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Monitoring of volatile organic compounds (VOCs) in Tomah, Wisconsin. [DNR-031a] 1988

Krohn, Charles J.

Madison, Wisconsin: Wisconsin Department of Natural Resources, 1988

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050863

050863

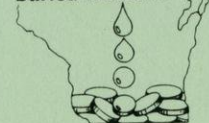
Wisconsin Groundwater Management Practice Monitoring Project No. 31

Water Resources Center
University of Wisconsin - MSN
1975 Willow Drive
Madison, WI 53706



Wisconsin Department of Natural Resources

GROUNDWATER
Wisconsin's
buried treasure

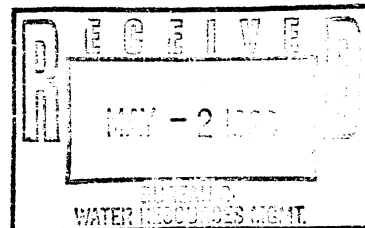


CORRESPONDENCE MEMORANDUM

Water Resources Center
University of Wisconsin - MSN
STATE OF WISCONSIN, Drive
DEPARTMENT OF NATURAL RESOURCES
Madison, WI 53706

FILE CODE: 4400

DATE: September 20, 1988
TO: File
FROM: Charles J. Krohn
SUBJECT: Veldey's Mobil Station
Tomah, WI
Gasoline Investigation
SW14 SCL SP637



I. Introduction

The following is a phase one site assessment prepared by the Department of Natural Resources evaluating the subsurface conditions at the intersection of Superior Street and Clifton Streets in Tomah, Wisconsin (see Appendix A: site maps).

The purpose of the assessment was to verify the existence of dissolved phase and adsorbed phase hydrocarbon which were previously detected by Layne Northwest of Pewaukee, Wisconsin, using a soil gas survey. In addition to the soil gas survey, Layne Northwest also detected dissolved phase hydrocarbons in monitoring well P-4 which is located just south of Veldey's Mobil Station. Monitoring well P-4 was drilled in an area which showed the highest values on the original soil gas survey.

During tank excavation at Veldey's Mobil on July 11 and 12, 1988, soil samples were taken by DNR personnel to quantify the amount of adsorbed phase hydrocarbons in the station tank pad. Soil samples showed a maximum total BTEX level of 730 ppm as determined by the State Laboratory of Hygiene in Madison.

To date DNR personnel have completed the following operations at the site.

- * Installation of 4 monitoring wells
- * Collection and analyses of soil samples taken during tank excavation
- * HNU Screening of soils during tank excavation
- * Collection and analyses of groundwater from monitoring wells installed by the DNR
- * Fluid level monitoring of the site
- * A site survey of all monitoring well elevations

II. Monitoring Well Installation

Monitoring wells MW-1, MW-2, MW-3 and MW-4 were installed on August 2, 1988, by DNR personnel. Drilling was accomplished with a rotary truck mounted rig, fitted with a solid stem auger. Monitor wells MW-1, MW-2, MW-3, and MW-4 were completed to depths of 23.00 ft., 23.83 ft., 22.75 ft. and 24.50 ft. respectively.

All monitoring wells were constructed with two-inch diameter thread joint 0.010-inch slotted PVC well screen, two-inch diameter thread joint PVC riser and a two-inch diameter PVC well point. Each well was fitted with a locking top hole water tight plug and was then cemented in at grade for protection.

All monitoring wells were grouted with bentonite crumbles above the sand pack within the annular space to prevent surface water infiltration. Native soil fill material was placed above the bentonite filling the remaining annular space to the top of the hole. A well construction diagram for each monitoring well is depicted on well logs in Appendix B.

A site survey was conducted to develop top of casing elevations which were then used in conjunction with well gauging data to construct a groundwater contour map of the study area (see Appendix C: Survey Field Notes).

III. Site Monitoring

Site monitoring data was obtained on August 12, 1988, (see Appendix D: Well Monitoring form). The tape and paste method was used to determine well depth, depth to water and depth to product in all DNR installed monitoring wells.

No free phase hydrocarbons were detected during the course of the hydrogeologic investigation.

IV. Site Geology

The City of Tomah lies on the western edge of paleo Lake Wisconsin. Erosion of Cambrian outcrops on the depositioned edge of the Lacustrine environment resulted in the deposition of a relatively thin (10-30 ft) sequence of unconsolidated sand in the Tomah area.

