GeoTrans, Inc.
A TETRA TECH COMPANY
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WORK PLAN FOR ADDITIONAL SITE INVESTIGATION
RIPON FF/NN LANDFILL
RIPON, WISCONSIN

January 28, 2002

Prepared For:

FF/NN PRP Group

Prepared By:

GeoTrans, Inc.
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Brookfield, Wisconsin 53045

Project No. N734

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1.0 INTRODUCTION

This document presents a work plan for additional site investigation for the Ripon FF/NN Landfill site. The landfill is located at the intersection of Highways FF and NN in the Town of Ripon, Fond du Lac County, Wisconsin (Figure 1) and occupies approximately 7.3 acres. The site is found in the SE ¼ of the SE ¼ of Section 7, T16N, R14E.

An extensive remedial investigation was conducted by GeoTrans, Inc. and reported in "Remedial Investigation Report, Ripon FF/NN Landfill", issued August 26, 1994. Groundwater monitoring of both monitor wells and nearby private water supply wells has been conducted since 1993, and analytical results had shown no NR 140 groundwater exceedances in the eight private wells currently in the sampling program. However, during the October 2001 sampling event, vinyl chloride was detected in two private residential wells at concentrations above the NR 140 Enforcement Standards (ES). Re-sampling confirmed these exceedances in both wells.

This work plan responds to the December 18, 2001 letter from Jennie Pelczar of the Wisconsin Department of Natural Resources (WDNR) which requires both interim actions and further site characterization to address the vinyl chloride impacts seen in the private water supply wells. Specifically, this plan details the interim actions planned for the two residences with impacted water. The plan also outlines the process by which additional field investigation will occur to determine if the volatile organic compound (VOC) plume originating from the FF/NN Landfill extends beyond well nest P107. Finally, this plan explains how the data gathered from the field investigation and

groundwater monitoring will be evaluated for possible further action by the FF/NN Landfill Potentially Responsible Parties (PRP).

2.0 INTERIM ACTIONS AT PRIVATE RESIDENCES

Two private water supplies sampled in October 2001 showed ES exceedances of vinyl chloride in the Ehster property well at W14271 Charles Street (highest concentration, 7 ppb) and the Altnau property well at N8798 S. Koro Rd (highest concentration, 0.96 ppb (Figure 2). The ES for vinyl chloride is 0.20 ppb. Due to the concentration levels in the Ehster well, a "flush only" advisory was issued by the Department of Health and Family Services (DHFS), which requires that a whole house water supply solution be implemented.

Bottled water (supplied by Culligan) has been provided to both households since November 19, 2001. To address the flush only advisory for the Ehster household, the PRPs propose to install shallow tray air stripping and carbon cannister units that will remove the vinyl chloride. It is necessary to obtain WDNR approval before installing this system. An application for approval has been submitted. GeoTrans anticipates that approval will be granted and installation completed near the beginning of February 2002.

Bottled water will continue to be provided to the Altnau residence for at least the near future (at least 3 months). It is expected that this well will continue to be monitored on a quarterly basis. A decision as to the long term remedy for this well will await the results of the testing proposed in this plan.

Private wells located south of Charles Street, on South Koro Road, three wells immediately north of the site, are not currently being sampled. If vinyl chloride is detected in the new piezometer, P-

111D, then these wells will be sampled once. A list of the names, addresses and telephone numbers of these residences is provided on Table 2-1.

3.0 PROPOSED FIELD ACTIVITIES

In order to determine what long-term actions are necessary to deal with the impacts to private water supply wells, the groundwater quality upgradient of those wells, at a depth similar to the private wells, must be determined. While numerous wells and piezometers have been installed and monitored around the landfill, the existing sampling points are generally not as deep as the private water supply wells; one existing piezometer, P-107D, is significantly deeper than the private wells.

3.1 Piezometer Installation

A piezometer, designated P-111D, will be installed next to monitoring wells MW-111 and P-111. This well nest is located 875 feet south of the landfill along S. Koro Road, and is at approximately 2/3 of the distance from the landfill to the Altnau and Ehster residences. The installation of this deep piezometer will serve two purposes. First, during the drilling process, vertical profiling of the groundwater will occur to determine if VOCs are present and, if so, how their concentrations vary with depth within the range of depths of the private wells, i.e. 150 to 200 feet bgs. Second, after installation, this well will provide a critical data point in evaluating the extent of any VOC plume originating at the landfill and also at a depth similar to that of the private wells.

The borehole for well P-111D will extend to a depth of 200 feet. It will be drilled using a dual wall reverse circulation method. Layne Christensen, Inc. of Pewaukee will perform the drilling. Cuttings from the drilling process will not be contained because the low concentrations of VOCs that may be present will be volatilized during the drilling process. Any water used during the drilling process

will be discharged to the ground surface. Soil properties, including color, odor and soil type (clay, silt, sand, gravel), will be logged by a geologist, beginning at 80 feet. The interval from 0 to 80 feet will be blind drilled, as logs exist in this interval from the construction of wells P-111 and MW-111.

Vertical groundwater profiling for VOCs will be done at 10 foot intervals, at depths of 150, 160, 170, 180, 190 and 200 feet. Once the interval has been reached, groundwater will be purged from the dual wall casing sufficiently to ensure that any drilling fluids or materials are removed and that fresh water from the aquifer will be sampled; generally 3-4 well volumes will be removed. The stabilization of field parameters such as pH, conductivity and temperature will also be used to determine when representative aquifer water is present. Once the sampling interval has been sufficiently purged, a groundwater sample will be collected and preserved for VOC analysis.

A mobile lab will be set up on-site to analyze the samples for VOC compounds using USEPA method 8021. Matrix Environmental, LLC will provide the on-site lab. Their Method Detection Limit for vinyl chloride is 1.4ug/l; their Limit of Quantitation is 5.0ug/l. Operating procedures for both drilling and groundwater sampling are found in Appendix A.

The results of the VOC analyses will be used to determine at which depth the well will be placed. The well will be placed at the interval showing the highest vinyl chloride concentration, if vinyl chloride is detected. If the analysis results are inconclusive, the well, with a five-foot screen, will be completed at a depth of about 180 feet, as this is the depth of the Ehster well. If the well screen is placed above the bottom of the borehole, the borehole will be filled with bentonite and then topped with a five-foot sand pack to reach the well bottom depth.

The well will be developed by the drilling company. Once the well is developed, a groundwater sample will be collected by the geologist (see below). Purge water will be discharged to the ground surface due to the low levels of VOCs present.

3.2 Groundwater Monitoring

Groundwater monitoring will be performed in February 2002. This monitoring will include detection parameters (indicator parameters) from Table 1 of NR 507.30, analyzed along with VOCs in both the monitoring and private wells (Figure 2). In addition, once well development is complete for well P-111D, a groundwater sample from that well will be collected and analyzed for VOCs, detection parameters and the metals that are noted in the WDNR's December 18, 2001 letter. A complete list of VOCs, detection parameters and metals to be analyzed can be found in Table 4-1. A list of the monitoring wells and private wells that will be sampled is shown in Table 4-2. Water elevations will be measured in all monitor wells and piezometers.

The two wells owned by Alliant Energy that are located on the bike path east of Koro Road will be included in the groundwater monitoring program. The wells are approximately 180 and 280 feet in depth. Construction logs for these wells are located in Appendix C.

Leachate head wells LC-1, LC-2 and LC-3 at the landfill will also be sampled, and the samples analyzed for VOCs and field parameters.

