



Mr. Tom Wentland
Wisconsin Department of Natural Resources
Plymouth Service Center
1155 Pilgrim Parkway
Plymouth, Wisconsin 53073

Subject:

Update to the Development at Historic Fill Site or Licensed Landfill Exemption Application, 67th Place Industrial Park (formerly Lime Pit [Formerly Novak] Site), 1960 South 67th Place, West Allis, Wisconsin.
BRRTS #s 02-41-184802 and 06-41-548795
FID# 241222520

Dear Mr. Wentland:

This letter is a follow-up to our telephone conversation on March 25, 2010, when we discussed the Development at Historic Fill Site or Licensed Landfill Exemption Application (Application) for the 67th Place Industrial Park Redevelopment located at 1960 South 67th Place in the city of West Allis, Wisconsin (Site). The Application was presented to you during our project meeting on February 3, 2010 at your office. As I mentioned on the telephone, additional data has been collected since submittal of the original Application. The additional data is summarized in this letter. Additionally, the proposed protective actions included in the original Application have been revised to include the use of a vapor barrier in conjunction with the originally-specified soil gas venting system. A revised "Summary of Protective Actions" is attached and replaces the "Summary of Protective Actions" included in the original Application.

Supplemental Data

Groundwater samples were collected from Monitoring Wells MW-3, MW-9, MW-11R, and MW-14 on February 22, 2010. The groundwater samples were collected using low-flow groundwater sampling methodology. The samples were analyzed for dissolved gases using Method # AM20GAX. A copy of the analytical report and chain-of-custody form is included under Attachment A.

Table 12 provides a summary of the analytical results and Figure 15 presents the data posted by monitoring well location. Table 12 and Figure 15 are both available from the Closure Report (ARCADIS 2010). The maximum observed dissolved methane gas analytical results were observed in the samples collected from Monitoring Wells MW-11R and MW-14, which are installed within the footprint of the former lagoons. These monitoring wells also yielded the maximum recorded soil methane gas readings. The groundwater samples collected from Monitoring Wells MW-3 and MW-9 (located outside of the footprint of the former lagoons and

ARCADIS
126 North Jefferson Street
Suite 400
Milwaukee
Wisconsin 53202
Tel 414.276.7742
Fax 414.276.7603
www.arcadis-us.com

ENVIRONMENT

Date:
30 March 2010

Contact:
Ben Verburg

Phone:
414.277.6231

Email:
ben.verburg@arcadis-us.com

Our ref.
WI001074.0007

representative of background conditions) were at low concentrations (2.2 micrograms per liter) and three to four orders of magnitude less in concentration compared to the sample results from Monitoring Wells MW-11R and MW-14. In summary:

- The maximum reported concentration of dissolved methane gas is observed in the monitoring wells located in the footprint of the former lagoons.
- The high concentration of dissolved methane gas indicates that the methane source is present in the saturated section.
- Methane gas is not observed in monitoring well locations outside of the footprint of the former lagoons.

Summary of Protective Actions

Attached to this letter is a revised "*Summary of Protective Actions*" and replaces the same section that was included with our original Application. The revised "*Summary of Protective Actions*" includes the requirement of a vapor barrier in conjunction with the soil gas venting system.

Closing

If you have any questions or comments, please contact me at your convenience.