Underlying the unconsolidated reworked Cambrian sands is a thick sequence of Cambrian sands which is known as the Dresbach Group. The Dresbach Group lies directly on the crystalline Pre-Cambrian basement complex.

During installation of monitoring wells MW-1, MW-2, MW-3 and MW-4, unconsolidated sands were penetrated to the total depth in each bore hole. Drill cuttings from soil borings were logged and the information is included on individual well logs in Appendix B.

Dark reddish brown chert was evident in several zones which caused temporary reductions in the penetration rate while drilling. These zones of hardness represent either iron-chert concretions and/or high energy deposition of chert pebbles weathered out of parent Cambrian outcrops.

V. Hydrogeology

Both the reworked unconsolidated Cambrian sands and the underlying parent Cambrian Dresback Group are known aquifers in the Tomah area. During the course of the investigation, monitoring wells were installed and then gauged to determine groundwater flow directions and gradients within the Cambrian aquifer.

While drilling monitoring wells MW-1 through MW-4, a fine to medium grained moderately sorted sand was encountered at an average depth of two feet below grade. Groundwater was first encountered while drilling at an average depth of 19.0 feet below grade. After completion of the monitoring wells, a period of 10 days was given, prior to well gauging, for the groundwater within the well bores to reach a static level.

Well monitoring data was collected on August 12, 1988, and was later combined with the surveyed top of casing elevations, in order to construct the Groundwater Contour Map in Appendix A. The arrows on the map indicate groundwater flow directions on August 12, 1988, after Tomah municipal well #3 was off line for 23 months.

Tomah municipal well #3 was shut down after routine VOC tests detected Benzene levels which were above the public health standard in August, 1986. The well was originally drilled in 1938 to a depth of 280 feet and was completed with the bottom 80 feet open to the formation according to records kept at the DNR office in La Crosse. Well #3 served the City of Tomah water system from 1938 to 1986, during which time the water department typically pumped between 200,000 and 420 000 gallons per day from the Cambrian sandstone.

Layne Northwest conducted deionized slug tests to determine the hydraulic conductivity, transmissivity and storativity of the formation surrounding each monitoring well. These values were then averaged and then used to create a model for pumping rates of 100, 150 and 400 gallons per minute over a ten-day period. The data indicates that the cone of depression for a 100 gpm pumping rate would reflect a 3-foot drawdown at the apex of the cone and a 1.0 foot drawdown at a radius consistent with the Veldey property. The cone of depression for a 150 gpm rate would consist of a 4.0 foot drawdown at the apex of the cone and a 1.5 foot drawdown at a radius consistent with the Veldey property. The cone of depression for a 400 gpm pumping rate would consist of a 10-foot drawdown at the apex of the cone and a 4-foot drawdown at a radius consistent with the Veldey property.

The actual pumping rate for Tomah municipal well no. 3 ranged between 138 gpm and 291 gpm in 1985 based on records filed with the Department of Natural Resources. Judging from the modeling done by Layne Northwest

and rates of pumping for an average year in Municipal Well #3, it is evident that a cone of depression has existed across the project site since 1938 when the municipal well was brought on line. The location of the apex of the cone, when Well #3 was on line, would be at the well bore with subsequent groundwater flow gradients directed toward the well within the radius of influence of the well. The cone of depression created by Well #3 served as a mechanism for free phase hydrocarbon transport at the water surface while dissolved phase hydrocarbons were transported toward the well bore by the low head situation created by high volume pumping.

VI. Soil Quality Analyses

Soil samples were taken during tank excavation at Veldey's Mobil on July 11 and 12, 1988. A maximum contamination level of 730 ppm total BTEX was detected in samples sent to the Wisconsin State Laboratory of Hygiene for VOC analyses.

A full report of the tank excavation was submitted on August 12, 1988, listing all pertinent lab data, a site map and HNU screening data.

Soil samples were not taken during monitoring well installation due to project budget restrictions. HNU screenings were conducted during well drilling and the results can be found on individual well logs in Appendix B. The HNU Photoionization Analyzer was found to be malfunctioning during calibration tests following the field screening. This may have resulted in artificially low readings during field screening.

