File

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Scott McCallum, Governor
Darrell Bazzell, Secretary

Appleton Field Station
Agricultural Services Center
3369 W. Brewster Street
Appleton, Wisconsin 54914-1602
Telephone 920-832-1803
FAX 920-832-1800

March 27, 2001

Mr. Dion Novak, RPM
U.S. EPA, HSRM-6J
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Subject: Quarterly Progress Report #9, October through December 2000, N.W. Mauthe Superfund Site, 725 S. Outagamie Street, Appleton, Wisconsin, WDNR BRRTS ID# 02-45-000127

Dear Dion:

Please find enclosed a copy of the quarterly progress report for the N.W. Mauthe Superfund Site. This report contains results for the October through the December 2000 operating period and was prepared by WDNR's contractor for operation and maintenance of the groundwater treatment plant. Please call me at (920) 832-1803 if you have any questions.

Sincerely,

Jennifer Huffman

Jennifer Huffman, P.G.
Hydrogeologist
Remediation and Redevelopment Program

Enclosure

Cc: Gary Edelstein/Marie Stewart – RR/3 (w/Enclosure)

QUARTERLY PROGRESS REPORT #9

October, November, December 2000

N.W. MAUTHE
GROUNDWATER TREATMENT SYSTEM

Appleton, Wisconsin

Prepared For The

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

MCO

Midwest Contract Operations, Inc.

January 24, 2001
MCO. No. M050-90728.14
JMS:smdt

MCO

Midwest Contract Operations, Inc.

P.O. BOX 418 MENASHA, WI 54952-0418 PH 414-751-4299 FAX 414-751-4284

January 24, 2001

Ms. Jennifer Huffman
Wisconsin Department Of Natural Resources
3369 West Brewster Street
Appleton, WI 54912-1602

Re: N.W. Mauthe Groundwater Treatment System
Appleton, Wisconsin
Quarterly Progress Report #9
MCO. No. M050-90728.14

Dear Ms. Huffman:

Enclosed, please find Midwest Contract Operations, Inc.'s "Quarterly Progress Report #9" for the N.W. Mauthe Groundwater Treatment System, 725 South Outagamie Street, Appleton, Wisconsin.

The Progress Report includes a brief background of the site history, a summary of any sampling results at the site or in the adjacent groundwater monitoring wells, operation and maintenance activities. This quarterly report includes the months of October, November and December 2000.

If you have any questions or require additional information, feel free to contact me.

Very truly yours,

MIDWEST CONTRACT OPERATIONS, INC.

John M. Stoeger
Project Manager

JMS:smdt

Enclosure: Quarter Progress Report #9

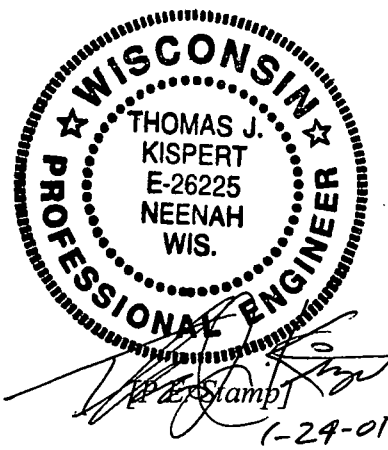
cc: Jessica Garratt – City of Appleton

Professional Qualifications Statement

"I, Thomas J. Kispert, hereby certify that I am a Registered Professional Engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. 700 to 726, Wis. Adm. Code."

Thomas J. Kispert, P.E., C.C.S. / P.E. No. E-26225
Senior Project Engineer

1-24-01
Date

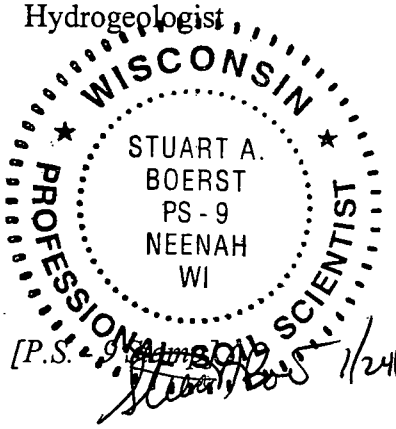


[P.E. Stamp]
1-24-01

"I, Stuart A. Boerst, hereby certify that I am a Hydrogeologist, as the term is defined in s. NR 712.03(1), Wisconsin Administrative Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wisconsin Administrative Code."

Stuart A. Boerst, P.S., P.H.
Hydrogeologist

1/24/01
Date



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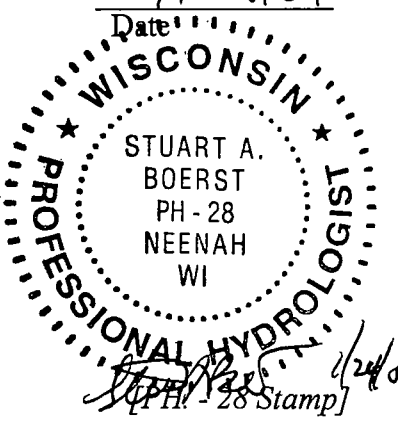

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QUARTERLY PROGRESS REPORT #9

October, November, December 2000

N.W. MAUTHE
GROUNDWATER TREATMENT SYSTEM

Appleton, Wisconsin

Prepared For The

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Prepared By
Midwest Contract Operations, Inc.
January 24, 2001
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QUARTERLY PROGRESS REPORT #9
October, November, December 2000

N.W. MAUTHE
GROUNDWATER TREATMENT SYSTEM
Appleton, Wisconsin

Prepared For The
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I. SITE BACKGROUND

The N.W. Mauthe site is a former electroplating facility, located at 725 South Outagamie Street, Appleton, Wisconsin (refer to Figure #1, Site Location Map). The property was used for a chrome plating company, from 1960 until 1976. Electroplating of zinc, cadmium and, possibly, copper and silver was conducted from 1978 to 1987 in an adjacent building on the same property. After 1987, all plating operations ceased on the property.

Concerns over sub-surface discharges to the surrounding environment led the Wisconsin Department of Natural Resources (DNR) and United States Environmental Protection Agency (USEPA) to conduct a remedial investigation and clean up of the N.W. Mauthe site and surrounding properties.

The investigation determined the N.W. Mauthe site was contaminated with zinc, cadmium, chromium and cyanide. Additionally, several volatile organic compounds (VOC's) were also present.

Based upon the findings of the remedial investigation, the following actions were taken to remediate the N.W. Mauthe site and adjacent properties of the sub-surface contamination.

A. Demolition and removal of the buildings on the N.W. Mauthe property.

B. Excavation and off-site treatment of soils with a total chromium concentration of greater than 500 mg/kg.

C. Backfilling of the excavation with clean soils, capping the site with 2-feet of clay and topsoil, and the establishment of vegetative cover.

D. Installation of groundwater collection trenches and construction and operation of a groundwater treatment facility to contain and/or control groundwater contamination with ultimate compliance with groundwater Applicable or Relevant and Appropriate Requirements (ARAR's).

E. Improvement or installation of foundation drain systems and cleaning, painting or sealing of basement walls and floors, as needed, for homes or businesses in the area of the site, to prevent seepage of contaminated water into the buildings.

The groundwater collection trench system, the location of sump pump and drain connections, and the groundwater monitoring wells and piezometers associated with the site are shown in Figure #2.

Midwest Contract Operations, Inc. (MCO) began operating the groundwater treatment system in February 1997. CH_2M Hill, the site engineer and project manager for the U.S. EPA, retained responsibility for the overall site operations and the groundwater monitoring wells associated with the treatment system.

The objectives of the collection and treatment system are to reduce the contaminant concentrations in the groundwater to achieve federal drinking water standards and/or state groundwater quality standards, whichever are more stringent.

In October 1998, after the first year of operation and maintenance of the remediation system, the Wisconsin DNR assumed the responsibility from the U.S. EPA for all operation and maintenance of the site. MCO was retained by the Wisconsin DNR for the operation and maintenance of the entire groundwater treatment system, including the groundwater monitoring wells. To date, MCO has completed nine rounds of groundwater sampling and is operating the batch treatment process, which is designed to remove chromium from the groundwater. A description of the batch process will be discussed in the following section of this report.

II. BATCH TREATMENT PROCESS

As part of the remediation phase at the N.W. Mauthe site, a groundwater collection system was installed on and adjacent to the N.W. Mauthe property. Approximately 1,000 lineal feet of coarse sand filled trenching was installed to draw groundwater from the contaminated areas to two collection sumps. From the collection sumps, groundwater is pumped to a 9,000 gallon holding tank, located within the treatment building.

Each batch of groundwater to be treated is pumped from the storage tank to the reaction tank. The batch process treatment system utilizes ferrous sulfate and caustic additions to treat the contaminated groundwater. Through chemical addition, mixing, aeration and settling, the chromium is removed from the groundwater. The fully automated process treats approximately 2,600 gallons per batch (based on physical tank measurements) and is capable of treating four batches per day.

Treated groundwater decants from the reaction tank to the City of Appleton sanitary sewer system. The chromium containing sludge settles to the bottom of the reaction tank. Excess sludge is pumped to a sludge storage tank, also located within the treatment building.

During each discharge, the effluent is tested for hexavalent chromium using a Hach Test kit. The pH is recorded off two meters, located in the reaction tank. The pH values from the two meters are recorded during discharge as the high and low pH values on a daily log sheet. The average of the two pH values is calculated. The effluent wastewater is tested quarterly for total chromium at a DNR approved environmental laboratory. The total chromium concentration for the sample collected at Outfall #001 on December 19, 2000 was 96 ug/l. Additionally, the City of Appleton conducts semi-annual compliance testing of the treatment system effluent. The most recent compliance sample was collected on September 28, 2000. Results from the City of Appleton compliance monitoring had not been received at the time this report was prepared.

For the months of October, November, December 2000, a total of 125,948 gallons of contaminated groundwater was treated and discharged. Using an average groundwater concentration of 1.6 mg/l hexavalent chromium, the calculated reduction in hexavalent chromium would be 1.68 pounds over the three month period. The effluent flows are recorded based upon the effluent meter reading. These readings generally overstate the effluent flows as compared to volumetric tank measurements, due to design constraints regarding the flow meter installation. The flow meter totals have been the accepted method for recording effluent flows. Therefore, all references to flow and calculations are based upon the flow meter readings.

A summary of batches of groundwater treated, for the period of October through December 2000, is included in Table #1.

III. GROUNDWATER SAMPLING

A. Groundwater Sampling Procedures

A total of 11 groundwater monitoring wells are associated with the groundwater treatment system. Additionally, four piezometers were installed to measure the effectiveness of the groundwater collection trench system.

Groundwater levels are measured in the monitoring wells and the piezometers, relative to the north side of the top of the well casing. A summary of the current groundwater levels for the site is included in Table #2. The groundwater contours for groundwater monitoring wells, relative to site, are shown on Figure #3. The groundwater potentiometric contours for the piezometers, relative to the site, are shown on Figure #4.

The 11 groundwater monitoring wells were sampled on December 19, 2000. A dedicated submersible pump is installed in each well. Water level measurements were collected from each monitoring well, prior to sampling. Each well was slowly pumped dry and allowed to recharge for approximately 3-hours. The wells were then pumped dry again, allowed to recharge and then sampled. Two duplicate samples were also collected as a quality control measure. Purge water from the wells was collected and dumped into the collection sumps. The pump water volumes collected from the groundwater wells and the field testing data are included in Table #5. The groundwater sampling field documentation sheets are contained in Appendix A.

The sampling process utilized a flow through cell to read the pH, temperature, conductivity, redox potential and dissolved oxygen in each well. The flow through cell consisted of a 1-liter laboratory beaker placed over a 5-gallon bucket. Flow through the cell was maintained at approximately 250 ml/min. utilizing a resister to control pump flow. The same approximate flow rate was maintained for purging and sampling. Groundwater samples were collected upon stabilization of the conductivity in each monitoring well or after a well had been purged dry twice. The pH, conductivity, redox potential and dissolved oxygen readings for each monitoring well were recorded upon stabilization of the conductivity or just prior to sampling. The groundwater samples were collected in the order of VOC vials first (if applicable) and metal samples second. The metal samples were not filtered. The laboratory containers supplied for metals analysis included N_A0H

and HN03 as preservatives. The collected samples were submitted to Northern Lake Service, Inc., Crandon, Wisconsin. The collected samples were analyzed for selected metals and Volatile Organic Compounds (VOC's), as specified by the Wisconsin DNR. Alkalinity and ferrous iron testing was conducted using field Hach test kits. As of the December 15, 1999 sampling event, the sampling parameters were modified by the Wisconsin DNR. Copper, Cyanide, Mercury and Zinc analysis was discontinued on all wells. VOC analysis was reduced to annually for all wells except MW-107. MW-107 will continue to be sampled for VOC's quarterly.

B. Groundwater Sampling Results

The collected groundwater samples were analyzed for Cadmium, Chromium and Manganese. Additionally, the sample collected at Well MW-107 was analyzed for VOC's. Field analysis was conducted at each well for pH, temperature, conductivity, dissolved oxygen, Redox potential, alkalinity and ferrous iron. The field analysis sampling results will track the ability of the VOC groundwater contamination to naturally bio-remediate at the site.

The laboratory analytical results indicate that levels of total chromium exceed the DNR NR 140.10 Groundwater Enforcement Standard in monitoring wells MW-103 (180 ug/l), MW-104 (790 ug/l) and MW-107 (10,000 ug/L). MW-107 is the closest down-gradient well to the remediation building. Additionally, three VOC compounds in MW-107 (1,1-Dichloroethene, 1,1,1-Trichloroethane and Trichloroethene) were detected in excess of either the NR 149.21(9) maximum contaminant levels (MCL's) or the NR 140.10 Groundwater Enforcement Standards (ES). Exceedances of the MCL and ES for manganese have been found in all of the groundwater wells since sampling began in February 1997. These exceedances also appear in the background wells (W-2 and MW-108), which would indicate that the high levels of manganese in the groundwater occurs naturally. The laboratory analytical results are contained in Tables #3 and #4. The field testing results are contained in Table #5. An isoconcentration map for total chromium concentrations is shown in Figure #5. The chain of custody forms and laboratory analytical data are included in Appendix B.

The City of Appleton's compliance sample, collected on February 15, 2000 at Outfall #001, had a Total Chromium concentration of .09 milligrams per liter. The sample results from the City's September 28, 2000 effluent sampling were not received by the time the report was prepared.

A summary of the sample results from Outfall #001 are shown in Table #6. The sampling results are contained in Appendix C. A summary of the influent

Hexavelent Chromium concentrations is contained in Table #7. The listed concentrations are based upon the weekly Hatch kit analysis of the treatment system influent.

The effectiveness of the existing groundwater treatment system will require analysis of data over an extended period of time to evaluate trends in metals and VOC reductions.

IV. PUBLIC CONTACTS

There were no public contacts during the reporting period.

V. CONCLUSIONS & RECOMMENDATIONS

Groundwater level data collected from the 11 monitoring wells and four piezometers associated with the N.W. Mauthe groundwater treatment system indicate the groundwater collection trenches, installed as part of the site remediation system, have created a capture zone that directs the groundwater flows in the remediation area to the collection trenches and, ultimately, to the groundwater treatment system.

The purpose of creating the capture zone is to contain the migration of the contamination down-gradient of the contamination source and to direct impacted groundwater to the collection system and, ultimately, treatment in the batch process.

The latest round (December 19, 2000) of groundwater samples collected from the 11 monitoring wells, indicates residual chromium contamination above the DNR NR 140.10 ES exists in monitoring wells MW-103, MW-104 and MW-107. Additionally, three VOC compounds in excess of the NR 140.10 ES or the NR 149.21(9) maximum contaminant levels (MCL's) were detected in MW-107. High levels of manganese, noted historically in all wells, appears to occur naturally and may not be related to the past site uses.

A total of 125,948 gallons of impacted groundwater has been treated during the months of October, November, December 2000, and discharged to the City of Appleton municipal sanitary sewer system. Analysis by MCO and the City of Appleton of the treatment system effluent did not indicate any exceedances of the local discharge permit limits for the site.

Based upon the December 19, 2000 groundwater sampling results and the batch treatment process analytical results, MCO recommends continued operation of the groundwater treatment system at the N.W. Mauthe groundwater remediation site.

