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January 28, 2000

Mr. Tad Schindler
Minnesota Pollution Control Agency
520 Lafayette Road N.
St. Paul, MN 55155-4194

Re: **Annual 1999 Groundwater Monitoring Report for the DeZurik Hazardous Waste Lagoon No. 3**
Project No. 369E13515A.00

Dear Mr. Schindler,

Attached please find the Annual 1999 Groundwater Monitoring Report for the DeZurik Hazardous Waste Lagoon No. 3 for your files.

If you have any questions regarding this report, please do not hesitate to contact either Lee Walz or myself.

Sincerely,

URS Greiner Woodward Clyde, Inc.

Dean Stockwell
Project Manager

DDS:sll
Enclosure

cc: Lee Walz - DeZurik
Bob Therres - City of Sartell

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Executive Summary

This Annual Groundwater Monitoring Report (Report) was prepared for the DeZurik Hazardous Waste Lagoon No. 3 located in Sartell, Minnesota. The Report was prepared in accordance with the terms of the landfill permit. Groundwater monitoring was performed during two sampling events in 1999. Sampling consisted of collection of groundwater samples from five monitoring wells. Samples were analyzed for total metals, dissolved metals and inorganics during both rounds.

According to laboratory results and the statistical analysis, releases of target contaminants (arsenic, barium, cadmium, lead, and selenium) were not above background concentrations at the DeZurik Lagoon No. 3 in 1999. Overall, the monitoring well network is in good condition and correctly placed to monitor potential releases from the facility.

1.1 BACKGROUND

This background information was obtained from the reissued Part B Permit Application submitted by RMT, Inc. and approved by the MPCA in September of 1994. DeZurik Lagoon No. 3 (Facility) is located in the northwest corner of the city of Sartell, Minnesota and is approximately 0.2 acres in size (Figure 1). The Facility is contained within the limits of the City of Sartell Landfill. Sludges were disposed of from various DeZurik operations in the Facility. The Facility was closed in 1987 with a multi-layer 6 foot cover system.

1.2 PURPOSE AND SCOPE

This report presents the sampling results from the two groundwater sampling rounds performed in 1999. Sampling was performed in accordance with Part B of the permit and is discussed in detail in Section 2.2.1. The 1999 groundwater monitoring results are compared to historical data for the site and to state and federal water quality standards.

This report incorporates the same information that was included in the semiannual report presented to the MPCA in July 1999. This annual report also includes the following information:

- A narrative describing the effects which the Facility is exerting on surrounding groundwater quality and any changes made or maintenance needed in the monitoring network.
- A description of sampling dates and procedures.
- Results of appropriate statistical procedures.
- Water level monitoring data and potentiometric maps for the year.
- Calculation of groundwater flow rates.
- Laboratory analytical reports.
- Graphics showing concentration versus time for target parameters historically found above background.
- Data summary tables showing concentration and water elevation data for each well sampled to date.

2.1 HYDROGEOLOGIC SETTING

A detailed description of the geology and hydrogeology of the site is provided in the Part B Permit Application (RMT, Inc., 1994). The information below has been summarized from the application.

The general geology of the area in which the Facility is located consists of unconsolidated glacial deposits (approximately 80 to 100 feet) that overlie Precambrian granitic bedrock. Previous studies indicated there are three geologic/hydrogeologic units underneath the Facility that affect groundwater movement and flow. The surficial unit consists of silty fine grained sands that soil borings indicate are approximately 15 feet thick. Outwash deposits are contained below the fine sands that consist of silty sands and gravel. This layer is considered the upper most aquifer and is located 70 to 80 feet below ground surface (bgs). The third layer consists of clayey weathered bedrock located approximately 90 feet bgs which acts as an aquitard restricting the downward flow of groundwater into the bedrock.

Groundwater conditions are characterized by the network of monitoring wells located on-site. Groundwater elevations and data are given in Table 1. Figures 2 and 3 show the interpreted flow directions for each sampling event. Further details are discussed in Section 2.2.4.

2.2 GROUNDWATER MONITORING PROGRAM

2.2.1 Sampling and Network Evaluation

The wells that comprise the monitoring network for the facility are indicated in Figures 2 and 3. Samples were obtained from a total of four wells. Well P-13 is the upgradient well and wells P-5R, P-9R, and P-12R are the downgradient wells. As Permit B states, during sampling events, the upgradient well is sampled four times and the downgradient wells are sampled once each.

Groundwater samples were obtained in 1999 by Minnesota Valley Testing Laboratory (MVTL) of New Ulm, Minnesota. MVTL also performed all laboratory analyses. The spring sampling round was completed on April 26-27, 1999 and the fall sampling round was completed on October 26-27, 1999.

Prior to the sampling of the monitoring wells, the water level was recorded and the general condition of the well was noted. All of the wells were in good condition including locked, labeled, straight, protected, and grout seal intact except for the notation below:

- Well P-13 grout seal does not appear to be intact.

2.2.2 Results

Analytical results and field notes for 1999 are presented in Appendix A. Groundwater quality data for the site is statistically analyzed and is also compared to various and state water quality standards. The pertinent standards are described below.

- **Maximum Contaminant Level (MCL)** – The MCL's are enforceable standards which apply to public water systems, as established in the National Interim Primary Drinking Water Standards for the United States.
- **Secondary Maximum Containment Level (SMCL)** – The SMCL applies to public water systems. The standards are established primarily for taste, odor, and aesthetic reasons, not due to adverse health affects.
- **Health Risk Limits (HRL)** – The HRL's are risk based levels for parameters in groundwater. The HRL are determined by the Minnesota Department of Health and are enforceable under Minnesota Rules 4717.7100 to 4717.7800.

Background concentrations for target contaminants (arsenic, barium, cadmium, lead, and selenium) are established at the upgradient well, P-13. Four samples are obtained from P-13 during each sampling event for statistical analyses. The background data during the spring and fall rounds of sampling remained consistent with past data (Table 2), except for barium. Background concentration results for barium, which increased over historical levels during the fall 1998 sampling event, increased slightly again during both the spring and fall 1999 sampling events. The elevated results are higher than concentrations recorded to date but are significantly below the 2000 µg/L MCL and HRL for barium. No analytes have exceeded an MCL and/or HRL since 1993 and those that did historically are listed in bold type in Table 2.

In the fall samples where both total and dissolved barium analyses were performed (P-5R, P-9R, P-12R, P-13A), the dissolved barium concentration was found to be greater than the respective total metal concentration (see Appendix B). Since this is theoretically impossible, the sampling and laboratory procedures were investigated. In a letter from MVTL dated January 25, 1999, (Appendix B) MVTL stated that barium could possibly be carried over from the filtering apparatus used for dissolved metal samples. This could result in an erroneously high concentration of dissolved barium. In the future, a field blank should be collected for and analyzed for dissolved barium to determine if cross contamination may be causing the increasing barium results.

Other results from both the spring and fall sampling events are consistent with historical results. Dissolved boron and total dissolved solids (TDS) level exceeded federal or state water quality standards in the spring and fall in at least one monitoring well as detailed below.

With MPCA approval, P-5A was removed from the sampling program in 1993 and was replaced with well P-5R. P-5A is located sidegradient of the Facility and has had historical boron (dissolved) results ranging from 0.4 to 2.6 mg/L with a relatively steady downward trend since the December 1990 sampling event. Well P-5R is also located sidegradient of the Facility and boron was measured in P-5R at 1.06 mg/L and 0.76 mg/L for the 1999 spring and fall sampling events, respectively. The HRL for boron is 0.6 mg/L. RMT Inc., suggested in a correspondence dated February 17, 1998, that there may be an upgradient boron source or that naturally occurring variability could affect groundwater quality at the Facility.

TDS exceeded the SMCL of 500 mg/L in wells P-5R and P-9R for both the spring and fall sampling events. Well P-5R readings were 675 mg/L in the spring and 624 mg/L in the fall. Well P-9R readings were 512 mg/L in the spring and 531 mg/L in the fall. In the fall the SMCL was also exceeded in well P-12R (3,540 mg/L). This is an increase from past levels and this well has

not consistently historically exceeded the SMCL. The spring 2000 sampling event will determine if this detection is an anomaly or a trend for well P-12R. If the increased TDS level becomes a trend, Well P-12R may need to be redeveloped. The TDS level has historically exceeded the SMCL at P-5R but the level has generally been decreasing since October 1990. Well P-13 also has tended to have variable TDS levels.

2.2.3 Statistical Analysis

The statistical analysis is performed on the results of the sampling events to determine if detections in downgradient wells (P-5R, P-9R, P-12R) are above background concentrations in the upgradient well (P-13). The statistical analysis was completed in accordance with the Part B Permit reissued in September 1994. The analysis is based on dissolved concentrations of arsenic, barium, cadmium, lead and selenium (also given in Table 2).

The tolerance interval was calculated for each analyte based on historical levels in the upgradient well P-13. The Poisson Distribution was used to estimate the population mean and variance for arsenic, cadmium, lead and selenium. Since more than two detects occurred for barium, the arithmetic mean and standard deviation were used to calculate the tolerance interval for barium. The increased background concentration levels for barium elevated the tolerance interval from 170 ug/L to 320 ug/L. The assumed tolerance factor of 2.532 is based on a confidence factor of 95 percent with a typical set of background data (n=16). The following equation was used to calculate the tolerance:

$$T = U + (k * s)$$

Where:

T = Tolerance interval

U = Population mean

k = Tolerance factor

s = Standard deviation

As stated in the correspondence dated September 29, 1998 from DeZurik to the MPCA, even though laboratory detection limits are lower, tolerance levels continue to be calculated assuming the means are equal to the reporting limits identified in the November 1994 Quality Assurance Project Plan (QAPP) as long as the detects are less than the QAPP reporting limits.

The results for the 1999 sampling events were all below background concentrations. No contaminants of concern have exceeded background concentrations since 1990. Graphs of concentration versus time for barium and cadmium are contained in Appendix B. These two parameters are the only parameters to have exceeded background concentrations in the past.

2.2.4 Groundwater Elevations and Flow

Groundwater elevations were determined at each monitoring well for each of the sampling rounds performed in April and October. Wells P-7 and P-5A are used for groundwater elevations only. The water level data is summarized in Table 1. Groundwater flow occurs to the southeast which

is consistent with historical results. The water table contour maps are presented in Figures 2 and 3. Appendix C contains graphs of water levels over time for each well.

The hydraulic gradient remains consistent for the area. In 1994 for the Part B Permit Application, the average gradient was reported by RMT, Inc. as 0.006 ft/ft. In 1998, the average hydraulic gradient was 0.006 ft/ft. The average gradients calculated in 1999 are 0.008 ft/ft and 0.005 ft/ft for spring and fall sampling events, respectively.

The average linear groundwater flow rates can be calculated using the following equation and assumptions:

$$V = K \cdot I / N_e$$

Where:

V = Groundwater Velocity

K = Hydraulic Conductivity (assumed 0.39 ft/min)

I = Hydraulic Gradient (ft/ft)

N_e = Effective Porosity (assumed 25%)

The calculated linear flow rates based on the above equation and assumptions are 17 ft/day for the spring sampling event and 12 ft/day for the fall sampling event. The spring velocity is an increase in the maximum velocity recorded for the site. The fall velocity is consistent with the previous velocities found at the site.

According to laboratory results and the statistical analysis, releases of target contaminants (arsenic, barium, cadmium, lead, and selenium) were not above background concentrations at the Dezurik Lagoon No. 3 in 1999. Overall, the monitoring well network is in good condition and correctly placed to monitor potential releases from the Facility.

In at least one well, a MCL, SMCL and/or HRL were exceeded in both the spring and fall sampling events. The SMCL was exceeded by both P-5R, P-9R and P-12R for TDS and the HRL was exceeded by P-5R for boron. The overall trend of these constituents are generally downward. The spring 2000 sampling event will determine if the increased TDS detection at P-12R is an anomaly or a trend.

The calculated groundwater flow rates provided a new maximum rate for the site in the spring at 17 ft/day and remained consistent with past rates in the fall at 12 ft/day.

Due to the fact that dissolved barium exceeded total barium for the wells sampled in October, URSGWC proposes that a field blank be collected for barium analysis in the future.

The Part B Permit Reissuance Application for the Dezurik Hazardous Waste Lagoon was submitted to the MPCA in April 1999. The current groundwater protection program is being conducted according to the closure permits issued in September 1994. For the repermit application, the detection monitoring plan and the corrective plan were written to reflect the current groundwater protection program but also incorporated several modifications discussed during a March 17, 1999 meeting regarding the repermit application. The key modifications discussed and incorporated into the Detection Monitoring Plan are summarized below:

1. Report actual method detection levels but use the existing detection levels for the five contaminants of concern. The contaminants of concern and their detection levels to be used for statistical analyses are as follows:

Dissolved Arsenic	3 ug/L
Dissolved Barium	50 ug/L
Dissolved Cadmium	0.3 ug/L
Dissolved Lead	3 ug/L
Dissolved Selenium	3 ug/L
2. Use the more stringent of the Health Risk Limits or Maximum Contaminant Level as the current concentration limit.
3. Drop total metal analysis requirements
4. Drop quadruplicate sampling requirements of the upgradient monitoring point (P-13).

URSGWC recommends adopting these modifications and upon the reissuance of the Part B Permit by the MPCA, these modifications will be incorporated into the groundwater monitoring program for 2000 and beyond.

SECTIONFOUR

References and Recommendations

- “Annual Groundwater Monitoring Report – Dezurik Lagoon No. 3,” RMT, Inc., December 1997.
- “Part B Permit Application for the Dezurik Lagoon No. 3,” RMT Inc., August 1994.
- “Spring 1998 Groundwater Monitoring Results for the Dezurik Closed Hazardous Waste Landfill Lagoon No. 3,” URS Greiner Woodward Clyde, July 1998.

Table 1
Groundwater Elevation Data, 1999
DeZurik Hazardous Waste Lagoon #3

Well I.D.	Top of Casing Elevation (feet above MSL)	Depth to Groundwater (feet)	Groundwater Elevation (feet above MSL)
SPRING 1999			
P-5R	1099.04	75.41	1023.63
P-5A	1098.89	75.37	1023.52
P-7	1094.55	69.67	1024.88
P-9R	1102.09	78.61	1023.48
P-12R	1101.33	77.69	1023.64
P-13*	1105.12	79.02	1026.10
FALL 1999			
P-5R	1099.04	75.11	1023.93
P-5A	1098.89	75.00	1023.89
P-7	1094.55	69.31	1025.24
P-9R	1102.09	78.28	1023.81
P-12R	1101.33	77.40	1023.93
P-13*	1105.12	78.88	1026.24

Note: MSL, mean sea level, used as a vertical datum.