The only recorded HNU readings above background were detected in Monitoring Well MW-1 which is located adjacent to the Mobil Station tank pad. The highest reading and the strongest hydrocarbon odors were recorded at a depth of 19.0 feet below grade which corresponds to the piezometric surface at the station.

VII. Water Quality Analyses

Groundwater samples were obtained from monitoring wells MW-1, MW-2, MW-3 and MW-4 on August 10, 1988. Each well was properly developed to ensure the sample was representative of the formation groundwater. Individual wells were sampled using a teflon bailer to collect the groundwater to be analyzed. Samples were then placed into septum capped vials and then put on ice for preservation. The preserved iced samples were then sent by mail to the State Laboratory of Hygiene in Madison for volatile organic compound analyses.

Results of water analyses performed by the State Laboratory indicate total BTEX levels of 60,400.0 ppb, 22.8 ppb, 0.0 ppb and 114.3 ppb in monitoring wells MW-1, MW-2, MW-3 and MW-4 respectively. Complete laboratory results are listed in Appendix E.

The total BTEX levels in monitoring well MW-1 represent the highest contamination values detected by either Layne Northwest or the Wisconsin DNR. Layne Northwest monitoring well P-4, contained a total BTEX level of 29,153 ppb on January 14, 1988.

The dissolved phase hydrocarbon plume depicted on the site map in Appendix A shows a representation of the hydrocarbon plume which exists at the site. The location of the plume is consistent with the soil gas survey which was conducted by Layne Northwest and is also consistent with groundwater flow directions when municipal well #3 was on line.

Monitoring well MW-4 is located adjacent to an abandoned tank pad at the Armed Forces Recruiting Office on Clifton Street in Tomah. Water analyses indicated a total BTEX level of 114.3 ppb in monitoring well MW-4 on August 10, 1988.

VIII. Conclusions

Based on information collected during the hydrogeologic assessment performed by the Department of Natural Resources on the area surrounding the intersection of Superior and Clifton Streets in Tomah, Wisconsin, the following has been concluded:

- * Strata beneath the project area consists of medium grained unconsolidated sand to total depth in each monitoring well.
- * Dissolved phase hydrocarbons were detected in monitoring wells MW-1 (60,400 ppb total BTEX) and MW-2 (22.8 ppb total BTEX), adjacent to Veldey's Mobil tank pad.
- * Dissolved phase hydrocarbons were detected in monitoring well MW-4 (114.3 ppb total BTEX), adjacent to the abandoned tank pad at the Armed Forces Recruiting Center on Clifton Street.
- * Soil samples taken during tank excavation at Veldey's Mobil Station showed a maximum BTEX level of 730 ppm during laboratory analyses.
- * Normal groundwater flow directions, over the project area, have been altered by a cone of depression created by Tomah Municipal Well #3 which was put on line in 1938 and taken out of service in 1986.

IX. Recommendations

- * Initiate a groundwater remediation effort at Veldey's Mobil Station in order to reduce dissolved phase and adsorbed phase hydrocarbon contamination across the project site.
- * Specific recommended remediation techniques include groundwater depression, product recovery, air stripping and possibly in-situ soil venting to reduce vapors and remediate adsorbed hydrocarbons above the water table.

Table of Appendices

Appendix A:	Site Maps
Appendix B:	Well Logs
Appendix C:	Survey Field Notes
Appendix D:	Well Monitoring Forms
Appendix E:	State Lab Results
Appendix F:	Station Photographs

APPENDIX A: SITE MAPS

APPENDIX B: WELL LOGS

WELL LOG: MW-1

State of Wisconsin

PROJECT: Velday's Mobil Gasoline Inv.
 LOCATION: Tomah WI.
 DRILLING DNR
 DRILLER: Boetcher

PROJECT #: SW14 SCL SP637
 DATE DRILLED: 8/2/88
 INITIAL WATER LEVEL: 19.17'
 AFTER 24 HOURS: -

LOG BY: Krohn
 SURFACE ELEV.: 982.41'

DRILLING METHOD: Solid Stem Auger
 SAMPLE METHOD: Cuttings

DEPTH OF WELL 23.0' DEPTH/HOLE: 27.0' DIA/HOLE: 4.0"
 LENGTH/SCREEN: 10.0' DIA/SCREEN: 2.0" SLOT SIZE: .010
 LENGTH/CASING: 13.0' DIA/CASING: 2.0" TYPE: PVC



