ 1 4; _____ Other ■

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [signature] | Firm: NewFields, Madison, Wisconsin

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: shaded areas are for DNR use only. See instruction for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name
Ashland/NSP Lakefront Superfund Site
Ashland, WI

Local Grid Location of Well
_____ ft. ☐ N. _____ ft. ☐ E.
☐ S. ☐ W.

Well Name
MW-15B

Facility License, Permit or Monitoring Number
_____

Grid Origin Location
Lat. ____ ____ ____ Long. ____ ____ ____
St. Plane _____ ft. N, _____ ft. E.

Wis. Unique Well Number DNR Well Number

Type of Well Water Table Observation Well ☐ 11
Piezometer ■ 12

Date Well Installed
1 2 / 1 0 / 0 3
m m d d y y

Distance Well Is From Waste/Source Boundary

Section Location of Waste/Source ☐ E
___ 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ W

Well Installed By: (Person's Name and Firm)
T. Schmalfeldt
Boart Longyear

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source
u ☐ Upgradient s ☐ Sidegradient
d ☐ Downgradient n ☐ Not Known

A. Protective pipe, top elevation _____ . ___ ft. MSL
B. Well casing, top elevation _____ . ___ ft. MSL
C. Land surface elevation 6 4 1 . 1 ft. MSL
D. Surface seal, bottom _____ . ___ ft MSL or ___ . ___ ft

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐ ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ■ No

14. Drilling method used: Rotary ☐ 5 0
Hollow Stem Auger ■ 4 1
_____ Other ☐

15. Drilling fluid used: Water ☐ 0 2 Air ☐ 0 1
Drilling Mud ☐ 0 3 None ■ 9 9

16. Drilling additives used? ☐ Yes ■ No
Describe: _____

17. Source of water (attached analysis):
_____

E. Bentonite seal, top _____ . ___ ft MSL or 4 . 0 ft
F. Fine sand, top _____ . ___ ft MSL or 4 7 . 0 ft
G. Filter pack, top _____ . ___ ft MSL or 4 8 . 0 ft
H. Screen joint, top _____ . ___ ft MSL or 5 0 . 0 ft
I. Well bottom _____ . ___ ft MSL or 5 5 . 0 ft
J. Filter pack, bottom _____ . ___ ft MSL or 5 5 . 0 ft
K. Borehole, bottom _____ . ___ ft MSL or 5 7 . 0 ft
L. Borehole, diameter 8 . 0 in.
M. O.D. well casing 2 . 3 7 in.
N. I.D. well casing 2 . 0 6 in.

1. Cap and lock? ■ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 9 . 0 in.
b. Length: 1 . 0 ft.
c. Material: Flush mount Steel ■ Other ☐
d. Additional protection? ☐ Yes ■ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 3 0
Concrete ■ 0 1
_____ Other ☐
4. Material between well casing and protective pipe:
Bentonite ☐ 3 0
Annular Space Seal ☐
#40 Red Flint Sand Other ■
5. Annular space seal: a. Granular Bentonite ☐ 3 3
b. ____ Lbs/gal mud weight ..... Bentonite-sand slurry ☐ 3 5
c. ____ Lbs/gal mud weight..... Bentonite slurry ☐ 3 1
d. ____ % Bentonite ..... Bentonite-cement grout ☐ 5 0
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 0 1
Tremie pumped ☐ 0 2
Gravity ■ 0 8
6. Bentonite seal: a. Bentonite granules ■ 3 3
b. ☐ 1/4 in. 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 3 2
c. _____ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Mining #7
b. Volume added _____ lb
8. Filter pack material: Manufacturer, product name & mesh size
a. #40 Red Flint Sand
b. Volume added _____ lb
9. Well casing: Flush threaded PVC schedule 40 ■ 2 3
Flush threaded PVC schedule 80 ☐ 2 4
_____ Other ☐
10. Screen material: PVC
a. Screen type: Factory cut ■ 1 1
Continuous slot ☐ 0 1
_____ Other ☐
b. Manufacturer Boart Longyear
c. Slot size 0 . 0 1 0 in.
d. Slotted length: 5 . 0 ft.
11. Backfill material (below filler pack): None ■ 1 4
_____ Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [signature] Firm NewFields, Madison, Wisconsin

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: shaded areas are for DNR use only. See instruction for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Ashland/NSP Lakefront Superfund Site, Ashland, WI

Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W.