*P-13A was used for this elevation

Table 2
Summary of Analytical and Statistical Analysis Results
DeZurik Hazardous Waste Lagoon No. 3
(units = µg/L, dissolved)

WELL NUMBER	DATE	ARSENIC	BARIUM	CADMIUM	LEAD	SELENIUM
P-5A	12/27/89	ND	50	ND	ND	ND
P-5A	6/28/90	ND	ND	0.5	5	ND
P-5A	10/4/90	ND	110	ND	ND	ND
P-5A	12/18/90	ND	80	ND	ND	ND
P-5A	4/4/91	ND	60	0.4	ND	ND
P-5A	8/1/91	ND	67	ND	ND	ND
P-5A-1	10/31/91	ND	63	0.32	ND	ND
P-5A-2	10/31/91	ND	60	0.43	ND	ND
P-5A-3	10/31/91	ND	62	0.38	ND	ND
P-5A-4	10/31/91	ND	62	0.55	ND	ND
P-5A	4/23/92	ND	56	ND	ND	ND
P-5A	9/30/92	ND	ND	ND	ND	ND
P-5A	4/20/93	ND	ND	ND	ND	ND
P-5R	10/27/93	ND	78	1.4	ND	ND
P-5R	1/10/94	--	ND	--	--	--
P-5R	4/20/94	ND	ND	ND	ND	<6.02
P-5R	10/17/94	ND	ND	ND	ND	ND
P-5R	4/11/95	ND	ND	ND	ND	ND
P-5R	10/11/95	ND	52	ND	ND	ND
P-5R	4/17/96	ND	ND	ND	ND	ND
P-5R	10/16/96	< 3.0	ND	0.36	< 3.0	< 3.0
P-5R	4/17/97	< 3.0	50	< 0.30	< 3.0	< 3.0
P-5R	10/16/97	<3.0	ND	<0.30	<3.0	<3.0
P-5R	4/13/98	<2	16	<0.2	<1	<3
P-5R	10/6/98	<2	33	<0.2	<1	<3
P-5R	4/27/99	<2	131	<0.2	<1	<1
P-5R	10/27/99	<2	210*	<0.2	<1	<1
P-9R	4/4/91	ND	ND	ND	ND	ND
P-9R	8/1/91	ND	ND	ND	ND	ND
P-9R-1	10/31/91	ND	ND	ND	ND	ND
P-94-2	10/31/91	ND	ND	ND	ND	ND
P-9R-3	10/31/91	ND	ND	0.3	ND	ND
P-9R-4	10/31/91	ND	ND	ND	ND	ND
P-9R	4/23/92	ND	ND	0.19	ND	ND
P-9R	9/30/92	ND	ND	ND	ND	ND
P-9R	4/20/93	ND	ND	ND	ND	ND
P-9R	10/27/93	ND	ND	0.7	ND	ND
P-9R	4/20/94	ND	ND	ND	ND	<6.02
P-9R	10/17/94	ND	ND	ND	ND	ND
P-9R	4/11/95	ND	ND	ND	ND	ND
P-9R	10/10/95	ND	ND	ND	ND	ND
P-9R	4/17/96	ND	ND	ND	ND	ND
P-9R	10/16/96	< 3.0	ND	< 0.30	< 3.0	< 3.0
P-9R	4/16/97	< 3.0	53	< 0.30	< 3.0	< 3.0
P-9R	10/15/97	<3.0	61	1.4	<3.0	<3.0
P-9R	4/10/98	<2	17	0.7	2	<3
P-9R	10/6/98	<2	46	<0.2	<1	<3
P-9R	4/27/99	<2	191	<0.2	1.4	<1

Table 2
Summary of Analytical and Statistical Analysis Results
DeZurik Hazardous Waste Lagoon No. 3
(units = µg/L, dissolved)

WELL NUMBER	DATE	ARSENIC	BARIUM	CADMIUM	LEAD	SELENIUM
P-9R	10/27/99	<2	126*	0.35	<1	<1
P-12	4/4/91	ND	ND	ND	ND	ND
P-12	8/1/91	ND	ND	0.32	ND	ND
P-12-1	10/31/91	ND	ND	0.31	ND	ND
P-12-2	10/31/91	ND	ND	0.33	ND	ND
P-12-3	10/31/91	ND	ND	ND	ND	ND
P-12-4	10/31/91	ND	ND	ND	ND	ND
P-12	4/23/92	ND	ND	ND	ND	ND
P-12	9/30/92	ND	ND	ND	ND	ND
P-12	4/20/93	ND	ND	ND	ND	ND
P-12R	10/27/93	ND	ND	13	ND	ND
P-12R	1/10/94	--	--	ND	--	--
P-12R	4/20/94	ND	ND	ND	ND	<6.02
P-12R	10/17/94	ND	ND	ND	ND	ND
P-12R	4/11/95	ND	ND	ND	ND	ND
P-12R	10/10/95	ND	ND	ND	5.2	ND
P-12R	4/17/96	ND	ND	ND	ND	ND
P-12R	10/16/96	< 3.0	ND	0.63	< 3.0	< 3.0
P-12R	4/17/97	< 3.0	ND	< 0.30	< 3.0	< 3.0
P-12R	10/16/97	< 3.0	ND	< 0.30	< 3.0	< 3.0
P-12R	4/13/98	< 2	9	< 0.2	< 1	< 3
P-12R	10/6/98	< 2	30	< 0.2	< 1	< 3
P-12R	4/27/99	< 2	54	< 0.2	< 1	< 1
P-12R	10/27/99	< 2	159*	< 0.2	< 1	< 1
P-13	6/28/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13A	6/28/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13B	6/28/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13C	6/28/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13	10/4/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13A	10/4/90	< 3.0	60	< 0.3	< 3.0	< 3.0
P-13B	10/4/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13C	10/4/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13A	12/18/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13B	12/18/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13C	12/18/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13D	12/18/90	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13	4/4/91	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13	8/1/91	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13-1	10/31/91	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13-2	10/31/91	< 3.0	< 50	0.88	< 3.0	< 3.0
P-13-3	10/31/91	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13-4	10/31/91	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13-1	4/23/92	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13-2	4/23/92	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13-3	4/23/92	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13-4	4/23/92	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13	9/30/92	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13-1	10/8-9/92	< 3.0	< 50	< 0.3	< 3.0	< 3.0

Table 2
Summary of Analytical and Statistical Analysis Results
DeZurik Hazardous Waste Lagoon No. 3
(units = µg/L, dissolved)

WELL NUMBER	DATE	ARSENIC	BARIIUM	CADMIUM	LEAD	SELENIUM
P-13-2	10/8-9/92	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13-3	10/8-9/92	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13A	4/20/93	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13B	4/20/93	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13C	4/20/93	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13D	4/20/93	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13A	10/29/93	< 3.0	< 50	3.3*	< 3.0	< 3.0
P-13B	10/29/93	< 3.0	< 50	5.5*	< 3.0	< 3.0
P-13C	10/29/93	< 3.0	< 50	3.9*	< 3.0	< 3.0
P-13D	10/29/93	< 3.0	< 50	17*	< 3.0	< 3.0
P-13	4/20/94	< 3.0	< 50	< 0.3	< 3.0	< 6.02
P-13A	4/20/94	< 3.0	< 50	< 0.3	< 3.0	< 6.02
P-13B	4/20/94	< 3.0	< 50	0.31	< 3.0	< 6.02
P-13C	4/20/94	< 3.0	< 50	< 0.3	< 3.0	< 6.02
P-13	10/17/94	< 3.0	54	< 0.3	< 3.0	< 3.0
P-13A	10/18/94	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13B	10/18/94	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13C	10/18/94	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13	4/11/95	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13A	4/11/95	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13B	4/11/95	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13C	4/12/95	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13	10/11/95	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13A	10/11/95	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13B	10/11/95	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13C	10/11/95	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13	4/17/96	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13A	4/17/96	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13B	4/17/96	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13C	4/17/96	< 3.0	< 50	< 0.3	< 3.0	< 3.0
P-13	10/16/96	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13A	10/16/96	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13B	10/17/96	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13C	10/17/96	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13	4/16/97	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13A	4/17/97	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13B	4/17/97	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13C	4/17/97	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13	10/15/97	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13A	10/16/97	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13B	10/16/97	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13C	10/16/97	< 3.0	< 50	< 0.30	< 3.0	< 3.0
P-13A	4/9/98	< 2	< 6	< 0.2	< 1	< 3
P-13B	4/10/98	< 2	< 6	< 0.2	< 1	< 3
P-13C	4/10/98	2.2	< 6	< 0.2	< 1	< 3
P-13D	4/13/98	< 2	< 6	< 0.2	< 1	< 3
P-13A	10/5/98	< 2	27	< 0.2	< 1	< 3
P-13B	10/5/98	< 2	101	< 0.2	< 1	< 3

Table 2
Summary of Analytical and Statistical Analysis Results
DeZurik Hazardous Waste Lagoon No. 3
(units = µg/L, dissolved)

WELL NUMBER	DATE	ARSENIC	BARIUM	CADMIUM	LEAD	SELENIUM
P-13C	10/6/98	<2	180	<0.2	<1	<3
P-13D	10/6/98	<2	135	<0.2	<1	<3
P-13A	4/26/99	<2	66	<0.2	<1	<1
P-13B	4/26/99	<2	178	<0.2	<1	<1
P-13C	4/27/99	<2	114	<0.2	<1	<1
P-13D	4/27/99	<2	151	<0.2	<1	<1
P-13A	10/26/99	<2	95*	<0.2	<1	<1
P-13B	10/27/99	<2	300*	<0.2	<1	<1
P-13C	10/27/99	<2	196*	<0.2	<1	<1
P-13D	10/27/99	<2	229*	<0.2	<1	<1
Background Detection limit**		3	50	0.3	3	3
Background Mean#		3	125	0.3	3	3
Background Standard deviation#		1.732	75.848	0.548	1.732	1.732
K _{0.95}		2.532	2.532	2.532	2.532	2.532
Tolerance level###**		7.4	320	1.7	7.4	7.4

ND Not detected.

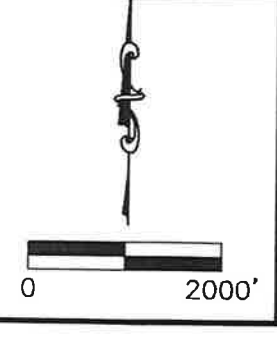
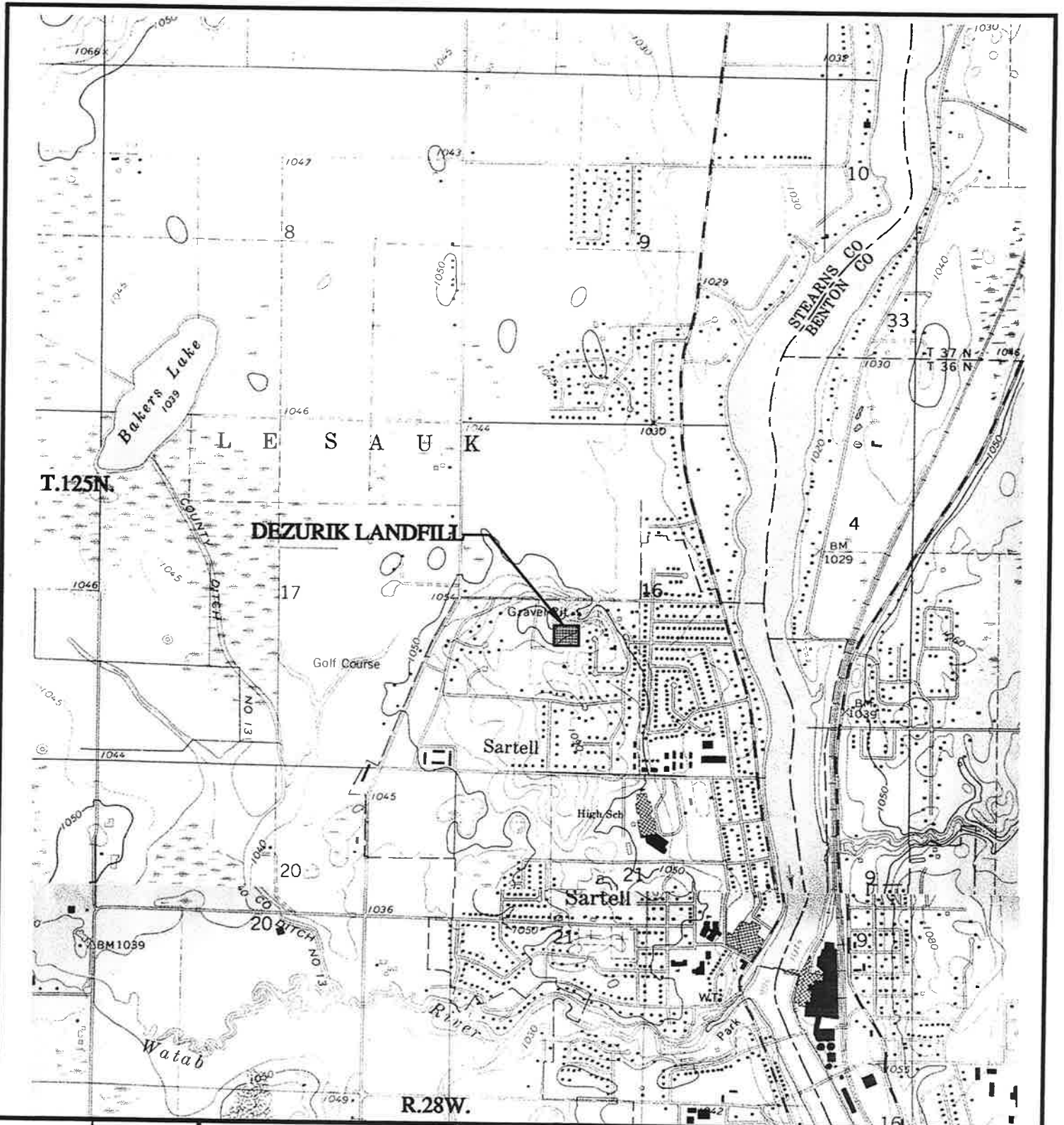
-- Not measured.

The Poisson Distribution method was used for calculating the mean and standard deviation for background constituents with two or less reported results above the detection limit. For background constituents with three or more results above the detection limit, the arithmetic mean and standard deviation is calculated.

* Data collected is considered suspect.

** In 1998, new analytical equipment allowed the laboratory to obtain lower detection limits than that obtained in previous sampling years. These detection limits are lower than those required in the August 1994 Part B Permit Application for evaluating compliance of wells. Where the reported detection limit is lower than the required detection limit, the required detection limit is used for calculating the tolerance level to maintain continuity in evaluating compliance.