Sincerely,

ARCADIS

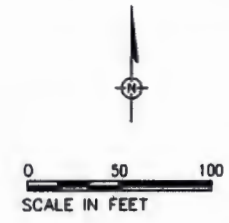
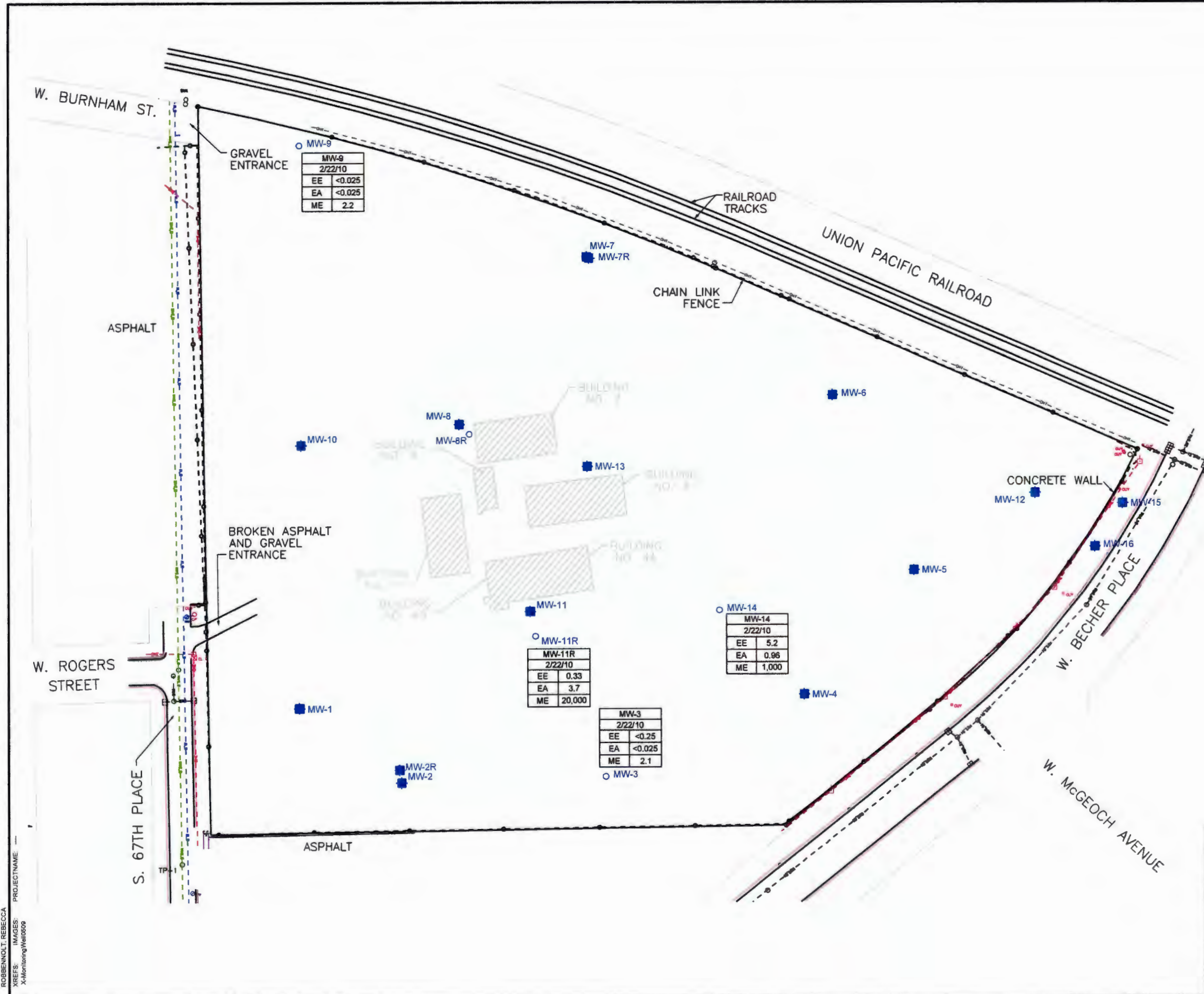
Benjamin J. Verburg, PE, CHMM
Principal Engineer

Attachments

Table 12. Summary of Groundwater Dissolved Gas Analytical Results, 67th Place Industrial Park, West Allis, Wisconsin.

Well ID	MW-3	MW-9	MW-11R	MW-14
Sample Date	02/22/10	02/22/10	02/22/10	02/22/10
Dissolved Gases (ug/L)				
Ethane	<0.025	<0.025	3.7	0.96
Ethene	<0.025	<0.025	0.33	5.2
Methane	2.1	2.2	20,000	1,000
µg/L	Microgram per liter.			