MCO has recommended elimination of the natural attenuation testing for all wells, except MW-107. The Wisconsin DNR has determined that they will not allow the reduction in natural attenuation monitoring.

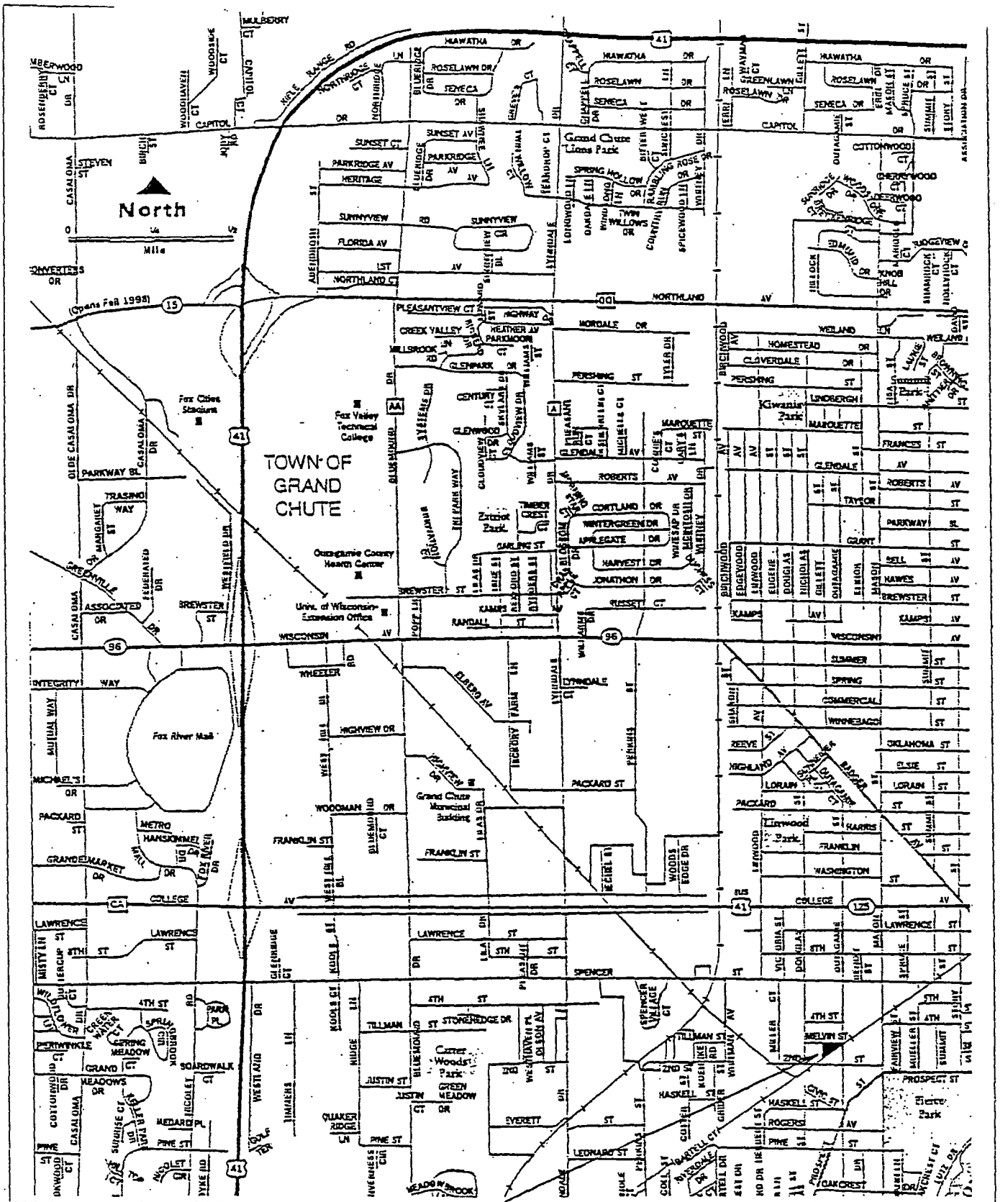

FIGURE 1

SITE LOCATION MAP

N.W. MAUTHE SUPERFUND SITE
APPLETON, WI

McM #M050-98808 July, 99

McMAHON
ASSOCIATES, INC.
ENGINEERS ▪ ARCHITECTS
SCIENTISTS ▪ SURVEYORS

MW-108

W-2

MELVIN STREET

ELECTRIC SUBSTATION

PZ-4

WEST GROUNDWATER COLLECTION TRENCH

MW-101

GROUNDWATER TREATMENT FACILITY

MANHOLE No.2

MW-102

MW-107

HSE

PZ-3

CENTRAL GROUNDWATER COLLECTION TRENCH

FOUNDATION DRAIN LATERAL

MANHOLE No.1

MW-103

PZ-1

W-15

BLDG

GAR

FOUNDATION DRAIN LATERAL

MW-104

GAR

HSE

HSE

TAVERN

TAVERN SUMP EFFLUENT PIPE

MW-106

PZ-2

FOUNDATION DRAIN LATERAL

SOUTHEAST GROUNDWATER COLLECTION TRENCH

SECOND STREET

W-8

MW-105

OUTAGAMIE STREET

NORTH

40 20 0 40

SCALE – FEET

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FIGURE 2

COLLECTION TRENCH AND MONITORING WELL LOCATIONS N.W. MAUTHE SUPERFUND SITE

APPLETON, WISCONSIN

McM# M050-90728.14 DECEMBER 19, 2000

MW-108
799.29

W-2
799.88

MELVIN STREET

799
797
795
793
791
789
787
785
783
781

ELECTRIC SUBSTATION

WEST GROUNDWATER COLLECTION TRENCH

PZ-4

GROUNDWATER TREATMENT FACILITY

MANHOLE No.2

MW-102
780.39

MW-101
796.86

MW-107
797.59

HSE

CENTRAL GROUNDWATER COLLECTION TRENCH

PZ-3

FOUNDATION DRAIN LATERAL

PZ-1

MW-103
792.96

MANHOLE No.1

BLDG

GAR

W-15
795.77

MW-104
796.79

FOUNDATION DRAIN LATERAL

GAR

HSE

HSE

TAVERN

PZ-2

MW-106
795.53

TAVERN

SUMP EFFLUENT PIPE

FOUNDATION DRAIN LATERAL

SOUTHEAST GROUNDWATER COLLECTION TRENCH

SECOND STREET

W-8
796.56

MW-105
798.68

OUTAGAMIE STREET

NORTH

40 20 0 40

SCALE - FEET

LEGEND

W-2 803.06 — MONITORING WELL & GROUNDWATER ELEVATION

GROUNDWATER FLOW DIRECTION

797 — GROUNDWATER CONTOUR

FIGURE 3

GROUNDWATER MONITORING WELLS LOCATIONS & GROUNDWATER CONTOURS N.W. MAUTHE SUPERFUND SITE

APPLETON, WISCONSIN

McM# M050-90728.14 DECEMBER 19, 2000

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MW-108

W-2

MELVIN STREET

ELECTRIC SUBSTATION

787

WEST GROUNDWATER COLLECTION TRENCH

PZ-4
787.39

MW-101

786

785

784

GROUNDWATER TREATMENT FACILITY

MANHOLE No.2

CENTRAL GROUNDWATER COLLECTION TRENCH

MW-102

HSE

FOUNDATION DRAIN LATERAL

MW-107

PZ-3
783.38

784

785

MW-103

PZ-1
785.74

W-15

MANHOLE No.1

BLDG

GAR

786

MW-104

FOUNDATION DRAIN LATERAL

GAR

787

HSE

HSE

788

TAVERN

789

MW-106

TAVERN

SUMP EFFLUENT PIPE

PZ-2
789.04

FOUNDATION DRAIN LATERAL

SOUTHEAST GROUNDWATER COLLECTION TRENCH

SECOND STREET

W-8

MW-105

OUTAGAMIE STREET

NORTH

40 20 0 40

SCALE - FEET

LEGEND

PZ-1
785.96 — PIEZOMETER & POTENTIOMETRIC SURFACE ELEVATION

POTENTIOMETRIC GRADIENT

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FIGURE 4

PIEZOMETER LOCATIONS AND POTENTIOMETRIC CONTOURS
N.W. MAUTHE SUPERFUND SITE

APPLETON, WISCONSIN

McM# M050-90728.14 DECEMBER 19, 2000

MW-108
3.0 ug/L

W-2
0.91 ug/L*

MELVIN STREET

ELECTRIC SUBSTATION

WEST GROUNDWATER COLLECTION TRENCH

PZ-4

MW-101
7.2 ug/L

GROUNDWATER TREATMENT FACILITY

MW-107
10000 ug/L

MANHOLE No.1

MANHOLE No.2

MW-102
2.9 ug/L

HSE

CENTRAL GROUNDWATER COLLECTION TRENCH

FOUNDATION DRAIN LATERAL

PZ-3

MW-103
180 ug/L

PZ-1

W-15
1.4 ug/L*

GAR

MW-104
790 ug/L

GAR

BLDG

FOUNDATION DRAIN LATERAL

HSE

HSE

TAVERN

MW-106
0.77 ug/L*

PZ-2

TAVERN SUMP EFFLUENT PIPE

FOUNDATION DRAIN LATERAL

SOUTHEAST GROUNDWATER COLLECTION TRENCH

10
100
1000
10

SECOND STREET

OUTAGAMIE STREET

W-8
0.66 ug/L*

MW-105
< 0.4 ug/L

NORTH

40 20 0 40

SCALE – FEET

LEGEND

10	ISOCONCENTRATION OF CHROMIUM (ESTIMATED)
<	LESS THAN THE DETECTION LIMIT
ug/L	MICROGRAM.LITER
MW-102	MONITORING WELL
*	ANOLYTE DETECTED IN THE AREA OF LESS CERTAIN QUANTITATION

FIGURE 5

ISOCONCENTRATION MAP
TOTAL CHROMIUM ug/L In Groundwater
N.W. MAUTHE SUPERFUND SITE

APPLETON, WISCONSIN
McM# M050-90728.14 DECEMBER 19, 2000

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Table #1

GROUNDWATER BATCH DISCHARGES / October, November, December 2000
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Sample Date	Batch No.	Effluent Meter	Gallons Discharged	High pH	Low pH	Average pH	Hexavalent* Chromium Concentration (mg/l)
10/02/00	100200A	2636596	3,162	8.00	7.91	7.96	0
10/04/00	100400A	2639745	3,149	8.03	7.98	8.00	0
10/07/00	100700A	2642901	3,156	8.05	7.88	7.96	0
10/10/00	101000A	2646081	3,180	8.04	7.91	7.97	0
10/12/00	101200A	2649247	3,166	8.03	7.93	7.98	0
10/14/00	101400A	2652388	3,141	8.10	8.01	8.05	0
10/14/00	101400B	2655569	3,181	8.08	8.01	8.06	0
10/16/00	101600A	2658716	3,147	8.11	8.02	8.06	0
10/20/00	102000A	2661852	3,136	8.04	7.92	7.98	0
10/24/00	102400A	2665072	3,220	8.18	8.03	8.10	0
10/24/00	102400B	2668218	3,146	8.17	8.09	8.13	0
10/28/00	102800A	2671400	3,182	8.13	8.02	8.07	0
10/31/00	103100A	2674562	3,162	8.21	8.09	8.15	0
11/04/00	110400A	2677110	3,148	8.19	8.08	8.13	0
11/06/00	110600A	2680830	3,120	8.06	7.98	8.02	0
11/08/00	110800A	2684067	3,237	8.11	8.01	8.06	0
11/11/00	111100A	2687103	3,036	8.08	8.00	8.04	0
11/12/00	111200A	2689933	2,830	8.04	7.99	8.02	0
11/15/00	111500A	2693088	3,155	8.08	7.94	8.01	0
11/17/00	111700A	2696268	3,180	8.14	8.06	8.10	0
11/20/00	112000A	2699477	3,209	8.16	7.99	8.07	0
11/20/00	112000B	2702579	3,102	8.13	8.01	8.07	0
11/22/00	112200A	2705754	3,175	8.10	8.00	8.05	0
11/23/00	112300A	2708903	3,149	8.08	7.95	8.01	0
11/25/00	112500A	2712091	3,188	8.18	7.93	8.05	0
11/27/00	112700A	2715286	3,195	8.23	8.08	8.15	0
11/29/00	112900A	2718457	3,171	7.61	7.58	7.60	0
12/04/00	120400A	2721644	3,187	8.04	7.98	8.01	0
12/04/00	120400B	2724766	3,122	8.07	7.93	8.00	0
12/05/00	120500A	2727902	3,136	8.11	8.00	8.05	0
12/06/00	120600A	2731027	3,125	8.09	7.99	8.06	0
12/08/00	120800A	2734194	3,167	8.16	7.77	7.96	0
12/10/00	121000A	2737392	3,198	8.21	7.81	8.01	0
12/13/00	121300A	2740572	3,180	8.14	8.01	8.07	0
12/17/00	121700A	2743694	3,122	8.08	7.97	8.02	0
12/18/00	121800A	2746767	3,073	8.10	8.01	8.05	0
12/23/00	122300A	2749893	3,126	8.06	7.92	7.99	0
12/28/00	122800A	2753106	3,213	8.18	8.03	8.10	0
12/28/00	122800B	2756209	3,103	8.22	8.10	8.16	0
12/31/00	123100A	2759382	3,173	8.14	8.03	8.08	0
TOTAL			125,948				

* As tested with a Hach Hexavalent Chromium Field Test Kit.

JMS:smd
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Table #2

GROUNDWATER ELEVATIONS
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Date Measured	Depth To Water (feet)	Reference Elevation (To Top PVC) (feet)	Groundwater Elevation (feet)
W-2	02/01/97	-		798.66
	05/01/97	-		801.01
	09/01/97	-		800.28
	12/01/97	-	804.66	797.69
	03/01/98	-		802.08
	06/01/98	-		799.38
	10/27/98	5.85		798.81
	02/08/99	4.50		800.16
	06/08/99	3.31		801.35
	09/13/99	5.78		798.88
	12/15/99	6.63		798.03
	03/13/00	1.60		803.06
	06/22/00	2.63		802.03
	09/27/00	3.28		801.38
	12/19/00	4.78		799.88
W-8	02/01/97	-		797.22
	05/01/97	-		797.66
	09/01/97	-		798.01
	12/01/97	-	803.36	796.52
	03/01/98	-		798.16
	06/01/98	-		797.31
	10/27/98	6.41		796.95
	02/08/99	5.49		797.87
	06/08/99	4.38		798.98
	09/13/99	6.71		796.65
	12/15/99	6.91		796.45
	03/13/00	6.25		797.11
	06/22/00	6.42		797.34
	09/27/00	5.66		797.70
	12/19/00	6.80		796.56
W-15	02/01/97	-		793.97
	05/01/97	-		796.92
	09/01/97	-		797.23
	12/01/97	-	803.76	795.52
	03/01/98	-		796.78
	06/01/98	-		796.32
	10/27/98	7.95		795.81
	02/08/99	9.19		794.57
	06/08/99	6.89		796.87
	09/13/99	7.85		795.91
	12/15/99	8.97		794.79
	03/13/00	7.80		795.96
	06/22/00	6.42		797.34
	09/27/00	6.30		797.46
	12/19/00	7.99		795.77

Table #2

GROUNDWATER ELEVATIONS
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Date Measured	Depth To Water (feet)	Reference Elevation (To Top PVC) (feet)	Groundwater Elevation (feet)
MW-101	02/01/97	-		797.16
	05/01/97	-		799.99
	09/01/97	-		798.67
	12/01/97	-	807.59	798.21
	03/01/98	-		803.43
	06/01/98	-		800.48
	10/27/98	10.26		797.33
	02/08/99	11.91		795.68
	06/08/99	9.79		797.80
	09/13/99	10.35		797.24
	12/15/99	9.01		798.58
	03/13/00	12.67		794.92
	06/22/00	6.28		801.31
	09/27/00	10.41		797.18
	12/19/00	10.73		796.86
MW-102	02/01/97	-		780.72
	05/01/97	-		780.89
	09/01/97	-		780.79
	12/01/97	-	804.45	780.95
	03/01/98	-		780.47
	06/01/98	-		780.72
	10/27/98	24.11		780.34
	02/08/99	23.84		780.61
	06/08/99	23.59		780.86
	09/13/99	23.70		780.75
	12/15/99	24.27		780.18
	03/13/00	24.00		780.45
	06/22/00	23.69		780.76
	09/27/00	23.65		780.80
	12/19/00	24.06		780.39
MW-103	02/01/97	-		795.29
	05/01/97	-		791.83
	09/01/97	-		789.60
	12/01/97	-	803.74	787.78
	03/01/98	-		791.03
	06/01/98	-		789.13
	10/27/98	11.96		791.78
	02/08/99	10.24		793.50
	06/08/99	8.69		795.05
	09/13/99	9.79		793.95
	12/15/99	12.68		791.06
	03/13/00	9.63		794.07
	06/22/00	8.22		795.52
	09/27/00	7.76		795.98
	12/19/00	10.78		792.96