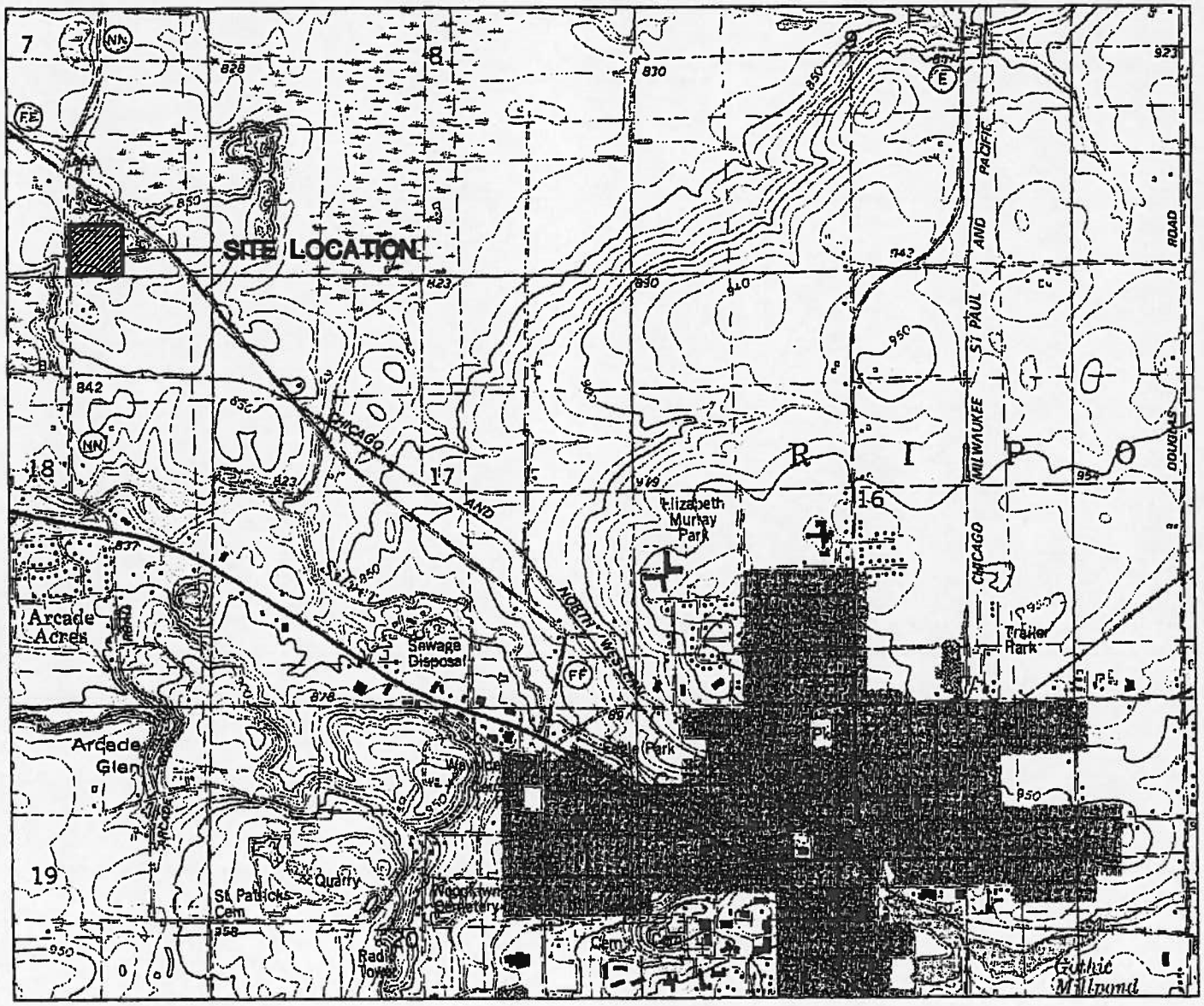
4.0 DATA ANALYSIS AND REPORTING

The results of the groundwater monitoring, including the vertical profiling of well P-111D, will be evaluated to determine the extent of the VOC plume originating from the FF/NN Landfill. Well P-111D will lie on the groundwater flow path from the landfill to the private wells (water table and potentiometric surface elevations are found on Figures 3 and 4). If the analytical results from groundwater sampled at well P-111D indicate no vinyl chloride detections, this would indicate that vinyl chloride is not originating upgradient of this well (i.e. from the landfill).

If the analytical results from groundwater sampled at well P-111D indicate vinyl chloride detections, the groundwater data gathered during the February sampling event will be evaluated for plume delineation. Specifically, a report of no detection of vinyl chloride from a private well indicates that the plume has not extended to that distance, at that depth in that direction. Therefore, the plume's leading edge in that direction is upgradient of the private well. If a private well does show vinyl chloride detections, another well lying downgradient in the groundwater flow path will then be sampled. If the latter situation is the case, an amendment to this work plan proposing additional sampling will be submitted to the WDNR before proceeding with additional sampling.

Once the extent of the plume originating from the FF/NN Landfill is delineated through groundwater monitoring, the PRPs will prepare a plan that will present the remedial options for resolving the issue of vinyl chloride in drinking water. This report will be submitted within 30 days of the receipt of analytical results.

FIGURES



QUADRANGLE LOCATION

SCALE

0 6000

Feet

N

RIPON FF/NN LANDFILL RIPON, WISCONSIN	DATE: 12/08/00
	DESIGNED: MCL
	CHECKED: VJF
SITE LOCATION AND LOCAL TOPOGRAPHY	APPROVED: JEN
	DRAWN: MCL
	PROJ.: N734
GeoTrans, Inc.	Figure 1

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BANEK (?)
GAASTRA (160)
HADEL (?)
CHARLES STREET
BICYCLE PATH
EHSTER (185)
WEISS (180)
MILLER (194)
ALTNAU (155)
KORO ROAD
(80) P-111
MW-111 (42)
PROPOSED LOCATION OF 180' DEEP PIEZOMETER
(320) P-107D
P-107 (85)
MW-107 (84)
ROHDE (?)
WP&L WELL NEST #3 (APPROXIMATE)
WP&L WELL NEST #2 (APPROXIMATE)
P-108
MW-108
P-1104
MW-104
MW-112
LC-3
LC-1
P-103
MW-103
LC-2
P-101
MW-101
P-102
MW-102
P-106
MW-106
P-109
MW-109
County Highway KR

EXPLANATION

- P-104 / MW-104 — MONITOR WELL, PIEZOMETER LOCATION, DESIGNATION
- LC-2 — LEACHATE HEAD WELL LOCATION, DESIGNATION
- — — — OUTLINE OF CLOSED LANDFILL
- (185) — WELL DEPTH, IN FEET