Note: Sample results in bold type exceed MCL and/or HRL



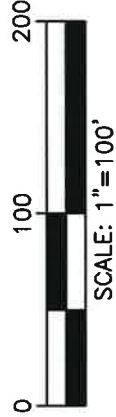
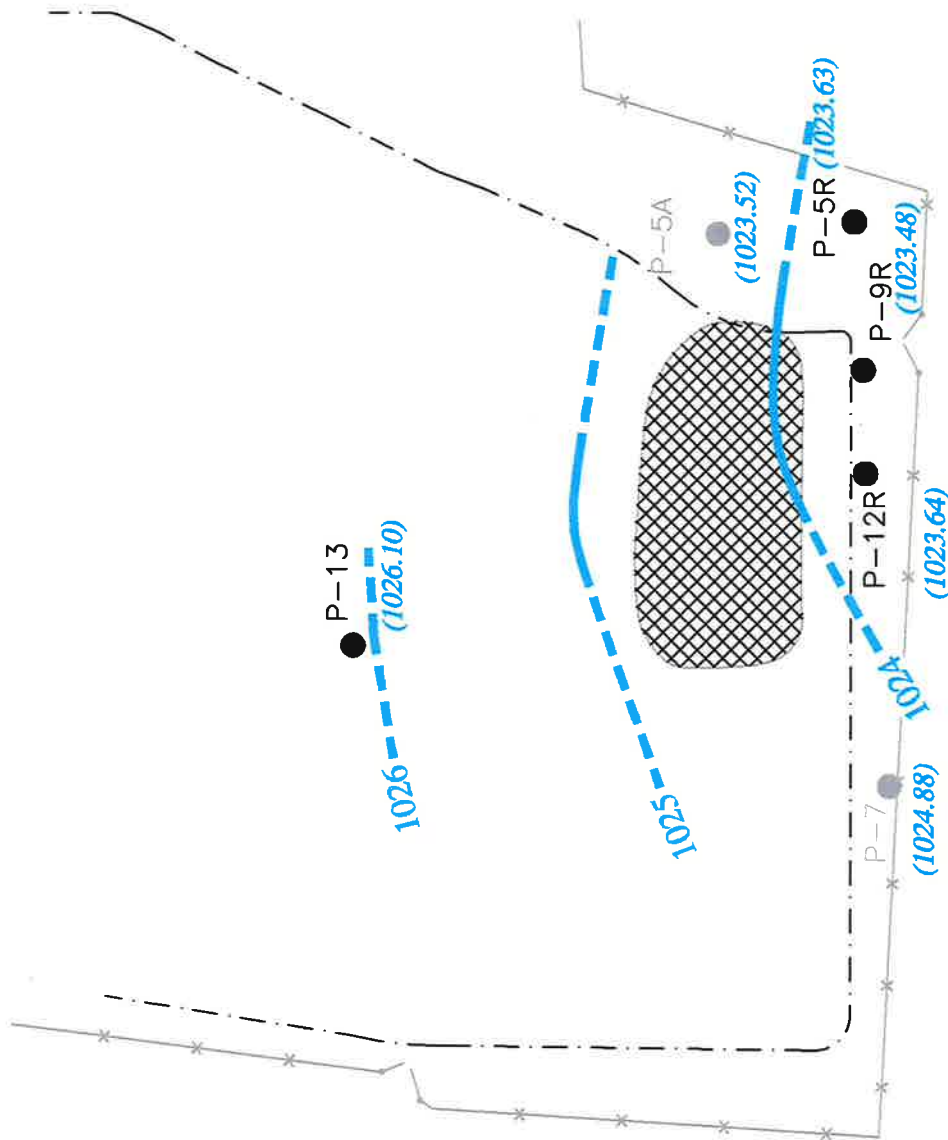
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SITE LOCATION MAP
DEZURIK LANDFILL
SARTELL, MINNESOTA

DRN BY: KAH	DATE: 01/00	PROJECT NO. 9E13515A	FIG. NO. 1
CHK'D BY: JRJC	DATE: 01/00		

LEGEND

- P-13
(1026.10)
- *—*— FENCE
- - - - - APPROXIMATE LIMIT OF LANDFILL WASTE
- ▨ APPROXIMATE LIMIT OF LAGOON
- 1025— WATER TABLE CONTOUR (DASHED WHERE INFERRED)



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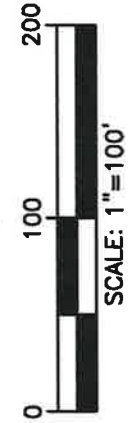
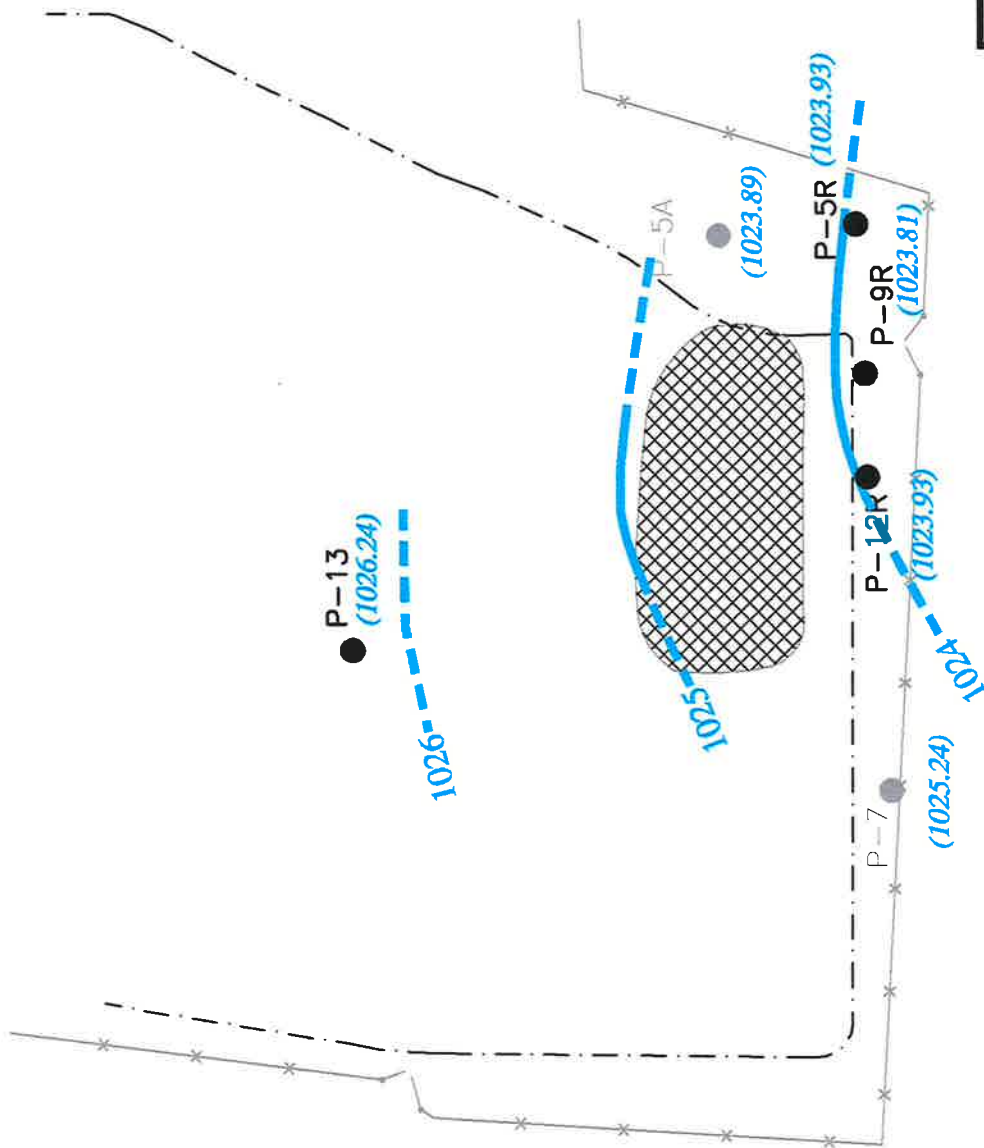
GROUNDWATER CONTOUR MAP, APRIL 26&27, 1999
 DEZURIK HAZARDOUS WASTE LAGOON NO. 3
 SARTELL, MINNESOTA

DRN BY: KAH	DATE: 01/00	PROJECT NO. 9E13515A	FIG. NO. 2
CHK'd BY: ASD	DATE: 01/00		

9E13515 GM499.DWG

LEGEND

- P-13
(1026.10)
GROUNDWATER MONITORING WELL LOCATION AND NUMBER WITH WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- *—*—*—
FENCE
- - -
APPROXIMATE LIMIT OF LANDFILL WASTE
- ▨
APPROXIMATE LIMIT OF LAGOON
- 1025
WATER TABLE CONTOUR (DASHED WHERE INFERRED)



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GROUNDWATER CONTOUR MAP, OCTOBER 26&27, 1999
 DEZURIK HAZARDOUS WASTE LAGOON NO. 3
 SARTELL, MINNESOTA

DRN BY: KAH	DATE: 01/00	PROJECT NO. 9E13515A	FIG. NO. 3
CHK'D BY: JRJC	DATE: 01/00		

9E13515 GW499.DWG

Appendix A
1999 Analytical and Field Results



LABORATORIES, Inc.

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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

January 25, 2000

Dean Stockwell
URS Dames & Moore
6465 Wayzata Blvd
Suite 660
Minneapolis, MN 55426

Dear Mr. Stockwell:

I am writing in response to your request for clarification on analytical results for the DeZurik site. Specifically, you inquired about the total and dissolved data for Barium, based on the fact that some dissolved results are higher than the total.

Routine review of the analytical data by MVTL revealed higher dissolved results compared to the total results on some of the monitoring wells. Samples were re-analyzed to double-check the original results. The re-checks confirmed the Barium data was higher on some dissolved samples than the total. This data indicates that field contamination may have occurred during this sampling event. The field filtering apparatus may have contained carry-over Barium. Sample bottle contamination is another possibility. Bottle contamination is less likely due to the fact that MVTL uses new bottles for each sample.

Corrective action will be taken during the next sampling event. Our technicians will collect a field blank from the filtering apparatus prior to sampling. The field blank will be analyzed with the monitoring well samples to check for contamination.

I apologize for any inconvenience this may have caused. If you have any questions or need further clarification, please contact us in New Ulm. Our toll free number is 800-782-3557. You can reach me direct at 507-233-7130.

Sincerely,

Michael K. Grob



LABORATORIES, Inc.



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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Date Reported: 3 Jun 1999

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Work Order #: 31-142
Account Number: 013138

Project Name: DEZURIK

Sampler Signature

RL = Reporting Limits
NQ = Not Present, Qualitative Only
PQ = Present, Qualitative Only
ND = Not Determined

All data for this report has been approved by MVTL Laboratory Management.



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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 3 Jun 1999

Lab Number: 99-L9268
Work Order #: 31-142
Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 26 Apr 1999
Time Sampled: 10:58
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-13A

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Appearance, Field	Clear	NA	2110			PO
Water Elevation	79.02	NA	NA			PO
Temperature - Field	12.6 Deg. C	NA	170.1			PO
Specific Conductance, Fld	674 umhos/cm	1.	120.1			PO
Specific Conductance	699.0 umhos/cm	0.1	120.1	4/30/99	13:14	AKF
pH, Field	6.90 units	1.00	150.1			PO
pH (Laboratory)	7.2 units	1.0	150.1	4/28/99	5:32	LF
Fluoride	< 0.1 mg/L	0.10	340.2	4/30/99	9:28	JD
Sulfate	273 mg/L	4	375.4	4/30/99		DRP
Chloride	17.4 mg/L	3.0	325.2	5/ 2/99		DRP
Nitrate+Nitrite	5.91 mg/L as N	0.05	353.2	4/29/99		DRP
Nitrite	0.01 mg/L as N	0.01	EPA 353.2	4/29/99		DRP
Phenolics, Total	< 5 ug/L	5	420.1	5/ 7/99	9:00	JD
Cyanide, Total	< 0.02 mg/L	0.02	335.2	5/ 6/99		JD
Chemical Oxygen Demand	16 mg/L	5	410.4	4/30/99	5:49	JD
Solids, Total Dissolved	411 mg/L	1	160.1	4/28/99	15:26	LF
Barium	0.045 mg/L	0.006	6010	5/24/99	13:00	TB
Chromium	< 0.012 mg/L	0.012	6010	5/24/99	13:00	TB

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

All data for this report has been approved by MVTL Laboratory Management.



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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 3 Jun 1999

Lab Number: 99-L9268

Work Order #: 31-142

Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 26 Apr 1999
Time Sampled: 10:58
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-13A

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Iron	0.121 mg/L	0.008	6010	6/ 2/99	13:40	TB
Manganese	< 0.003 mg/L	0.003	6010	5/24/99	13:00	TB
Zinc	< 0.003 mg/L	0.003	6010	5/24/99	13:00	TB
Boron	0.390 mg/L	0.100	6010	6/ 2/99	9:30	TB
Barium, Dissolved	0.066 mg/L	0.006	6010	5/17/99	14:00	TB
Chromium, Dissolved	< 0.012 mg/L	0.012	6010	5/17/99	14:00	TB
Iron, Dissolved	< 0.008 mg/L	0.008	6010	5/17/99	14:00	TB
Manganese, Dissolved	< 0.003 mg/L	0.003	6010	5/17/99	14:00	TB
Zinc, Dissolved	< 0.003 mg/L	0.003	6010	5/17/99	14:00	TB
Boron, Dissolved	< 0.1 mg/L	0.10	6010	6/ 2/99	9:30	TB
Arsenic	< 2 ug/L	2.0	206.2	5/11/99	11:02	TB
Cadmium	< 0.2 ug/L	0.20	213.2	5/ 4/99	9:11	TB
Lead	8.0 ug/L	1.0	239.2	5/ 3/99	6:41	TB
Selenium	2.64 ug/L	1.00	270.2	5/ 7/99	9:56	TB
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	5/11/99	10:59	TB
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	5/ 4/99	9:06	TB
Lead, Dissolved	< 1 ug/L	1.0	239.2	5/ 3/99	6:39	TB
Selenium, Dissolved	< 1 ug/L	1.0	270.2	5/17/99	8:00	TB

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 3 Jun 1999

Lab Number: 99-L9268

Work Order #: 31-142

Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999

Date Sampled: 26 Apr 1999

Time Sampled: 10:58

Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-13A

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Calcium	90.0 mg/L	0.20	215.1	5/ 6/99	16:10	JGS
Magnesium	24.0 mg/L	0.03	242.1	5/ 6/99	16:31	JGS
Sodium	4.00 mg/L	0.05	EPA 273.1	5/10/99	9:46	JGS
Calcium, Dissolved	95.0 mg/L	0.20	215.1	5/ 7/99	10:45	JGS
Magnesium, Dissolved	25.0 mg/L	0.03	242.1	5/ 7/99	10:55	JGS
Sodium, Dissolved	3.90 mg/L	0.05	273.1	5/10/99	11:30	JGS
Nitrate	5.90 mg/L as N	NA	353.2	4/29/99		Calculated
Carbon, Total Organic	1.6 mg/L	1.0	415.1	5/ 4/99		OL

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 3 Jun 1999

Lab Number: 99-L9269
Work Order #: 31-142
Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 26 Apr 1999
Time Sampled: 15:17
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-13B

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Appearance, Field	Clear	NA	2110			PO
Water Elevation	79.02	NA	NA			PO
Temperature - Field	12.6 Deg. C	NA	170.1			PO
Specific Conductance, Fld	687 umhos/cm	1.	120.1			PO
pH, Field	7.20 units	1.00	150.1			PO
Barium, Dissolved	0.178 mg/L	0.006	6010	5/17/99	14:00	TB
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	5/13/99	11:00	TB
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	5/ 4/99	9:06	TB
Lead, Dissolved	< 1 ug/L	1.0	239.2	5/ 3/99	6:39	TB
Selenium, Dissolved	< 1 ug/L	1.0	270.2	5/17/99	8:00	TB

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 3 Jun 1999

Lab Number: 99-L9270

Work Order #: 31-142

Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999

Date Sampled: 27 Apr 1999

Time Sampled: 9:39

Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-13C

Analyte	Result	RI	Method	Date Analyzed	Time Analyzed	Analyst
Appearance, Field	Clear	NA	2110			PO
Water Elevation	79.05	NA	NA			PO
Temperature - Field	11.9 Deg. C	NA	170.1			PO
Specific Conductance, Fld	688 umhos/cm	1.	120.1			PO
pH, Field	6.30 units	1.00	150.1			PO
Barium, Dissolved	0.114 mg/L	0.006	6010	5/17/99	14:00	TB
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	5/13/99	11:00	TB
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	5/ 4/99	9:06	TB
Lead, Dissolved	< 1 ug/L	1.0	239.2	5/ 3/99	6:39	TB
Selenium, Dissolved	< 1 ug/L	1.0	270.2	5/17/99	8:00	TB

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 3 Jun 1999

Lab Number: 99-L9271
Work Order #: 31-142
Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 27 Apr 1999
Time Sampled: 14:38
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-13D

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Appearance, Field	Clear	NA	2110			PO
Water Elevation	1023.94	NA	NA			PO
Temperature - Field	12.2 Deg. C	NA	170.1			PO
Specific Conductance, fld	698 umhos/cm	1.	120.1			PO
pH, Field	7.00 units	1.00	150.1			PO
Barium, Dissolved	0.151 mg/L	0.006	6010	5/17/99	14:00	TB
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	5/13/99	11:00	TB
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	5/ 4/99	9:06	TB
Lead, Dissolved	< 1 ug/L	1.0	239.2	5/ 3/99	6:39	TB
Selenium, Dissolved	< 1 ug/L	1.0	270.2	5/17/99	8:00	TB

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 3 Jun 1999

Lab Number: 99-L9272
Work Order #: 31-142
Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 27 Apr 1999
Time Sampled: 10:00
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-5R