Table #2

GROUNDWATER ELEVATIONS
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Date Measured	Depth To Water (feet)	Reference Elevation (To Top PVC) (feet)	Groundwater Elevation (feet)
MW-104	02/01/97	-		792.94
	05/01/97	-		789.91
	09/01/97	-		798.59
	12/01/97	-	807.28	795.70
	03/01/98	-		799.46
	06/01/98	-		796.60
	10/27/98	10.51		796.77
	02/08/99	9.04		798.24
	06/08/99	7.49		799.79
	09/13/99	10.28		797.00
	12/15/99	10.78		796.50
	03/13/00	9.51		797.77
	06/22/00	8.41		798.88
	09/27/00	8.61		798.67
	12/19/00	10.49		796.79
MW-105	02/01/97	-		793.74
	05/01/97	-		800.60
	09/01/97	-		800.37
	12/01/97	-	803.96	799.03
	03/01/98	-		800.08
	06/01/98	-		800.50
	10/27/98	5.41		798.55
	02/08/99	6.46		797.50
	06/08/99	3.04		800.92
	09/13/99	4.60		799.36
	12/15/99	5.28		798.68
	03/13/00	4.97		798.99
	06/22/00	3.06		800.90
	09/27/00	3.38		800.58
	12/19/00	5.28		798.68
MW-106	02/01/97	-		794.75
	05/01/97	-		797.23
	09/01/97	-		796.91
	12/01/97	-	804.08	795.48
	03/01/98	-		797.37
	06/01/98	-		796.76
	10/27/98	8.12		795.96
	02/08/99	9.75		794.33
	06/08/99	6.72		797.36
	09/13/99	7.88		796.20
	12/15/99	8.71		795.37
	03/13/00	8.72		795.36
	06/22/00	6.87		797.21
	09/27/00	7.41		796.67
	12/19/00	8.55		795.53

Table #2

GROUNDWATER ELEVATIONS
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Date Measured	Depth To Water (feet)	Reference Elevation (To Top PVC) (feet)	Groundwater Elevation (feet)
MW-107	02/01/97	-		788.23
	05/01/97	-		796.60
	09/01/97	-		797.64
	12/01/97	-	809.01	796.49
	03/01/98	-		796.68
	06/01/98	-		796.31
	10/27/98	10.71		798.30
	02/08/99	11.11		797.90
	06/08/99	11.04		797.97
	09/13/99	11.55		797.46
	12/15/99	11.66		797.35
	03/13/00	11.13		797.88
	06/22/00	10.69		798.32
	09/27/00	12.36		796.65
	12/19/00	11.42		797.59
MW-108	02/01/97	-		798.36
	05/01/97	-		793.32
	09/01/97	-		790.53
	12/01/97	-	806.61	788.65
	03/01/98	-		795.59
	06/01/98	-		789.30
	10/27/98	6.98		799.63
	02/08/99	6.72		799.89
	06/08/99	5.80		800.81
	09/13/99	6.68		799.93
	12/15/99	6.87		799.74
	03/13/00	6.84		799.77
	06/22/00	6.28		800.33
	09/27/00	6.31		800.30
	12/19/00	7.32		799.29
PZ-01	10/27/98	17.43	804.17	786.74
	02/08/99	18.24		785.93
	06/08/99	18.22		785.95
	09/13/99	18.25		785.92
	12/15/99	18.25		785.92
	03/13/00	18.25		785.92
	06/22/00	18.21		785.96
	09/27/00	18.21		785.96
	12/19/00	18.43		785.74
PZ-02	10/27/98	14.66	803.64	788.98
	02/08/99	14.70		788.94
	06/08/99	14.70		788.94
	09/13/99	14.74		788.90
	12/15/99	14.72		788.92
	03/13/00	14.76		788.88
	06/22/00	14.41		789.23
	09/27/00	14.43		789.21
	12/19/00	14.60		789.04

Table #2

GROUNDWATER ELEVATIONS
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Date Measured	Depth To Water (feet)	Reference Elevation (To Top PVC) (feet)	Groundwater Elevation (feet)
PZ-03	10/27/98	22.71	803.62	780.91
	02/08/99	23.74		779.88
	06/08/99	23.74		779.88
	09/13/99	23.55		780.07
	12/15/99	23.52		780.10
	03/13/00	23.30		780.24
	06/22/00	23.40		780.22
	09/27/00	20.21		783.41
	12/19/00	20.24		783.38
PZ-04	10/27/98	15.18	807.30	792.12
	02/08/99	23.61		783.69
	06/08/99	21.69		785.61
	9/13/99	23.87		783.43
	12/15/99	23.80		783.50
	03/13/00	25.77		781.53
	06/22/00	22.51		784.79
	09/27/00	19.60		787.70
	12/19/00	19.91		787.39

Table #3

LABORATORY ANALYTICAL RESULTS / Selected Metals
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Sample Date	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Cyanide (ug/l)	Manganese (ug/l)	Mercury (ug/l)	Zinc (ug/l)
W-2	02/20/97	NA	15	26	NA	460.0	NA	49
	05/27/97	0.43	8.5	<10	NA	170.0	<.2	30
	09/18/97	0.27	4.5**	9.5**	3**	116.0	<.03	16.9
	12/12/97	.13*	6.2	<9.7	<.8	133.0	.06*	20.4
	03/25/98	0.08	<3.9	<9.5	<1.7	83.8	.007*	18.6
	06/10/98	.31*	16.4	18.6**	<1.7	466.0	.027*	40.8
	10/27/98	.51*	3.60	4.7*	<.0032	69.0	<.05	170
	02/09/99	.46*	<.62	4.0	<.0032	240.0	<0.05	23
	06/08/99	<.31	<.62	1.8*	<.0032	290.0	<0.05	<12
	09/13/99	<.31	2.00	3.2	<.0032	240.0	<.05	<12
	12/15/99	<.31	.72 *	NA	NA	2.8	NA	NA
	03/13/00	<.31	.79 *	NA	NA	7.8	NA	NA
	06/22/00	<.31	<.62	NA	NA	<.42	NA	NA
	09/27/00	2.70	1.1*	NA	NA	17.0	NA	NA
	12/19/00	.24*	.91*	NA	NA	8.0	NA	NA
W-8	02/20/97	NA	17	22	NA	320.0	NA	34
	05/27/97	1.6	37	27	NA	670.0	<.2	54
	09/18/97	0.45	14.4	14.6**	1**	338.0	.11**	31.8
	12/12/97	0.5*	5.7	<9.7	<.8	147.0	.07*	17.1
	03/25/98	0.43	10.1	15**	<1.7	205.0	.007*	21
	06/10/98	0.54	9.9	12.6**	<1.7	264.0	.016*	21.6
	10/27/98	0.80	3.90	4.8*	<.0032	64.0	<.05	85
	02/09/99	<.31	<.62	<60	<.0032	850.0	<.05	12
	06/08/99	<.31	<.62	2.6	<.0032	50.0	<.05	<12
	09/13/99	<.31	1.90	2.7	<.0032	98.0	<.05	29
	12/15/99	<.31	2.80	NA	NA	180.0	NA	NA
	03/13/00	<.31	1.4 *	NA	NA	65.0	NA	NA
	06/22/00	<.31	3.10	NA	NA	74.0	NA	NA
	09/27/00	.27*	.75*	NA	NA	26.0	NA	NA
	12/19/00	<.23	.66*	NA	NA	40.0	NA	NA
W-15	02/20/97	NA	32	52	NA	430.0	NA	88
	05/27/97	0.27	5.9	15	NA	97.0	<.2	39
	09/18/97	0.31	13.9	18.8**	<.78	325.0	<.03	35.5
	12/12/97	.12*	5.7	9.7**	<.8	80.9	.03*	18.5
	03/25/98	.04*	<3.9	<9.5	<1.7	85.7	.038*	13.7
	06/10/98	.11*	10	13.2**	<1.7	147.0	.016*	18.8
	10/27/98	.41*	6.80	7.40	<.0032	110.0	<.05	100
	02/09/99	<.31	<.62	<.60	<.0032	320.0	<.05	<12
	06/08/99	<.31	2.40	14.00	<.0032	130.0	<.05	66
	09/13/99	<.31	5.30	6.40	<.0032	130.0	<.05	16
	12/15/99	<.31	5.00	NA	NA	90.0	NA	NA
	03/13/00	<.31	7.00	NA	NA	130.0	NA	NA
	06/22/00	<.31	1.80	NA	NA	11.0	NA	NA
	09/27/00	<.23	4.20	NA	NA	24.0	NA	NA
	12/19/00	<.23	1.4*	NA	NA	930.0	NA	NA

Table #3

LABORATORY ANALYTICAL RESULTS / Selected Metals
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Sample Date	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Cyanide (ug/l)	Manganese (ug/l)	Mercury (ug/l)	Zinc (ug/l)
MW-101	02/20/97	NA	36	41	NA	820.0	NA	49
	05/27/97	<.2	10	11	NA	170.0	<.03	18
	09/18/97	.06**	11.9	10.7**	1**	145.0	<.05	18.2
	12/12/97	.06*	12.8	<9.7	<.8	176.0	.05*	20.7
	03/25/98	.04*	20.9	21.6**	<1.7	239.0	.007*	32.7
	06/10/98	.27*	48.2	46.8	<1.7	604.0	.044*	75.9
	10/27/98	<.16	3.20	4.2*	<.0032	24.0	<.05	54
	02/09/99	<.31	<.62	<.60	<.0032	1900.0	<.05	14
	06/08/99	<.31	1.80	8.2	<.0032	380.0	<.05	39
	09/13/99	<.31	2.90	5.1	<.0032	31.0	<.05	<12
	12/15/99	<.31	2.50	NA	NA	9.1	NA	NA
	03/13/00	<.31	2.30	NA	NA	100.0	NA	NA
	06/22/00	<.31	1.4 *	NA	NA	<4.2	NA	NA
	09/27/00	<.23	19.00	NA	NA	37.0	NA	NA
	12/19/00	<.23	7.20	NA	NA	18.0	NA	NA
MW-102	02/20/97	NA	26	38	NA	570.0	NA	34
	05/27/97	0.21	48	77	NA	920.0	<.2	73
	09/18/97	.08**	<3.92	6.9**	2**	302.0	<.03	8.7
	12/12/97	.04*	<3.9	<9.7	<.8	387.0	.04*	10.9
	03/25/98	.11*	<3.9	9.5**	<1.7	302.0	.007*	7.4*
	06/10/98	.04*	<3.9	<9.8	<1.7	318.0	.018*	9.5
	10/27/98	.27*	.98*	3.2*	<.0032	340.0	<.05	24
	02/09/99	<.31	.73*	<.60	<.0032	670.0	<.05	20
	06/08/99	<.31	1.2*	5.8	<.0032	140.0	<.05	36
	09/13/99	<.31	4.00	15.0	<.0032	160.0	<.05	73
	12/15/99	<.31	1.2 *	NA	NA	550.0	NA	NA
	03/13/00	<.31	1.70	NA	NA	580.0	NA	NA
	06/22/00	<.31	<.62	NA	NA	310.0	NA	NA
	09/27/00	<.23	2.10	NA	NA	130.0	NA	NA
	12/19/00	.33*	2.90	NA	NA	110.0	NA	NA
MW-103	02/20/97	NA	1,300	47	NA	800.0	NA	27
	05/27/97	<.2	160.0	31	NA	900.0	<.2	29
	09/18/97	.06**	35.2	13.5**	3**	287.0	<.03	13.7
	12/12/97	.04*	16.3	<9.7	<.8	84.3	.09*	21.4
	03/25/98	.04*	15.5	<9.5	<1.7	83.0	.007*	7.5*
	06/10/98	.15*	57.6	27.5	<1.7	417.0	.02*	33.7
	10/27/98	<.16	6.30	2.3*	<.0032	27.0	<.05	30.0
	06/08/99	<.31	87.00	3.5	<.0032	810.0	<.05	30
	09/13/99	<.31	720.0	5.9	<.0032	83.0	<.05	15
	12/15/99	<.31	260.0	NA	NA	160.0	NA	NA
	03/13/00	<.31	600.0	NA	NA	79.0	NA	NA
	06/22/00	<.31	130.0	NA	NA	180.0	NA	NA
	09/27/00	<.23	280.0	NA	NA	230.0	NA	NA
	12/19/00	<.23	180.0	NA	NA	170.0	NA	NA

Table #3

LABORATORY ANALYTICAL RESULTS / Selected Metals
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Sample Date	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Cyanide (ug/l)	Manganese (ug/l)	Mercury (ug/l)	Zinc (ug/l)
MW-104	02/20/97	NA	5.9	15	NA	550.0	NA	6.9
	05/27/97	<.02	6.9	11	NA	470.0	<.2	5.2
	09/18/97	<.04	35.6	5**	3**	235.0	<.03	4.74
	12/12/97	.04*	61.8	9.8**	<.8	279.0	.05*	14
	03/25/98	.04*	66.8	<9.5	<1.7	73.6	.008*	7.4*
	06/10/98	.04*	219.0	<9.8	<1.7	107.0	.016*	12.8
	10/27/98	.29*	150.0	2.3*	<.0032	25.0	<.05	30
	02/09/99	<.31	94.0	1.4*	<.0032	1000.0	<.05	<12
	06/08/99	1*	62.0	12.0	<.0032	620.0	<.05	17
	09/13/99	<.31	80.0	3.2	<.0032	9.2	<.05	<12
	12/15/99	<.31	170.0	NA	NA	1.6	NA	NA
	03/13/00	<.31	300.0	NA	NA	13.0	NA	NA
	06/22/00	<.31	210.0	NA	NA	41.0	NA	NA
	09/27/00	<.23	510.0	NA	NA	3.9	NA	NA
	12/19/00	<.23	790.0	NA	NA	<2	NA	NA
MW-105	02/20/97	NA	21	22	NA	1100.0	NA	23
	05/27/97	<.2	5	<10	NA	120.0	<.2	12
	09/18/97	.14**	29.5	28.3	1**	532.0	<.03	46
	12/12/97	.36*	15.8	12.5**	<.8	297.0	.03*	27.1
	03/25/98	.04*	30.8	27.6	<1.7	518.0	.064*	44
	06/10/98	.048*	13.7	15.3**	<1.7	217.0	.016*	22.1
	10/27/98	.29*	8.80	8.20	<.0032	150.0	<.05	70
	02/09/99	<.31	1.3*	4.30	<.0032	2000.0	<.05	19
	06/08/99	<.31	1*	18.00	<.0032	1300.0	<.05	66
	09/13/99	<.31	.64*	24.00	<.0032	1700.0	<.05	30
	12/15/99	<.31	<.62	NA	NA	860.0	NA	NA
	03/13/00	<.31	4.80	NA	NA	660.0	NA	NA
	06/22/00	<.31	1.0 *	NA	NA	600.0	NA	NA
	09/27/00	<.23	1.2*	NA	NA	700.0	NA	NA
	12/19/00	<.23	<.4	NA	NA	230.0	NA	NA
MW-106	02/20/97	NA	21	24	NA	320.0	NA	26
	05/27/97	<.02	40	35	NA	590.0	<.2	68
	09/18/97	.05**	5.5	6.2**	1**	56.9	<.03	35.6
	12/12/97	.04*	9.2	9.7**	<.08	155.0	.03*	18.4
	03/25/98	NA	13.40	14.4**	<1.7	150.0	.007*	18.5
	06/10/98	.04*	<3.9	10.2**	<1.7	10.0	.016*	10.9
	10/27/98	.27*	3.20	4.3*	<.0032	38.0	<.05	88
	02/09/99	<.31	<.62	1.1*	<.0032	760.0	<.05	22
	06/08/99	<.31	.79*	2.3	<.0032	900.0	<.05	<12
	09/13/99	<.31	1.80	4.7	<.0032	1100.0	<.05	30
	12/15/99	<.31	1.3 *	NA	NA	130.0	NA	NA
	03/31/00	<.31	2.30	NA	NA	270.0	NA	NA
	06/22/00	<.31	.73 *	NA	NA	<4.2	NA	NA
	09/27/00	<.23	.88*	NA	NA	50.0	NA	NA
	12/19/00	<.23	.77*	NA	NA	22.0	NA	NA