NOTE: PRIVATE WELL DEPTHS PROVIDED BY JENNIE PELCZAR OF THE WDNR

N

SCALE
0 500
Feet

RIPON FF/NN LANDFILL
RIPON, WISCONSIN

MONITORING LOCATIONS AND PRIVATE WELLS

DATE:	1/08/02
DESIGNED:	GLD
CHECKED:	GLD
APPROVED:	GLD
DRAWN:	HJW
PROJ.:	N734

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Figure 2

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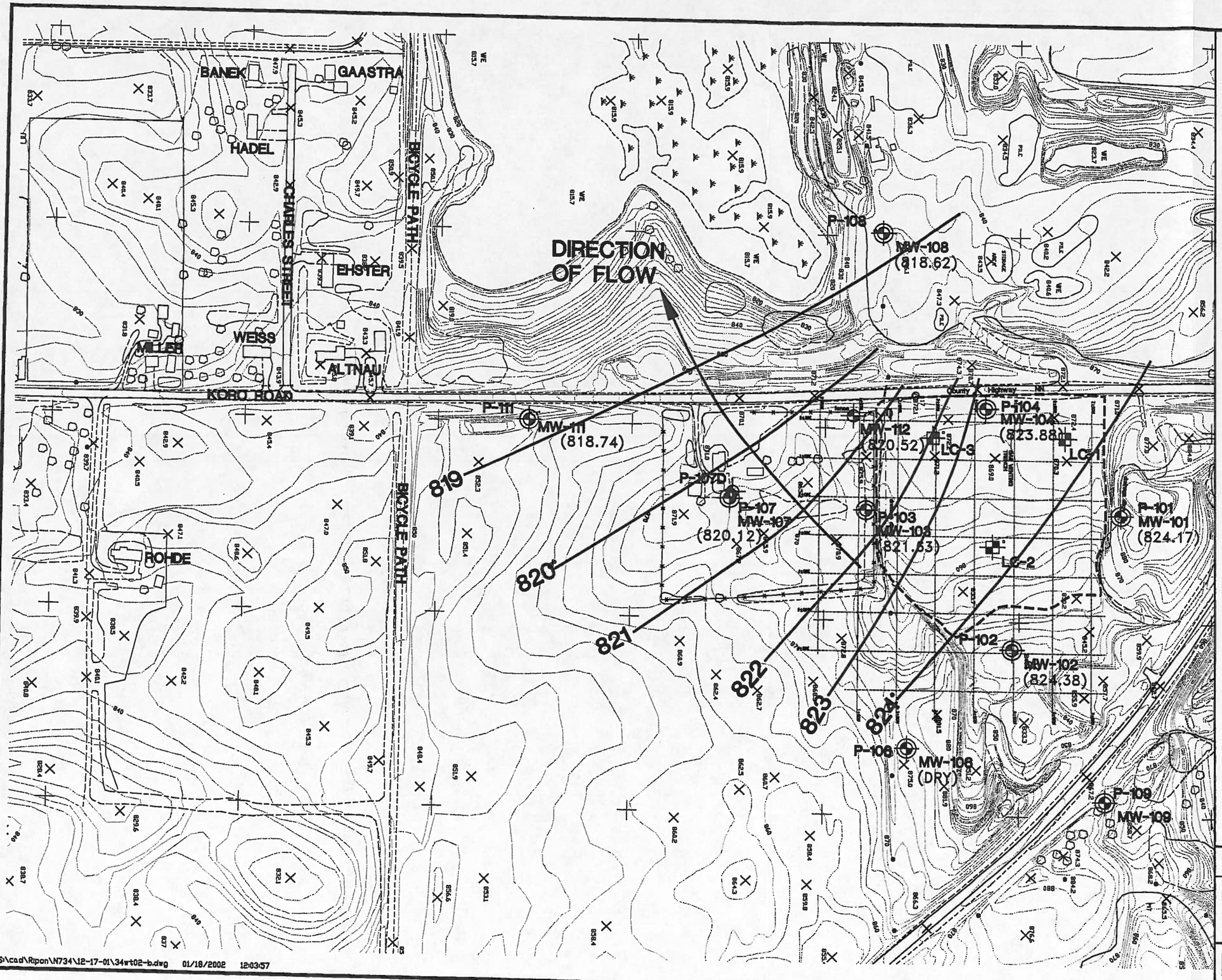

EXPLANATION

- P-104 / MW-104 — MONITOR WELL, PIEZOMETER LOCATION, DESIGNATION
- LC-2 — LEACHATE HEAD WELL LOCATION, DESIGNATION
- — — — OUTLINE OF CLOSED LANDFILL
- (821.63) WATER TABLE ELEVATION

RIPON FF/NN LANDFILL
RIPON, WISCONSIN

WATER TABLE ELEVATIONS OCTOBER, 2001

DATE:	1/08/02
DESIGNED:	GLD
CHECKED:	GLD
APPROVED:	GLD
DRAWN:	HJW
PROJ.:	N734

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Figure 3

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BANEK
GAASTRA
HADEL
CHARLES STREET
BICYCLE PATH
EHSTER
WEISS
MILLER
ALTNAU
KORO ROAD
ROHDE
BICYCLE PATH

DIRECTION OF FLOW

(818.26)
P-111
MW-111

(822.08)
P-108
MW-108

P-104
MW-104

MW-112
LC-3
LC-1

P-1070
(820.12)
P-107
MW-107

(823.87)
P-103
MW-103

LC-2

(824.16)
P-101
MW-101

(824.49)
P-102
MW-102

(824.25)
P-106
MW-106

P-109
MW-109

818
820
822
824

EXPLANATION

P-104 / MW-104	MONITOR WELL, PIEZOMETER LOCATION, DESIGNATION
LC-2	LEACHATE HEAD WELL LOCATION, DESIGNATION
— — —	OUTLINE OF CLOSED LANDFILL
(821.63)	POTENTIOMETRIC SURFACE ELEVATION

N

SCALE
0 500
Feet

RIPON FF/NN LANDFILL
RIPON, WISCONSIN

POTENTIOMETRIC SURFACE MAP
OCTOBER, 2001

DATE:	1/08/02
DESIGNED:	GLD
CHECKED:	GLD
APPROVED:	GLD
DRAWN:	HJW
PROJ.:	N734-104

GeoTrans, Inc.
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Figure 4

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TABLES

Table 2-1: Additional Homes on South Koro Road

Last Name	First Name	Address	Phone #
unknown	unknown	N8675 S. Koro Rd	unknown
unknown	unknown	N8679 S. Koro Rd	unknown
Lamerand	Charles	N8705 S. Koro Rd	920-748-2584
Kosuboski	James	N8711 S. Koro Rd	920-748-5913
Henning	Jim	W14255 S. Koro Rd	920-748-3894
Oakes	Michael	W14273 S. Koro Rd	920-748-7681
Vossekuil	Darrell	W14265 S. Koro Rd	unlisted
Rich	Randy	W14293 S. Koro Rd	unknown
Hoffman	Lester	W14274 S. Koro Rd	unknown
Kolbeck	Robert	W14294 S. Koro Rd	920-748-6019
Ripon Meadows		W14293 S. Koro Rd	unknown
Sauer	Arlin	S. Koro Rd.	unknown
Fude		S. Koro Rd.	unknown
Wahkovic		S. Koro Rd.	unknown

Table 4-1: Compounds to be Analyzed in February 2002 Groundwater Samples
FF/NN Landfill, Ripon, Wisconsin

SW 8260B Compound List for Volatile Organics

Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoform
Bromomethane
n-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
Carbon Tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane
Chloroform
Chloromethane
2-Chlorotoluene
4-Chlorotoluene
1,2-Dibromo-3-Chloropropane
1,2-Dibromoethane (EDB)
Dibromomethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dichloropropane
1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
Hexachlorobutadiene
Hexane
Isopropylbenzene
p-Isoproplyenzene
Methylene Chloride
MTBK
Naphthalene
Nitrobenzene
n-Propylbenzene
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl Chloride
Xylenes, Total

Detection Parameters, Table 1 - NR 507.30

Alkalinity
Chloride
COD
Hardness
Field conductivity
Field pH
Field temperature
Groundwater elevation