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Appearance, Field	Clear	NA	2110			PO
Water Elevation	1024.03	NA	NA			PO
Temperature - Field	12.8 Deg. C	NA	170.1			PO
Specific Conductance, fld	1031 umhos/cm	1.	120.1			PO
Specific Conductance	1050 umhos/cm	0.1	120.1	4/30/99	13:14	AKF
pH, Field	6.80 units	1.00	150.1			PO
pH (Laboratory)	7.2 units	1.0	150.1	4/28/99	5:32	LF
Fluoride	< 0.1 mg/L	0.10	340.2	4/30/99	9:28	JD
Sulfate	144 mg/L	4	375.4	5/12/99	14:41	DRP
Chloride	22.1 mg/L	3.0	325.2	5/ 2/99		DRP
Nitrate+Nitrite	4.45 mg/L as N	0.05	353.2	4/29/99		DRP
Nitrite	0.01 mg/L as N	0.01	EPA 353.2	4/29/99		DRP
Phenolics, Total	< 5 ug/L	5	420.1	5/ 7/99	9:00	JD
Cyanide, Total	< 0.02 mg/L	0.02	335.2	5/ 6/99		JD
Chemical Oxygen Demand	12 mg/L	5	410.4	4/30/99	5:49	JD
Solids, Total Dissolved	675 mg/L	1	160.1	4/28/99	15:26	LF
Barium	0.059 mg/L	0.006	6010	5/24/99	13:00	TB
Chromium	< 0.012 mg/L	0.012	6010	5/24/99	13:00	TB

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 3 Jun 1999

Lab Number: 99-L9272
Work Order #: 31-142
Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 27 Apr 1999
Time Sampled: 10:00
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-5R

Analyte	Result	RI	Method	Date Analyzed	Time Analyzed	Analyst
Iron	1.240 mg/L	0.008	6010	6/ 2/99	13:40	TB
Manganese	0.055 mg/L	0.003	6010	5/24/99	13:00	TB
Zinc	< 0.003 mg/L	0.003	6010	5/24/99	13:00	TB
Boron	1.310 mg/L	0.100	6010	6/ 2/99	9:30	TB
Barium, Dissolved	0.131 mg/L	0.006	6010	5/17/99	14:00	TB
Chromium, Dissolved	< 0.012 mg/L	0.012	6010	5/17/99	14:00	TB
Iron, Dissolved	< 0.008 mg/L	0.008	6010	5/17/99	14:00	TB
Manganese, Dissolved	< 0.003 mg/L	0.003	6010	5/17/99	14:00	TB
Zinc, Dissolved	0.004 mg/L	0.003	6010	5/17/99	14:00	TB
Boron, Dissolved	1.06 mg/L	0.10	6010	6/ 2/99	9:30	TB
Arsenic	2.0 ug/L	2.0	206.2	5/11/99	11:02	TB
Cadmium	< 0.2 ug/L	0.20	213.2	5/ 4/99	9:11	TB
Lead	< 1 ug/L	1.0	239.2	5/ 3/99	6:41	TB
Selenium	< 1 ug/L	1.00	270.2	5/ 7/99	9:56	TB
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	5/13/99	11:00	TB
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	5/ 4/99	9:06	TB
Lead, Dissolved	< 1 ug/L	1.0	239.2	5/ 3/99	6:39	TB
Selenium, Dissolved	< 1 ug/L	1.0	270.2	5/17/99	8:00	TB

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

All data for this report has been approved by MVTL Laboratory Management.



LABORATORIES, Inc.



P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 3 Jun 1999

Lab Number: 99-L9272
Work Order #: 31-142
Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 27 Apr 1999
Time Sampled: 10:00
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-5R

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Calcium	138 mg/L	0.20	215.1	5/ 6/99	16:10	JGS
Magnesium	43.0 mg/L	0.03	242.1	5/ 6/99	16:31	JGS
Sodium	21.0 mg/L	0.05	EPA 273.1	5/10/99	9:46	JGS
Calcium, Dissolved	136 mg/L	0.20	215.1	5/ 7/99	10:45	JGS
Magnesium, Dissolved	42.0 mg/L	0.03	242.1	5/ 7/99	10:55	JGS
Sodium, Dissolved	26.0 mg/L	0.05	273.1	5/10/99	11:30	JGS
Nitrate	4.44 mg/L as N	NA	353.2	4/29/99		Calculated
Carbon, Total Organic	2.0 mg/L	1.0	415.1	5/ 4/99		OL

OL = Analysis Performed by an Outside Laboratory

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WISCONSIN LAB ID # 999447680

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Report Date: 3 Jun 1999

Lab Number: 99-L9273
Work Order #: 31-142
Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 27 Apr 1999
Time Sampled: 11:31
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-12R

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Appearance, Field	Partly cloudy	NA	2110			PO
Water Elevation	77.69	NA	NA			PO
Temperature - Field	12.1 Deg. C	NA	170.1			PO
Specific Conductance, Fld	811 umhos/cm	1.	120.1			PO
Specific Conductance	826.0 umhos/cm	0.1	120.1	4/30/99	13:14	AKF
pH, Field	7.20 units	1.00	150.1			PO
pH (Laboratory)	7.3 units	1.0	150.1	4/28/99	5:32	LF
Fluoride	< 0.1 mg/L	0.10	340.2	4/30/99	9:28	JD
Sulfate	70 mg/L	4	375.4	4/30/99		DRP
Chloride	23.5 mg/L	3.0	325.2	5/ 2/99		DRP
Nitrate+Nitrite	4.00 mg/L as N	0.05	353.2	4/29/99		DRP
Nitrite	0.01 mg/L as N	0.01	EPA 353.2	4/29/99		DRP
Phenolics, Total	< 5 ug/L	5	420.1	5/ 7/99	9:00	JD
Cyanide, Total	< 0.02 mg/L	0.02	335.2	5/ 6/99		JD
Chemical Oxygen Demand	18 mg/L	5	410.4	4/30/99	5:49	JD
Solids, Total Dissolved	487 mg/L	1	160.1	4/28/99	15:26	LF
Barium	0.052 mg/L	0.006	6010	5/24/99	13:00	TB
Chromium	< 0.012 mg/L	0.012	6010	5/24/99	13:00	TB

OL = Analysis Performed by an Outside Laboratory

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Report Date: 3 Jun 1999

Lab Number: 99-L9273
Work Order #: 31-142
Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 27 Apr 1999
Time Sampled: 11:31
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-12R

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Iron	1.550 mg/L	0.008	6010	6/ 2/99	13:40	TB
Manganese	0.017 mg/L	0.003	6010	5/24/99	13:00	TB
Zinc	< 0.003 mg/L	0.003	6010	5/24/99	13:00	TB
Boron	0.185 mg/L	0.100	6010	6/ 2/99	9:30	TB
Barium, Dissolved	0.054 mg/L	0.006	6010	5/17/99	14:00	TB
Chromium, Dissolved	< 0.012 mg/L	0.012	6010	5/17/99	14:00	TB
Iron, Dissolved	0.098 mg/L	0.008	6010	5/17/99	14:00	TB
Manganese, Dissolved	0.006 mg/L	0.003	6010	5/17/99	14:00	TB
Zinc, Dissolved	< 0.003 mg/L	0.003	6010	5/17/99	14:00	TB
Boron, Dissolved	< 0.1 mg/L	0.10	6010	6/ 2/99	9:30	TB
Arsenic	< 2 ug/L	2.0	206.2	5/11/99	11:02	TB
Cadmium	< 0.2 ug/L	0.20	213.2	5/ 4/99	9:11	TB
Lead	< 1 ug/L	1.0	239.2	5/ 3/99	6:41	TB
Selenium	< 1 ug/L	1.00	270.2	5/ 7/99	9:56	TB
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	5/13/99	11:00	TB
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	5/ 4/99	9:06	TB
Lead, Dissolved	< 1 ug/L	1.0	239.2	5/ 3/99	6:39	TB
Selenium, Dissolved	< 1 ug/L	1.0	270.2	5/17/99	8:00	TB

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
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Report Date: 3 Jun 1999

Lab Number: 99-L9273

Work Order #: 31-142

Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999

Date Sampled: 27 Apr 1999

Time Sampled: 11:31

Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-12R

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Calcium	108 mg/L	0.20	215.1	5/ 6/99	16:10	JGS
Magnesium	31.0 mg/L	0.03	242.1	5/ 6/99	16:31	JGS
Sodium	10.5 mg/L	0.05	EPA 273.1	5/10/99	9:46	JGS
Calcium, Dissolved	110 mg/L	0.20	215.1	5/ 7/99	10:45	JGS
Magnesium, Dissolved	32.0 mg/L	0.03	242.1	5/ 7/99	10:55	JGS
Sodium, Dissolved	10.9 mg/L	0.05	273.1	5/10/99	11:30	JGS
Nitrate	3.99 mg/L as N	NA	353.2	4/29/99		Calculated
Carbon, Total Organic	1.9 mg/L	1.0	415.1	5/ 4/99		OL

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 3 Jun 1999

Lab Number: 99-L9274
Work Order #: 31-142
Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 27 Apr 1999
Time Sampled: 12:10
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-9R

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Appearance, Field	Clear	NA	2110			PO
Water Elevation	1024.37	NA	NA			PO
Temperature - Field	12.4 Deg. C	NA	170.1			PO
Specific Conductance, fld	835 umhos/cm	1.	120.1			PO
Specific Conductance	860.0 umhos/cm	0.1	120.1	4/30/99	13:14	AKF
pH, Field	7.10 units	1.00	150.1			PO
pH (Laboratory)	7.3 units	1.0	150.1	4/28/99	5:32	LF
Fluoride	< 0.1 mg/L	0.10	340.2	4/30/99	9:28	JD
Sulfate	72 mg/L	4	375.4	4/30/99		DRP
Chloride	19.3 mg/L	3.0	325.2	5/ 2/99		DRP
Nitrate+Nitrite	3.81 mg/L as N	0.05	353.2	4/29/99		DRP
Nitrite	0.01 mg/L as N	0.01	EPA 353.2	4/29/99		DRP
Phenolics, Total	< 5 ug/L	5	420.1	5/ 7/99	9:00	JD
Cyanide, Total	< 0.02 mg/L	0.02	335.2	5/ 6/99		JD
Chemical Oxygen Demand	8 mg/L	5	410.4	4/30/99	5:49	JD
Solids, Total Dissolved	512 mg/L	1	160.1	4/28/99	15:26	LF
Barium	0.600 mg/L	0.006	6010	5/24/99	13:00	T8
Chromium	< 0.012 mg/L	0.012	6010	5/24/99	13:00	T8

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Lab Number: 99-L9274
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Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 27 Apr 1999
Time Sampled: 12:10
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-9R

Analyte	Result	RI	Method	Date Analyzed	Time Analyzed	Analyst
Iron	0.155 mg/L	0.008	6010	6/ 2/99	13:40	TB
Manganese	0.009 mg/L	0.003	6010	5/24/99	13:00	TB
Zinc	< 0.003 mg/L	0.003	6010	5/24/99	13:00	TB
Boron	0.121 mg/L	0.100	6010	6/ 2/99	9:30	TB
Barium, Dissolved	0.191 mg/L	0.006	6010	5/17/99	14:00	TB
Chromium, Dissolved	< 0.012 mg/L	0.012	6010	5/17/99	14:00	TB
Iron, Dissolved	< 0.008 mg/L	0.008	6010	5/17/99	14:00	TB
Manganese, Dissolved	0.010 mg/L	0.003	6010	5/17/99	14:00	TB
Zinc, Dissolved	0.020 mg/L	0.003	6010	5/17/99	14:00	TB
Boron, Dissolved	< 0.1 mg/L	0.10	6010	6/ 2/99	9:30	TB
Arsenic	< 2 ug/L	2.0	206.2	5/11/99	11:02	TB
Cadmium	0.40 ug/L	0.20	213.2	5/ 4/99	9:11	TB
Lead	< 1 ug/L	1.0	239.2	5/ 3/99	6:41	TB
Selenium	< 1 ug/L	1.00	270.2	5/ 7/99	9:56	TB
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	5/13/99	11:00	TB
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	5/ 4/99	9:06	TB
Lead, Dissolved	1.4 ug/L	1.0	239.2	5/ 3/99	6:39	TB
Selenium, Dissolved	< 1 ug/L	1.0	270.2	5/17/99	8:00	TB

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MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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LABORATORIES, Inc.



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NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 3 Jun 1999

Lab Number: 99-L9274
Work Order #: 31-142
Account #: 013138

DEAN STOCKWELL
WOODWARD CLYDE
6465 WAYZATA BLVD
MINNEAPOLIS MN 55426-1711

Date Received: 28 Apr 1999
Date Sampled: 27 Apr 1999
Time Sampled: 12:10
Temperature at Receipt: 1.1C

Project Name: DEZURIK
Sample Description: P-9R

Analyte	Result	RL	Method	Date Analyzed	Time Analyzed	Analyst
Calcium	101 mg/L	0.20	215.1	5/ 6/99	16:10	JGS
Magnesium	34.0 mg/L	0.03	242.1	5/ 6/99	16:31	JGS
Sodium	8.00 mg/L	0.05	EPA 273.1	5/10/99	9:46	JGS
Calcium, Dissolved	113 mg/L	0.20	215.1	5/ 7/99	10:45	JGS
Magnesium, Dissolved	36.0 mg/L	0.03	242.1	5/ 7/99	10:55	JGS
Sodium, Dissolved	8.50 mg/L	0.05	273.1	5/10/99	11:30	JGS
Nitrate	3.80 mg/L as N	NA	353.2	4/29/99		Calculated
Carbon, Total Organic	1.8 mg/L	1.0	415.1	5/ 4/99		OL

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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MINNESOTA VALLEY
TESTING LABORATORIES, Inc.



31-142
L9268-L9274

PHONE (507) 354-8517
MN WATS (800) 782-3557

CENTER & GERMAN STREETS, NEW ULM, MINNESOTA 56073

CHAIN OF CUSTODY RECORD

Project Name		Name of Sampler					Representing			
DeZurick		T. S. Newkirk					MVT			
Field Number	Date	Time	Sample Type(s)					Analyses Requested	Comments on Samples	
			monitoring well	existing well	surface water	wastewater	waste			other
P-17A	26 Apr 99	10:58	X					See Attached		
P-13B	↓	3:16	X					Shrubs		
P-13C	27 Apr 99	9:40	X							
P-13D	↓	2:39	X							
P-5E	↓	10:01	X							
P-12R	↓	11:32	X							
Remarks on Site										
Samples Relinquished by			1:10 L			Samples Received by		Comments		Date/Time
			5:30 27 Apr 99			Alicia Quader				4/28/99
Samples Relinquished by						Samples Received by		Comments		Date/Time
Samples Relinquished by						Samples Received by		Comments		Date/Time
Means of Delivery						Seals Intact:		<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N.A.		



MINNESOTA VALLEY
TESTING LABORATORIES, Inc.



PHONE (607) 354-8517
MN WATS (800) 782-3557

CENTER & GERMAN STREETS, NEW ULM, MINNESOTA 56073

CHAIN OF CUSTODY RECORD

Project Name		Name of Sample		Representing					
DeZwik		T.S. Dewhart		MOTC					
Field Number	Date	Time	Sample Type(s)					Analyses Requested	Comments on Samples
			monitoring well	existing well	surface water	wastewater	waste		
P-9R	27 Apr 99	12:11	X					See Attached Sheets	
Remarks on Site									
Samples Relinquished by			1.1 °C 27 Apr 99		Samples Received by		Comments		
			5:30		Alice Puder		Date/Time 4/28/99 5:30 AM		
Samples Relinquished by					Samples Received by		Comments		
Samples Relinquished by					Samples Received by		Comments		
Means of Delivery					Seals intact:		<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N.A.		