DEPTH IN FEET	WELL DESIGN	NOTES	H ₂ O READING PPM	SAM- PLE	GRAPHIC LOG	SOIL CLASSIFICATION / DESCRIPTION (COLOR, TEXTURE, STRUCTURES)
0		Locking Assembly				
		Concrete				0.0 - 2.0' Sandy Soil, dark brown Slight hydrocarbon odors
		Bentomite				
		Riser				2.0' - 10.0' Sand, yellow green, med. grained, well sorted, strong hydrocarbon odor.
-5		Sand Pack				
-10						10.0' - 12.0' Sand, tan, med - coarse grained, hard, moderate hydrocarbon odors
-15		Screen				12.0' - 15.0' Sand, tan, med. grained, well sorted, variable hard + soft mod. hydrocarbon odor
-20		Well Point	40 ppm Select Sample Screen			15.0' - 19.0' Sand, light tan, fine to medium grained, moderately hard, weak hydrocarbon odor 19.0 Strong hydrocarbon odor
-25						19.0 - 27.0 Sand, light tan, med. grained, wet, strong hydrocarbon odor

WELL LOG: MW-2

State of Wisconsin

PROJECT: Valdeys Mobil Gasline Inv.
 LOCATION: Tomah, WI.
 DRILLING DNR
 DRILLER: Boetcher

PROJECT #: SW14 SCL SP637
 DATE DRILLED: 8/2/88
 INITIAL WATER LEVEL: -
 AFTER 24 HOURS: -

LOG BY: Krohn
 SURFACE ELEV.: 981.95 TOC

DRILLING METHOD: Solid Stem Auger
 SAMPLE METHOD: Cuttings

DEPTH OF WELL
 LENGTH/SCREEN: 10.0'
 LENGTH/CASING

DEPTH/HOLE: 25.0' DIA/HOLE: 4.0"
 DIA/SCREEN: 2.0" SLOT SIZE: .010
 DIA/CASING: 2.0" TYPE: PVC



DEPTH IN FEET	WELL DESIGN	NOTES	READING PPM	SAM- PLE	GRAPHIC LOG	SOIL CLASSIFICATION / DESCRIPTION (COLOR, TEXTURE, STRUCTURES)
0		locking Assembly Concrete Bentonite	0			0.0' - 4.0' Sandy Soil, med brown, No hydrocarbon odor
5		Riser				4.0' - 19.0' Sand, reddish tan, med grained, well rounded, well sorted, trace iron-chert Concretions, no hydrocarbon odor
10		Sand Pack				
15		Screen				
20						19.0 - 25.0 Argillaceous Sand, tan, med to coarse grained, poor sorting, trace chert nodules, wet, no hydrocarbon odor
25		Well Point				

* Len

WELL LOG: MW-3

State of Wisconsin

PROJECT: Veldeys Mobil Gasoline Inv.
 LOCATION: Tomah, WI
 DRILLING: DNR
 DRILLER: Boetcher

PROJECT #: SW14 SCL SP637
 DATE DRILLED: 8/2/88
 INITIAL WATER LEVEL: -
 AFTER 24 HOURS: -

LOG BY: Krohn
 SURFACE ELEV.: 981.63'

DRILLING METHOD: Solid Stem Auger
 SAMPLE METHOD: Cuttings

DEPTH OF WELL
 LENGTH/SCREEN: 10.0'
 LENGTH/CASING:

DEPTH/HOLE: 27.0' DIA/HOLE: 4.0"
 DIA/SCREEN: 2.0" SLOT SIZE: .010
 DIA/CASING: 2.0" TYPE: PVC



DEPTH IN FEET	WELL DESIGN	NOTES	READING PPM	SAM- PLE	GRAPHIC LOG	SOIL CLASSIFICATION / DESCRIPTION (COLOR, TEXTURE, STRUCTURES)
0		Locking Assembly Concrete Bentonite				
-						0.0'-4.0' Sandy soil, brown no hydrocarbon odor
-5		Sand Pack				4.0'-11.0' Sand, dark tan, med. grained, well sorted, no hydrocarbon odor
-10		Riser				11.0'-20.0' Sand, reddish tan, med. grained, well sorted, no hydrocarbon odor
-15		Screen				20.0'-27.0' Sand, tan, med. grained, well sorted, wet, no hydrocarbon odor
-20						
-25		Well Point				
-25						