Table #3

LABORATORY ANALYTICAL RESULTS / Selected Metals
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Sample Date	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Cyanide (ug/l)	Manganese (ug/l)	Mercury (ug/l)	Zinc (ug/l)
MW-107	02/20/97	NA	2,000	13	NA	190.0	NA	6.9
	05/27/97	<.2	3,600	<10	NA	91.0	<.2	10
	09/18/97	<.04	2,670	<8.1	1**	59.3	<.03	33.5
	12/12/97	.04*	2,310	<9.7	<.8	48.4	.1*	6.7
	03/25/98	.04*	11,200*	12.1**	<1.7	68.2	.041*	9.3*
	06/10/98	.11*	6,240	13.8**	<1.7	161.0	.027*	17.3*
	10/27/98	<.16	7,100	1.2*	<.0032	28.0	<.05	94
	02/09/99	<.31	3,200	1.9*	<.0032	49.0	<.05	<12
	06/08/99	<.31	5,800	3.0	<.0032	25.0	<.05	<12
	09/13/99	<.31	4,000	1.9*	<.0032	18.0	<.05	<12
	12/15/99	<.31	14,000	NA	NA	.83 *	NA	NA
	03/13/00	<.31	8,100	NA	NA	22.0	NA	NA
	06/22/00	<.31	14,000	NA	NA	<42	NA	NA
	09/27/00	<.23	11,000	NA	NA	4.9	NA	NA
	12/19/00	<.23	10,000	NA	NA	2.4	NA	NA
MW-108	02/20/97	NA	25	23	NA	490.0	NA	31
	05/27/97	<.2	11	13	NA	210.0	<.2	15
	09/18/97	.14**	27.4	22.4**	1**	462.0	<.03	36.6
	12/12/97	.04*	5.6	<9.7	<.8	74.8	.03*	27.9
	03/25/98	.04*	9.4	10.4**	<1.7	142.0	.007*	13.8
	06/10/98	.14*	28.4	25.5	<1.7	478.0	.021*	40.5
	10/27/98	.26*	8.90	7.40	<.0032	88.0	<0.5	44
	02/09/99	<.31	1.70	3.90	<.0032	560.0	<.05	30
	06/08/99	<.31	3.10	1.4*	<.0032	450.0	<.05	54
	09/13/99	<.31	4.50	5.30	<.0032	100.0	<.05	<12
	12/15/99	<.31	6.10	NA	NA	79.0	NA	NA
	03/13/00	<.31	3.6	NA	NA	41.0	NA	NA
	06/22/00	<.31	6.5	NA	NA	<4.2	NA	NA
	09/27/00	<.23	2.9	NA	NA	29.0	NA	NA
	12/19/00	<.23	3.0	NA	NA	22.0	NA	NA
Maximum Contaminant Level (MCL)		5	100	100	200	50.0	2	5,000
Enforcement Standard Chapter NR 140.10		5	100	1,300	200	50.0	2	5,000
Preventive Action Limit Chapter NR 140.10		0.5	10	130	40	25.0	0.2	2,500

EXPLANATION:

Samples collected prior to 10/27/98 were collected by CH2M Hill.
* = Detection of compound in area of less certain quantification.
** = Compound was found in sample and blank.
ND = Not detected above the analytical laboratories method detection limit
NA = Not Analyzed
MW-104 = Was tested for Aluminum, Nickel, Arsenic & Lead. No quantifiable detections were noted for any of the analytes.
ug/L = Microgram/Liter
mg/L = Milligram / Liter
Indicates an exceedance of the NR 140 Groundwater Quality Enforcement Standard

JMS:smd
I.D.\Report\M050\90728\Qtrly-PR#9-JMS.xls

Table #4

LABORATORY ANALYTICAL RESULTS
Volatile Organic Compounds (VOC's)
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Sample Date	Benzene (ug/l)	Chloroform (ug/l)	1,1-Dichloroethane (ug/l)	1,1-Dichloroethene (ug/l)	cis-1,2,-Dichloroethene (ug/l)	Trans-1,2,-Dichloroethene (ug/l)	Ortho-Xylene (ug/l)	Toluene (ug/l)	1,1,1-Trichloroethane (ug/l)	1,1,2-Trichloroethane (ug/l)	Trichloroethene (ug/l)	Meta, para Xylene (ug/l)	Total Xylenes (ug/l)
W-2	02/20/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	05/27/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	09/18/97	<.5	<.6	<85	<.7	<7	<7	<124	<68	<40	<.5	<.5	<124	-
	12/12/97	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	03/25/98	<.5	<.6	<85	<.7	<7	<7	<.4	<68	<40	<.5	<.5	.4**	-
	06/10/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	10/27/98	<.24	<.23	<.27	<.28	<.27	<.26	<.17	<.21	<.26	<.23	<.29	<.36	-
	02/09/99	.15*	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	06/08/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	09/13/99	<.13	<.15	<.14	<.15	<.16	<.17	***	.13*	<.14	<.15	<.14	***	<37
	03/13/00	<.32	<.28	<.36	<.35	<.15	<.39	***	<.37	<.33	<.11	<.34	***	<.71
W-8	02/20/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
	05/27/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	09/18/97	<.5	<.6	<85	<40	<7	<7	<124	<68	<40	<.5	<.5	<124	-
	12/12/97	<.5	<.6	<85	<40	<7	<7	<.4	<68	<40	<.5	<.5	.4**	-
	03/25/98	<.5	<.6	<85	<40	<7	<7	<.3	<68	<40	<.5	<.5	.3**	-
	06/10/98	<.5	<.6	<85	<40	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	10/27/98	<.24	<.23	<.27	<.28	<.27	<.26	<.17	<.21	<.26	<.23	<.29	<.36	-
	02/09/99	.19*	<.15	<.15	<.15	<.16	<.17	***	.15*	<.14	<.15	<.15	***	<.37
	06/08/99	<.13	<.15	<.14	<.15	<.16	<.17	***	0.13	<.14	<.15	<.14	***	<.37
	09/13/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	03/13/00	<.32	<.28	<.36	<.35	<.15	<.39	***	<.37	<.33	<.11	<.34	***	<.71
W-15	02/20/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	05/27/97	<.5	0.22	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	09/18/97	<.5	<.6	<85	<.7	<7	<7	<124	<68	<40	<.5	<.5	<124	-
	12/12/97	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	03/25/98	<.5	<.6	<85	<.7	<7	<7	<.4	<68	<40	<.5	<.5	.4**	-
	06/10/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	10/27/98	<.24	<.23	<.27	<.28	<.27	<.26	<.17	<.21	<.26	<.23	<.29	<.36	-
	02/09/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	06/08/99	.16*	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	09/13/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	03/13/00	<.32	<.28	<.36	<.35	<.15	<.39	***	<.37	<.33	<.11	<.34	***	<.71

Table #4

LABORATORY ANALYTICAL RESULTS
Volatile Organic Compounds (VOC's)
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Sample Date	Benzene (ug/l)	Chloroform (ug/l)	1,1-Dichloroethane (ug/l)	1,1-Dichloroethene (ug/l)	cis-1,2,-Dichloroethene (ug/l)	Trans-1,2,-Dichloroethene (ug/l)	Ortho-Xylene (ug/l)	Toluene (ug/l)	1,1,1-Trichloroethane (ug/l)	1,1,2-Trichloroethane (ug/l)	Trichloroethene (ug/l)	Meta, para Xylene (ug/l)	Total Xylenes (ug/l)
MW-101	02/20/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	05/27/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	09/18/97	<.5	<.6	.491*	.353*	<7	<7	<124	<68	3.03	<.5	3.31	<124	-
	12/12/97	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	03/25/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	06/10/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	10/27/98	<.24	<.23	<.27	<.28	<.27	<.26	<.17	<.21	<.26	<.23	<.29	<.36	-
	02/09/99	<.13	<.15	<.14	<.15	<.16	<.17	***	0.91	<.14	<.15	<.14	***	<.37
	06/08/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	03/13/00	<.32	<.28	<.36	<.35	<.15	<.39	***	<.37	<.33	<.11	<.34	***	<.71
MW-102	02/20/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	05/27/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	09/18/97	<.5	<.6	<.85	<85	<7	<7	<124	<68	<40	<.5	<.5	<124	-
	12/12/97	<.5	<.6	<85	<85	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	03/25/98	<.5	<.6	<85	<85	<7	<7	<.4	<68	<40	<.5	<.5	.4*	-
	06/10/98	<.5	<.6	<85	<85	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	10/27/98	<.24	<.23	<.27	<.28	<.27	<.26	<.17	<.21	<.26	<.23	<.29	<.36	-
	02/09/99	<.13	<.15	<.14	<.15	<.16	<.17	***	0.65	<.14	<.15	<.14	***	<.37
	06/08/99	<.13	<.15	<.14	<.15	<.16	<.17	***	.21*	<.14	<.15	<.14	***	<.37
	09/13/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	03/13/00	<.32	<.28	<.36	<.35	<.15	<.39	***	<.37	<.33	<.11	<.34	***	<.71
MW-103	02/20/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	05/27/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	09/18/97	<.5	<.6	<85	<.7	<7	<7	<124	<68	<40	<.5	<.5	<124	-
	12/12/97	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	03/25/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	06/10/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	10/27/98	<.24	<.23	<.27	<.28	<.27	<.26	<.17	<.21	<.26	<.23	<.29	<.36	-
	02/09/99	<.13	<.15	<.14	<.15	<.16	<.17	***	.15*	<.14	<.15	<.14	***	<.37
	06/08/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	09/13/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	03/13/00	<.32	<.28	<.36	<.35	<.15	<.39	***	<.37	<.33	<.11	<.34	***	<.71

Table #4

LABORATORY ANALYTICAL RESULTS
Volatile Organic Compounds (VOC's)
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Sample Date	Benzene (ug/l)	Chloroform (ug/l)	1,1-Dichloroethane (ug/l)	1,1-Dichloroethene (ug/l)	cis-1,2,-Dichloroethene (ug/l)	Trans-1,2,-Dichloroethene (ug/l)	Ortho-Xylene (ug/l)	Toluene (ug/l)	1,1,1-Trichloroethane (ug/l)	1,1,2-Trichloroethane (ug/l)	Trichloroethene (ug/l)	Meta, para Xylene (ug/l)	Total Xylenes (ug/l)
MW-104	02/20/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	05/27/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	09/18/97	<.5	<.6	<85	<.7	<7	<7	<124	<68	.324*	<.5	<.5	<124	-
	12/12/97	<.5	<.6	0.4	<.7	<7	<7	<120	<68	1*	<.5	0.9	<120	-
	03/25/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	.8*	<.5	<.5	<120	-
	06/10/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	2*	<.5	<.5	<120	-
	10/27/98	<.24	<.23	.35*	<.28	<.27	<.26	<.17	<.21	1.8	<.23	<.29	<.36	-
	02/09/99	<.13	<.15	.38*	<.15	<.16	<.17	***	.17*	1.5	<.15	<.14	***	<.37
	06/08/99	<.13	<.15	.34*	<.15	<.16	<.17	***	.14*	1.4	<.15	<.14	***	<.37
	09/13/99	<.13	<.15	.38*	<.15	<.16	<.17	***	.27*	1.6	<.15	<.14	***	<.37
	03/13/00	<.32	<.28	.38 *	<.35	<.15	<.39	***	<.37	1.6	<.11	<.34	***	<.71
MW-105	02/20/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	05/27/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	09/18/97	<.5	<.6	<85	<.7	<7	<7	<124	<68	<40	<.5	<.5	<124	-
	12/12/97	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	03/25/98	<.5	<.6	<85	<.7	<7	<7	<.4	<68	<40	<.5	<.5	.4*	-
	06/10/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	10/27/98	<.24	<.23	<.27	<.28	<.27	<.26	<.17	<.21	<.26	<.23	<.29	<.36	-
	02/09/99	.16*	<.15	<.14	<.15	<.16	<.17	***	.3*	<.14	<.15	<.14	***	<.37
	06/08/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13*	<.14	<.15	<.14	***	<.37
	09/13/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	03/13/00	<.32	<.28	<.36	<.35	<.15	<.39	***	<.37	<.33	<.11	<.34	***	<.71
MW-106	02/20/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	05/27/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	09/18/97	<.5	<.6	<85	<.7	<7	<7	<124	<68	2.73*	<.5	<.5	<124	-
	12/12/97	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	03/25/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	06/10/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	10/27/98	<.24	<.23	<.27	<.28	<.27	<.26	<.17	<.21	<.26	<.23	<.29	<.36	-
	02/09/99	.18*	<.15	<.14	<.15	<.16	<.17	***	<.17	<.14	<.15	<.14	***	<.37
	06/08/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	09/13/99	<.13	<.15	<.14	<.15	<.16	<.17	***	<.13	<.14	<.15	<.14	***	<.37
	03/13/00	<.32	<.28	<.36	<.35	<.15	0.39	***	<.37	<.33	<.11	<.34	***	<.71

Table #4

LABORATORY ANALYTICAL RESULTS
Volatile Organic Compounds (VOC's)
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Sample Date	Benzene (ug/l)	Chloroform (ug/l)	1,1-Dichloroethane (ug/l)	1,1-Dichloroethene (ug/l)	cis-1,2,-Dichloroethene (ug/l)	Trans-1,2,-Dichloroethene (ug/l)	Ortho-Xylene (ug/l)	Toluene (ug/l)	1,1,1-Trichloroethane (ug/l)	1,1,2-Trichloroethane (ug/l)	Trichloroethene (ug/l)	Meta, para Xylene (ug/l)	Total Xylenes (ug/l)
MW-107	02/20/97	<.5	0.3	11	8.4	0.7	<.7	<.5	<.5	81	0.6	50	<.5	-
	05/27/97	0.09	1.10	36	40	3.1	<3.1	<.5	0.34	390	3.5	420	<.5	-
	09/18/97	<10	<12	47.6*	22.1	2.61*	<2.61	<2480	<68	265*	2.83	295	<2480	-
	12/12/97	<10	<12	56*	23	3*	<3	<2500	<68	280	3	290	<2500	-
	03/25/98	<25	<30	61*	69	5*	<5	<17	<68	720	5	620	17*	-
	06/10/98	<12	<15	59*	58	<3	<3	<3100	63*	340*	4*	390	<3100	-
	10/27/98	<.24	1.4	62	46*	3.6	.51*	<.17	<.21	550	4.9	640	<.36	-
	02/09/99	<3.2	<3.8	48	24	<4.0	<4.2	***	<3.2	220	<.38	250	***	<9.2
	06/08/99	<2.6	<3.0	42	20	<3.2	<3.4	***	<2.6	200	<3.0	310	***	<7.4
	09/13/99	<.26	<3.0	34	19	<.32	<3.4	***	<2.6	180	<.3.0	320	***	<.7.4
	12/15/99	<3.2	<3.8	37	56	4.6 *	<4.2	***	<3.2	570	4.5 *	880	***	<9.2
	03/13/00	<26	<23	50 *	32 *	<12	<31	***	<30	340	<.90	630	***	<57
	06/22/00	<26	<23	<29	50 *	<12	<31	***	<30	540	<9	850	***	<57
	09/27/00	<26	<23	35*	54*	<12	<31	***	<30	560	<9	870	***	<57
	12/19/00	<6.4	<5.6	36	53	4.5*	<7.8	***	<7.5	480	4.1*	790	***	<20
MW-108	02/20/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	05/27/97	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	-
	09/18/97	<.5	<.6	<85	<.7	<7	<7	<124	<68	<40	<.5	<.5	<124	-
	12/12/97	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	03/25/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<40	<.5	<.5	<120	-
	06/10/98	<.5	<.6	<85	<.7	<7	<7	<120	<68	<44	<.5	<.5	<120	-
	10/27/98	<.24	<.23	<.22	<.28	<.27	<.26	<.17	<.21	<.26	<.23	<.29	<.36	-
	02/09/99	<.13	<.15	<.14	<.15	<.16	<.17	***	0.83	<.14	<.15	<.14	***	<.37
	06/08/99	<.13	<.15	<.14	<.15	<.16	<.17	***	.15*	<.14	<.15	<.14	***	<.37
	09/13/99	<.13	<.15	<.14	<.15	<.16	<.17	***	0.84	<.14	<.15	<.14	***	<.32
	03/13/00	<.32	<.28	<.36	<.35	<.15	<.39	***	<.37	<.33	<.11	<.36	***	<.71
MCL NR 149.21 (9)		5.0	-	-	7.0	70	100	-	1,000	200	5.0	5.0	---	-
Enforcement Standards (ES) 140.10		5	6	850	7	70	100	620**	343	200	5	5	620**	620
Preventive Action Plan (PAL) 140.10		0.5	0.6	85	0.7	7	20	124**	686	40	0.5	0.5	124**	124

EXPLANATION:

Results prior to 10/27/98 for cis-1,2,-Dichloroethene and Trans-1,2 Dichloroethene were listed as Total Dichloroethene and were placed in this table under the heading cis-1,2,-Dichloroethene.
Results prior to 10/27/98 for Ortho Xylene and Meta, para Xylene were listed as Total Xylenes and were placed in this table under the heading Meta, para Xylene.