Well Name: ***MW-21B***

Facility License, Permit or Monitoring Number: _____

Grid Origin Location
Lat. ____ ____ ____ Long. ____ ____ ____
St. Plane _____ ft. N, _____ ft. E.

Wis. Unique Well Number _____ DNR Well Number _____

Type of Well: Water Table Observation Well ☐ 11; Piezometer ■ 12

Date Well Installed: 1 2 / 1 2 / 0 3 (m m / d d / y y)

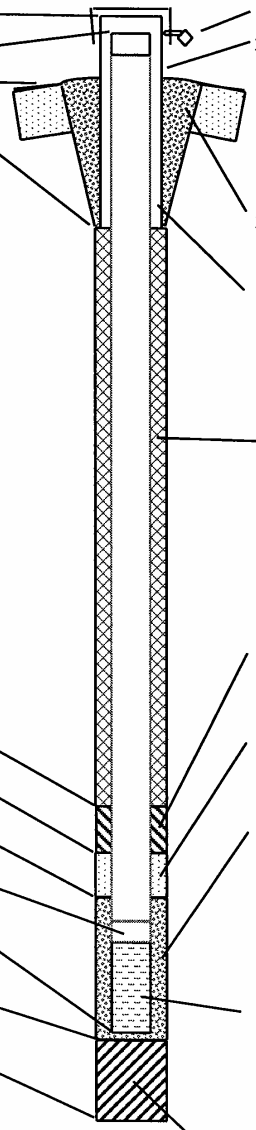
Distance Well Is From Waste/Source Boundary

Section Location of Waste/Source: ___1/4 of ___1/4 of Sec. ___, T. ___ N, R. ___ ☐ E ☐ W

Well Installed By: (Person's Name and Firm)
T. Schmalfeldt
Boart Longyear

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source
u ☐ Upgradient s ☐ Sidegradient
d ☐ Downgradient n ☐ Not Known



A. Protective pipe, top elevation _____.___ ft. MSL
B. Well casing, top elevation _____.___ ft. MSL
C. Land surface elevation 6 3 7 . 8 ft. MSL
D. Surface seal, bottom _____.__ ft MSL or ___.__ ft

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐ ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ■ No

14. Drilling method used: Rotary ☐ 5 0; Hollow Stem Auger ■ 4 1; _____ Other ☐ ____

15. Drilling fluid used: Water ☐ 0 2 Air ☐ 0 1; Drilling Mud ☐ 0 3 None ■ 9 9

16. Drilling additives used? ☐ Yes ■ No
Describe: _____

17. Source of water (attached analysis):
_____

E. Bentonite seal, top _____.__ ft MSL or 4 . 0 ft
F. Fine sand, top _____.__ ft MSL or 4 7 . 0 ft
G. Filter pack, top _____.__ ft MSL or 4 8 . 0 ft
H. Screen joint, top _____.__ ft MSL or 5 0 . 0 ft
I. Well bottom _____.__ ft MSL or 5 5 . 0 ft
J. Filter pack, bottom _____.__ ft MSL or 5 5 . 0 ft
K. Borehole, bottom _____.__ ft MSL or 5 5 . 0 ft
L. Borehole, diameter 8 . 0 in.
M. O.D. well casing 2 . 3 7 in.
N. I.D. well casing 2 . 0 6 in.