Lex

WELL LOG: MW-4

State of Wisconsin

PROJECT: Veldy's Mobil Gasoline Inv.
 LOCATION: Tomah, WI
 DRILLING: DNR
 DRILLER: Boetcher

PROJECT #: SW14 SCL SP637
 DATE DRILLED: 8/2/88
 INITIAL WATER LEVEL: -
 AFTER 24 HOURS: -

LOG BY: Krohn
 SURFACE ELEV.: 981.09

DRILLING METHOD: Solid Stem Auger
 SAMPLE METHOD: Cuttings

DEPTH OF WELL
 LENGTH/SCREEN: 10.0'
 LENGTH/CASING

DEPTH/HOLE: 27.0' DIA/HOLE: 4.0"
 DIA/SCREEN: 2.0" SLOT SIZE: .010
 DIA/CASING: 2.0" TYPE: PVC



DEPTH IN FEET	WELL DESIGN	NOTES	READING PPM	SAM- PLE	GRAPHIC LOG	SOIL CLASSIFICATION / DESCRIPTION (COLOR, TEXTURE, STRUCTURES)
0		Locking Assembly				
		Concrete Bentonite	0			0.0' - 7.0' Sandy soil, med. brown, no hydrocarbon odor
-5						
		Sand Pack				
-10		Riser				7.0' - 12.5' Sand, reddish tan, med. grained, well sorted well rounded, no hydrocarbon odor
-15						12.5' - 15.0' Sand, yellow-tan, fine to medium grained, well rounded, poor sorting, no hydrocarbon odor
-20		Screen				15.0' - 20.0' Sand, reddish tan fine to medium grained, well rounded, mod sorting, mod iron staining, no hydrocarbon odor
-25		Well Point				20.0' - 25.0' Sand, tan, fine to med grained, Argillaceous, trace iron staining, no hydrocarbon odor
						25.0' - 32.0' Sand, tan, fine grained, wet, no hydrocarbon odor

APPENDIX C: SURVEY FIELD NOTES

Survey Notes: Valdeys Mobil Gasoline Investigation

Date 8-3-88

Station No. 1

Instrument Height: DOT Data

Surveyor: Krohn

Point	Description	Top STADIA	Cross Hair	Bottom STADIA	T-C	C-B	T-B	T-G x 100	Taped	Degrees
NW-1			6.15							
NW-2			6.69							
NW-3			6.96							
NW-4			7.55							

Site survey map prepared with 1" = 40'
Air photographs over Lay

Elevation tied to Dept. of Transportation
Benchmark

APPENDIX D: WELL MONITORING FORMS

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

Project	Project Number	Location
Veldeys Gas Inv.	SW14 SCL SP637	Tomah, WI
Date	Time	Method
8-12-88	14:30	<input checked="" type="checkbox"/> EIP <input checked="" type="checkbox"/> OTHER Tape + Paste
Operator(s)		
Krohn		

[illegible]

General Comments

APPENDIX E: STATE LAB RESULTS



STATE LABORATORY OF HYGIENE
University of Wisconsin Center for Health Sciences

AREA CODE 608
TEL. NO. 262-1293

WILLIAM D. STOVALL BUILDING
465 HENRY MALL
MADISON, WISCONSIN
53706

MEMORANDUM

Date: August 29, 1988

To: Charles Krohn

From: David Degenhardt *DD*

State Laboratory of Hygiene sample 485, field number 1 from monitoring well 1 at Veldey's Mobil Gas in Tomah may contain the compounds listed below according to tentative computer identification from gas chromatography/mass spectroscopy analysis. The concentration of contaminants could not be determined, nor has the presence of the compounds been confirmed by alternative analysis techniques.

acetone
naphthalene
alkylated naphthalene
alkylated benzenes and other hydrocarbons

If you have any questions, contact me at (608) 262-2797.

DD/jk/dave.5h



STATE LABORATORY OF HYGIENE
University of Wisconsin Center for Health Sciences

AREA CODE 608
TEL. NO. 262-1293

WILLIAM D. STOVALL BUILDING
465 HENRY MALL
MADISON, WISCONSIN
53706

MEMORANDUM

Date: August 29, 1988

To: Charles Krohn

From: David Degenhardt *DD*

State Laboratory of Hygiene sample 486, field number 2 from monitoring well 1 at Veldey's Mobil. Gas in Tomah may contain the compounds listed below according to tentative computer identification from gas chromatography/mass spectroscopy analysis. The concentration of contaminants could not be determined, nor has the presence of the compounds been confirmed by alternative analysis techniques.

acetone
naphthalene
alkylated naphthalene
alkylated benzenes and other hydrocarbons

If you have any questions, contact me at (608) 262-2797.