* = Detection of compound in area of less certain quantification
** = Standard includes Ortho-, Meta, para-Xylenes
*** = As of 02/09/99 Xylene results are listed as "Total Xylenes".
ND = Not Detected
NA = Not Analyzed
MCL = Maximum Contaminant Levels
ug/l = Microgram/Liter
= Indicates an exceedance of the MCL 149.21(9) or ES 140.10

Table #5

NATURAL ATTENTUTION-GEOCHEMICAL PARAMETERS
N.W. Mauthe Supefund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Sample Date	Purge* Volume (gallons)	pH (units)	Temperature (degree C)	Conductivity (units as shown)	Dissolved Oxygen (ppm)	Redox (mV)	Alkalinity (gpg)	Ferrous Iron (mg/l)
W-2	02/20/97	NR	8.00	6.00	750 us	NA	NA	NA	NA
	05/27/97	NR	7.74	10.10	NA	NA	NA	NA	NA
	09/18/97	NR	7.01	14.50	910 us	NA	NA	NA	NA
	12/12/97	NR	7.33	9.50	820 us	NA	NA	NA	NA
	03/25/98	NR	7.96	7.90	1235 us	NA	NA	NA	NA
	06/10/98	NR	6.59	10.20	1057 us	NA	NA	NA	NA
	10/27/98	4.00	7.93	14.80	1278 us	1.40	119.00	12.00	0.00
	02/09/99	4.00	8.47	9.50	1278 us	2.10	146.00	16.00	0.20
	06/08/99	4.00	7.20	14.60	1234 us	1.00	85.00	11.20	1.00
	09/13/99	5.10	7.34	15.00	1254 us	1.90	(136.00)	9.60	0.00
	12/15/99	4.80	7.77	11.80	1199 us	1.50	(231.00)	4.80	0.00
	03/13/00	7.00	6.17	8.90	1278 us	1.30	59.00	7.60	0.00
	06/22/00	4.40	7.86	12.10	1240 us	1.50	59.00	7.60	0.00
	09/27/00	6.60	6.39	16.40	1140 us	1.90	(187.00)	9.60	0.00
	12/19/00	5.00	7.66	9.50	1171 us	1.85	(161.00)	11.20	0.00
W-8	02/20/97	NR	8.20	7.50	1000 us	NA	NA	NA	NA
	05/27/97	NR	7.30	10.40	NA	NA	NA	NA	NA
	09/18/97	NR	7.07	17.00	1250 us	NA	NA	NA	NA
	12/12/97	NR	7.32	11.20	1090 us	NA	NA	NA	NA
	03/25/98	NR	7.34	7.90	1590 us	NA	NA	NA	NA
	06/10/98	NR	6.95	11.50	1407 us	NA	NA	NA	NA
	10/27/98	5.00	7.42	16.70	1459 us	1.30	97.00	14.40	0.20
	02/09/99	3.90	8.08	11.20	1386 us	1.30	21.00	8.00	2.40
	06/08/99	5.50	7.23	14.80	1283 us	1.80	85.00	14.00	5.60
	09/13/99	5.20	7.12	16.30	1363 us	1.70	(143.00)	14.40	1.60
	12/15/99	5.10	7.25	10.30	1375 us	0.90	(288.00)	14.40	1.20
	03/13/00	5.00	7.06	8.80	1277 us	1.10	(33.00)	8.40	1.00
	06/22/00	4.80	8.58	14.60	1177 us	1.97	(120.00)	6.80	0.00
	09/27/00	6.00	7.60	18.10	1098 us	1.50	(178.00)	10.00	0.00
	12/19/00	4.00	7.67	8.30	1227 us	1.14	(267.00)	11.60	0.00
W-15	02/20/97	NR	8.15	9.00	920 us	NA	NA	NA	NA
	05/27/97	NR	7.66	10.00	NA	NA	NA	NA	NA
	09/18/97	NR	7.22	16.00	1300 us	NA	NA	NA	NA
	12/12/97	NR	7.18	10.40	1180 us	NA	NA	NA	NA
	03/25/98	NR	7.70	8.40	1450 us	NA	NA	NA	NA
	06/10/98	NR	6.46	11.60	1496 us	NA	NA	NA	NA
	10/27/98	4.00	7.27	16.00	1551 us	0.80	137.00	14.40	0.00
	02/09/99	2.60	8.07	10.00	1418 us	1.30	7.00	12.00	0.60
	06/08/99	4.50	7.54	16.70	1465 us	1.50	75.00	12.00	1.40
	09/13/99	3.60	7.18	17.60	1647 us	1.90	(137.00)	10.40	0.80
	12/15/99	3.30	7.52	11.70	1544 us	1.50	(281.00)	12.40	1.00
	03/13/00	4.00	7.14	8.90	1266 us	1.40	(19.00)	7.60	0.40
	06/22/00	3.00	8.22	14.90	1546 us	1.63	36.00	7.30	0.00
	09/27/00	5.00	5.43	17.40	1711 us	1.30	(41.00)	12.40	0.00
	12/19/00	3.00	7.55	8.90	1628 us	3.23	(305.00)	15.20	1.60
MW-101	02/20/97	NR	7.12	8.00	1400 us	NA	NA	NA	NA
	05/27/97	NR	7.56	12.90	NA	NA	NA	NA	NA
	09/18/97	NR	6.54	14.00	1380 us	NA	NA	NA	NA
	12/12/97	NR	6.64	11.40	1390 us	NA	NA	NA	NA
	03/25/98	NR	7.58	10.50	2142 us	NA	NA	NA	NA
	06/10/98	NR	6.29	11.50	2116 us	NA	NA	NA	NA
	10/27/98	9.00	7.13	14.10	2.27 ms	0.50	116.00	12.00	0.00
	02/09/99	7.00	8.11	12.70	2.11 ms	1.10	165.00	8.80	0.20
	06/08/99	6.00	7.05	15.00	2.17 ms	0.70	161.00	8.00	0.20
	09/13/99	5.90	7.25	14.90	2.12 ms	0.90	(125.00)	13.60	0.00
	12/15/99	6.00	8.71	12.70	2.06 ms	1.00	(262.00)	8.80	0.00
	03/13/00	7.00	6.34	11.60	1939 us	1.10	44.00	8.00	0.00
	06/22/00	5.00	7.73	15.20	2.25 ms	0.96	50.00	8.00	0.00
	09/27/00	8.50	6.80	15.50	2.18 ms	0.70	3.00	12.80	0.00
	12/19/00	10.50	7.12	11.90	2.18 ms	1.48	(233.00)	14.40	0.00

Table #5

NATURAL ATTENTUTION-GEOCHEMICAL PARAMETERS
N.W. Mauthe Supefund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Well Name	Sample Date	Purge* Volume (gallons)	pH (units)	Temperature (degree C)	Conductivity (units as shown)	Dissolved Oxygen (ppm)	Redox (mV)	Alkalinity (gpg)	Ferrous Iron (mg/l)
MW-102	02/20/97	NR	8.00	10.50	700 us	NA	NA	NA	NA
	05/27/97	NR	7.47	10.50	NA	NA	NA	NA	NA
	09/18/97	NR	6.99	13.00	810 us	NA	NA	NA	NA
	12/12/97	NR	7.23	8.50	690 us	NA	NA	NA	NA
	03/25/98	NR	7.68	10.20	1145 us	NA	NA	NA	NA
	06/10/98	NR	6.97	10.30	1046 us	NA	NA	NA	NA
	10/27/98	2.00	8.07	13.00	1197 us	1.50	103.00	17.60	0.40
	02/09/99	0.50	7.48	11.00	1164 us	1.00	0.33	14.40	0.00
	06/08/99	0.50	7.89	18.60	1226 us	1.00	151.00	4.80	0.80
	09/13/99	0.50	7.84	13.30	1208 us	1.20	(246.00)	10.00	1.20
	12/15/99	0.50	7.78	9.00	1152 us	1.60	(288.00)	10.80	1.00
	03/13/00	0.50	6.74	9.70	1096 us	1.20	(260.00)	6.80	0.00
	06/22/00	0.50	8.01	12.30	1233 us	0.53	(13.00)	6.00	0.00
	09/27/00	0.50	8.25	12.50	1182 us	1.90	(241.00)	9.20	0.00
	12/19/00	0.50	7.59	8.70	1126 us	1.27	(454.00)	11.60	0.00
MW-103	02/20/97	NR	6.30	6.00	700 us	NA	NA	NA	NA
	05/27/97	NR	7.67	11.60	NA	NA	NA	NA	NA
	09/18/97	NR	7.21	10.50	1030 us	NA	NA	NA	NA
	12/12/97	NR	7.43	9.00	970 us	NA	NA	NA	NA
	03/25/98	NR	7.82	9.40	1441 us	NA	NA	NA	NA
	06/10/98	NR	6.24	9.90	1356 us	NA	NA	NA	NA
	10/27/98	8.00	7.66	12.70	1566 us	0.70	147.00	12.00	0.20
	02/09/99	7.80	7.48	9.90	1443 us	1.40	53.00	11.20	0.80
	06/08/99	9.50	7.42	13.90	1350 us	0.70	109.00	7.20	0.00
	09/13/99	4.10	7.41	12.90	985 us	1.60	(165.00)	12.00	0.00
	12/15/99	4.60	7.82	10.60	2.58 ms	1.40	(294.00)	10.80	0.00
	03/13/00	4.00	6.57	9.40	1292 us	1.00	76.00	8.40	0.40
	06/22/00	4.00	8.43	11.50	1354 us	0.99	(90.00)	6.00	0.00
	09/27/00	11.00	7.48	13.70	1131 us	1.40	(302.00)	7.60	0.00
	12/19/00	9.00	7.90	6.60	1063 us	1.56	(344.00)	9.20	0.40
MW-104	02/20/97	NR	7.43	8.00	1000 us	NA	NA	NA	NA
	05/27/97	NR	8.00	12.00	NA	NA	NA	NA	NA
	09/18/97	NR	7.13	10.50	1030 us	NA	NA	NA	NA
	12/12/97	NR	7.10	9.60	1000 us	NA	NA	NA	NA
	03/25/98	NR	7.94	8.30	1378 us	NA	NA	NA	NA
	06/10/98	NR	6.53	9.70	1101 us	NA	NA	NA	NA
	10/27/98	8.00	7.84	13.20	1272 us	0.90	103.00	16.40	0.40
	02/09/99	9.50	7.66	10.10	1126 us	1.50	193.00	11.20	0.00
	06/08/99	13.00	6.80	15.60	1259 us	1.60	103.00	6.40	0.00
	09/13/99	13.80	7.08	13.90	1334 us	1.80	(146.00)	10.80	0.00
	12/15/99	11.20	7.68	10.80	1172 us	2.00	(232.00)	11.20	0.00
	03/13/00	16.50	6.91	10.20	1121 us	0.40	69.00	11.20	0.60
	06/22/00	11.00	8.65	11.60	1137 us	0.71	(211.00)	6.80	0.00
	09/27/00	8.00	7.24	12.90	1130 us	1.70	(123.00)	13.20	0.00
	12/19/00	8.00	7.75	8.20	1144 us	1.05	(240.00)	12.40	0.00
MW-105	02/20/97	NR	7.70	7.00	1600 us	NA	NA	NA	NA
	05/27/97	NR	7.44	10.50	NA	NA	NA	NA	NA
	09/18/98	NR	6.89	16.00	2150 us	NA	NA	NA	NA
	12/12/97	NR	7.04	12.00	2050 us	NA	NA	NA	NA
	03/25/98	NR	7.35	6.70	2878 us	NA	NA	NA	NA
	06/10/98	NR	6.25	11.10	2695 us	NA	NA	NA	NA
	10/27/98	5.00	7.57	16.80	2.87 ms	0.10	121.00	13.60	0.00
	02/09/99	5.90	7.34	10.60	2.76 ms	0.90	281.00	16.80	1.80
	06/08/99	5.00	7.32	17.80	2.87 ms	0.70	90.00	9.60	0.20
	09/13/99	3.50	7.00	17.20	2.74 ms	1.70	(182.00)	13.20	1.40
	1215/99	3.60	7.36	13.00	2.62 ms	1.60	(255.00)	8.80	1.20
	03/13/00	4.50	6.58	8.40	2430 us	1.30	23.00	9.60	0.80
	06/22/00	3.20	8.44	14.30	2.71 ms	0.88	(304.00)	6.40	0.00
	09/27/00	6.00	6.62	17.90	2.53 ms	1.10	(198.00)	12.80	0.00
	12/19/00	6.00	7.42	9.60	2.32 ms	2.27	(167.00)	12.40	0.00

Table #5

NATURAL ATTENTUTION-GEOCHEMICAL PARAMETERS

N.W. Mauthe Supefund Site - Appleton, Wisconsin

MCO No. M050-90728.14

Well Name	Sample Date	Purge* Volume (gallons)	pH (units)	Temperature (degree C)	Conductivity (units as shown)	Dissolved Oxygen (ppm)	Redox (mV)	Alkalinity (gpg)	Ferrous Iron (mg/l)
MW-106	02/20/97	NR	7.75	10.00	1000 us	NA	NA	NA	NA
	05/27/97	NR	7.47	10.10	NA	NA	NA	NA	NA
	09/18/97	NR	7.19	15.00	1310 us	NA	NA	NA	NA
	12/12/97	NR	7.06	11.50	1260 us	NA	NA	NA	NA
	03/25/98	NR	7.61	8.70	1716 us	NA	NA	NA	NA
	06/10/98	NR	7.11	11.60	1604 us	NA	NA	NA	NA
	10/27/98	4.00	7.31	16.80	1824 us	1.20	138.00	12.80	0.00
	02/09/99	2.50	7.33	10.20	1605 us	1.10	197.00	20.80	0.00
	06/08/99	3.50	7.15	15.40	1332 us	0.70	17.00	6.40	0.20
	09/13/99	2.30	7.02	17.40	1357 us	1.00	(168.00)	11.60	0.00
	12/15/99	2.00	8.41	12.10	1445 us	0.80	(266.00)	10.00	0.00
	03/13/00	2.50	6.92	9.10	1513 us	1.60	18.00	10.40	0.00
	06/22/00	1.50	8.18	14.50	1736 us	2.02	38.00	7.20	0.00
	09/27/00	6.00	6.84	19.10	1715 us	1.60	(8.00)	12.00	0.00
	12/19/00	4.00	7.48	10.70	1694 us	1.43	(218.00)	10.80	0.00
MW-107	02/20/97	NR	7.46	9.00	650 us	NA	NA	NA	NA
	05/27/97	NR	7.12	10.80	NA	NA	NA	NA	NA
	09/18/97	NR	7.07	12.50	700 us	NA	NA	NA	NA
	12/12/97	NR	7.08	10.50	730 us	NA	NA	NA	NA
	03/25/98	NR	7.87	10.20	1081 us	NA	NA	NA	NA
	06/10/98	NR	7.17	10.60	1042 us	NA	NA	NA	NA
	10/27/98	10.00	7.41	12.10	1179 us	1.10	62.00	20.00	10.00
	02/09/99	9.00	8.10	12.00	1189 us	1.30	263.00	7.20	0.40
	06/08/99	9.00	7.48	15.60	1406 us	2.20	163.00	4.80	0.40
	09/13/99	8.00	7.30	12.90	1301 us	2.60	(114.00)	14.00	0.60
	12/15/99	10.00	7.63	11.30	1419 us	2.80	(42.00)	12.40	1.00
	03/13/00	14.50	5.76	10.90	1389 us	1.20	58.00	8.40	0.60
	06/22/00	10.00	8.75	12.40	1574 us	0.62	(120.00)	6.40	0.00
	09/27/00	10.00	7.42	14.20	1505 us	1.60	(114.00)	9.20	0.00
	12/19/00	13.00	7.69	9.50	1524 us	1.21	(38.00)	10.40	0.00
MW-108	02/20/97	NR	8.10	10.00	100 us	NA	NA	NA	NA
	05/27/97	NR	6.02	11.40	NA	NA	NA	NA	NA
	09/18/97	NR	6.51	12.00	1160 us	NA	NA	NA	NA
	12/12/97	NR	6.98	10.40	1130 us	NA	NA	NA	NA
	03/25/98	NR	7.64	10.20	1568 us	NA	NA	NA	NA
	06/10/98	NR	6.54	10.70	1525 us	NA	NA	NA	NA
	10/27/98	10.00	7.95	14.30	1696 us	1.40	116.00	12.80	0.20
	02/09/99	8.10	7.51	11.00	1810 us	1.10	(65.00)	10.40	0.40
	06/08/99	12.50	7.60	15.00	1706 us	0.90	173.00	7.20	0.60
	09/13/99	13.50	7.29	13.60	1849 us	1.20	(180.00)	8.00	0.00
	12/15/99	12.80	7.68	11.80	1885 us	1.00	(286.00)	8.40	0.00
	03/13/00	14.00	6.25	10.20	1642 us	1.70	(4.00)	9.20	0.20
	6/22/00	11.50	7.62	14.10	1989 us	1.01	69.00	6.40	0.00
	9/27/00	12.00	7.43	13.10	1983 us	0.40	(73.00)	10.40	0.00
	12/19/00	10.50	7.60	10.10	2.01 ms	2.18	(184.00)	10.80	0.00