CITY: MILWAUKEE DIV: GROUP ENVIRONMENTAL DBR: ROBBENOLT, P.M.B. VERBURG TRT: T. SCHOEN
 PROJECT: 67TH PLACE INDUSTRIAL PARK DEVELOPMENT
 DRAWING: 67TH PLACE INDUSTRIAL PARK DEVELOPMENT PRE-REDEVELOPMENT GROUNDWATER DISSOLVED GAS ANALYTICAL RESULTS
 DATE: 2/22/10
 SCALE: AS SHOWN
 PLOT: 3/20/2010 10:59 AM BY: BLACKGRAY-THIN CTB PAGESETUP: 17.08 (LMS TECH) ACADVER: 17.08 (LMS TECH) SAVED: 3/20/2010 4:19 PM LAYOUT: MONITORING WELLS



LEGEND

- MW-8 ABANDONED MONITORING WELL
- MONITORING WELL
- FOUND CONCRETE MONUMENT W/BRASS CAP
- ⊕ FOUND CHISELED CROSS
- SET 1" IRON PIPE
- POWER POLE
- GUY POLE
- GUY WIRE
- ⊕ ELECTRIC RISER
- WATER VALVE
- MANHOLE
- ⊕ STORM INLET
- - - BURIED STORM SEWER
- - - BURIED SANITARY SEWER
- - - BURIED WATER MAIN
- - - OVERHEAD ELECTRIC
- - - OVERHEAD TELEPHONE
- CHAIN LINK FENCE
- PARCEL BOUNDARY
- ▨ FORMER BUILDING
- EE ETHENE
- EA ETHANE
- ME METHANE
- < LESS THAN

NOTES:
 1. CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L).

MAP BASED ON SURVEY COMPLETED 6/7/05 by GRAEF, ANHALT, SCHLOEMER AND ASSOCIATES INC. BENCHMARK IS A CHISELED "X" ON TOP OF WEST FLANGE OF FIRE HYDRANT AT THE SOUTHEAST CORNER OF S. 68TH STREET AND WEST BURNHAM STREET - Elev. 720.40. ELEVATIONS SHOWN ARE BASED ON MEAN SEA LEVEL (NGVD-29).

CITY OF WEST ALLIS
 COMMUNITY DEVELOPMENT AUTHORITY
 WEST ALLIS, WISCONSIN
67TH PLACE INDUSTRIAL PARK

**PRE-REDEVELOPMENT
 GROUNDWATER DISSOLVED
 GAS ANALYTICAL RESULTS**


 **ARCADIS**

FIGURE
15

**Summary of Protective Actions
(Revision #1; March 30, 2010)**

The following sections present a summary of the protective actions for the 67th Place Industrial Park located in West Allis, Wisconsin (Site).

The Wisconsin Department of Natural Resources (WDNR) publication *Development at Historic Fill Sites and Licensed Landfills: Considerations and Potential Problems* (PUB-RR-685, WDNR April 2002) lists factors that must be considered when evaluating whether the planned land development is compatible with the waste conditions at a property. These factors include:

- Methane Gas Accumulation in Buildings and Enclosed Structures
- Toxic Gases Collection in Buildings and Other Structures
- Disturbance of the Soil Cap
- Utility Lines Acting as Conduits for Gas and Leachate and Water Supply Wells
- Dewatering Problems
- Worker Exposure
- Settlement Problems
- Prohibition on Water Supply Wells within 1,200 Feet of Waste Limits
- Material Handling

Each factor is addressed in the sections that follow.

Methane Gas Accumulation in Buildings and Enclosed Structures

Methane gas has been observed in select monitoring wells installed in the area of the former lagoons at the Site. The methane gas has been observed in groundwater samples (dissolved gas) and the monitoring well column. The proposed protective action is a combination of a soil gas venting system in conjunction with a vapor barrier.

The soil gas venting system will consist of a six to twelve-inch pea gravel layer placed directly over the soil within the building footprint. Perforated horizontal polyvinyl chloride (PVC) vent pipe, minimum four inches diameter, shall be embedded in the pea gravel layer. The vent pipe shall be wrapped in a filter fabric to mitigate the introduction of fines into the pipe. The PVC pipe will be connected to vertical risers and terminated and capped at the roof with a passive wind-driven rotary turbines and rain caps at the top of the riser pipe. The soil gas venting piping should be marked and clean outs should be installed as necessary to allow for maintenance.