Metals from 12/18/01 WDNR Letter (for well P-111D only)

Arsenic
Barium
Cadmium
Copper
Chromium
Iron
Lead
Manganese
Selenium
Silver
Zinc

Table 4-2
Wells to be Sampled in February 2002
FF/NN Landfill, Ripon, WI

Monitoring Wells

MW-101
MW-103
MW-104
P-106
MW-107
P-107
P-107D
MW-112

Alliant Energy Well Nest Number 3 (2 wells)

Private Water Supply Wells

Altnau
Baneck
Ehster
Gaastra
Hadel
Miller
Rohde
Weiss

Lechate Head Wells

LC-1
LC-2
LC-3

APPENDIX A

SOP for Drilling and Sampling of Borehole Groundwater

70210 DUAL WALL REVERSE CIRCULATION

1.0 Purpose

This procedure describes geologic and hydrogeologic conditions under which Dual Wall Reverse Circulation is the appropriate drilling method. This is mainly used when preventing introduction of foreign fluid is a main concern, and if collecting ground-water samples while drilling is required.

2.0 Methodology

The Dual Wall Reverse Circulation Method is an air-rotary technique. This method consists of a water-tight steel casing or outer tube of approximately 4.5 inches in outside diameter. Within this outer tube there is an inner tube of 2.4 inches internal diameter. This inner tube is connected to the outer tube at specified intervals, leaving an annular space between the dual tubes. The lead casing of the outer tube uses either a tri-cone rotary bit or an open-faced toothed bit of approximately 4.75 inches for cutting soil materials. The relative positions of the two tubes are such that the leading edge of the bit is at the same depth or is slightly ahead of the leading edge of the outer tube. High velocity compressed air is injected down the annulus formed by the two tubes and returns with drill cuttings through the inner tube. The cuttings are conveyed to a cyclone where the air velocity is reduced, the air is discharged out the top and the solids (soils) fall out the bottom. The high velocity of the air stream returns cuttings from depth to the surface with little discernable delay. When it is necessary to provide permanent casing within a borehole to either isolate formations or to provide a cavity within which a monitor well can be constructed, the dual-tube method requires the use of a separate casing, known as the overshot pipe.

The overshot pipe is flush-threaded steel with an inside diameter of approximately 5 inches and an outside diameter of approximately 5.625 inches. The outside diameter of the overshot bit is approximately 6.25 inches. To install the overshot pipe, high pressure water and/or air and hydraulic pressure are used to wash the overshot around the dual-tube. At some sites, it can be anticipated that a confining layer separating water-bearing units will be found at some depth. If contamination exists in the overlying water-bearing unit, it would be necessary to isolate the upper portion of the borehole from the lower water-bearing unit as drilling proceeds. This would be accomplished by first using the dual-tube to drill to the confining layer. The overshot pipe would be advanced to the depth of the confining layer and a seal would be made. Dual-tube methods would then be used to continue the boring through the confining layer and into the underlying formation(s).

The dual-tube string, as mentioned above, has an inside diameter of 2.4 inches. This cavity is continuous from the top of casing through the bit if the open-faced toothed bit is used as the cutting tool. If coring of bedrock is necessary, it can be accomplished through the dual-tube string (with open-faced bit) using AQ coring equipment. AQ coring equipment has an outside diameter of 1.89 inches and yields a core with an outside diameter of 1.062 inches.

3.0 Soil Boring and Logging Procedures

A single soil borehole can be completed through the surficial materials to the bedrock surface using the dual-wall air rotary method.

The observing geologist will log soil cuttings and maintain the proper detailed borehole logs for project use. The drilling subcontractors will be required to maintain their own borehole logs. The borehole logs allow for logging of soils using graphic and descriptive logging information (including USCS descriptions).

4.0 Borehole Ground-Water Sampling

Borehole ground-water sampling can be conducted to determine aquifer-water quality at several vertical depths within a borehole. This method of environmental sampling is used because the dual wall method does not allow for continuous soil sampling (by split-spoon) for headspace screening purposes. This method of sampling requires that a discrete ground-water sample be obtained from the base of the drill stem where it infiltrates from the aquifer. For sample representativeness, this method also requires that a watertight drilling casing be used. Borehole ground-water sampling is considered to be a viable method for conducting field headspace testing. The following paragraphs present specific procedures for sample collection for use by the geologist during this type of sampling operation.

1. The drilling subcontractor will be instructed of the designated sampling interval and will be required to stop drilling operations when the correct depth is reached.

2. In order to collect a water sample that is representative of a specific location within the aquifer, the drilling casing should be evacuated of water if possible. Borehole evacuation (two to three casing volumes) will be accomplished with the use of a small diameter submersible pump or a bailer. Water temperature, pH and specific conductance will be monitored several times during the purging process to check for parameter stability. A point source bailer (top and bottom check valves) should be used to collect the water sample from the base of the drill stem. The bailer will be lowered by hand from the top of the drill stem into the base of the water column for sample collection.

3. Individual water samples will be placed into two 40-ml glass vials and submitted for headspace screening in accordance with the provisions outlined within the SOP and further discussed in the following section and in the QAPP. Sample collection should be conducted in such a manner as to not disrupt drilling operation significantly.

APPENDIX B

Health and Safety Plan

GeoTrans, Inc.

FORM HSP-3

GeoTrans

LIMITED SCALE SITE HEALTH AND SAFETY PLAN

1.0 GENERAL INFORMATION

Site/Location: Ripon FF/NN Landfill, Ripon WI Project #: N734

Plan Prepared by: Richard H. Sawall Date: January 21, 2002

Hazard Assessment Prepared by: * Richard H. Sawall Date: January 21, 2002

* I certify that I have assessed the type, risk level and severity of hazards for this project and have selected appropriate personal protective equipment for site personnel.

Plan Reviewed by: David Bohmann Date: January 21, 2002
Health and Safety Coordinator

Activity(s):

-Installation of piezometer.

Dates of work:

-February, 2002

GeoTrans personnel: Signature

Heidi Yantz, Staff Hydrogeologist * **

* Safety coordinator/emergency coordinator

** Designated First-Aid provider

Description of Site: (map included)

The FF/NN Landfill occupies approximately 7.3 acres in the northwest corner of Fond du Lac County in the Town of Ripon (Town), Wisconsin (SE 3 of the SE 3 of Section 7, T16N, R17E; Figure 2-1). The Site was operated as a landfill from 1967 to 1983. The Site was originally a gravel pit, and in 1967 was leased to Speed Queen for disposal of wastes from its facility in Ripon. In 1968, the City of Ripon (City) leased the property for waste disposal. In 1970, the City and Town contracted to share the cost of operating the landfill, and it was operated by the City and Town from 1970 to 1983. Throughout its operational history, the Site accepted municipal, commercial, and industrial solid wastes. Landfilling operations at the Site ceased in 1983, and it was capped with a clay cap in 1985. Vegetation was established to minimize erosion and a gas venting trench was placed along the western edge of the Site.

Types of hazardous material:

VOCs in soil and/or groundwater

Major safety/health hazards/risks: (contamination, equipment, fire etc.)

Drilling equipment

Exposure to contaminants

2.0 SAFETY PLAN

Protective Equipment/Instruments: (specify type, as necessary)

Hard hat:	X	Boots:	X	Glasses (type):safety
Suits:		Respirator:		First aid kit:
PID:	X	CGI:		Hearing Protectors:

Safety Equipment Levels/Upgrades:

If PID readings are $\geq$ 5 ppm, stop work and reassess situation.