DD/jk/dave.5h



STATE LABORATORY OF HYGIENE

University of Wisconsin Center for Health Sciences

AREA CODE 608
TEL. NO. 262-1293

WILLIAM D. STOVALL BUILDING
465 HENRY MALL
MADISON, WISCONSIN
53706

MEMORANDUM

RECEIVED

SEP 2 1988

BUREAU OF SOLID -
HAZARDOUS WASTE MANAGEMENT

Date: August 29, 1988

To: Charles Krohn

From: David Degenhardt *DD*

State Laboratory of Hygiene sample 483, field number 4 from monitoring well 2 at Veldey's Mobil Gas in Tomah may contain the compounds listed below according to tentative computer identification from gas chromatography/mass spectroscopy analysis. The concentration of contaminants could not be determined, nor has the presence of the compounds been confirmed by alternative analysis techniques.

acetone
alkylated benzenes and other hydrocarbons

If you have any questions, contact me at (608) 262-2797.

DD/jk/dave.5h



STATE LABORATORY OF HYGIENE
University of Wisconsin Center for Health Sciences

AREA CODE 608
TEL. NO. 262-1293

WILLIAM D. STOVALL BUILDING
465 HENRY MALL
MADISON, WISCONSIN
53706

MEMORANDUM

Date: August 29, 1988

To: Charles Krohn

From: David Degenhardt *DD*

State Laboratory of Hygiene sample 487, field number 5 from monitoring well 3 at Veldey's Mobile Gas in Tomah may contain the compounds listed below according to tentative computer identification from gas chromatography/mass spectroscopy analysis. The concentration of contaminants could not be determined, nor has the presence of the compounds been confirmed by alternative analysis techniques.

acetone
alkylated benzenes and other hydrocarbons

If you have any questions, contact me at (608) 262-2797.

DD/jk/dave.5h



STATE LABORATORY OF HYGIENE

University of Wisconsin Center for Health Sciences

AREA CODE 608
TEL. NO. 262-1293

WILLIAM D. STOVALL BUILDING
465 HENRY MALL
MADISON, WISCONSIN
53706

MEMORANDUM

Date: August 29, 1988

To: Charles Krohn

From: David Degenhardt *DD*

State Laboratory of Hygiene sample 488, field number 6 from monitoring well 4 at Veldey's Mobile Gas in Tomah may contain the compounds listed below according to tentative computer identification from gas chromatography/mass spectroscopy analysis. The concentration of contaminants could not be determined, nor has the presence of the compounds been confirmed by alternative analysis techniques.

naphthalene
alkylated naphthalene
alkylated benzenes and other hydrocarbons

If you have any questions, contact me at (608) 262-2797.

DD/jk/dave.5h

SW-14 JCL SP637

Department of Natural Resources

VOCS
Form 4800-5

Rev. 12-87

☐ If New FacilityBill to: ☐ Solid Waste☐ Hazardous Waste☐ Wastewater☐ Water Supply☐ Spills☐ Other

LUST

I.D.
NumberPoint/
Well # MW-1Field
No. 1

County # 18

Route
Code

Name Veldes Mobil Gas Inv.

P.O. or
City Tomah WICollection
Date08/10/88
M M D D Y YTime: 10:30
H H M MSample
Location

MW-1 Tomah, WI

Description

Monitoring well MW-1

Send
Report
To:C. Krohn
3550 Herman Collier Rd.
La Crosse WI 54601Account
Number

SW017

Collected By

C. Krohn

Phone (608) 285-2000

Check any appropriate:

☐ S Split☐ E Enforcement☐ B Field Blank☐ S Surface Source☐ T TreatedFree Chlorine Residual (Field) mg/L
Free Chlorine Residual (Lab) mg/LDetection limits (ug/L)
are indicated by []