A vapor barrier will be installed over the soil gas venting system. The vapor barrier material may be constructed of 30-mil thick polyethylene (PE) geomembrane, Liquid Boot® (CETCO Remediation Technologies), or 15-mil Stego® Wrap (Stego Industries, LLC), or equivalent and approved by the WDNR. Filter fabric, fine sand, or other equivalent material shall be placed over the vapor barrier for protection. All penetrations and seams shall be sealed and/or welded as necessary.

Toxic Gases Collection In Buildings and Other Structures

There are no contaminants (e.g., VOCs) at concentrations that would pose a threat to indoor air quality.

Disturbance of the Soil Cap

As part of pursuing Site closure under NR726 Wisconsin Administrative Code, a Cap Maintenance Plan and Material Handling Plan was prepared for the Site. The Cap Maintenance Plan and Material Handling Plan is designed to specify future measures to implement to address residual soil and groundwater contamination at the Site.

Utility Lines Acting as Conduits for Gas and Leachate and Water Supply Wells

Bedding material surrounding subsurface utilities can act as a conduit for contaminant migration. This material usually consists of pea gravel, which may have a higher hydraulic conductivity than the surrounding native soil. Utilities passing through the fill material will be constructed to reduce the potential for migration of contaminants or gas. Clay plugs or anti-seep collars will be placed at the entrance and exit of each utility line passing through the fill material.

It is noted that WDNR water supply regulations prohibit the placement of a water supply well within 1,200 feet of the limits of the fill material. The Site is serviced by the local municipal water supply system. Consequently, this requirement is satisfied.

Dewatering Problems

Dewatering problems are not considered an issue with the current redevelopment scenario for the Site.

Worker Exposure

Construction workers engaged in the redevelopment may come into contact with the fill materials. These materials may be encountered during activities such as site grading, utility placement, or construction of footings/foundations.

Prior to redevelopment of the property, construction documents will be prepared for the general contractor and selected subcontractors. These documents will contain information pertaining to the nature and distribution of the fill material on the southern portion of the Site. The general contractor and subcontractors who may potentially encounter the fill material will be required to inform workers of the fill material and to provide instructions on procedures to follow when the fill material is encountered.

Settlement Problems

Geotechnical surveys have been conducted at the Site. Phase I of the redevelopment has been completed that included a site grading plan, construction of a wet detention pond, and other surface water drainage features. Settlement problems in areas of fill will be addressed through active participation between the city of West Allis and the future developer.

Prohibition on Water Supply Wells within 1,200 Feet of Waste Limits

As presented earlier, the WDNR water supply regulations prohibit the placement of a water supply well within 1,200 feet of the limits of the fill material. The Site is serviced by the local municipal water supply system. Consequently, this requirement is satisfied.

Material Handling

Fill materials may be disturbed during construction activities, including site grading, utility placement, and footing/foundation construction. A Cap Maintenance Plan and Material Handling Plan was prepared as an institutional control to satisfy the ch. NR 726 Site Closure requirements.

ARCADIS

ATTACHMENT A
LABORATORY ANALYTICAL REPORT AND
CHAIN-OF-CUSTODY FORM



Client Name: Arcadis
Contact: Toni Schoen
Address: 126 North Jefferson Street
Suite 400
Milwaukee, WI 53202

Page: Page 1 of 5
Lab Proj #: P1002285
Report Date: 03/05/10
Client Proj Name: 67th Place Industrial Park
Client Proj #: WI001074.0007.00011

Laboratory Results

Total pages in data package: 6

<u>Lab Sample #</u>	<u>Client Sample ID</u>
P1002285-01	MW-9
P1002285-02	MW-11R
P1002285-03	MW-14
P1002285-04	MW-3

Microseeps test results meet all the requirements of the NELAC standards or provide reasons and/or justification if they do not.

Approved By: Debbie Hallo **Date:** 3-5-10

Project Manager: Debbie Hallo

The analytical results reported here are reliable and usable to the precision expressed in this report. As required by some regulating authorities, a full discussion of the uncertainty in our analytical results can be obtained at our web site or through customer service. Unless otherwise specified, all results are reported on a wet weight basis.