Monitoring Requirements:

Soil cuttings and breathing zone will be monitored during drilling using a PID.

Decontamination/Work Zone Requirements:

All drilling equipment must be decontaminated by power washer after use.

3.0 EMERGENCY PLANNING

Emergency Phone Numbers

Hospital/Emergency Clinic:

Ripon Medical Center (920) 748-3101
933 Newbury Street
Ripon, WI 54971-1730

Fire Department: (920) 748-4919

Police: (920) 748-2888

HSI GeoTrans: (262) 792-1282

Contractors: Layne Inc. (262) 246-4646

Note: Map of route to hospital attached.

4.0 ATTACHMENTS

- X Site Maps
- X Site Standard Safety Operating Procedures
- X Route to Hospital
- ____ Chemical Hazard Information
- X Site Safety Plan Acknowledgment Form
- ____ Level C & D Modified Decon Procedures
- ____ Heat Stress
- X Cold Stress
- X Drill Rig Safety Procedures
- ____ UST Removal Safety Checklists
- ____ Trenching Procedures

ATTACHMENTS:

Site Location and Local Topography

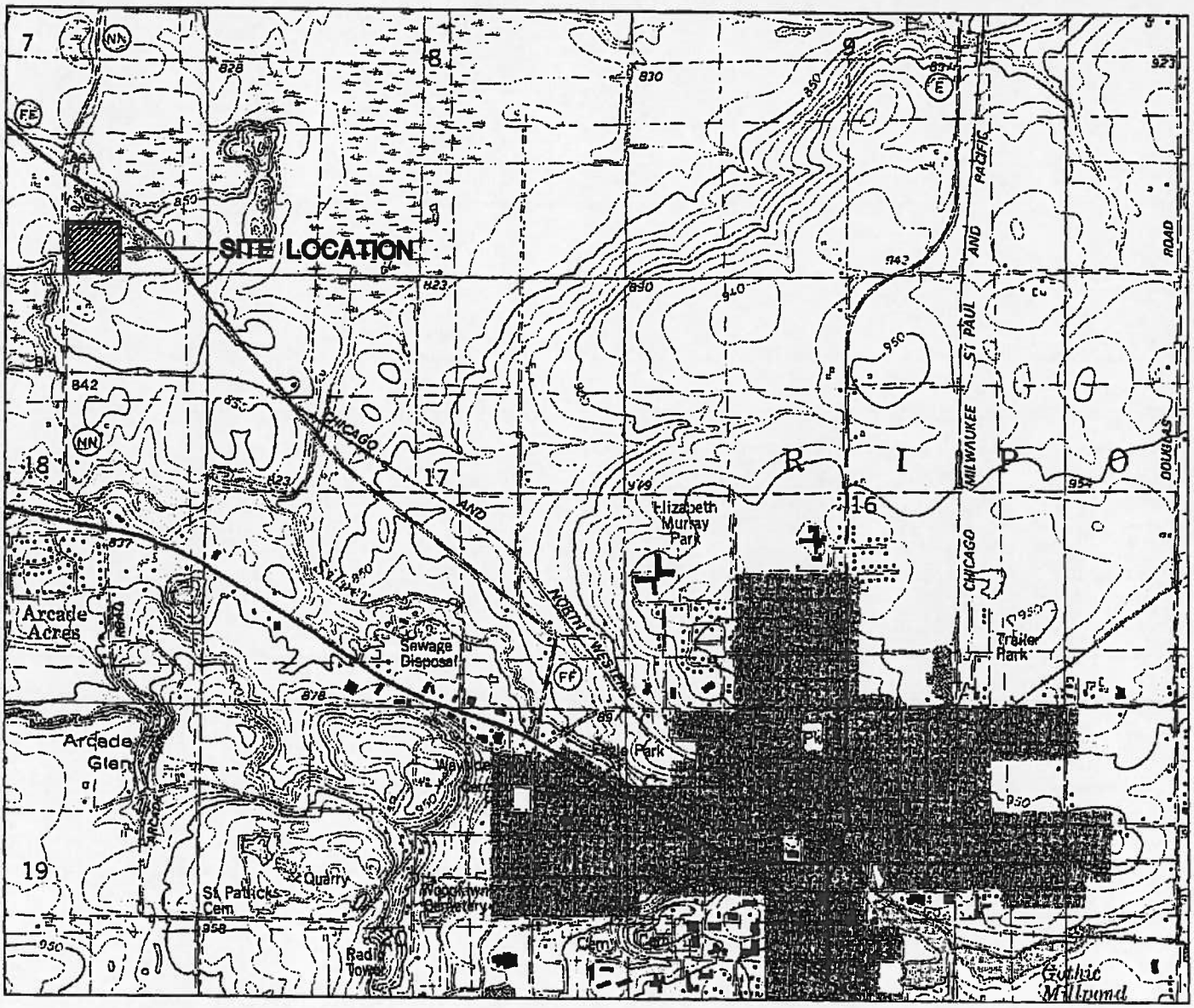
Proposed Drilling Location

Route to Hospital

General Safe Work Practices

Safe Drilling Practices

Cold Stress



RIPON FF/NN LANDFILL RIPON, WISCONSIN	DATE: 12/08/00
	DESIGNED: MCL
	CHECKED: VJF
	APPROVED: JEN
	DRAWN: MCL
	PROJ.: N734
SITE LOCATION AND LOCAL TOPOGRAPHY	
GeoTrans, Inc.	**Figure 2-1**