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Quote Number 1501

Page 1 of 1

Name: Sean Stockwell Project Manager: same
 Company Name: URS Greiner Woodward Clyde Project Name: DeZurek-Lagoon #3
 Address: 6465 Wayzata Blvd. P.O. Number: NA
Minneapolis MN 55426 Certificate Number: NA
 Telephone: 612-593-5650 FAX #: 612-593-0094 Acct. #: 013138

Date: 2/11/99 Expiration Date: 12/31/99 Requested Turnaround Time: Standard

Quantity	Sample Matrix	Analyte	Billing Code (Office Use Only)	Unit Cost	Total Cost
<i>Spring Quarter</i>					
4	GW	Parameters in Table 2		\$ 449.63	\$ 1798.52
3	GW	P13 series on Table 2		\$ 75.00	\$ 225.00
7	GW	Sampling fee		\$ 60.00	\$ 420.00
			<i>Spring Total</i>		\$ 2443.52
<i>Fall Quarter</i>					
4	GW	Parameters in Table 2		\$ 449.63	\$ 1798.52
3	GW	P13 series on Table 2		\$ 75.00	\$ 225.00
7	GW	Sampling fee		\$ 60.00	\$ 420.00
			<i>Summer Total</i>		\$ 2443.52
			<i>Yearly TOTAL</i>		\$ 4887.04

Comments:

Quoted by: Jenny Balbach
 Title: Supervisor, Env. Services

GT1508 KEMSKE PAPER CO., NEW ULM, MN

Table 2

**GROUND WATER MONITORING PARAMETERS*
 CLOSED HAZARDOUS WASTE LANDFILL
 LAGOON NUMBER 3
 SARTELL, MINNESOTA**

*Arsenic, total & dissolved	Manganese, total & dissolved	
Barium, total & dissolved	Nitrate	1000 HNO_3
Boron, total & dissolved	Phenols	1000 Filter
*Cadmium, total & dissolved	*Selenium, total & dissolved	1000 None
Calcium, total & dissolved	Sodium, total & dissolved	
Chloride	Sulfate	
Chromium, total & dissolved	TOC - ? 500 H_2SO_4	1000 Amber
COD	TDS	None
Cyanide	Zinc, total & dissolved	- 1000 H_2SO_4
Fluoride	pH	
Iron, total & dissolved	Specific Conductance	500 NaOH
*Lead, total & dissolved	Temperature	
Magnesium, total & dissolved		

* All analyses shall comply with the site specific Quality Assurance Project Plan and all metals shall be annexed for both dissolved and total concentrations.

**Well P-13
Series of four samples**

Arsenic, dissolved	Barium, dissolved	500 F HNO_3
Cadmium, dissolved	Lead, dissolved	
Selenium, dissolved		

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Site: P-13A

Sampling Personnel:

T. J. Newkirk

Solid Waste Permit #: _____

Date: 26 Apr 99

Well Number: P-13A

WELL INFORMATION

Well Depth: 79.02 87.00

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: _____

Casing Diameter: 4"

Static Elevation: _____

Well Volume: 5.2 Gallons

Previous Static: _____

Water Depth Before: 87.00 79.02

Water Depth After: 79.13

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailer / Grundfos / Whale / Grab / Other:

Dedicated Equipment: Yes / No

Pumping Rate: 2.25 GPM.

Weather Conditions: Mostly Cloudy, Breezy, 56°

Well Purged Dry?: Yes / No

Time Pumping Began: 10:45

Time Purged Dry: _____

Time of Sampling: 10:58

Amount of Water Removed: 27.0 Gallons

Sample Appearance: CLEAR

Duplicate Sample?: Yes / No ID: _____

Sample EH/ORP: -70.4

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
10:48	7.31	683	14.08	NA	NA	6.75
10:51	6.97	674	12.95	↓	↓	13.50
10:54	6.91	673	12.76			20.25
10:57	6.91	674	12.64			27.00

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Site: DE ZURIK

Sampling Personnel:

T.J. NEWKIRK
PETE OTERNESS

Solid Waste Permit #: _____

Date: 26 Apr 99

Well Number: P 13-B

WELL INFORMATION

Well Depth: 87.00

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: _____

Casing Diameter: 4"

Static Elevation: _____

Well Volume: 5.2 Gallons

Previous Static: _____

Water Depth Before: 79.02

Water Depth After: 79.11

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailer / Grundfos / Whale / Grab / Other:

Dedicated Equipment: Yes / No

Pumping Rate: 3.0 → 2.25 GPM.

Weather Conditions: CLOUDY, 63°

Well Purged Dry?: Yes / No

Time Pumping Began: 3:09

Time Purged Dry: —

Time of Sampling: 3:18

Amount of Water Removed: 24 Gallons

Sample Appearance: CLEAR

Duplicate Sample?: Yes / No ID: —

Sample pH/ORP: —

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
3:11	7.87	692	13.54	NA	NA	6
3:13	7.33	687	12.90	↓	↓	12
3:15	7.26	684	12.75	↓	↓	18
3:17	7.25	687	12.63	↓	↓	24
				↓	↓	

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Site: DEZURIK

Sampling Personnel:
PETE OTTERNESS
T.J. NEWKIRK

Solid Waste Permit #: _____
 Date: 27 Apr 99
 Well Number: P-13C

WELL INFORMATION

Well Depth: 87.00
 Constructed Depth: _____
 Casing Diameter: 4"
 Well Volume: 4.9 Gallons
 Water Depth Before: 79.05

Screen Interval: _____
 Well Casing Elev: _____
 Static Elevation: _____
 Previous Static: _____
 Water Depth After: 79.20

WELL CONDITION

Well Locked? Yes / No
 Well Labelled? Yes / No
 Casing Straight? Yes / No

Protective Posts? Yes / No
 State ID Tag? Yes / No
 Grout Seal Intact? Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailor / Grundfos / Whale / Grab / Other: _____
 Dedicated Equipment: Yes / No Pumping Rate: 3.0 GPM.
 Weather Conditions: Cloudy 47° winds
 Well Purged Dry? Yes / No Time Pumping Began: 9:29
 Time Purged Dry: _____ Time of Sampling: 9:40
 Amount of Water Removed: 30 Gallons Sample Appearance: Clear
 Duplicate Sample? Yes / No ID: _____ Sample pH/ORP: _____

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
9:31	5.63	692	11.73	NA	NA	6
9:33	5.84	687	12.00	↓	↓	12
9:35	6.01	688	12.01	↓	↓	18
9:37	6.27	688	12.01	↓	↓	24
9:39	6.33	688	11.91	↓	↓	30

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Site: DEZURK

Sampling Personnel:
PEE OTTERNESS
T.J. NEWKIRK

Solid Waste Permit #: _____

Date: 27 Apr 99

Well Number: P 13-D

WELL INFORMATION

Well Depth: 87.00

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: 1102.98

Casing Diameter: 4"

Static Elevation: 1023.94

Well Volume: 5.2 Gallons

Previous Static: 1024.47

Water Depth Before: 79.04

Water Depth After: 79.25

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailor / Grundfos / Whale / Grab / Other:

Dedicated Equipment: Yes / No Pumping Rate: 2.25 GPM.

Weather Conditions: Cloudy, 55°

Well Purged Dry?: Yes / No Time Pumping Began: 2:23

Time Purged Dry: _____ Time of Sampling: 2:39

Amount of Water Removed: 33.75 Gallons Sample Appearance: CLEAR

Duplicate Sample?: Yes / No ID: _____ Sample #H/GRP: _____

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
2:26	7.56	698	13.11	NA	NA	6.75
2:29	7.25	696	12.27	↓	↓	13.50
2:32	7.04	694	12.22			20.25
2:35	7.01	694	12.26			27.00
2:38	7.03	698	12.25			33.75

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Site: D=Zurck

Sampling Personnel:

T. J. NEWKIRK
PEG OTTERNESS

Solid Waste Permit #: _____

Date: 27 APR 99

Well Number: P- 5R

WELL INFORMATION

Well Depth: 81.44

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: 1099.44

Casing Diameter: 4

Static Elevation: 1624.03

Well Volume: 4.1 Gallons

Previous Static: 1026.02

Water Depth Before: 75.41

Water Depth After: 75.43

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailer / Grundfos / Whale / Grab / Other: _____

Dedicated Equipment: Yes / No

Pumping Rate: 1.5 GPM.

Weather Conditions: Cloudy 52°

Well Purged Dry?: Yes / No

Time Pumping Began: 9:51

Time Purged Dry: _____

Time of Sampling: 10:01

Amount of Water Removed: 13.5 Gallons

Sample Appearance: CLEAR

Duplicate Sample?: Yes / No ID: _____

Sample pH/ORP: 79.1

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
9:54	6.71	1032	12.79	NA	NA	4.5
9:57	6.74	1035	12.85	↓	↓	9.0
10:00	6.79	1031	12.83			13.5

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Sampling Personnel:
Pete Ottuness
T.J. Newbank

Site: De Zurek
 Solid Waste Permit #: _____
 Date: 27 Apr 99
 Well Number: P-12R

WELL INFORMATION

Well Depth: 86.83 Screen Interval: _____
 Constructed Depth: _____ Well Casing Elev: _____
 Casing Diameter: 4" Static Elevation: _____
 Well Volume: 6-0 Gallons Previous Static: _____
 Water Depth Before: 77.69 Water Depth After: 77.69

WELL CONDITION

Well Locked?: Yes / No
 Well Labelled?: Yes / No
 Casing Straight?: Yes / No
 Protective Posts?: Yes / No
 State ID Tag?: Yes / No
 Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailor / Groundpump / Whale / Grab / Other:
 Dedicated Equipment: Yes / No Pumping Rate: 1.5 GPM.
 Weather Conditions: Cloudy, 55°
 Well Purged Dry?: Yes / No Time Pumping Began: 11:11
 Time Purged Dry: _____ Time of Sampling: 11:32
 Amount of Water Removed: 30 Gallons Sample Appearance: Partly Cloudy
 Duplicate Sample?: Yes / No ID: _____ Sample EH/ORP: 25.2

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
11:15	7.65	805	12.43	NA	NA	6
11:19	7.35	808	12.13	↓	↓	12
11:23	7.15	809	12.08			18
11:27	7.15	807	12.04			24
11:31	7.16	811	12.08			30

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Site: SARTELL / DEZURIK

Sampling Personnel:

PETE OTTERNESS
T.J. NEWKIRK

Solid Waste Permit #: _____

Date: 27 Apr 99

Well Number: P-9R

WELL INFORMATION

Well Depth: 86.51

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: 1102.98

Casing Diameter: 4"

Static Elevation: 1024.37

Well Volume: 5.2 Gallons

Previous Static: 1024.47

Water Depth Before: 78.61

Water Depth After: 78.63

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailor Grundfos / Whale / Grab / Other: _____

Dedicated Equipment: Yes / No

Pumping Rate: 1.5 GPM.

Weather Conditions: CLOUDY, 57°

Well Purged Dry?: Yes / No

Time Pumping Began: 11:50

Time Purged Dry: _____

Time of Sampling: 12:11

Amount of Water Removed: 30 Gallons

Sample Appearance: Clear

Duplicate Sample?: Yes / No ID: _____

Sample pH/ORP: -71.5

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
11:54	7.57	749	12.75	NA	NA	6
11:58	7.27	829	12.59	↓	↓	12
12:02	7.10	830	12.59			18
12:06	7.05	835	12.51			24
12:10	7.10	835	12.54			30

Comments:

Exceptions to Protocol:



LABORATORIES, Inc.



P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Date Reported: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Work Order #: 31-430
Account Number: 013138

Project Name: DEZURIK

Sampler Signature

RL = Reporting Limits
NQ = Not Present, Qualitative Only
PQ = Present, Qualitative Only
ND = Not Determined

All data for this report has been approved by MVTL Laboratory Management.



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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30631
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 26 Oct 1999
Time Sampled: 11:43
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-13A

Analyte	Result	RL	Method	Date Analyzed	Analyst
Appearance, Field	Clear	NA	2110		PO
Water Elevation	78.88	NA	NA		PO
Temperature - Field	12.2 deg. C	NA	170.1		PO
Specific Conductance, fld	250 umhos/cm	1.	120.1		PO
Specific Conductance	744.0 umhos/cm	0.1	120.1	10/28/99	PSK
pH, Field	7.40 units	1.00	150.1		PO
pH (Laboratory)	7.4 units	1.0	150.1	11/ 9/99	15:11 AKF
EH, Field	-4.8 units	NA	NA		PO
Fluoride	< 0.1 mg/L	0.10	340.2	11/ 1/99	5:34 JD
Sulfate	32 mg/L	4	375.4	11/ 2/99	13:31 TNK
Chloride	16.8 mg/L	3.0	325.2	11/ 1/99	13:11 TNK
Nitrate+Nitrite	5.48 mg/L as N	0.05	353.2	10/28/99	11:10 TNK
Phenolics, Total	< 5 ug/L	5	420.1	10/29/99	15:33 JD
Cyanide, Total	< 0.01 mg/L	0.01	335.2	11/ 5/99	OL
Chemical Oxygen Demand	6 mg/L	5	410.4	10/29/99	5:00 JD
Solids, Total Dissolved	396 mg/L	1	160.1	11/ 9/99	10:45 AKF

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

All data for this report has been approved by MVTL Laboratory Management.



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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30631
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 26 Oct 1999
Time Sampled: 11:43
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-13A

Analyte	Result	RI	Method	Date Analyzed	Analyst
Barium	0.039 mg/L	0.003	6010	11/ 2/99 16:00	TB
Chromium	< 0.002 mg/L	0.002	6010	11/ 2/99 16:00	TB
Iron	0.093 mg/L	0.008	6010	11/ 2/99 16:00	TB
Manganese	0.008 mg/L	0.003	6010	11/ 2/99 16:00	TB
Zinc	0.026 mg/L	0.007	6010	11/ 2/99 16:00	TB
Boron	< 0.1 mg/L	0.100	6010	11/19/99 8:30	TB
Barium, Dissolved	0.095 mg/L	0.003	6010	11/ 8/99 13:00	TB
Chromium, Dissolved	< 0.002 mg/L	0.002	6010	11/ 8/99 13:00	TB
Iron, Dissolved	< 0.008 mg/L	0.008	6010	11/ 8/99 13:00	TB
Manganese, Dissolved	0.005 mg/L	0.003	6010	11/ 8/99 13:00	TB
Zinc, Dissolved	< 0.007 mg/L	0.007	6010	12/ 2/99 13:00	TB
Boron, Dissolved	< 0.1 mg/L	0.10	6010	11/ 4/99 13:00	TB
Arsenic	< 2 ug/L	2.0	206.2	11/ 1/99 15:18	J6S
Cadmium	< 0.2 ug/L	0.20	213.2	11/ 3/99 13:22	J6S
Lead	< 1 ug/L	1.0	239.2	11/16/99 10:17	J6S
Selenium	< 1 ug/L	1.00	270.2	11/ 9/99 13:49	J6S

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30631
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 26 Oct 1999
Time Sampled: 11:43
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-13A

Analyte	Result	RI	Method	Date Analyzed	Analyst
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	11/ 3/99 10:52	JGS
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	11/ 2/99 13:15	JGS
Lead, Dissolved	< 1 ug/L	1.0	239.2	11/ 1/99 15:12	JGS
Selenium, Dissolved	< 1 ug/L	1.0	270.2	12/16/99 15:12	JGS
Calcium	85.0 mg/L	0.20	215.1	11/ 2/99 12:54	JGS
Magnesium	21.0 mg/L	0.03	242.1	11/ 2/99 13:01	JGS
Sodium	6.90 mg/L	0.05	EPA 273.1	12/14/99 15:39	JGS
Calcium, Dissolved	92.0 mg/L	0.20	215.1	11/16/99 13:01	JGS
Magnesium, Dissolved	23.0 mg/L	0.03	242.1	11/16/99 13:04	JGS
Sodium, Dissolved	3.90 mg/L	0.05	273.1	11/17/99 13:11	JGS
Carbon, Total Organic	< 1 mg/L	1.0	415.1	11/ 5/99 01	

For some analytes the dissolved metals are greater than or equal to the total. In those cases the sample has been reanalyzed and the result verified. The conclusion to be drawn is that the analyte is present in dissolved form so that total equals dissolved metals.