*As a valued client we would appreciate your comments on our service.
Please call customer service at (412)826-5245 or email customerservice@microseeps.com.*

Case Narrative:

Client Name: Arcadis
 Contact: Toni Schoen
 Address: 126 North Jefferson Street
 Suite 400
 Milwaukee, WI 53202

Page: Page 2 of 5
 Lab Proj #: P1002285
 Report Date: 03/05/10
 Client Proj Name: 67th Place Industrial Park
 Client Proj #: WI001074.0007.00011

<u>Sample Description</u>	<u>Matrix</u>	<u>Lab Sample #</u>	<u>Sampled Date/Time</u>	<u>Received</u>		
MW-9	Water	P1002285-01	22 Feb. 10 11:25	24 Feb. 10 11:24		
<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analysis Date</u>	<u>By</u>
<u>RiskAnalysis</u>						
N Ethane	<0.025	0.025	ug/L	AM20GAX	3/4/10	rw
N Ethene	<0.025	0.025	ug/L	AM20GAX	3/4/10	rw
N Methane	2.200	0.100	ug/L	AM20GAX	3/4/10	rw

Client Name: Arcadis
Contact: Toni Schoen
Address: 126 North Jefferson Street
Suite 400
Milwaukee, WI 53202

Page: Page 3 of 5
Lab Proj #: P1002285
Report Date: 03/05/10
Client Proj Name: 67th Place Industrial Park
Client Proj #: WI001074.0007.00011

<u>Sample Description</u>	<u>Matrix</u>	<u>Lab Sample #</u>	<u>Sampled Date/Time</u>	<u>Received</u>		
MW-11R	Water	P1002285-02	22 Feb. 10 12:50	24 Feb. 10 11:24		
<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analysis Date</u>	<u>By</u>
<u>RiskAnalysis</u>						
N Ethane	3.700	0.025	ug/L	AM20GAX	3/4/10	rw
N Ethene	0.330	0.025	ug/L	AM20GAX	3/4/10	rw
N Methane	20000.000	0.100	ug/L	AM20GAX	3/4/10	rw



Client Name: Arcadis
 Contact: Toni Schoen
 Address: 126 North Jefferson Street
 Suite 400
 Milwaukee, WI 53202

Page: Page 4 of 5
 Lab Proj #: P1002285
 Report Date: 03/05/10
 Client Proj Name: 67th Place Industrial Park
 Client Proj #: WI001074.0007.00011

<u>Sample Description</u>	<u>Matrix</u>	<u>Lab Sample #</u>	<u>Sampled Date/Time</u>	<u>Received</u>		
MW-14	Water	P1002285-03	22 Feb. 10 15:15	24 Feb. 10 11:24		
<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analysis Date</u>	<u>By</u>
<u>RiskAnalysis</u>						
N Ethane	0.960	0.025	ug/L	AM20GAX	3/4/10	rw
N Ethene	5.200	0.025	ug/L	AM20GAX	3/4/10	rw
N Methane	1000.000	0.100	ug/L	AM20GAX	3/4/10	rw



Client Name: Arcadis
Contact: Toni Schoen
Address: 126 North Jefferson Street
Suite 400
Milwaukee, WI 53202

Page: Page 5 of 5
Lab Proj #: P1002285
Report Date: 03/05/10
Client Proj Name: 67th Place Industrial Park
Client Proj #: WI001074.0007.00011

<u>Sample Description</u>	<u>Matrix</u>	<u>Lab Sample #</u>	<u>Sampled Date/Time</u>	<u>Received</u>		
MW-3	Water	P1002285-04	22 Feb. 10 16:30	24 Feb. 10 11:24		
<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analysis Date</u>	<u>By</u>
<u>RiskAnalysis</u>						
N Ethane	<0.025	0.025	ug/L	AM20GAX	3/4/10	rw
N Ethene	<0.025	0.025	ug/L	AM20GAX	3/4/10	rw
N Methane	2.100	0.100	ug/L	AM20GAX	3/4/10	rw



N - NELAC certified analysis