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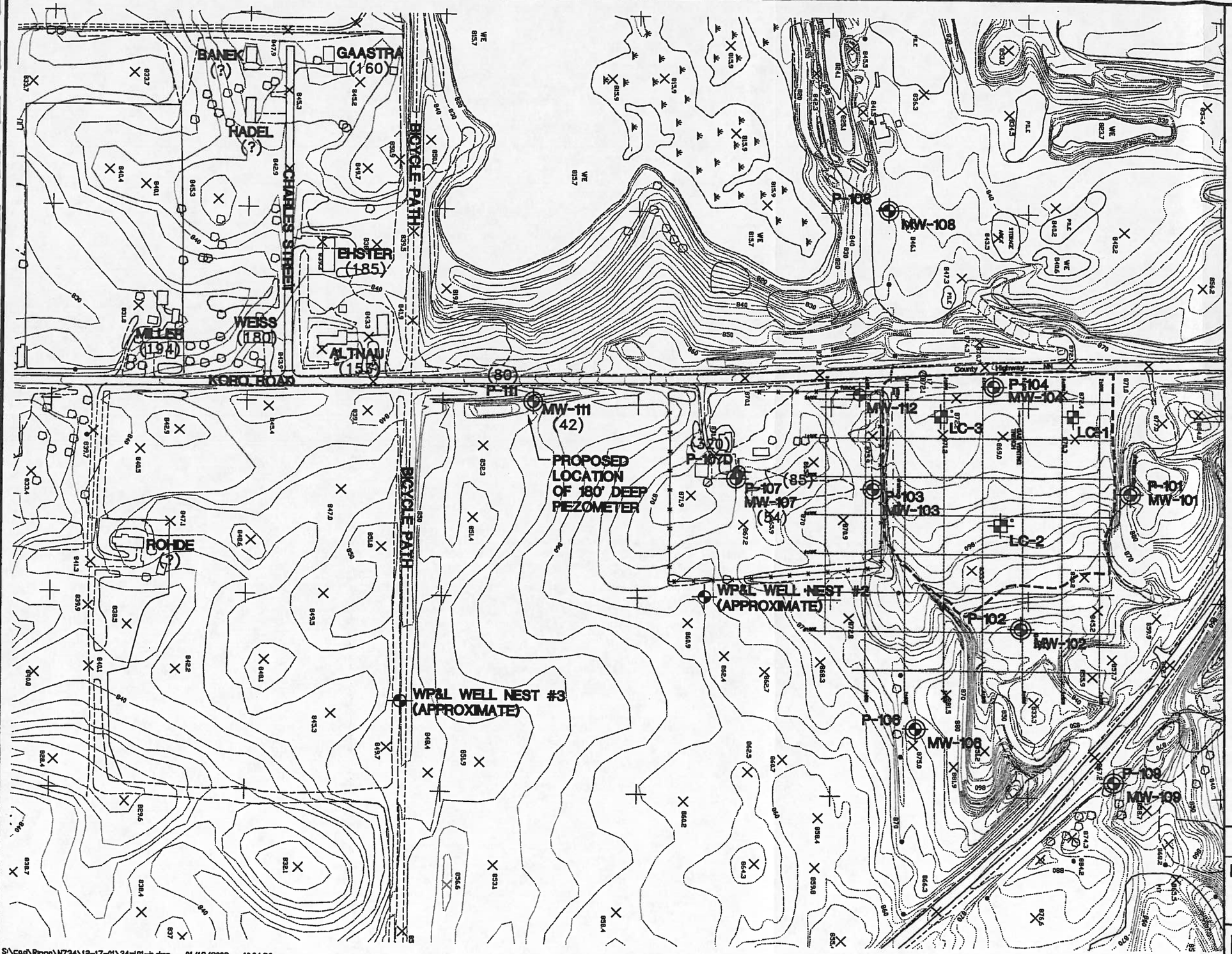


EXPLANATION

P-104 / MW-104	MONITOR WELL, PIEZOMETER LOCATION, DESIGNATION
LC-2	LEACHATE HEAD WELL LOCATION, DESIGNATION
— — —	OUTLINE OF CLOSED LANDFILL
(185)	WELL DEPTH, IN FEET

NOTE: PRIVATE WELL DEPTHS PROVIDED BY JENNIE PELCZAR OF THE WDNR

N

SCALE

0 500

Feet

RIPON FF/NN LANDFILL
RIPON, WISCONSIN

MONITORING LOCATIONS AND PRIVATE WELLS

DATE:	1/08/02
DESIGNED:	GLD
CHECKED:	GLD
APPROVED:	GLD
DRAWN:	HJW
PROJ.:	N734

GeoTrans, Inc.
A TETRA TECH COMPANY

Figure 3-1

MAPQUEST.

< Back

SEND TO

FROM:

County Rd E At S Koro Rd
Ripon, WI
54971 US

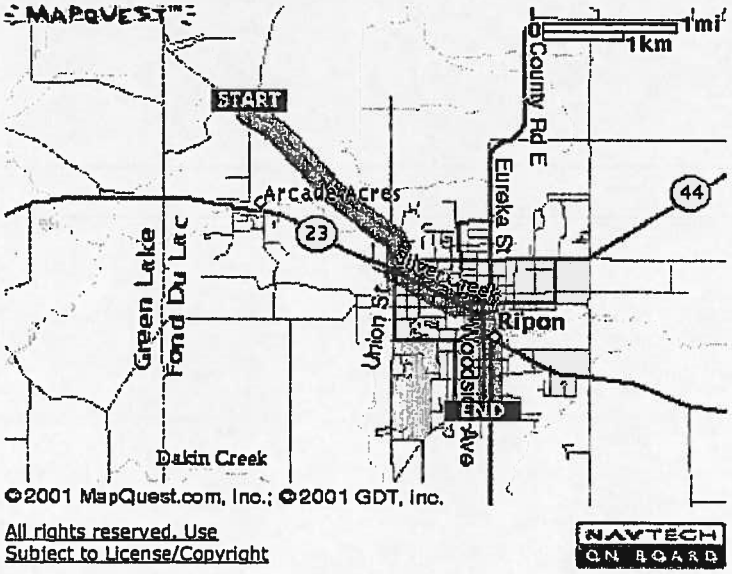
TO:

Ripon Medical Ctr
933 Newbury St
Ripon, WI
54971-1730 US

Total Distance: 3.39 miles

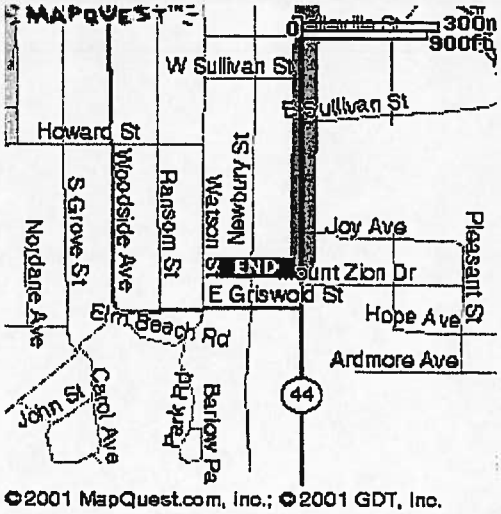
Total Estimated Time: 13 minutes

DIRECTIONS	DISTANCE
1: Start out going Southeast on CR-FF towards BERLIN RD by turning left.	1.03 miles
2: CR-FF becomes BERLIN RD.	0.78 miles
3: Turn LEFT onto WI-23/WI-49.	0.73 miles
4: Turn RIGHT onto WI-23/WI-44/WI-49.	0.35 miles
5: Turn RIGHT onto WI-44/WI-49.	0.49 miles
Total Estimated Time: **13 minutes**	**Total Distanc 3.39 miles**



DESTINATION:

Ripon Medical Ctr
933 Newbury St
Ripon, WI
54971-1730 US



TETRA TECH, INC.

HEALTH AND SAFETY MANUAL

VOLUME III

SAFE WORK PRACTICES (SWP)

GENERAL SAFE WORK PRACTICES

SWP NO.: 6-1

ISSUE DATE: JULY 1998

REVISION NO.: 1

GENERAL SAFE WORK PRACTICES

To prevent injuries and adverse health effects, the following general safe work practices (SWP) are to be followed when conducting work involving known and unknown site hazards. These SWPs establish a pattern of general precautions and measures for reducing risks associated with hazardous site operations. This list is not inclusive and may be amended as necessary.

- Do not eat, drink, chew gum or tobacco, take medication, or smoke in contaminated or potentially contaminated areas or where the possibility for the transfer of contamination exists.
- Wash hands and face thoroughly upon leaving a contaminated or suspected contaminated area. A thorough shower and washing must be conducted as soon as possible if excessive skin contamination occurs.
- Avoid contact with potentially contaminated substances. Do not walk through puddles, pools, mud, or other such areas. Avoid, whenever possible, kneeling on the ground or leaning or sitting on drums, equipment, or the ground. Do not place monitoring equipment on potentially contaminated surfaces.
- Remove beards or facial hair that interfere with a satisfactory qualitative respirator fit test or routine pre-entry positive and negative pressure checks.
- Be familiar with and knowledgeable of and adhere to all instructions in the site-specific health and safety plan (HASP). At a minimum, a safety meeting will be held at the start of each project to discuss the HASP. Additional meetings will be held, as necessary, to address new or continuing safety and health concerns.
- Be aware of the location of the nearest telephone and all emergency telephone numbers.
- Attend a briefing on the anticipated hazards, equipment requirements, SWPs, emergency procedures, and communication methods before going on site.
- Plan and delineate entrance, exit, and emergency escape routes.
- Rehearse unfamiliar operations prior to implementation.
- Use the "buddy system" whenever respiratory protection equipment is in use. Buddies should establish hand signals or other means of emergency communication in case radios break down or are unavailable.
- Buddies should maintain visual contact with each other and with other on-site team members by remaining in close proximity in order to assist each other in case of emergency.