01 = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30632
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 11:24
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-9R

Analyte	Result	RI	Method	Date Analyzed	Analyst
Appearance, Field	Clear	NA	2110		PO
Water Elevation	78.28	NA	NA		PO
Temperature - Field	12.6 deg. C	NA	170.1		PO
Specific Conductance, Fld	801 umhos/cm	1.	120.1		PO
Specific Conductance	953.0 umhos/cm	0.1	120.1	10/28/99	PSK
pH, Field	7.51 units	1.00	150.1		PO
pH (Laboratory)	7.3 units	1.0	150.1	11/ 9/99	15:11 AKF
EH, Field	-1.5 units	NA	NA		PO
Fluoride	< 0.1 mg/L	0.10	340.2	11/ 1/99	5:34 JD
Sulfate	88 mg/L	4	375.4	11/ 2/99	13:31 TMK
Chloride	22.6 mg/L	3.0	325.2	11/ 1/99	13:11 TMK
Nitrate+Nitrite	4.26 mg/L as N	0.05	353.2	10/28/99	11:10 TMK
Phenolics, Total	< 5 ug/L	5	420.1	10/29/99	15:33 JD
Cyanide, Total	< 0.01 mg/L	0.01	335.2	11/ 5/99	OL
Chemical Oxygen Demand	10 mg/L	5	410.4	10/29/99	5:00 JD
Solids, Total Dissolved	531 mg/L	1	160.1	11/ 9/99	10:45 AKF

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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LABORATORIES, Inc.



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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30632
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 11:24
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-9R

Analyte	Result	RI	Method	Date Analyzed	Analyst
Barium	0.063 mg/L	0.003	6010	11/ 2/99 16:00	TB
Chromium	< 0.002 mg/L	0.002	6010	11/ 2/99 16:00	TB
Iron	0.088 mg/L	0.008	6010	11/ 2/99 16:00	TB
Manganese	0.013 mg/L	0.003	6010	11/ 2/99 16:00	TB
Zinc	0.028 mg/L	0.007	6010	11/ 2/99 16:00	TB
Boron	< 0.1 mg/L	0.100	6010	11/19/99 8:30	TB
Barium, Dissolved	0.126 mg/L	0.003	6010	11/ 8/99 13:00	TB
Chromium, Dissolved	< 0.002 mg/L	0.002	6010	11/ 8/99 13:00	TB
Iron, Dissolved	< 0.008 mg/L	0.008	6010	11/ 8/99 13:00	TB
Manganese, Dissolved	0.011 mg/L	0.003	6010	11/ 8/99 13:00	TB
Zinc, Dissolved	< 0.007 mg/L	0.007	6010	12/ 2/99 13:00	TB
Boron, Dissolved	< 0.1 mg/L	0.10	6010	11/ 4/99 13:00	TB
Arsenic	< 2 ug/L	2.0	206.2	11/ 1/99 15:18	J6S
Cadmium	0.38 ug/L	0.20	213.2	11/ 3/99 13:22	J6S
Lead	< 1 ug/L	1.0	239.2	11/16/99 10:17	J6S
Selenium	< 1 ug/L	1.00	270.2	11/ 9/99 13:49	J6S

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30632
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 11:24
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-9R

Analyte	Result	RI	Method	Date Analyzed	Analyst
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	11/ 3/99 10:52	J6S
Cadmium, Dissolved	0.35 ug/L	0.20	213.2	11/ 2/99 13:15	J6S
Lead, Dissolved	< 1 ug/L	1.0	239.2	11/ 1/99 15:12	J6S
Selenium, Dissolved	< 1 ug/L	1.0	270.2	11/24/99 6:47	J6S
Calcium	108 mg/L	0.20	215.1	11/ 2/99 12:54	J6S
Magnesium	32.0 mg/L	0.03	242.1	11/ 2/99 13:01	J6S
Sodium	7.00 mg/L	0.05	EPA 273.1	11/11/99 15:39	J6S
Calcium, Dissolved	114 mg/L	0.20	215.1	11/16/99 13:01	J6S
Magnesium, Dissolved	35.0 mg/L	0.03	242.1	11/16/99 13:04	J6S
Sodium, Dissolved	7.60 mg/L	0.05	273.1	11/17/99 13:11	J6S
Carbon, Total Organic	< 1 mg/L	1.0	415.1	11/ 5/99 0L	

For some analytes the dissolve metals are greater than or equal to the total. In those cases the sample has been reanalyzed and the results verified. The conclusion to be drawn is that the analyte is present in dissolved for so that total equals dissolved

0L = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

All data for this report has been approved by MVTL Laboratory Management.



LABORATORIES, Inc.



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NEW ULM, MN 56073-0249
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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30633
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 10:41
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-12R

Analyte	Result	RI	Method	Date Analyzed	Analyst
Appearance, Field	Slightly cloudy	NA	2110		PO
Water Elevation	77.40	NA	NA		PO
Temperature - Field	12.0 deg. C	NA	170.1		PO
Specific Conductance, Fld	731 umhos/cm	1.	120.1		PO
Specific Conductance	832.0 umhos/cm	0.1	120.1	10/28/99	PSK
pH, Field	7.60 units	1.00	150.1		PO
pH (Laboratory)	7.4 units	1.0	150.1	11/ 9/99	15:11 AKF
EH, Field	-5.0 units	NA	NA		PO
Fluoride	< 0.1 mg/L	0.10	340.2	11/ 1/99	5:34 JD
Sulfate	73 mg/L	4	375.4	11/ 2/99	13:31 TNK
Chloride	19.4 mg/L	3.0	325.2	11/ 1/99	13:11 TNK
Nitrate+Nitrite	3.62 mg/L as N	0.05	353.2	10/28/99	11:10 TNK
Phenolics, Total	< 5 ug/L	5	420.1	10/29/99	15:33 JD
Cyanide, Total	< 0.01 mg/L	0.01	335.2	11/ 5/99	OL
Chemical Oxygen Demand	6 mg/L	5	410.4	10/29/99	5:00 JD
Solids, Total Dissolved	3540 mg/L	1	160.1	11/ 9/99	10:45 AKF

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30633
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 10:41
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-12R

Analyte	Result	RL	Method	Date Analyzed	Analyst
Barium	0.053 mg/L	0.003	6010	11/ 2/99 16:00	TB
Chromium	< 0.002 mg/L	0.002	6010	11/ 2/99 16:00	TB
Iron	1.750 mg/L	0.008	6010	11/ 2/99 16:00	TB
Manganese	0.016 mg/L	0.003	6010	11/ 2/99 16:00	TB
Zinc	0.027 mg/L	0.007	6010	11/ 2/99 16:00	TB
Boron	< 0.1 mg/L	0.100	6010	11/19/99 8:30	TB
Barium, Dissolved	0.159 mg/L	0.003	6010	11/ 8/99 13:00	TB
Chromium, Dissolved	< 0.002 mg/L	0.002	6010	11/ 8/99 13:00	TB
Iron, Dissolved	0.090 mg/L	0.008	6010	11/ 8/99 13:00	TB
Manganese, Dissolved	0.004 mg/L	0.003	6010	11/ 8/99 13:00	TB
Zinc, Dissolved	0.008 mg/L	0.007	6010	12/ 2/99 13:00	TB
Boron, Dissolved	< 0.1 mg/L	0.10	6010	11/ 4/99 13:00	TB
Arsenic	< 2 ug/L	2.0	206.2	11/ 1/99 15:18	J6S
Cadmium	< 0.2 ug/L	0.20	213.2	11/ 3/99 13:22	J6S
Lead	< 1 ug/L	1.0	239.2	11/16/99 10:17	J6S
Selenium	< 1 ug/L	1.00	270.2	11/ 9/99 13:49	J6S

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

All data for this report has been approved by MVTL Laboratory Management.



LABORATORIES, Inc.



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Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30633
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 10:41
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-12R

Analyte	Result	RI	Method	Date Analyzed	Analyst
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	11/ 3/99 10:52	JGS
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	11/ 2/99 13:15	JGS
Lead, Dissolved	< 1 ug/L	1.0	239.2	11/ 1/99 15:12	JGS
Selenium, Dissolved	< 1 ug/L	1.0	270.2	11/24/99 6:47	JGS
Calcium	91.0 mg/L	0.20	215.1	11/ 2/99 12:54	JGS
Magnesium	24.0 mg/L	0.03	242.1	11/ 2/99 13:01	JGS
Sodium	15.8 mg/L	0.05	EPA 273.1	11/11/99 15:39	JGS
Calcium, Dissolved	97.0 mg/L	0.20	215.1	11/16/99 13:01	JGS
Magnesium, Dissolved	26.0 mg/L	0.03	242.1	11/16/99 13:04	JGS
Sodium, Dissolved	15.9 mg/L	0.05	273.1	11/17/99 13:11	JGS
Carbon, Total Organic	< 1 mg/L	1.0	415.1	11/ 5/99 01	

For some analytes the dissolved metals are greater than or equal to the total. In those cases the sample has been reanalyzed and the result verified. The conclusion to be drawn is that the analyte is present in dissolved form so that total equals dissolved.

01 = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30634
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 9:51
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-5R

Analyte	Result	RL	Method	Date Analyzed	Analyst
Appearance, Field	Clear	NA	2110		PO
Water Elevation	75.11	NA	NA		PO
Temperature - Field	11.7 deg. C	NA	170.1		PO
Specific Conductance, Fld	1037 umhos/cm	1.	120.1		PO
Specific Conductance	1072 umhos/cm	0.1	120.1	10/28/99	PSK
pH, Field	7.30 units	1.00	150.1		PO
pH (Laboratory)	7.3 units	1.0	150.1	11/ 9/99 15:11	AKF
EH, Field	10.9 units	NA	NA		PO
Fluoride	< 0.1 mg/L	0.10	340.2	11/ 1/99 5:34	JD
Sulfate	139 mg/L	4	375.4	11/ 2/99 13:31	TNK
Chloride	22.7 mg/L	3.0	325.2	11/ 1/99 13:11	TNK
Nitrate+Nitrite	4.73 mg/L as N	0.05	353.2	10/28/99 11:10	TNK
Phenolics, Total	< 5 ug/L	5	420.1	10/29/99 15:33	JD
Cyanide, Total	< 0.01 mg/L	0.01	335.2	11/ 5/99	OL
Chemical Oxygen Demand	10 mg/L	5	410.4	10/29/99 5:00	JD
Solids, Total Dissolved	1540 mg/L	1	160.1	11/ 9/99 10:45	AKF

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30634
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 9:51
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-5R

Analyte	Result	RL	Method	Date Analyzed	Analyst
Barium	0.075 mg/L	0.003	6010	11/ 2/99 16:00	TB
Chromium	< 0.002 mg/L	0.002	6010	11/ 2/99 16:00	TB
Iron	0.877 mg/L	0.008	6010	11/ 2/99 16:00	TB
Manganese	0.043 mg/L	0.003	6010	11/ 2/99 16:00	TB
Zinc	0.029 mg/L	0.007	6010	11/ 2/99 16:00	TB
Boron	0.759 mg/L	0.100	6010	11/19/99 8:30	TB
Barium, Dissolved	0.210 mg/L	0.003	6010	11/ 8/99 13:00	TB
Chromium, Dissolved	< 0.002 mg/L	0.002	6010	11/ 8/99 13:00	TB
Iron, Dissolved	< 0.008 mg/L	0.008	6010	11/ 8/99 13:00	TB
Manganese, Dissolved	< 0.003 mg/L	0.003	6010	11/ 8/99 13:00	TB
Zinc, Dissolved	0.021 mg/L	0.007	6010	12/ 2/99 13:00	TB
Boron, Dissolved	0.73 mg/L	0.10	6010	11/ 4/99 13:00	TB
Arsenic	< 2 ug/L	2.0	206.2	11/ 1/99 15:18	J6S
Cadmium	< 0.2 ug/L	0.20	213.2	11/ 3/99 13:22	J6S
Lead	< 1 ug/L	1.0	239.2	10/31/99 15:04	J6S
Selenium	< 1 ug/L	1.00	270.2	11/ 9/99 13:49	J6S

OL = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30634
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 9:51
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-5R

Analyte	Result	RI	Method	Date Analyzed	Analyst
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	11/ 3/99 10:52	JGS
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	11/ 2/99 13:15	JGS
Lead, Dissolved	< 1 ug/L	1.0	239.2	11/ 1/99 15:12	JGS
Selenium, Dissolved	< 1 ug/L	1.0	270.2	11/24/99 6:47	JGS
Calcium	131 mg/L	0.20	215.1	11/ 2/99 12:54	JGS
Magnesium	40.0 mg/L	0.03	242.1	11/ 2/99 13:01	JGS
Sodium	17.6 mg/L	0.05	EPA 273.1	11/11/99 15:39	JGS
Calcium, Dissolved	131 mg/L	0.20	215.1	11/16/99 13:01	JGS
Magnesium, Dissolved	40.0 mg/L	0.03	242.1	11/16/99 13:04	JGS
Sodium, Dissolved	18.2 mg/L	0.05	273.1	11/17/99 13:11	JGS
Carbon, Total Organic	< 1 mg/L	1.0	415.1	11/ 5/99 01	01

For some analytes the dissolved metals are greater than or equal to the total. In those cases the sample has been reanalyzed and the results verified. The conclusion to be drawn is that the analyte is present in dissolved form so that total equals dissolved metals.