Detected ug/L

— Benzene [1.0]	X 025	3000 .
— Bromobenzene [4.0]	— 046	—
— Bromodichloromethane [1.0]**	— 051	—
— Bromoform [5.0]**	— 053	—
— Bromomethane [1.0]	— 055	—
— Carbon Disulfide [5.0]	— 071	—
— Carbon Tetrachloride [2.0]	— 073	—
— Chlorobenzene [2.0]	— 083	—
— Chloroethane [2.0]	— 087	—
— 2-Chloroethylvinyl ether [4.0]	— 093	—
— Chloroform [1.0]**	— 095	—
— o-Chlorotoluene [1.0]	— 108	—
— p-Chlorotoluene [1.0]	— 110	—
— Dibromomethane [2.0]	— 146	—
— Dibromochloromethane [2.0]**	— 147	—
— 1,2-Dibromo-3-Chloropropane [7.0]	— 148	—
— 1,2-Dichlorobenzene [2.0]	— 153	—
— 1,3-Dichlorobenzene [2.0]	— 155	—
— 1,4-Dichlorobenzene [2.0]	— 157	—
— 1,1-Dichloroethane [1.0]	— 165	—
— 1,2-Dichloroethane [1.0]	— 167	—
— 1,2-Dichloroethylene, cis [1.0]	— 168	—
— 1,1-Dichloroethylene [1.0]	— 169	—
— 1,2-Dichloroethylene, trans [1.0]	— 170	—
— 1,3-Dichloropropane [1.0]	— 178	—
— 1,1-Dichloropropene [2.0]	— 180	—
— 1,2-Dichloropropane [1.0]	— 181	—

<input checked="" type="checkbox"/> MW Monitoring Well	<input type="checkbox"/> EF Effluent	<input type="checkbox"/> OW Waste
<input type="checkbox"/> LY Lysimeter	<input type="checkbox"/> IF Influent	
<input type="checkbox"/> LE Leachate	<input type="checkbox"/> SO Soil	
<input type="checkbox"/> SE Sediment	<input type="checkbox"/> OI Oil	
<input type="checkbox"/> SU Surface Water	<input type="checkbox"/> SL Sludge	
<input type="checkbox"/> PW Private Well	<input type="checkbox"/> OT Other	

Analysis Type:

☒ Q GC/MS Screen and Quantification☐ S GC/MS Screen☐ O Parameter Specific

(NOTE: if followup enter previous sample no.)



Water System Type (Water Supply Use ONLY)

☐ M Community-Municipal Sample Type:☐ O Community-OTM☐ N Non-community☐ P Private☐ X Non-potable☐ D (SDWA) Compliance Sample☐ C (SDWA) Check

(Initial Sample Date)

☐ W Raw Water ☒ if New Well☐ I Miscellaneous Distribution

	Detected	ug/L
— 2,2-Dichloropropane [2.0]	— 182	—
— 1,3-Dichloropropene, cis [2.5]	— 183	—
— 1,3-Dichloropropene, trans [2.5]	— 185	—
— Ethylbenzene [1.0]	X 233	4400 .
— Ethylene Dibromide [1.0]	— 236	—
— Methylenechloride (MEK) [12]	— 319	—
— Methylene Chloride [5.0]	— 325	—
— Styrene [2.0]	— 393	—
— 1,1,1,2-Tetrachloroethane [3.0]	— 396	—
— 1,1,2,2-Tetrachloroethane [3.0]	— 397	—
— Tetrachloroethylene [1.0]	— 399	—
— Tetrahydrofuran (THF) [200]	— 401	—
— Toluene [1.0]	X 411	3700 .
— 1,2,4-Trichlorobenzene [1.0]	— 419	—
— 1,1,1-Trichloroethane [1.0]	— 421	—
— 1,1,2-Trichloroethane [2.0]	— 423	—
— Trichloroethylene [1.0]	— 425	—
— Trichlorofluoromethane [1.0]	— 427	—
— Trichlorotrifluoroethane [3.0]	— 428	—
— 1,2,3-Trichloropropane [2.0]	— 432	—
— Vinyl Chloride [1.0]	— 434	—
— Xylenes [2.0]	X 437	2200 .

** Total Trihalomethanes

☐ NO DetectsDate Received
And Sample No.