- Minimize the number of personnel and equipment in contaminated areas (such as the exclusion zone). Nonessential vehicles and equipment should remain within the support zone.
- Establish appropriate support, contamination reduction, and exclusion zones.
- Establish appropriate decontamination procedures for leaving the site.
- Immediately report all injuries, illnesses, and unsafe conditions, practices, and equipment to the site safety coordinator (SSC).
- Maintain a portion of the site field logbook as a project safety log. The project safety log will be used to record the names, entry and exit dates, and times on site of all Tetra Tech, subcontractor, and project site visitor personnel; air quality and personal exposure monitoring data; and other information related to safety matters. Form SSC-1, Daily Site Log, may be used to record names of on-site personnel.
- A portable eyewash station should be located in the support zone if chemical splashes to eyes are possible.
- Do not bring matches and lighters in the exclusion zone or contamination reduction zone.
- Observe coworkers for signs of toxic exposure and heat or cold stress.
- Inform coworkers of nonvisual effects of illness if you experience them, such as headaches, dizziness, nausea, or blurred vision.

TETRA TECH, INC.

HEALTH AND SAFETY MANUAL

VOLUME III

SAFE WORK PRACTICES (SWP)

SAFE DRILLING PRACTICES

SWP NO.: 6-3

ISSUE DATE: JULY 1998

REVISION NO.: 1

SAFE DRILLING PRACTICES

This document establishes safe work practices (SWP) to follow during drilling operations. These SWPs are based on suggested safety procedures provided in the National Drilling Association's "Drilling Safety Guide." Procedures to follow before, during, and after drilling are listed below.

Before beginning any drill operation, each employee must be aware of the following:

- Wear a hard hat, safety glasses or goggles, steel-toed work boots, a shirt and full-length pants when working with or near the drill rig. Shirts must be tucked in at the belt.
- Do not wear loose or frayed clothing, loose long hair, or loose jewelry while working with rotating equipment.
- Do not eat, drink, or smoke near the drill rig.
- Identify all underground utility and buried structure locations before drilling.
- Ensure that the drill rig and any other machinery used is inspected daily by competent, qualified individuals. The site safety coordinator (SSC) will ensure compliance with this precaution.
- Drill rig operators will be instructed to report any abnormalities, such as equipment failure, oozing liquids, and unusual odors, to their supervisors or the SSC.
- Establish hand-signal communications for use when verbal communication is difficult. One person per work team will be designated to give hand signals to equipment operators.

While the drill rig is operating, employees should be aware of the following:

- Wear appropriate respiratory and personal protective equipment (PPE) when conditions warrant their use.
- Avoid direct contact with known or suspected contaminated surfaces.
- Move tools, materials, cords, hoses, and debris to prevent tripping hazards and contact with moving drill rig parts.
- Adequately secure tools, materials, and equipment subject to displacement or falling.
- Store flammable materials away from ignition sources and in approved containers.

- Maintain adequate clearance of the drill rig and mast from overhead transmission lines. The minimum clearance is 25 feet unless special permission is granted by the utility company. Call the local utility company for proper clearance.
- Only qualified and licensed personnel should operate drill rigs.
- Workers should not assume that the drill rig operator is keeping track of their exact location. Workers should never walk directly behind or beside heavy equipment without the operator's knowledge.
- Workers should maintain visual contact with drill rig operators at all times.
- When an operator must maneuver equipment in tight quarters, the presence of a second person is required to ensure adequate clearance. If much backing is required, two ground guides will be used: one in the direction the equipment is moving, and the other in the operator's normal field of vision to relay signals.
- Auger sections and other equipment are extremely heavy. All lifting precautions should be taken before moving heavy equipment. Appropriate equipment, such as chains, hoists, straps, and other equipment, should be used to safely transport heavy equipment too heavy to safely lift.
- Proper personal lifting techniques will be used. Workers should lift using their legs, not their backs.
- Workers will not use equipment they are not familiar with. This precaution applies to heavy as well as light equipment.
- All personnel not essential to work activities will be kept out of the work area.
- Workers will be aware of their footing at all times.
- Workers will remain alert at all times.

After drilling operations are completed, employees should do the following:

- Shut down machinery before repairing or lubricating parts (except parts that must be in motion for lubrication).
- Shut down mechanical equipment prior to and during fueling operations. When refueling or transferring fuel, containers and equipment must be bonded to prevent the buildup of static electricity.
- Keep drill rigs in the exclusion zone until work has been completed. Such equipment should then be decontaminated within the designated decontamination area.

- Engage parking brakes when equipment is not in use.

- Implement an ongoing maintenance program for all tools and equipment. All tools and moving equipment should be inspected regularly to ensure that parts are secured, are intact, and have no cracks or areas of weakness. The equipment must turn smoothly without wobbling and must operate in accordance with manufacturer specifications. Defective items should be promptly repaired or replaced. Maintenance and repair logs will be kept.

- Store tools in clean, secure areas to prevent damage, loss, or theft.

TETRA TECH, INC.

HEALTH AND SAFETY MANUAL

VOLUME III

SAFE WORK PRACTICES (SWP)

COLD STRESS

SWP NO.: 6-16

ISSUE DATE: JULY 1998

REVISION NO.: 1

COLD STRESS

This safe work practices (SWP) describes situations where cold stress is likely to occur and discusses procedures for the prevention and treatment of cold-related injuries and illnesses. Cold conditions may present health risks to employees during field activities. The two primary factors that influence the risk potential for cold stress are temperature and wind velocity. Wetness can also contribute to cold stress. Other factors that increase susceptibility to cold stress include age (very young or old), smoking, alcohol consumption, fatigue, and wet clothing. Hypothermia can occur at temperatures above freezing if the individual has on wet or damp clothing or is immersed in cold water. The combined effect of temperature and wind can be evaluated using a wind chill index as shown in Table 1.

Bare flesh and body extremities that have high surface area-to-volume ratios such as fingers, toes, and ears are most susceptible to wind chill or extremely low ambient temperatures. Because cold stress can create the potential for serious injury or death, employees must be familiar with the signs and symptoms and various treatments for each form of cold stress. Table 2 provides information on frostbite and hypothermia, the two most common forms of cold-related injuries.