ppm = parts per million
us = microsiemens / centimeter
mV = millivolts
gpg = grains per gallon
ms = millisiemens / centimeter
NA = not analyzed
NR = not recorded
* = Each monitoring well was purged dry twice prior to sampling
The second purging was conducted approximately 3-hrs after initial purging. The volume of purge water collected represents the total of the two well purges. Purge volumes prior to 10/27/98 were not available.
( ) = Indicates a negative value.

JMS:smd
I.D.\Report\M050\90728\Qtrly-PR#8-JMS.xls

Table #6

LABORATORY ANALYTICAL RESULTS
Effluent Point 001
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO No. M050-90728.14

Sample Name	Sample Date	Aluminum (mg/l)	Arsenic (mg/l)	Cadmium (mg/l)	Chromium Total (mg/l)	Copper (mg/l)	Cyanide (mg/l)	Lead (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Zinc (mg/l)	Hexavalent Chromium (mg/L)
Outfall 001*	02/20/97	<.02	<.003	<.00050	0.0400	<.01	<.00001	<.005	<.0002	<.005	0.0051	<.01
Outfall 001*	05/27/97	NA	NA	NA	0.2600	NA	NA	NA	NA	NA	NA	NA
Outfall 001*	09/11/97	NA	NA	NA	0.5570	NA	NA	NA	NA	NA	NA	NA
Outfall 001*	12/12/97	NA	NA	NA	0.2790	NA	NA	NA	NA	NA	NA	NA
Outfall 001*	03/24/98	0.0152	<.002	<.00004	0.0637	<.0095	<.0017	<.0006	<.000015	<.0095	0.0046	0.1000
Outfall 001**	04/29/98	<.011	<.002	<.005	0.2200	<.05	0.0020	<.1	<.0002	<.04	<.005	NA
Outfall 001*	06/10/98	NA	NA	NA	0.0784	NA	NA	NA	NA	NA	NA	NA
Outfall 001**	10/07/98	<.011	<.002	0.0050	0.1700	<.05	<.001	<.1	<.0002	<.04	0.0250	NA
Outfall 001***	10/27/98	NA	NA	NA	0.0940	NA	NA	NA	NA	NA	NA	NA
Outfall 001***	02/09/99	NA	NA	NA	0.1600	NA	NA	NA	NA	NA	NA	NA
Outfall 001***	03/18/99	<.009	<.003	<.0031	NA	.00068****	<.000032	<.0024	<.00005	.00351****	<.012	<.0036
Outfall 001**	03/18/99	<.011	<.002	<.005	<0.05	<.05	0.0010	0.1000	<.00005	0.0400	0.0180	NA
Outfall 001***	06/08/99	NA	NA	NA	0.1900	NA	NA	NA	NA	NA	NA	NA
Outfall 001***	09/13/99	NA	NA	NA	0.1700	NA	NA	NA	NA	NA	NA	NA
Outfall 001**	09/21/99	<.011	<.002	<.005	<.05	<.05	0.0030	<.1	<.00015	<.04	0.0080	NA
Outfall 001***	12/15/99	NA	NA	NA	0.0870	NA	NA	NA	NA	NA	NA	NA
Outfall 001**	02/15/00	<.015	<.0020	<.005	0.0900	<.05	<.001	<.1	<.00013	<.04	0.0280	NA
Outfall 001***	03/13/00	<.009	<.003	<.00031	0.1400	<.0006	<.0044	<.0024	<.00005	.0012***	<.012	NA
Outfall 001 ***	06/22/00	NA	NA	NA	0.2400	NA	NA	NA	NA	NA	NA	NA
Outfall 001***	09/27/00	NA	NA	NA	0.5000	NA	NA	NA	NA	NA	NA	NA
Outfall 001***	12/19/00	NA	NA	NA	0.096	NA	NA	NA	NA	NA	NA	NA
Effluent Limits Permit #97-21		70.0000	1.0000	0.3000	7.0000	3.5000	1.0000	2.0000	0.0020	2.0000	10.0000	4.5000

mg/l = milligram / liter
ug/l = microgram / liter
NA = not analyzed
* = Sampled by CH2M Hill
** = Sampled by the City of Appleton
*** = Sampled by MCO
**** = Detected of compound in area of less certain quantitation.

JMS:smd
I.D.\Report\M050\90728\Qtrly-PR#9-JMS.xls

Table #7

WEEKLY INFLUENT HEXAVALENT CHROMIUM RESULTS
N.W. Mauthe Superfund Site - Appleton, Wisconsin
MCO. No. M050-90728.14

DATE	INFLUENT HEXAVALENT CHROMIUM* (ppm)
02/26/97	1.0
03/03/97	.8
03/06/97	1.0
03/10/97	1.5
03/23/97	.9
03/29/97	1.2
04/06/97	1.1
04/09/97	1.2
04/16/97	1.0
04/25/97	1.0
04/27/97	1.1
05/02/97	1.1
05/08/97	1.1
05/13/97	1.2
05/21/97	1.1
05/29/97	1.1
06/06/97	1.2
06/13/97	1.2
06/17/97	1.3
06/23/97	1.2
07/02/97	1.2
07/08/97	1.2
07/14/97	1.2
07/21/97	1.2
07/28/97	1.4
08/04/97	1.4
08/13/97	1.3
08/18/97	1.3
08/25/97	1.3
09/04/97	1.3
09/08/97	1.5
09/15/97	1.4
09/24/97	1.3
10/01/97	1.3
10/08/97	1.4
10/15/97	1.3
10/22/97	1.4
10/29/97	1.4
11/05/97	1.3
11/11/97	1.2
11/22/97	1.0
11/24/97	1.0
12/03/97	1.0
12/10/97	1.0
12/17/97	1.1
01/07/98	1.0
01/14/98	1.0
01/21/98	1.0

DATE	INFLUENT HEXAVALENT CHROMIUM* (ppm)
01/28/98	1.0
02/04/98	1.4
02/11/98	1.4
02/18/98	1.4
02/25/98	0.8
03/04/98	1.3
03/11/98	1.3
03/18/98	1.3
03/26/98	1.3
04/01/98	0.8
04/08/98	1.0
04/15/98	1.3
04/23/98	1.3
04/29/98	1.3
05/06/98	1.3
05/13/98	1.3
05/20/98	1.3
05/27/98	1.4
06/03/98	1.3
06/10/98	1.4
06/17/98	1.2
06/24/98	1.2
07/01/98	1.1
07/08/98	1.1
07/15/98	1.1
07/23/98	1.3
07/29/98	1.3
08/06/98	1.2
08/12/98	1.2
08/19/98	1.2
08/26/98	1.2
09/02/98	1.2
09/09/98	1.2
09/16/98	1.2
09/23/98	1.2
09/30/98	1.2
10/07/98	1.0
10/15/98	1.1
10/21/98	1.3
10/28/98	1.3
11/04/98	1.1
11/11/98	1.1
11/18/98	1.2
11/25/98	1.2
12/02/98	1.2
12/09/98	1.5
12/16/98	1.3
12/23/98	1.3

DATE	INFLUENT HEXAVALENT CHROMIUM* (ppm)
12/30/98	1.3
01/06/99	1.3
01/12/99	1.1
01/20/99	1.2
01/28/99	1.3
02/03/99	1.3
02/10/99	1.4
02/17/99	1.4
02/24/99	1.4
03/03/99	1.3
03/10/99	1.3
03/17/99	1.3
03/24/99	1.3
03/31/99	1.3
04/07/99	1.2
04/14/99	1.2
04/21/99	1.1
04/28/99	1.2
05/05/99	1.2
05/12/99	1.2
05/19/99	1.1
05/26/99	1.2
06/02/99	1.1
06/10/99	1.4
06/16/99	1.5
06/23/99	2.2
06/30/99	2.2
07/07/99	2.4
07/14/99	2.0
07/21/99	1.8
07/28/99	1.2
08/04/99	1.5
08/11/99	1.4
08/18/99	1.3
08/25/99	1.3
09/01/99	1.3
09/08/99	1.4
09/15/99	1.5
09/21/99	1.3
09/29/99	1.2
10/06/99	1.4
10/13/99	1.5
10/20/99	1.4
10/27/99	1.4
11/04/99	1.3
11/10/99	1.2
11/18/99	1.3
11/24/99	1.2

DATE	INFLUENT HEXAVALENT CHROMIUM* (ppm)
11/30/99	1.3
12/08/99	1.3
12/15/99	1.2
12/22/99	1.3
12/29/99	1.2
01/06/00	1.3
01/12/00	1.3
01/19/00	1.2
01/26/00	1.2
02/02/00	1.1
02/09/00	1.1
02/16/00	1.2
02/23/00	1.3
03/01/00	1.2
03/08/00	1.3
03/14/00	1.2
03/22/00	1.2
03/29/00	1.1
04/05/00	1.4
04/11/00	1.1
04/19/00	1.1
04/26/00	1.1
05/03/00	1.3
05/10/00	1.1
05/17/00	1.2
05/24/00	1.1
05/31/00	1.1
06/07/00	1.4
06/14/00	0.5
06/21/00	1.0
06/28/00	1.1
07/05/00	1.3
07/12/00	1.2
07/19/00	1.3
07/26/00	1.3
08/02/00	1.3
08/09/00	1.4
08/16/00	1.2
08/23/00	1.4
08/30/00	1.3
09/06/00	1.4
09/13/00	1.2
09/20/00	1.2
09/27/00	1.4

DATE	INFLUENT HEXAVALENT CHROMIUM* (ppm)
10/03/00	1.3
10/11/00	1.3
10/18/00	2.5
10/25/00	2.2
11/01/00	1.8
11/08/00	1.4
11/15/00	1.8
11/22/00	1.8
11/29/00	1.4
12/06/00	1.6
12/13/00	1.4
12/20/00	1.2
12/27/00	1.3

*Hexavalent Chromium is Measured Utilizing a Hach Test Kit.

APPENDIX A

Groundwater Sampling
Data Sheets

GROUNDWATER SAMPLING FIELD PROCEDURES DOCUMENTATION

Facility/Project Name: N.W. Manth Superfund Site Date: 12-19-00
Section/Grid Location or Address: 725 S. Outagamie St. Appleton, WI
Facility Type: Groundwater Treatment System License/Permit #:
DNR Regulatory Program: BRRTS
Weather (temp., cloudiness, bar. pres., wind): 10° F, Sunny

Persons Sampling and Title: Mike Kienetz, John Stoeger

Water Level Equipment (type, model): Solinst Water Level Indicator
Purging Equipment (type, model, material): Whale GP 9116 B Purge Pump

Purging Method (4 well vol. or stabilization): Stabilization
How Purge Volume Measured? (eg., calibrated bucket): Calibrated Bucket
Sample Collection Equipment (type, model, material): Whale Purge Pump

Method of Sample Withdrawal (bottom emptying device, low flow): Low Flow Pump
Type of Transfer Containers: NA
Filtering Equipment (type, material): NA
Filter Membrane (type, pore size): NA
When Were Samples Sent to Lab? 12-19-00
What Lab Were the Samples Sent to? Northern Lake Service, Crandon, WI
Were Enforcement Samples Sent? NO
How Were Samples Kept Cool (ice, other)? ICE
Equipment Decontamination Procedures? Latex Gloves, Pumps are dedicated to each well.
Decontamination Water Disposal? Placed in building collection sumps for treatment
pH Meter (type, model): Orion model 1230 pH, Conductivity, Redox, DO
Person calibrating: Mike Kienetz
Frequency calibrated: Prior to Sampling
Calibration procedures (buffers used): Per factory Specifications
Problems with meter: None
Conductivity Meter (type, model): As Above
Person calibrating:
Frequency calibrated:
Calibration procedures:
Problems with meter:

Groundwater Monitoring Field Form

McM

Project Number _____

Project Name N.W. Mantle

Location Outagamie Street / Appleton

Date 12/19/00

Personnel MHK / JMS

Temp./Weather 10° F Sunny

Well	Date	Time	Depth to Water (Top of PVC) (ft)	Total Well Depth (Top of PVC) (ft)	Water Column Length (ft)	Req'd Gals to Purge 4 Casing Volumes	Amount Purged (gal)	Water Appear. (see below)	Sampling Method (see below)	Free Product (ft)	Sampl. (Y/N)	pH	Temp °C	Conductivity uS	D.O. mg/l	Redox mV	Alkalinity gpg	Ferrous Iron mg/l	Comments
W-7	12-19-00	10:40 AM	4.78	13.0	8.22	5.6	5	1	EP	N	Y	7.66	9.5	1171 ms	1.85	-161	11.2	0	3, 2
W-8			6.80	14.5	7.70	5.2	4	1	EP	N	Y	7.67	8.3	1227	1.14	-267	11.6	0	3, 1
W-15			7.99	15.0	7.01	4.8	3	4	EP	N	Y	7.55	8.9	1628	3.23	-305	15.2	1.0	2, 1
MW-101			10.73	27.5	16.77	11.4	10.5	1	EP	N	Y	7.12	11.9	2.18 ms	1.48	-233	14.4	0	7, 3.5
MW-102			24.06	28.0	3.94	2.7	.5	2	EP	N	Y	7.59	8.7	1126	1.27	-454	11.6	0	.5
MW-103			10.78	27.0	16.22	11.0	9	1	EP	N	Y	7.90	6.6	1063	1.54	-344	9.2	.4	6, 3
MW-104			10.49	26.0	15.51	10.5	8	1	EP	N	Y	7.75	8.2	1144	1.05	-240	12.4	0	6, 2
MW-105			5.28	15.5	10.22	6.9	6	1	EP	N	Y	7.42	9.6	2.32 ms	2.27	-167	12.4	0	4, 2
MW-106			8.55	16.0	7.45	5.1	4	1	EP	N	Y	7.48	10.7	1694	1.43	-218	10.8	0	3, 1
MW-107			11.42	30.5	19.08	12.9	13	3	EP	N	Y	7.69	9.5	1524	1.21	-38	10.4	0	8, 5
MW-108			7.32	27.0	19.68	13.4	10.5	1	EP	N	Y	7.60	10.1	2.01 ms	2.18	-184	10.8	0	6, 4.5
P2-01			10.43																
P2-02			14.60																
P2-03			20.24																
P2-04			19.91																

EQUIPMENT USED:

- ☑ Solinst Water Level Indicator
- ☐ Keck Interface Probe
- ☑ Alkalinity Hach Kit
- ☐ Ferrous Iron Hach Kit
- ☐ EC20 Portable Meter
- ☐ ICM Water Analyzer
- ☐ Other: _____

Comments:

Numbers in "Connect" column are totals for water purged from each well

MW-107 Yellow / Green

SAMPLING METHOD

- DB - Disposable Bailer
- PP - Peristaltic Pump
- EP - Electric Pump (whale)

WATER APPEARANCE

1 - Clear
2 - Slightly Cloudy
3 - Cloudy
4 - Very Cloudy
5 - Slightly Muddy
6 - Muddy

GALLONS PER FOOT TO GET 1 CASING VOLUME

1" PVC - 0.05 gallons/ft.
2" PVC - 0.17 gallons/ft.
4" PVC - 0.66 gallons/ft.
6" PVC - 1.47 gallons/ft.