1. Cap and lock? ■ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 9 . 0 in.
b. Length: 1 . 0 ft.
c. Material: Flush mount — Steel ■; Other ☐ ____
d. Additional protection? ☐ Yes ■ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 3 0; Concrete ■ 0 1; _____ Other ☐ ____
4. Material between well casing and protective pipe: Bentonite ☐ 3 0; Annular Space Seal ☐ ____; #40 Red Flint Sand Other ■ ____
5. Annular space seal: a. Granular Bentonite ☐ 3 3
b. ____ Lbs/gal mud weight ..... Bentonite-sand slurry ☐ 3 5
c. ____ Lbs/gal mud weight..... Bentonite slurry ☐ 3 1
d. ____% Bentonite ..... Bentonite-cement grout ☐ 5 0
e. _____ Ft³ volume added for any of the above
f. How installed: Tremie ☐ 0 1; Tremie pumped ☐ 0 2; Gravity ■ 0 8
6. Bentonite seal: a. Bentonite granules ■ 3 3
b. ☐ 1/4 in. 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 3 2
c. 100 lbs. Other ☐ ____
7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Mining #7 ____
b. Volume added _____ lb
8. Filter pack material: Manufacturer, product name & mesh size
a. #40 Red Flint Sand ____
b. Volume added 150 lb
9. Well casing: Flush threaded PVC schedule 40 ■ 2 3; Flush threaded PVC schedule 80 ☐ 2 4; _____ Other ☐ ____
10. Screen material: PVC ____
a. Screen type: Factory cut ■ 1 1; Continuous slot ☐ 0 1; _____ Other ☐ ____
b. Manufacturer Boart Longyear
c. Slot size 0.0 1 0 in.
d. Slotted length: 5.0 ft.
11. Backfill material (below filler pack): None ■ 1 4; _____ Other ☐ ____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [signature] Firm NewFields, Madison, Wisconsin

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State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION
Form 4400-113B Rev. 4-90

Facility/Project Name	County Name	Well Name
Ashland/NSP Lakefront Superfund Site	Ashland	**MW-2C**

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
	0 8		

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

2. Well development method
   - surged with bailer and bailed ☐ 4 1
   - surged with bailer and pumped ☐ 6 1
   - surged with block and bailed ☐ 4 2
   - surged with block and pumped ☐ 6 2
   - surged with block, bailed and pumped ☐ 7 0
   - compressed air ☐ 2 0
   - bailer only ☐ 1 0
   - pumped only ■ 5 1
   - pumped slowly ☐ 5 0
   - Other _____ ☐

3. Time spent developing well 1 5 0 min.

4. Depth of well (from top of well casing) 1 9 7 . 0 ft.

5. Inside diameter of well 1 . 9 4 in.

6. Volume of waters in filter pack and well casing 3 0 . 0 gal.

7. Volume of water removed from well 2 1 0 . 0 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. 2 . 4 5 ft.	1 1 . 0 0 ft.
Date	b. 1 2 / 1 9 / 0 3 (m m d d y y)	1 2 / 1 9 / 0 3 (m m d d y y)
Time	c. 1 0 : 0 0 ■ a.m. ☐ p.m.	1 2 : 3 0 ☐ a.m. ■ p.m.
12. Sediment in well bottom	___ . __ inches	___ . __ inches
13. Water clarity	Clear ☐ 1 0 Turbid ■ 1 5 (Describe) Reddish Brown	Clear ■ 2 0 Turbid ☐ 2 5 (Describe) Clear

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:

Pumped with whale pump at 1.5 gpm. Did not go dry.

Well developed by: Person's Name and Firm

Name: Brian Gallagher

Firm: URS Corporation

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

Signature: Mark L McCulloch

Print Initials: M S M

Firm: NeaFields, Madison, WI

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 CONSTRUCTION
Form 4400-113B Rev. 4-90

Facility/Project Name	County Name	Well Name
Ashland/NSP Lakefront Superfund Site	Ashland	**MW-15A**

Facility License, 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 ☐ 4 1
   - surged with bailer and pumped ■ 6 1
   - surged with block and bailed ☐ 4 2
   - surged with block and pumped ☐ 6 2
   - surged with block, bailed and pumped ☐ 7 0
   - compressed air ☐ 2 0
   - bailer only ☐ 1 0
   - pumped only ☐ 5 1
   - pumped slowly ☐ 5 0
   - Other _____ ☐ __

3. Time spent developing well 3 0 min.

4. Depth of well (from top of well casing) 3 0 . 0 ft.

5. Inside diameter of well 2 . 0 6 in.

6. Volume of waters in filter pack and well casing 2 . 0 gal.

7. Volume of water removed from well 2 4 . 0 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. 1 4 . 9 4 ft.	2 3 . 0 2 ft.
Date	b. 1 2 / 1 1 / 0 3 (m m d d y y)	1 2 / 1 1 / 0 3 (m m d d y y)
Time	c. 1 0 : 3 0 ■ a.m. ☐ p.m.	1 3 : 0 0 ☐ a.m. ■ p.m.
12. Sediment in well bottom	___ . __ inches	___ . __ inches
13. Water clarity	Clear ☐ 1 0 Turbid ■ 1 5 (Describe) Reddish Brown	Clear ☐ 2 0 Turbid ■ 2 5 (Describe) Reddish Brown