01 = Analysis Performed by an Outside Laboratory

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30635
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 15:39
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-13B

Analyte	Result	RL	Method	Date Analyzed	Analyst
Appearance, Field	Clear	NA	2110		PO
Water Elevation	78.90	NA	NA		PO
Temperature - Field	12.5 deg. C	NA	170.1		PO
Specific Conductance, Fld	690 umhos/cm	1.	120.1		PO
pH, Field	7.36 units	1.00	150.1		PO
Barium, Dissolved	0.300 mg/l	0.003	6010	11/ 8/99 13:00	TB
Arsenic, Dissolved	< 2 ug/l	2.0	206.2	11/ 3/99 10:52	J6S
Cadmium, Dissolved	< 0.2 ug/l	0.20	213.2	11/ 2/99 13:15	J6S
Lead, Dissolved	< 1 ug/l	1.0	239.2	11/ 1/99 15:12	J6S
Selenium, Dissolved	< 1 ug/l	1.0	270.2	11/24/99 6:47	J6S

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30636
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 9:08
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-13C

Analyte	Result	RL	Method	Date Analyzed	Analyst
Appearance, Field	Clear	NA	2110		PO
Water Elevation	79.01	NA	NA		PO
Temperature - Field	11.9 deg. C	NA	170.1		PO
Specific Conductance, Fld	715 umhos/cm	1.	120.1		PO
pH, Field	7.14 units	1.00	150.1		PO
Barium, Dissolved	0.196 mg/L	0.003	6010	11/ 8/99 13:00	TB
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	11/ 3/99 10:52	J6S
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	11/ 2/99 13:15	J6S
Lead, Dissolved	< 1 ug/L	1.0	239.2	11/ 1/99 15:12	J6S
Selenium, Dissolved	< 1 ug/L	1.0	270.2	11/24/99 6:47	J6S

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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Report Date: 23 Dec 1999

DEAN STOCKWELL
URS GREINER WOODWARD CLYDE
6465 WAYZATA BLVD STE 660
MINNEAPOLIS MN 55426-1711

Lab Number: 99-L30637
Work Order #: 31-430
Account #: 013138

Date Received: 27 Oct 1999
Date Sampled: 27 Oct 1999
Time Sampled: 13:18
Temperature at Receipt: 1.6C

Project Name: DEZURIK

Sample Description: P-13D

Analyte	Result	RI	Method	Date Analyzed	Analyst
Appearance, Field	Clear	NA	2110		PO
Water Elevation	78.97	NA	NA		PO
Temperature - Field	12.2 deg. C	NA	170.1		PO
Specific Conductance, fld	644 umhos/cm	1.	120.1		PO
pH, Field	7.35 units	1.00	150.1		PO
Barium, Dissolved	0.229 mg/L	0.003	6010	11/ 8/99 13:00	TB
Arsenic, Dissolved	< 2 ug/L	2.0	206.2	11/ 3/99 10:52	J6S
Cadmium, Dissolved	< 0.2 ug/L	0.20	213.2	11/ 2/99 13:15	J6S
Lead, Dissolved	< 1 ug/L	1.0	239.2	11/ 1/99 15:12	J6S
Selenium, Dissolved	< 1 ug/L	1.0	270.2	11/24/99 6:47	J6S

MINNESOTA LAB # 027-015-125
WISCONSIN LAB ID # 999447680

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MINNESOTA VALLEY TESTING LABORATORIES, INC.
 New Ulm, MN 56073 (507) 354-8517

Field Service
CHAIN OF CUSTODY RECORD

Project Name: DEZURIK		Name of Samplers: T.J. NEWKIRK, PETE OTTERNESS	
Report To: Address:		Carbon Copy 1:	Carbon Copy 2:
Phone:	Fax:	Work Order Number: 31-430 L30631-37	

"HOT"	Sample ID	Date	Time	Sample Type	Sample Location	Analysis
	P-13A	26 Oct 99	11:43	GROUNDWATER		SEE ATTACHED
	P-13B	26 Oct 99	3:40	GROUNDWATER		SHEETS
	P-13C	27 Oct 99 27 Oct 99	9:09	GROUNDWATER		
	P-13D	27 Oct 99	1:19	GROUNDWATER		
	P-9R	27 Oct 99	11:25	GROUNDWATER		
	P-12R	27 Oct 99	10:42	GROUNDWATER		
	P-5R	27 Oct 99	9:52	GROUNDWATER		

"HOT" Sample is ≥ 100 ug/L Volatile Organic Chemicals (VOC's)

Comments:

Samples Relinquished by: <i>T.J. Newkirk</i>	Date/Time: 27 Oct 99 5:00 Temp: 1-6	Received By: <i>Alice Greder</i>	Date/Time: 10/27/99 17:00 Temp:
Samples Relinquished by:	Date/Time: Temp:	Received By:	Date/Time: Temp:

Means of Delivery: <u>Samplers</u> MVTL Courier Other: _____	Seals Intact? Yes No NA
---	----------------------------

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Sampling Personnel:

T. J. NEWKIRK

Site: DEZURIK

Solid Waste Permit #: _____

Date: 26 Oct 99

Well Number: P-13 A

WELL INFORMATION

Well Depth: 86.74

Constructed Depth: _____

Casing Diameter: 4"

Well Volume: 5.1 Gallons

Water Depth Before: 78.88

Screen Interval: _____

Well Casing Elev: _____

Static Elevation: _____

Previous Static: _____

Water Depth After: 79.10

WELL CONDITION

Well Locked?: Yes / No

Well Labelled?: Yes / No

Casing Straight?: Yes / No

Protective Posts?: Yes / No

State ID Tag?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailor / Grundfos / Whale / Grab / Other: _____

Dedicated Equipment: Yes / No

Pumping Rate: 2.0 (250) GPM.

Weather Conditions: Cloudy, 45°

Well Purged Dry?: Yes / No

Time Pumping Began: 11:30

Time Purged Dry: _____

Time of Sampling: 11:43

Amount of Water Removed: 24 Gallons

Sample Appearance: CLEAR

Duplicate Sample?: Yes / No ID: _____

Sample EH/ORP: -4.8

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
11:33	7.25	²²⁰ 297	12.5	NA	NA	6
11:36	7.36	¹⁷⁸ 237	12.1	↓	↓	12
11:39	7.37	¹⁷⁴ 237	12.1	↓	↓	18
11:42	7.40	¹⁶⁸ 250	12.2	↓	↓	24

Comments:

Exceptions to Protocol: .

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Sampling Personnel:

T.J. NEWARK

Site: SARTEL / DEZURIK

Solid Waste Permit #: _____

Date: 27 Oct 99

Well Number: P-9R

WELL INFORMATION

Well Depth: 86-18

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: _____

Casing Diameter: 4"

Static Elevation: _____

Well Volume: 5.2 Gallons

Previous Static: _____

Water Depth Before: 78-20

Water Depth After: 78.30

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailer / Grundfos / Whale / Grab / Other:

Dedicated Equipment: Yes / No

Pumping Rate: 1.5 GPM.

Weather Conditions: Partly Cloudy, SE

Breeze 10 mph, 51°

Well Purged Dry?: Yes / No

Time Pumping Began: 11:12

Time Purged Dry: _____

Time of Sampling: 11:25

Amount of Water Removed: 18 Gallons

Sample Appearance: CLEAR

Duplicate Sample?: Yes / No ID: _____

Sample Eh/ORP: -1.5

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
11:16	7.62	¹⁰ 811	12.2	NA	NA	6
11:20	7.55	¹⁰ 801	12.5	↓	↓	12
11:24	7.51	¹⁰ 801	12.6			18

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Site: DEZURIK

Sampling Personnel:
T.J. Nawilak

Solid Waste Permit #: _____

Date: 27 Oct 99

Well Number: P-12R

WELL INFORMATION

Well Depth: 86.73

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: _____

Casing Diameter: 4"

Static Elevation: _____

Well Volume: 6-1 Gallons

Previous Static: _____

Water Depth Before: 77.40

Water Depth After: 77.40

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailor / ~~Grind~~ / Whale / Scoop / Other:

Dedicated Equipment: Yes / No

Pumping Rate: 2.25 GPM.

Weather Conditions: Sunny, NE Breeze S-10MPH, 49°

Well Purged Dry?: Yes / No

Time Pumping Began: 10:29

Time Purged Dry: _____

Time of Sampling: 10:42

Amount of Water Removed: 27 Gallons

Sample Appearance: SLIGHTLY Cloudy

Duplicate Sample?: Yes / No ID: _____

Sample ER/ORP: 5.0

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. mg/L	Turbidity NTU	Water Removed (Gallons)
10:32	7.66	⁵⁴⁰ 737	11.2	NA	NA	6.75
10:35	7.63	⁵⁴⁰ 727	11.6	↓	↓	13.50
10:38	7.59	⁶⁴⁰ 718	12.0			20.25
10:41	7.60	⁵⁵⁰ 731	12.0			27.00

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Sampling Personnel:

T.J. NEWKIRK

Site: DEZURIK

Solid Waste Permit #: _____

Date: 27 Oct 99

Well Number: P - 5R

WELL INFORMATION

Well Depth: 81.30

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: _____

Casing Diameter: _____

Static Elevation: _____

Well Volume: 4.0 Gallons

Previous Static: _____

Water Depth Before: 75.11

Water Depth After: 75.11

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailor / Grundfos / Whale / Grab / Other: _____

Dedicated Equipment: Yes / No

Pumping Rate: 1.0 GPM.

Weather Conditions: Sunny, 45°

Well Purged Dry?: Yes / No

Time Pumping Began: 9:35

Time Purged Dry: _____

Time of Sampling: 9:52

Amount of Water Removed: 16 Gallons

Sample Appearance: CLEAR

Duplicate Sample?: Yes / No ID: —

Sample EH/ORP: +10.9

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
9:39	7.13	⁷²⁰ 996	10.7	NA	NA	4
9:43	7.20	⁷²⁵ 977	11.6	↓	↓	8
9:47	7.25	⁷⁶⁰ 1024	11.7	↓	↓	12
9:51	7.30	⁷⁷⁰ 1037	11.7	↓	↓	16
				↓	↓	

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Sampling Personnel:

Pete Otterness

Site: De Zurek

Solid Waste Permit #: _____

Date: 26 Oct 99

Well Number: P-13B

WELL INFORMATION

Well Depth: 86.74

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: _____

Casing Diameter: 4"

Static Elevation: _____

Well Volume: 5.1 Gallons

Previous Static: _____

Water Depth Before: 78.90

Water Depth After: _____

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailer / Grundfos / Whale / Grab / Other: _____

Dedicated Equipment: Yes / No

Pumping Rate: 2.0 GPM.

Weather Conditions: Sunny 60°

Well Purged Dry?: Yes / No

Time Pumping Began: 3:30

Time Purged Dry: _____

Time of Sampling: 3:40

Amount of Water Removed: _____ Gallons

Sample Appearance: Clear

Duplicate Sample?: Yes / No ID: _____

Sample EH/ORP: _____

Time	pH	Specific Cond.	Temp (Deg.Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
3:33	7.40	685	12.96	NA	NA	6
3:36	7.40	687	12.59			12
3:39	7.36	690	12.50			18
3:42						24
3:45						

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Site: DEZURIK

Sampling Personnel:

T.J. NEWKIRK

Solid Waste Permit #: _____

Date: 27 Oct 99

Well Number: P-13C

WELL INFORMATION

Well Depth: 86.74

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: _____

Casing Diameter: 4"

Static Elevation: _____

Well Volume: 5.2 Gallons

Previous Static: _____

Water Depth Before: 79.01

Water Depth After: 79.14

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailor / Grundfos / Whale / Teas / Other:

Dedicated Equipment: Yes / No

Pumping Rate: 2.25 GPM

Weather Conditions: Sunny, 44°

Well Purged Dry?: Yes / No

Time Pumping Began: 8:53

Time Purged Dry: _____

Time of Sampling: 9:09

Amount of Water Removed: 33.75 Gallons

Sample Appearance: Clear

Duplicate Sample?: Yes / No ID: _____

Sample BH/ORP: _____

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity (NTU)	Water Removed (Gallons)
8:56	6.76	702	10.77	NA	NA	6.75
8:59	6.95	706	11.26			13.50
9:02	7.08	709	11.69			20.25
9:05	7.11	712	11.81			27.00
9:08	7.14	715	11.87			33.75

Comments:

Exceptions to Protocol:

MINNESOTA VALLEY TESTING LABORATORIES, INC.

New Ulm, MN 56073 (507) 354-8517

Groundwater Assessment

Site: DEZURIK

Sampling Personnel:

T.J. NEWKIRK

Solid Waste Permit #: _____

Date: 27 Oct 99

Well Number: P-13D

WELL INFORMATION

Well Depth: 86-74

Screen Interval: _____

Constructed Depth: _____

Well Casing Elev: _____

Casing Diameter: _____

Static Elevation: _____

Well Volume: 5.1 Gallons

Previous Static: _____

Water Depth Before: 78-97

Water Depth After: 79.16

WELL CONDITION

Well Locked?: Yes / No

Protective Posts?: Yes / No

Well Labelled?: Yes / No

State ID Tag?: Yes / No

Casing Straight?: Yes / No

Grout Seal Intact?: Yes / No

SAMPLING INFORMATION

Sampling Method: Bladder / Bailor / Grundfos / Whale / Frog / Other:

Dedicated Equipment: Yes / No

Pumping Rate: 2.0 GPM

Weather Conditions: Sunny SE BREEZE, 5-10MPH, 55°

Well Purged Dry?: Yes / No

Time Pumping Began: 1:09

Time Purged Dry: _____

Time of Sampling: 1:19

Amount of Water Removed: 18 Gallons

Sample Appearance: Clear

Duplicate Sample?: Yes / No ID: _____

Sample ER/ORP: _____

Time	pH	Specific Cond.	Temp (Deg. Cel)	D.O. (mg/L)	Turbidity NTU	Water Removed (Gallons)
1:12	7.36	643	12.8	NA	NA	6
1:15	7.36	647	12.3	↓	↓	12
1:18	7.35	644	12.2	↓	↓	18
				↓	↓	

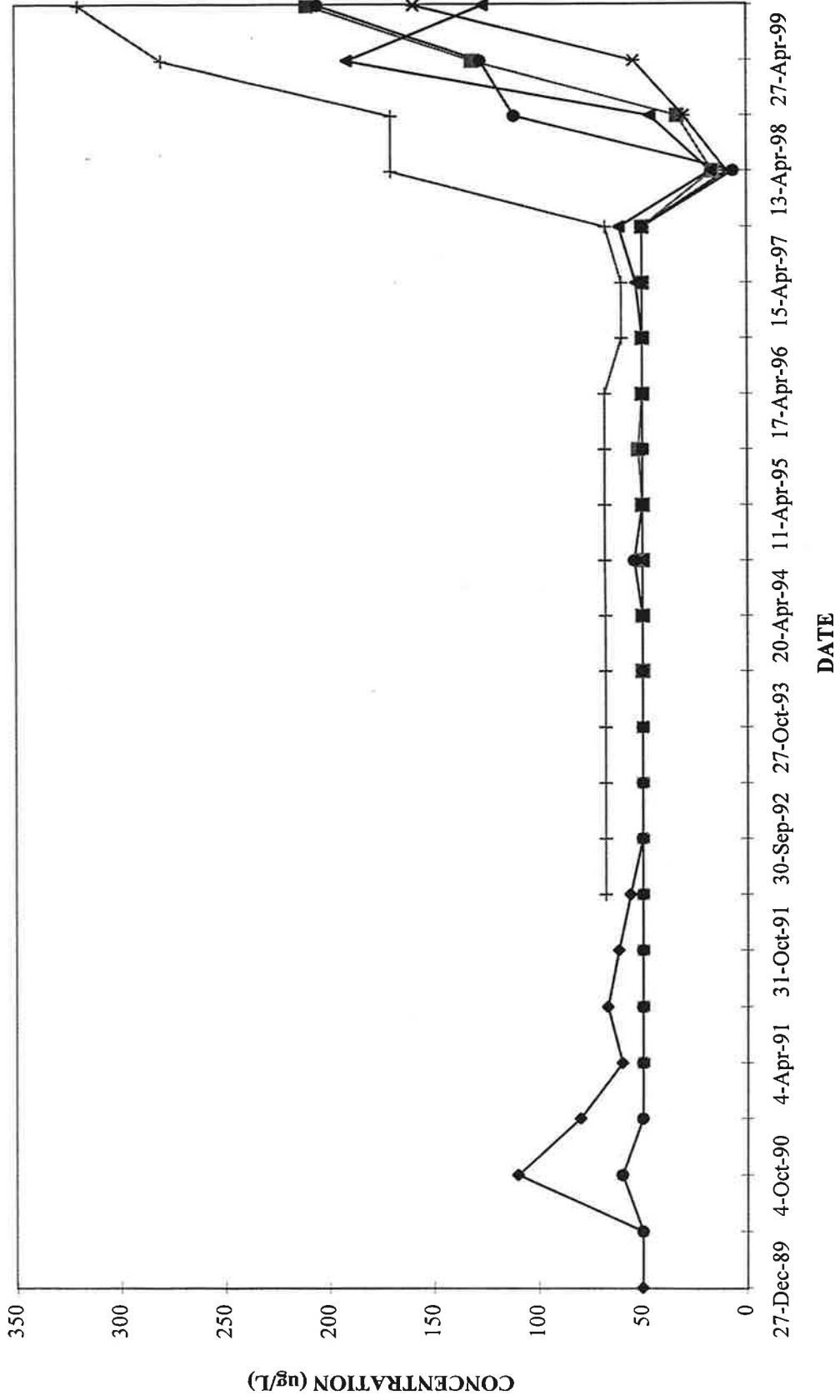
Comments:

Exceptions to Protocol:

Appendix B
Historical Groundwater Analytical Results Graphs

DEZURIK GROUNDWATER HISTORICAL ANALYTICAL RESULTS

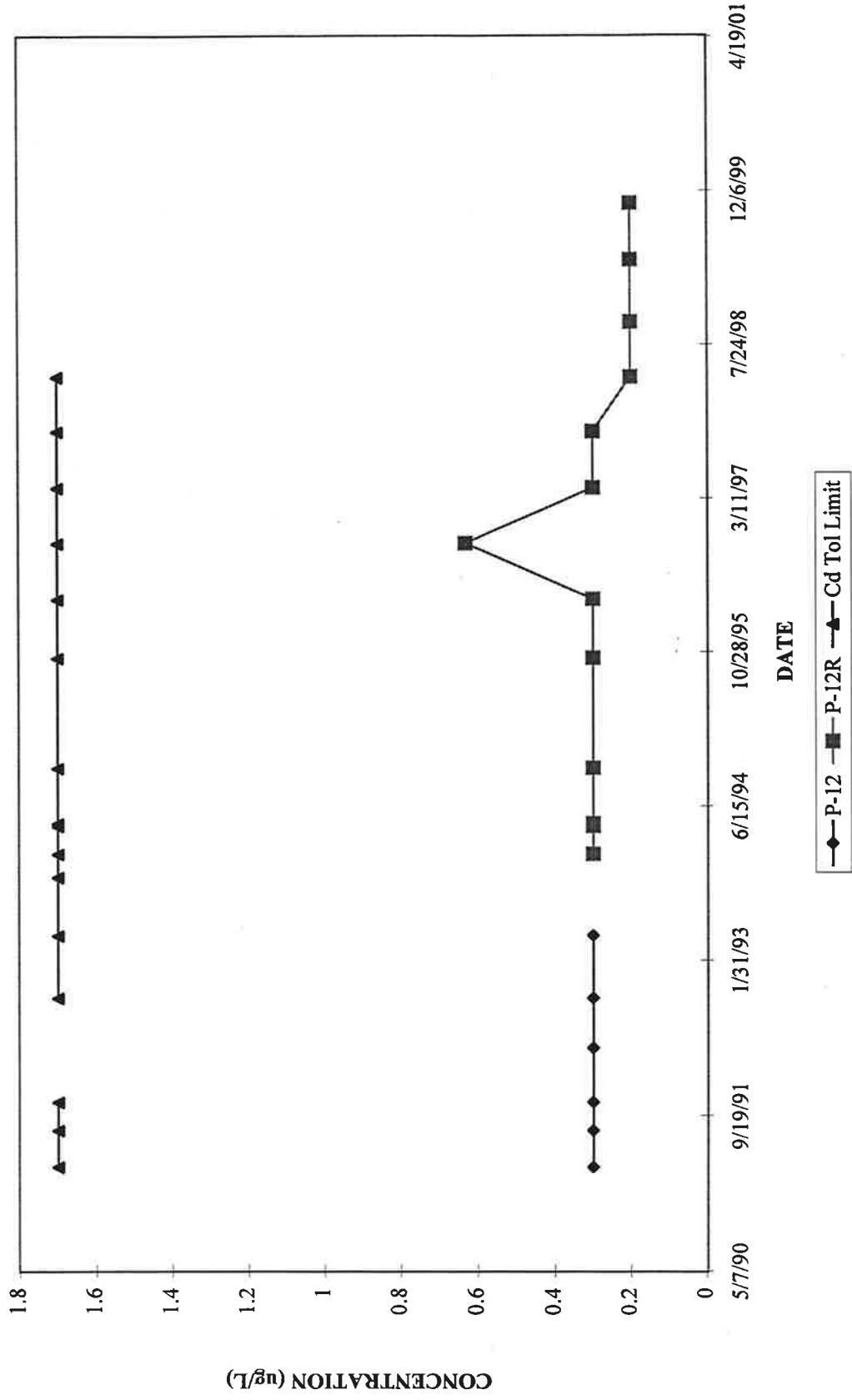
Dissolved Barium



—○— P-5A —□— P-5R —△— P-9R —*— P-12 —*— P-12R —○— P-13 —+— Barium Tolerance Limit

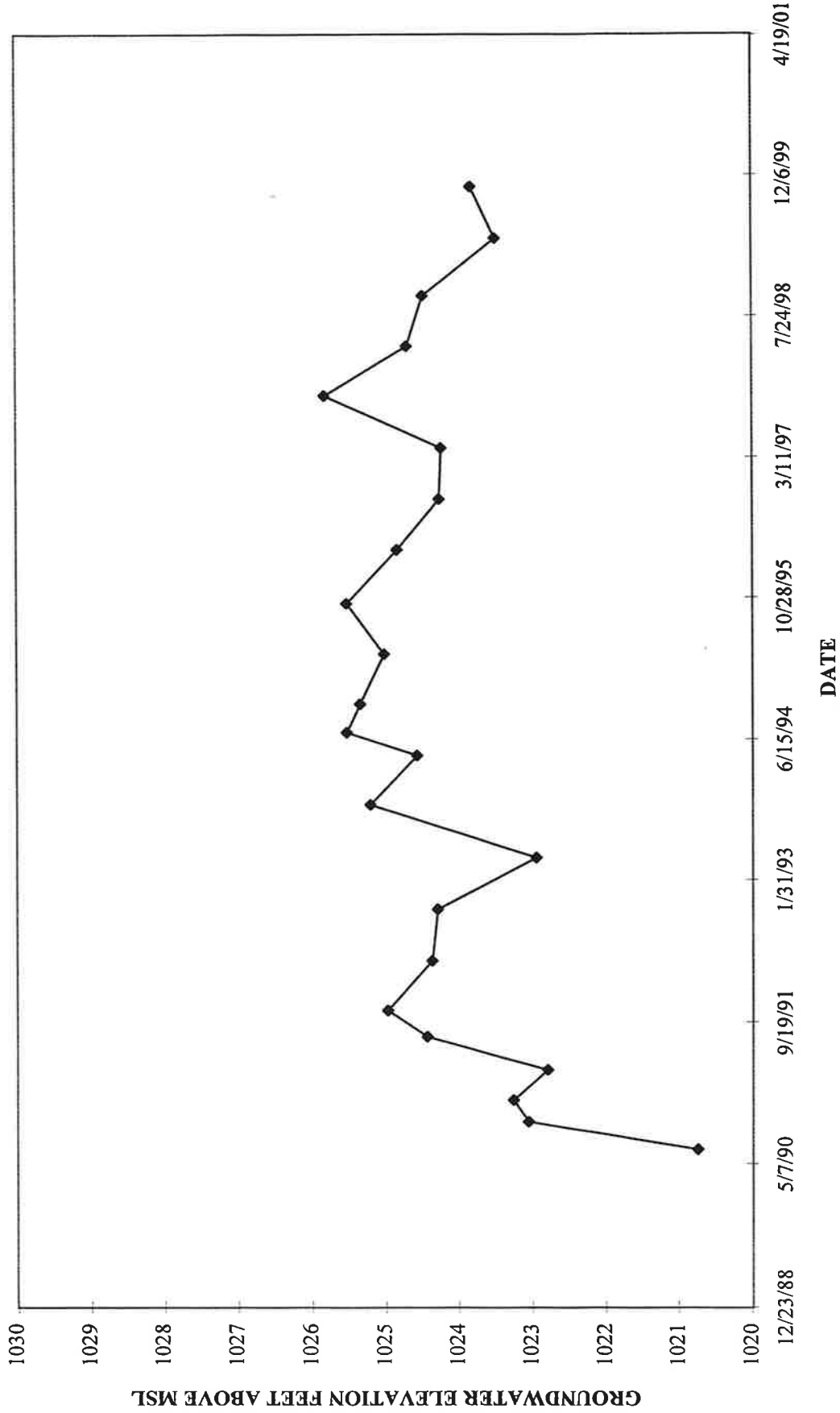
DEZURIK GROUNDWATER HISTORICAL ANALYTICAL RESULTS

Dissolved Cadmium

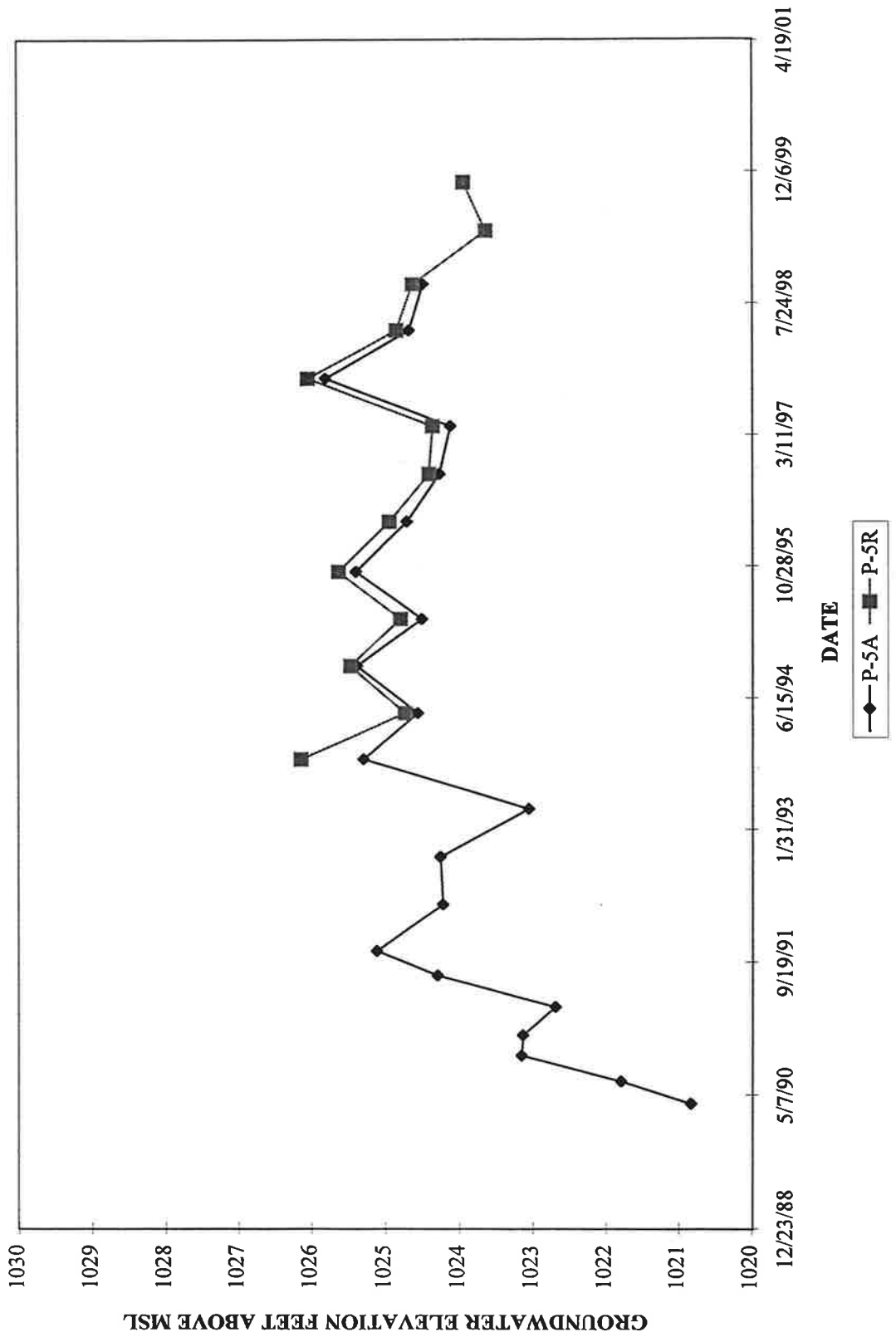


Appendix C
Historical Groundwater Elevation Graphs

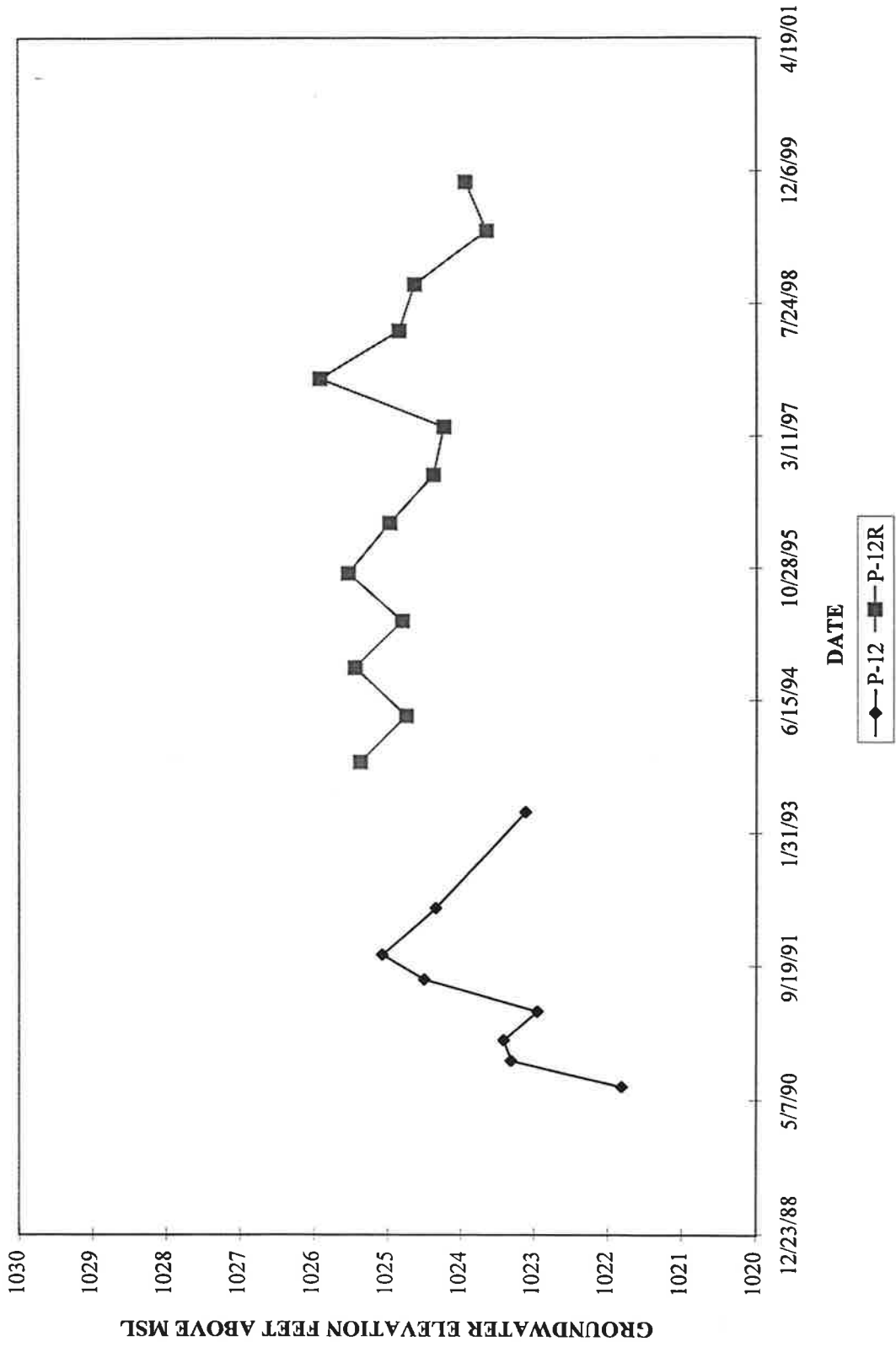
DEZURIK GROUNDWATER ELEVATION DATA WELL P-9R



DEZURIK GROUNDWATER ELEVATION DATA WELLS P-5A/5R



DEZURIK GROUNDWATER ELEVATION DATA WELL P-12/12R



DEZURIK GROUNDWATER ELEVATION DATA WELL P-13