\DATAFILE\PPT\FORMS\FORMENVL.PPT 2/98 SAB/jmk

APPENDIX B

Laboratory Analytical Results
Groundwater Monitoring Wells

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

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

NLS PROJECT# 58175

NLS CUST# 20239

Client: McMahon Associates, Inc.
Attn: John Stoeger
1445 McMahon Drive
P.O. Box 1025
Neenah, WI 54957

Project Description: N.W. Mauthe Superfund S.G.

Sample ID: W-2 **NLS#: 247264**
Ref. Line 1 of COC 46808 Description: W-2
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	< 0.24 >	ug/L	0.23	0.82	SW846 6010	12/26/00	721026460
Chromium, tot. as Cr by ICP	< 0.91 >	ug/L	0.40	1.4	SW846 6010	12/26/00	721026460
Manganese, tot. as Mn by ICP	8.0	ug/L	2.0	2.0	SW846 6010	12/26/00	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/21/00	721026460

Sample ID: W-8 **NLS#: 247265**
Ref. Line 2 of COC 46808 Description: W-8
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	12/26/00	721026460
Chromium, tot. as Cr by ICP	< 0.66 >	ug/L	0.40	1.4	SW846 6010	12/26/00	721026460
Manganese, tot. as Mn by ICP	40	ug/L	2.0	2.0	SW846 6010	12/26/00	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/21/00	721026460

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

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

 NLS PROJECT# 58175

NLS CUST# 20239

Client: McMahon Associates, Inc.
Attn: John Stoeger
1445 McMahon Drive
P.O. Box 1025
Neenah, WI 54957

Project Description: N.W. Mauthe Superfund S.G.

Sample ID: W-15 **NLS#: 247266**
Ref. Line 3 of COC 46808 Description: W-15
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	12/26/00	721026460
Chromium, tot. as Cr by ICP	< 1.4 >	ug/L	0.40	1.4	SW846 6010	12/26/00	721026460
Manganese, tot. as Mn by ICP	930	ug/L	2.0	2.0	SW846 6010	12/26/00	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/21/00	721026460

Sample ID: MW-101 **NLS#: 247267**
Ref. Line 4 of COC 46808 Description: MW-101
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	7.2	ug/L	0.40	1.4	SW846 6010	01/04/01	721026460
Manganese, tot. as Mn by ICP	18	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460

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

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

 NLS PROJECT# 58175

NLS CUST# 20239

Client: McMahon Associates, Inc.
Attn: John Stoeger
1445 McMahon Drive
P.O. Box 1025
Neenah, WI 54957

Project Description: N.W. Mauthe Superfund S.G.

Sample ID: MW-102 **NLS#: 247268**
Ref. Line 5 of COC 46808 Description: MW-102
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	< 0.33 >	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	2.9	ug/L	0.40	1.4	SW846 6010	01/04/01	721026460
Manganese, tot. as Mn by ICP	110	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460

Sample ID: MW-103 **NLS#: 247269**
Ref. Line 6 of COC 46808 Description: MW-103
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	180	ug/L	0.40	1.4	SW846 6010	01/04/01	721026460
Manganese, tot. as Mn by ICP	170	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460

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

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

 NLS PROJECT# 58175

NLS CUST# 20239

Client: McMahon Associates, Inc.
Attn: John Stoeger
1445 McMahon Drive
P.O. Box 1025
Neenah, WI 54957

Project Description: N.W. Mauthe Superfund S.G.

Sample ID: MW-104 **NLS#: 247270**
Ref. Line 7 of COC 46808 Description: MW-104
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	790	ug/L	0.40	1.4	SW846 6010	01/04/01	721026460
Manganese, tot. as Mn by ICP	ND	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460

Sample ID: MW-104A Duplicate of MW104 **NLS#: 247271**
Ref. Line 8 of COC 46808 Description: MW-104A
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	460	ug/L	0.40	1.4	SW846 6010	01/04/01	721026460
Manganese, tot. as Mn by ICP	3.3	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460

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

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

NLS PROJECT# 58175

NLS CUST# 20239

Client: McMahon Associates, Inc.
Attn: John Stoeger
1445 McMahon Drive
P.O. Box 1025
Neenah, WI 54957

Project Description: N.W. Mauthe Superfund S.G.

Sample ID: MW-105 **NLS#: 247272**
Ref. Line 9 of COC 46808 Description: MW-105
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	ND	ug/L	0.40	1.4	SW846 6010	01/04/01	721026460
Manganese, tot. as Mn by ICP	230	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460

Sample ID: MW-106 **NLS#: 247273**
Ref. Line 10 of COC 46808 Description: MW-106
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	< 0.77 >	ug/L	0.40	1.4	SW846 6010	01/04/01	721026460
Manganese, tot. as Mn by ICP	22	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460

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WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

 NLS PROJECT# 58175

NLS CUST# 20239

Client: McMahon Associates, Inc.
Attn: John Stoeger
1445 McMahon Drive
P.O. Box 1025
Neenah, WI 54957

Project Description: N.W. Mauthe Superfund S.G.

Sample ID: MW-107 **NLS#: 247274**
Ref. Line 11 of COC 46808 Description: MW-107
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	10000	ug/L	4.0	14	SW846 6010	01/09/01	721026460
Manganese, tot. as Mn by ICP	2.4	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460
VOCs by EPA 524.2	see attached				EPA 524.2	12/27/00	721026460

Sample ID: MW-107A **NLS#: 247275** Duplicate of MW107
Ref. Line 12 of COC 46808 Description: MW-107A
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	10000	ug/L	4.0	14	SW846 6010	01/09/01	721026460
Manganese, tot. as Mn by ICP	2.4	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460
VOCs by EPA 524.2	see attached				EPA 524.2	12/27/00	721026460

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Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

 NLS PROJECT# 58175
NLS CUST# 20239

Client: McMahon Associates, Inc.
Attn: John Stoeger
1445 McMahon Drive
P.O. Box 1025
Neenah, WI 54957

Project Description: N.W. Mauthe Superfund S.G.

Sample ID: MW-108 **NLS#: 247276**
Ref. Line 1 of COC 46809 Description: MW-108
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	3.0	ug/L	0.40	1.4	SW846 6010	01/04/01	721026460
Manganese, tot. as Mn by ICP	22	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460

Sample ID: Process Water **NLS#: 247277**
Ref. Line 2 of COC 46809 Description: Process Water
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Chromium, tot. as Cr	0.096	mg/L	0.018	0.071	EPA 200.7	12/28/00	721026460
Metals digestion - total (water) ICP	yes				EPA 200.7	12/26/00	721026460

Sample ID: Trip Blank **NLS#: 247278**
Ref. Line 3 of COC 46809 Description: Trip Blank
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
VOCs by EPA 524.2	see attached				EPA 524.2	12/21/00	721026460

Values in brackets represent results greater than the LOD but less than or equal to the LOQ and are within a region of "Less-Certain Quantitation." Results greater than the LOQ are considered to be in the region of "Certain Quantitation".

LOD = Limit of Detection
DWB = Dry Weight Basis
LOQ = Limit of Quantitation
NA = Not Applicable
ND = Not Detected
%DWB = (mg/kg DWB)/10000
1000 ug/L = 1 mg/L

Authorized by:

Reviewed by:

R. T. Krueger
Laboratory Manager

ANALYTICAL RESULTS: GCMS 524.2 Safe Drinking Water Analysis (Saturn 3)

Customer: McMahon Associates, Inc.
Project Description: N.W. Mauthe Superfund S.G.
Northern Lake Service Project Number: 58175

Sample: 247274 MW-107 Collected: 19-DEC-00 Analyzed: 21-DEC-00

ANALYTE NAME	247274 MW-107 ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L	MCL ug/L
Benzene	ND	20	6.4	20	5.0
Bromobenzene	ND	20	2.3	7.3	
Bromochloromethane	ND	20	6.2	20	
Bromodichloromethane	ND	20	5.3	17	
Bromoform	ND	20	4.8	15	
Bromomethane	ND	20	3.4	11	
n-Butylbenzene	ND	20	2.6	8.4	
sec-Butylbenzene	ND	20	2.1	6.5	
tert-Butylbenzene	ND	20	2.5	7.8	
Carbon Tetrachloride	ND	20	4.1	13	5.0
Chlorobenzene	ND	20	2.6	8.1	100
Chloroethane	ND	20	46	150	
Chloroform	ND	20	5.6	18	
Chloromethane	ND	20	6.7	21	
2-Chlorotoluene	ND	20	2.7	8.6	
4-Chlorotoluene	ND	20	2.5	8.0	
Dibromochloromethane	ND	20	5.2	16	
1,2-Dibromo-3-Chloropropane	ND	20	6.6	21	
1,2-Dibromoethane	ND	20	2.3	7.3	
Dibromomethane	ND	20	2.4	7.8	
1,2-Dichlorobenzene	ND	20	3.3	11	600
1,3-Dichlorobenzene	ND	20	7.9	25	
1,4-Dichlorobenzene	ND	20	2.6	8.3	75
Dichlorodifluoromethane	ND	20	2.4	7.8	
1,1-Dichloroethane	36	20	7.3	23	
1,2-Dichloroethane	ND	20	2.8	8.8	5.0
1,1-Dichloroethene	53	20	7.0	22	7.0
cis-1,2-Dichloroethene	< 4.5 >	20	3.0	9.6	70
trans-1,2-Dichloroethene	ND	20	7.8	25	100
1,2-Dichloropropane	ND	20	2.9	9.3	5.0
1,3-Dichloropropane	ND	20	2.6	8.3	
2,2-Dichloropropane	ND	20	2.6	8.2	
1,1-Dichloropropene	ND	20	3.8	12	
cis-1,3-Dichloropropene	ND	20	2.0	6.5	
trans-1,3-Dichloropropene	ND	20	2.7	8.7	
Ethylbenzene	ND	20	2.8	8.8	700
Hexachlorobutadiene	ND	20	9.4	30	
Isopropylbenzene	ND	20	2.3	7.3	
p-Isopropyltoluene	ND	20	2.1	6.7	
Methylene chloride	ND	20	7.0	22	5.0
Naphthalene	ND	20	7.4	24	
n-Propylbenzene	ND	20	2.2	7.0	
Styrene	ND	20	2.3	7.3	100
ortho-Xylene	ND	20	2.3	7.5	
1,1,1,2-Tetrachloroethane	ND	20	2.2	6.9	
1,1,2,2-Tetrachloroethane	ND	20	2.5	7.9	
Tetrachloroethene	ND	20	2.3	7.2	5.0
Toluene	ND	20	7.5	24	1000
1,2,3-Trichlorobenzene	ND	20	7.4	24	
1,2,4-Trichlorobenzene	ND	20	7.0	22	70
1,1,1-Trichloroethane	480	100	33	110	200
1,1,2-Trichloroethane	< 4.1 >	20	2.2	7.2	5.0

ANALYTICAL RESULTS: GCMS 524.2 Safe Drinking Water Analysis (Saturn 3)

Customer: McMahon Associates, Inc.
Project Description: N.W. Mauthe Superfund S.G.
Northern Lake Service Project Number: 58175

Sample: 247274 MW-107 Collected: 19-DEC-00 Analyzed: 21-DEC-00

ANALYTE NAME	247274 MW-107 ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L	MCL ug/L
Trichloroethene	790	100	34	110	5.0
Trichlorofluoromethane	ND	20	2.4	7.5	
1,2,3-Trichloropropane	ND	20	2.9	9.2	
1,2,4-Trimethylbenzene	ND	20	2.3	7.4	
1,3,5-Trimethylbenzene	ND	20	2.8	9.0	
Vinyl chloride	ND	20	3.5	11	0.20
meta,para-Xylene	ND	20	14	45	10000
MTBE	ND	20	5.8	19	

Surrogate Recovery on 4-Bromofluorobenzene = 106 %
Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 99.0 %

ANALYTICAL RESULTS: GCMS 524.2 Safe Drinking Water Analysis (Saturn 3)

Customer: McMahon Associates, Inc.
Project Description: N.W. Mauthe Superfund S.G.
Northern Lake Service Project Number: 58175

Sample: 247275 MW-107A Collected: 19-DEC-00 Analyzed: 21-DEC-00

ANALYTE NAME	247275 MW-107A ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L	MCL ug/L
Benzene	ND	40	13	41	5.0
Bromobenzene	ND	40	4.6	15	
Bromochloromethane	ND	40	12	39	
Bromodichloromethane	ND	40	11	34	
Bromoform	ND	40	9.6	31	
Bromomethane	ND	40	6.8	22	
n-Butylbenzene	ND	40	5.3	17	
sec-Butylbenzene	ND	40	4.1	13	
tert-Butylbenzene	ND	40	4.9	16	
Carbon Tetrachloride	ND	40	8.1	26	5.0
Chlorobenzene	ND	40	5.1	16	100
Chloroethane	ND	40	92	290	
Chloroform	ND	40	11	36	
Chloromethane	ND	40	13	42	
2-Chlorotoluene	ND	40	5.4	17	
4-Chlorotoluene	ND	40	5.0	16	
Dibromochloromethane	ND	40	10	33	
1,2-Dibromo-3-Chloropropane	ND	40	13	42	
1,2-Dibromoethane	ND	40	4.6	15	
Dibromomethane	ND	40	4.9	16	
1,2-Dichlorobenzene	ND	40	6.7	21	600
1,3-Dichlorobenzene	ND	40	16	50	
1,4-Dichlorobenzene	ND	40	5.2	17	75
Dichlorodifluoromethane	ND	40	4.9	16	
1,1-Dichloroethane	< 34 >	40	15	46	
1,2-Dichloroethane	ND	40	5.6	18	5.0
1,1-Dichloroethene	52	40	14	45	7.0
cis-1,2-Dichloroethene	ND	40	6.0	19	70
trans-1,2-Dichloroethene	ND	40	16	50	100
1,2-Dichloropropane	ND	40	5.8	19	5.0
1,3-Dichloropropane	ND	40	5.2	17	
2,2-Dichloropropane	ND	40	5.2	16	
1,1-Dichloropropene	ND	40	7.6	24	
cis-1,3-Dichloropropene	ND	40	4.1	13	
trans-1,3-Dichloropropene	ND	40	5.5	17	
Ethylbenzene	ND	40	5.6	18	700
Hexachlorobutadiene	ND	40	19	60	
Isopropylbenzene	ND	40	4.6	15	
p-Isopropyltoluene	ND	40	4.2	13	
Methylene chloride	ND	40	14	44	5.0
Naphthalene	ND	40	15	47	
n-Propylbenzene	ND	40	4.4	14	
Styrene	ND	40	4.6	15	100
ortho-Xylene	ND	40	4.7	15	
1,1,1,2-Tetrachloroethane	ND	40	4.3	14	
1,1,2,2-Tetrachloroethane	ND	40	5.0	16	
Tetrachloroethene	ND	40	4.5	14	5.0
Toluene	ND	40	15	47	1000
1,2,3-Trichlorobenzene	ND	40	15	47	
1,2,4-Trichlorobenzene	ND	40	14	44	70
1,1,1-Trichloroethane	520	40	13	42	200
1,1,2-Trichloroethane	ND	40	4.5	14	5.0

ANALYTICAL RESULTS: GCMS 524.2 Safe Drinking Water Analysis (Saturn 3)

Customer: McMahon Associates, Inc.
Project Description: N.W. Mauthe Superfund S.G.
Northern Lake Service Project Number: 58175