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 developed by: Person's Name and Firm

Name: Dale Rezabek

Firm: URS Corporation

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

Signature: Mark L McCollough

Print Initials: M S M

Firm: NewFields, Madison, WI

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 CONSTRUCTION Form 4400-113B Rev. 4-90

Facility/Project Name	County Name	Well Name
Ashland/NSP Lakefront Superfund Site	Ashland	**MW-15B**
Facility License, 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 ☐ 4 1
   - surged with bailer and pumped ■ 6 1
   - surged with block and bailed ☐ 4 2
   - surged with block and pumped ☐ 6 2
   - surged with block, bailed and pumped ☐ 7 0
   - compressed air ☐ 2 0
   - bailer only ☐ 1 0
   - pumped only ☐ 5 1
   - pumped slowly ☐ 5 0
   - Other _____ ☐ __

3. Time spent developing well 6 5 min.

4. Depth of well (from top of well casing) 5 4 . 2 ft.

5. Inside diameter of well 2 . 0 6 in.

6. Volume of waters in filter pack and well casing 5 . 1 gal.

7. Volume of water removed from well 6 0 . 0 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. 1 6 . 5 5 ft.	2 2 . 8 0 ft.
Date	b. 1 2 / 1 1 / 0 3 (m m d d y y)	1 2 / 1 1 / 0 3 (m m d d y y)
Time	c. 1 0 : 4 0 ■ a.m. ☐ p.m.	1 2 : 4 5 ☐ a.m. ■ p.m.
12. Sediment in well bottom	___ . __ inches	___ . __ inches
13. Water clarity	Clear ☐ 1 0 Turbid ■ 1 5 (Describe) Reddish Brown	Clear ■ 2 0 Turbid ☐ 2 5 (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 developed by: Person's Name and Firm

Name: Dale Rezabek

Firm: URS Corporation

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

Signature: Neil A McCulloch

Print Initials: M S M

Firm: NauFields, Madison, WI

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 CONSTRUCTION
Form 4400-113B Rev. 4-90

Facility/Project Name	County Name	Well Name
Ashland/NSP Lakefront Superfund Site	Ashland	**MW-21B**

Facility License, 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 ☐ 4 1
   - surged with bailer and pumped ■ 6 1
   - surged with block and bailed ☐ 4 2
   - surged with block and pumped ☐ 6 2
   - surged with block, bailed and pumped ☐ 7 0
   - compressed air ☐ 2 0
   - bailer only ☐ 1 0
   - pumped only ☐ 5 1
   - pumped slowly ☐ 5 0
   - Other_____ ☐ ___

3. Time spent developing well 3 0 min.

4. Depth of well (from top of well casing) 5 2 . 2 ft.

5. Inside diameter of well 2 . 0 6 in.

6. Volume of waters in filter pack and well casing 5 . 2 gal.

7. Volume of water removed from well 1 0 . 0 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. 1 3 . 4 6 ft.	3 7 . 5 0 ft.
Date	b. 1 2 / 1 1 / 0 3 (mm dd yy)	1 2 / 1 1 / 0 3 (mm dd yy)
Time	c. 1 1 : 0 0 ■ a.m. ☐ p.m.	1 5 : 1 5 ☐ a.m. ■ p.m.
12. Sediment in well bottom	___ . __ inches	___ . __ inches
13. Water clarity	Clear ☐ 1 0 Turbid ■ 1 5 (Describe)	Clear ☐ 2 0 Turbid ■ 2 5 (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 was dry at 10 gallons and did not recover.

Well developed by: Person's Name and Firm

Name: Dale Rezabek

Firm: URS Corporation

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

Signature: Mark A. McCulloch

Print Initials: M S M

Firm: New Fields, Madison, WI

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