Training is an essential component of cold stress prevention. Employees are instructed to recognize and treat cold-related injuries during 8-hour health and safety refresher and first aid training courses. When working in cold environments, specific steps should be taken to lessen the chances of cold-related injuries. These include the following:

- Protecting of exposed skin surfaces with appropriate clothing (such as face masks, handwear, and footwear) that insulates, stays dry, and blocks wind
- Shielding the work area with windbreaks to reduce the cooling effects of wind
- Providing equipment for keeping workers' hands warm by including warm air jets and radiant heaters in addition to insulated gloves
- Using adequate insulating clothing to maintain a body core temperature of above 36 °C
- Providing extra insulating clothing on site

TABLE 1

COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS EQUIVALENT TEMPERATURE

Estimated Wind Speed (in miles per hour - mph)	Actual Temperature Reading (°F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Chill Temperature (°F)											
CALM	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148

(Wind speeds greater than 40 mph have little additional effect.)	*LITTLE DANGER* in less than 1 hour with dry skin; maximum danger from false sense of security	*INCREASING DANGER* from freezing of exposed flesh within 1 minute	*GREAT DANGER* that flesh may freeze within 30 seconds

Trench foot may occur at any point on this chart.

Source: Modified from American Conference of Governmental Industrial Hygienists. 1997. "Threshold Limit Values for Chemical Substances and Physical Agents."

TABLE 2

COLD STRESS CONDITIONS

Condition	Causes	Signs and Symptoms	Treatment
Frostbite	Freezing of body tissue, usually the nose, ears, chin, cheeks, fingers, or toes	• Pain in affected area that later goes away • Area feels cold and numb • Incipient frostbite (frostnip) - skin is blanched or whitened and feels hard on the surface • Moderate frostbite - large blisters • Deep frostbite - tissues are cold, pale, and hard	• Move affected worker to a warm area • Immerse affected body part in warm (100 to 105 °F) water—not hot! • Handle affected area gently; do not rub • After warming, bandage loosely and seek immediate medical treatment
Hypothermia	Exposure to freezing or rapidly dropping temperatures	• Shivering, dizziness, numbness, weakness, impaired judgment, and impaired vision • Apathy, listlessness, or sleepiness • Loss of consciousness • Decreased pulse and breathing rates • Death	• Immediately move affected person to warm area • Remove all wet clothing and redress with loose, dry clothes • Provide warm, sweet drinks or soup (only if conscious) • Seek immediate medical treatment

- Reducing the duration of exposure to cold
- Changing wet or damp clothing as soon as possible

During periods of extreme cold (10 °F or less) workers should use the buddy system to ensure constant protective observation.

Specific monitoring criteria are not established for cold stress. However, employees should be thoroughly cognizant of the signs and symptoms of frostbite and hypothermia (see Table 1) in themselves as well as in coworkers. All instances of cold stress should be reported to the site safety coordinator. Work schedules may be adjusted and warm-up regimes imposed as needed to deal with temperature and wind conditions.

TETRA TECH, INC.

HEALTH AND SAFETY PLAN COMPLIANCE AGREEMENT

Project Name: _____

Project Number: _____

I have read and understand the health and safety plan indicated above and agree to comply with all of its provisions. I understand that I could be prohibited from working on the project for violating any of the safety requirements specified in the plan.

Name	Signature	Employer	Date

APPENDIX C

Alliant Energy Well Logs

ALLIANT ENERGY.

FAX

DATE: 1-28-02

TO:
Name: Gerald DeMers

Fax:

FROM:
Name: Jill Stevens

Phone:

Fax: 608.252.3481

PAGES SENT: (including this sheet)

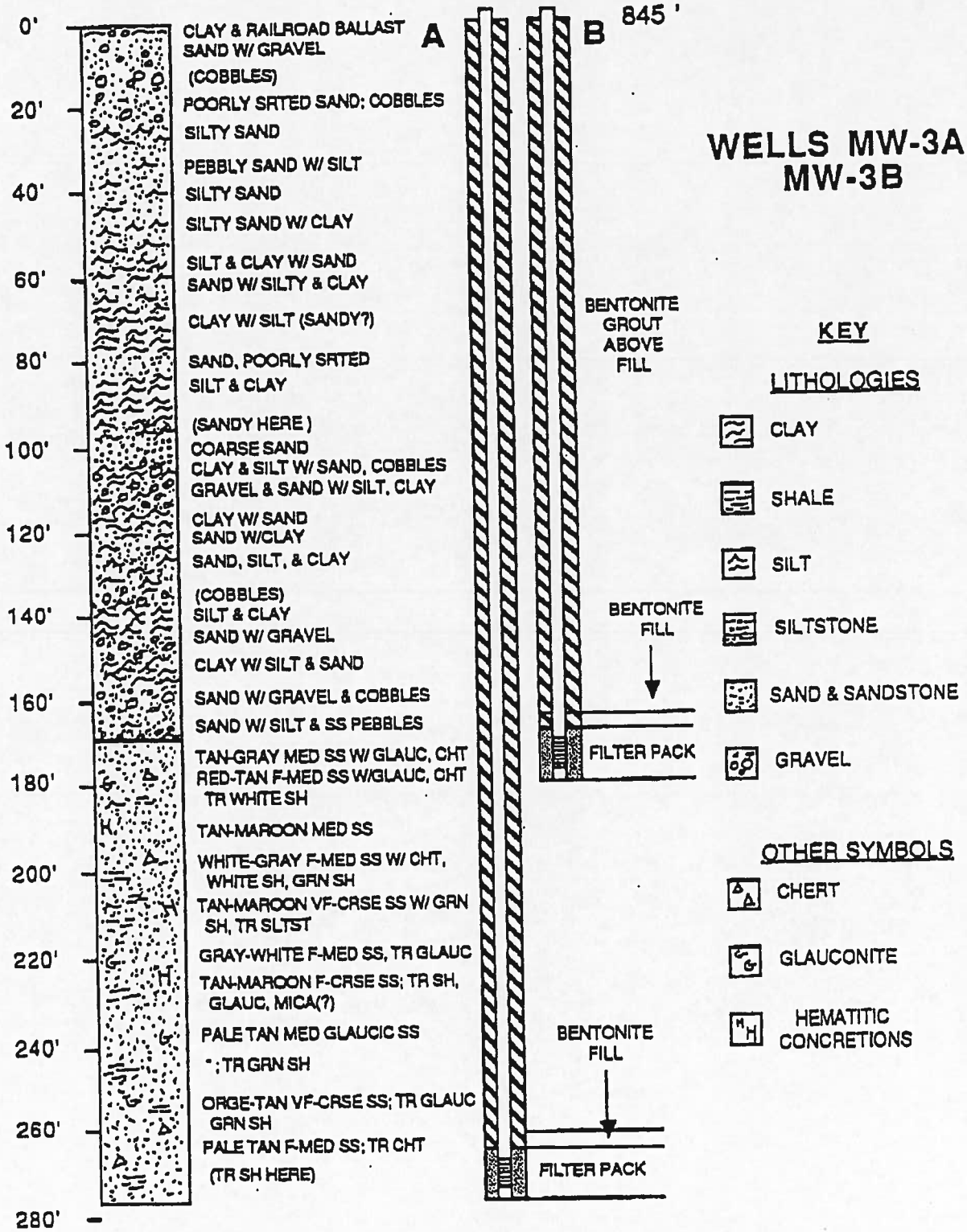
If you do not receive all pages, copies are illegible, or have received this transmission in error, please call the following number as soon as possible:

SUBJECT:

COMMENTS:

These wells were installed by a grad student + I believe are not up to NR 140 Stds. We think they were installed circa 1990.

JS



WELLS MW-3A, MW-3B

KEY

LITHOLOGIES

- CLAY
- SHALE
- SILT
- SILTSTONE
- SAND & SANDSTONE
- GRAVEL

OTHER SYMBOLS

- CHERT
- GLAUCONITE
- HEMATITIC CONCRETIONS