Sample: 247275 MW-107A Collected: 19-DEC-00 Analyzed: 21-DEC-00

ANALYTE NAME	247275 MW-107A ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L	MCL ug/L
Trichloroethene	820	80	27	86	5.0
Trichlorofluoromethane	ND	40	4.7	15	
1,2,3-Trichloropropane	ND	40	5.8	18	
1,2,4-Trimethylbenzene	ND	40	4.6	15	
1,3,5-Trimethylbenzene	ND	40	5.6	18	
Vinyl chloride	ND	40	7.0	22	0.20
meta,para-Xylene	ND	40	29	91	10000
MTBE	ND	40	12	37	

Surrogate Recovery on 4-Bromofluorobenzene = 98.0 %
Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 93.0 %

ANALYTICAL RESULTS: GCMS 524.2 Safe Drinking Water Analysis (Saturn 3)

Customer: McMahon Associates, Inc.
Project Description: N.W. Mauthe Superfund S.G.
Northern Lake Service Project Number: 58175

Sample: 247278 Trip Blank Collected: 19-DEC-00 Analyzed: 21-DEC-00

ANALYTE NAME	247278 Trip Blank ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L	MCL ug/L
Benzene	ND	1	0.32	1.0	5.0
Bromobenzene	ND	1	0.12	0.36	
Bromochloromethane	ND	1	0.31	0.98	
Bromodichloromethane	ND	1	0.26	0.84	
Bromoform	ND	1	0.24	0.76	
Bromomethane	ND	1	0.17	0.54	
n-Butylbenzene	ND	1	0.13	0.42	
sec-Butylbenzene	ND	1	0.10	0.33	
tert-Butylbenzene	ND	1	0.12	0.39	
Carbon Tetrachloride	ND	1	0.20	0.65	5.0
Chlorobenzene	ND	1	0.13	0.41	100
Chloroethane	ND	1	2.3	7.3	
Chloroform	ND	1	0.28	0.90	
Chloromethane	ND	1	0.33	1.1	
2-Chlorotoluene	ND	1	0.13	0.43	
4-Chlorotoluene	ND	1	0.12	0.40	
Dibromochloromethane	ND	1	0.26	0.82	
1,2-Dibromo-3-Chloropropane	ND	1	0.33	1.0	
1,2-Dibromoethane	ND	1	0.12	0.36	
Dibromomethane	ND	1	0.12	0.39	
1,2-Dichlorobenzene	ND	1	0.17	0.53	600
1,3-Dichlorobenzene	ND	1	0.40	1.3	
1,4-Dichlorobenzene	ND	1	0.13	0.42	75
Dichlorodifluoromethane	ND	1	0.12	0.39	
1,1-Dichloroethane	ND	1	0.36	1.2	
1,2-Dichloroethane	ND	1	0.14	0.44	5.0
1,1-Dichloroethene	ND	1	0.35	1.1	7.0
cis-1,2-Dichloroethene	ND	1	0.15	0.48	70
trans-1,2-Dichloroethene	ND	1	0.39	1.2	100
1,2-Dichloropropane	ND	1	0.15	0.46	5.0
1,3-Dichloropropane	ND	1	0.13	0.41	
2,2-Dichloropropane	ND	1	0.13	0.41	
1,1-Dichloropropene	ND	1	0.19	0.60	
cis-1,3-Dichloropropene	ND	1	0.10	0.33	
trans-1,3-Dichloropropene	ND	1	0.14	0.44	
Ethylbenzene	ND	1	0.14	0.44	700
Hexachlorobutadiene	ND	1	0.47	1.5	
Isopropylbenzene	ND	1	0.12	0.36	
p-Isopropyltoluene	ND	1	0.11	0.34	
Methylene chloride	ND	1	0.35	1.1	5.0
Naphthalene	ND	1	0.37	1.2	
n-Propylbenzene	ND	1	0.11	0.35	
Styrene	ND	1	0.11	0.36	100
ortho-Xylene	ND	1	0.12	0.37	
1,1,1,2-Tetrachloroethane	ND	1	0.11	0.34	
1,1,2,2-Tetrachloroethane	ND	1	0.12	0.40	
Tetrachloroethene	ND	1	0.11	0.36	5.0
Toluene	ND	1	0.37	1.2	1000
1,2,3-Trichlorobenzene	ND	1	0.37	1.2	
1,2,4-Trichlorobenzene	ND	1	0.35	1.1	70
1,1,1-Trichloroethane	ND	1	0.33	1.1	200
1,1,2-Trichloroethane	ND	1	0.11	0.36	5.0

ANALYTICAL RESULTS: GCMS 524.2 Safe Drinking Water Analysis (Saturn 3)

Customer: McMahon Associates, Inc.
Project Description: N.W. Mauthe Superfund S.G.
Northern Lake Service Project Number: 58175

Sample: 247278 Trip Blank Collected: 19-DEC-00 Analyzed: 21-DEC-00

ANALYTE NAME	247278 Trip Blank ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L	MCL ug/L
Trichloroethene	ND	1	0.34	1.1	5.0
Trichlorofluoromethane	ND	1	0.12	0.38	
1,2,3-Trichloropropane	ND	1	0.14	0.46	
1,2,4-Trimethylbenzene	ND	1	0.12	0.37	
1,3,5-Trimethylbenzene	ND	1	0.14	0.45	
Vinyl chloride	ND	1	0.17	0.55	0.20
meta,para-Xylene	ND	1	0.71	2.3	10000
MTBE	ND	1	0.29	0.93	
Surrogate Recovery on 4-Bromofluorobenzene = 100 %					
Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 102 %					

1 of 2

NO. 46808

NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721026460

RETURN THIS FORM WITH SAMPLES.

CLIENT: McMahon Associates Inc		DNR LICENSE:	FID:
ADDRESS: 1445 McMahon Drive Box 1025		PROJECT TITLE: N.W. Mauthe Superfund Site	
CITY: Neenah	STATE: WI ZIP: 54957-1025	PROJECT NO.:	P.O. NO.: —
		CONTACT: John Stoeger	PHONE: 920-751-4200

ITEM NO.	NLS LAB NO.	SAMPLE ID	DNR ID	COLLECTION DATE	COLLECTION TIME	SAMPLE TYPE	GRAB/ COMP.	CONTAINER/PRESERVATIVE HCl				COLLECTION REMARKS
1.		W-2		12/19/00	3:00P	GW	Grab	X				
2.		W-8						X				
3.		W-15						X				
4.		MW-101						X				
5.		MW-102						X				
6.		MW-103						X				
7.		MW-104						X				
8.		MW-104A						X				
9.		MW-105						X				
10.		MW-106						X				
11.		MW-107						X	X			
12.		MW-107A		↓	↓	↓	↓	X	X			

SAMPLE TYPE:
SW=surface water; WW=wastewater; GW=groundwater; DW=drinking water; TIS=tissue; AIR=air; PROD=product; SOIL=soil; SED=sediment; describe others

CONTAINER:
P = plastic; G = glass; V = glass vial; B = plastic bag; describe others

PRESERVATIVES & PREPARATION:
NP = nothing added; S = sulfuric acid; N = nitric acid; Z = zinc acetate; OH = sodium hydroxide; HA = hydrochloric & ascorbic acid; H = hydrochloric acid; F = field filtered

COLLECTED BY (signatures)	CUSTODY SEAL NO. (IF ANY)	DATE/TIME
RELINQUISHED BY (signature)	RECEIVED BY (signature): UPS	DATE/TIME: 12-15- 4:00P
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
DISPATCHED BY (signature)	METHOD OF TRANSPORT	DATE/TIME

RECEIVED AT NLS BY (signature)	DATE/TIME: 12/20/00	CONDITION	TEMP
SEAL INTACT: ☐ YES ☐ NO	SEAL #:	REMARKS & OTHER INFORMATION	

IMPORTANT:
1. TO MEET REGULATORY REQUIREMENTS, THIS FORM MUST BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, NOT PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

NO. 46809

NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721026460

RETURN THIS FORM WITH SAMPLES.

DNR LICENSE		FID
CLIENT McMahon	PROJECT TITLE N.W. Mauthe Superfund Site	
ADDRESS See Page 1	PROJECT NO.	P.O. NO.
CITY / STATE / ZIP	CONTACT John Stoeger	PHONE 920-751-4200

ITEM NO.	NLS LAB. NO.	SAMPLE ID	DNR ID	COLLECTION DATE	COLLECTION TIME	SAMPLE TYPE	GRAB/COMP.	CONTAINER/PRESERVATIVE NHO3				COLLECTION REMARKS
1.		MW-108		12/18/00	330pm	GW	Grab	X				
2.		Process Water		↓	↓	WW	Grab	X				
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												

SAMPLE TYPE:
SW=surface water, DW=drinking water, PROD=product
WW=wastewater, TIS=tissue, SOIL=soil
GW=groundwater, AIR=air, SED=sediment
describe others

CONTAINER: P = plastic, G = glass, V = glass vial, B = plastic bag, describe others

PRESERVATIVES & PREPARATION: NP = nothing added, S = sulfuric acid, N = nitric acid, Z = zinc acetate, OH = sodium hydroxide, HA = hydrochloric & ascorbic acid, H = hydrochloric acid, F = field filtered

COLLECTED BY (signatures) [signature]	CUSTODY SEAL NO. (IF ANY)	DATE/TIME
RELINQUISHED BY (signature) [signature]	RECEIVED BY (signature) TO UPS	DATE/TIME 12-19-00 4:PM
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
DISPATCHED BY (signature)	METHOD OF TRANSPORT	DATE/TIME

RECEIVED AT NLS BY (signature) [signature]	DATE/TIME	CONDITION	TEMP
SEAL INTACT ☒ YES ☐ NO	SEAL #	REMARKS & OTHER INFORMATION	

IMPORTANT 1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

APPENDIX C

Laboratory Analytical Results
Outfall #001

1 of 2

NO. 46808

NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721026460

RETURN THIS FORM WITH SAMPLES

DNR LICENSE	FID
CLIENT: McMahon Associates Inc	PROJECT TITLE: N.W. Maxtte Superfund S.G
ADDRESS: 1445 McMahon Drive Box 1025	PROJECT NO. / P.O. NO.
CITY: Neenah STATE: WI ZIP: 54957-1025	CONTACT: John Stoeger PHONE: 920-751-4200

ITEM NO.	NLS LAB NO	SAMPLE ID	DNR ID	COLLECTION DATE	COLLECTION TIME	SAMPLE TYPE	GRAB/ COMP.	CONTAINER/PRESERVATIVE				COLLECTION REMARKS
1.		W-7		12/14/11	3:00P	GW	Grab	X				
2.		W-8						X				
3.		W-15						X				
4.		MW-101						X				
5.		MW-102						X				
6.		MW-103						X				
7.		MW-104						X				
8.		MW-104A						X				
9.		MW-105						X				
10.		MW-106						X				
11.		MW-107						X	X			
12.		MW-107A		↓	↓	↓	↓	X	X			

SAMPLE TYPE:
SW=surface water, WW=wastewater, GW=groundwater, DW=drinking water, TIS=tissue, AIR=air, PROD=product, SOIL=soil, SED=sediment, describe others

CONTAINER: P = plastic, G = glass, V = glass vial, B = plastic bag, describe others

PRESERVATIVES & PREPARATION: NP = nothing added, S = sulfuric acid, N = nitric acid, Z = zinc acetate, OH = sodium hydroxi, HA = hydrochloric & ascorbic acid, H = hydrochloric acid, F = field filtered

COLLECTED BY (signatures)	CUSTODY SEAL NO. (IF ANY)	DATE/TIME
RELINQUISHED BY (signature)	RECEIVED BY (signature): TO UPS	DATE/TIME: 12-15- 4:00P
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
DISPATCHED BY (signature)	METHOD OF TRANSPORT	DATE/TIME

RECEIVED AT NLS BY (signature)	DATE/TIME	CONDITION	TEMP
SEAL INTACT ☐ YES ☐ NO	SEAL #	REMARKS & OTHER INFORMATION	

IMPORTANT: 1. TO MEET REGULATORY REQUIREMENTS, THIS FORM MUST BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBE
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2 of 2

NO. 46809

NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721026460

RETURN THIS FORM WITH SAMPLES.

CLIENT: McMahon	DNR LICENSE:	FID:	
ADDRESS: See Page 1	PROJECT TITLE: NW. Marble Supertund Site		
CITY:	STATE:	ZIP:	PROJECT NO.:
CONTACT: John Stocker	PHONE: 920-751-4200	P.O. NO.:	

ITEM NO.	NLS LAB NO.	SAMPLE ID	DNR ID	COLLECTION DATE	COLLECTION TIME	SAMPLE TYPE	GRAB/ COMP.	CONTAINER/PRESERVATIVE				COLLECTION REMARKS
1.		MW-108		12/14/04	3:30P	GW	Grab	X				
2.		Process Water		↓	↓	WW	Grab	X				
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												

SAMPLE TYPE:
SW=surface water, DW=drinking water, PROD=product
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describe others

CONTAINER
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describe others

PRESERVATIVES & PREPARATION
NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate
OH = sodium hydroxi
HA = hydrochloric & ascorbic acid
H = hydrochloric acid
F = field filtered

COLLECTED BY (signatures)

CUSTODY SEAL NO. (IF ANY) DATE/TIME

RELINQUISHED BY (signature)	RECEIVED BY (signature): TO UPS	DATE/TIME: 12-19-04 4:PM
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
DISPATCHED BY (signature)	METHOD OF TRANSPORT	DATE/TIME

RECEIVED AT NLS BY (signature)	DATE/TIME	CONDITION	TEMP.
SEAL INTACT? ☐ YES ☐ NO	SEAL #	REMARKS & OTHER INFORMATION	

IMPORTANT
1. TO MEET REGULATORY REQUIREMENTS, THIS FORM MUST BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIE
2. PLEASE USE ONE LINE PER SAMPLE, NOT PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

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

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

 NLS PROJECT# 58175

NLS CUST# 20239

Client: McMahon Associates, Inc.
Attn: John Stoeger
1445 McMahon Drive
P.O. Box 1025
Neenah, WI 54957

Project Description: N.W. Mauthe Superfund S.G.

Sample ID: MW-108 **NLS#: 247276**
Ref. Line 1 of COC 46809 Description: MW-108
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Cadmium, tot. as Cd by ICP	ND	ug/L	0.23	0.82	SW846 6010	01/04/01	721026460
Chromium, tot. as Cr by ICP	3.0	ug/L	0.40	1.4	SW846 6010	01/04/01	721026460
Manganese, tot. as Mn by ICP	22	ug/L	2.0	2.0	SW846 6010	01/04/01	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	12/26/00	721026460

Sample ID: Process Water **NLS#: 247277**
Ref. Line 2 of COC 46809 Description: Process Water
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Chromium, tot. as Cr	0.096	mg/L	0.018	0.071	EPA 200.7	12/28/00	721026460
Metals digestion - total (water) ICP	yes				EPA 200.7	12/26/00	721026460

Sample ID: Trip Blank **NLS#: 247278**
Ref. Line 3 of COC 46809 Description: Trip Blank
Collected: 12/19/00 Received: 12/20/00 Reported: 01/10/01

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
VOCs by EPA 524.2	see attached				EPA 524.2	12/21/00	721026460

Values in brackets represent results greater than the LOD but less than or equal to the LOQ and are within a region of "Less-Certain Quantitation." Results greater than the LOQ are considered to be in the region of "Certain Quantitation".

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

Authorized by:

Reviewed by:

R. T. Krueger
Laboratory Manager

Customer: McMahon Associates, Inc.
Project Description: N.W. Mauthe Superfund S.G.
Northern Lake Service Project Number: 58175

Sample: 247278 Trip Blank Collected: 19-DEC-00 Analyzed: 21-DEC-00

ANALYTE NAME	247278 Trip Blank ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L	MCL ug/L
Trichloroethene	ND	1	0.34	1.1	5.0
Trichlorofluoromethane	ND	1	0.12	0.38	
1,2,3-Trichloropropane	ND	1	0.14	0.46	
1,2,4-Trimethylbenzene	ND	1	0.12	0.37	
1,3,5-Trimethylbenzene	ND	1	0.14	0.45	
Vinyl chloride	ND	1	0.17	0.55	0.20
meta,para-Xylene	ND	1	0.71	2.3	10000
MTBE	ND	1	0.29	0.93	
Surrogate Recovery on 4-Bromofluorobenzene = 100 %					
Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 102 %					