AUG 12 1988

Date Reported

AUG 30 1988

R.H. Laessig, Ph.D., Director
Wisconsin State Laboratory of Hygiene
Madison, Wisconsin 53706

88-2098

34L — ES4854V; A08128/KALI
CCLD

Department of Natural Resources

VOCS

Form 4800-5

Rev. 12-87

SW14 S4 SP637

☐ If New Facility
Bill to: ☐ Solid Waste ☐ Hazardous Waste ☐ Wastewater ☐ Water Supply ☐ Spills ☒ Other CVST

I.D. Number _____ Point/Wall # MW-1 Field No. 2 County # 18 Route Code _____

I.D. Name Valley's Mobil Gas Inv. P.O. or City Tomah WI

Collection Date 08/10/88 Time 10:45 Sample Location MW-1 Duplicate

Description Monitoring Well MW-1, Duplicate

Send Report To:

C. Kuhn
3550 Harmon Circle Rd.
La Crosse WI 54601

Account Number SW017

Collected By C. Kuhn

Phone (608) 785-9000

Check any appropriate:

☐ S Split ☐ E Enforcement ☐ B Field Blank
☐ S Surface Source ☐ T Treated

Free Chlorine Residual (Field) _____ mg/L
Free Chlorine Residual (Lab) _____ mg/L

Detection limits (ug/L)
are indicated by []

Detected ug/L

— Benzene [1.0]	X 025	2400
— Bromobenzene [4.0]	— 046	—
— Bromodichloromethane [1.0]**	— 051	—
— Bromoform [5.0]**	— 053	—
— Bromomethane [1.0]	— 055	—
— Carbon Disulfide [5.0]	— 071	—
— Carbon Tetrachloride [2.0]	— 073	—
— Chlorobenzene [2.0]	— 083	—
— Chloroethane [2.0]	— 087	—
— 2-Chloroethylvinyl ether [4.0]	— 093	—
— Chloroform [1.0]**	— 095	—
— O-Chlorotoluene [1.0]	— 108	—
— P-Chlorotoluene [1.0]	— 110	—
— Dibromomethane [2.0]	— 146	—
— Dibromochloromethane [2.0]**	— 147	—
— 1,2-Dibromo-3-Chloropropane [7.0]	— 148	—
— 1,2-Dichlorobenzene [2.0]	— 153	—
— 1,3-Dichlorobenzene [2.0]	— 155	—
— 1,4-Dichlorobenzene [2.0]	— 157	—
— 1,1-Dichloroethane [1.0]	— 165	—
— 1,2-Dichloroethane [1.0]	— 167	—
— 1,2-Dichloroethylene, cis [1.0]	— 168	—
— 1,1-Dichloroethylene [1.0]	— 169	—
— 1,2-Dichloroethylene, trans [1.0]	— 170	—
— 1,3-Dichloropropane [1.0]	— 178	—
— 1,1-Dichloropropene [2.0]	— 180	—
— 1,2-Dichloropropane [1.0]	— 181	—

☒ MW Monitoring Well ☐ EF Effluent ☐ OW Waste
☐ LY Lysimeter ☐ IF Influent
☐ LE Leachate ☐ SO Soil
☐ SE Sediment ☐ OI Oil
☐ SU Surface Water ☐ SL Sludge
☐ PW Private Well ☐ OT Other

Analysis Type:

☒ Q GC/MS Screen and Quantification
☐ S GC/MS Screen
☐ O Parameter Specific

(NOTE: if followup enter previous sample no.) _____

Water System Type (Water Supply Use ONLY)

☐ M Community-Municipal Sample Type:
☐ O Community-OTM ☐ D (SDWA) Compliance Sample
☐ N Non-community ☐ C (SDWA) Check
☐ P Private (Initial Sample Date) _____
☐ X Non-potable ☐ W Raw Water ☒ if New Well
☐ I Miscellaneous Distribution

Detected ug/L

— 2,2-Dichloropropane [2.0]	— 182	—
— 1,3-Dichloropropene, cis [2.5]	— 183	—
— 1,3-Dichloropropene, trans [2.5]	— 185	—
— Ethylbenzene [1.0]	X 233	3600
— Ethylene Dibromide [1.0]	— 236	—
— Methyl ethyl ketone (MEK) [12]	— 319	—
— Methylene Chloride [5.0]	— 325	—
— Styrene [2.0]	— 393	—
— 1,1,1,2-Tetrachloroethane [3.0]	— 396	—
— 1,1,2,2-Tetrachloroethane [3.0]	— 397	—
— Tetrachloroethylene [1.0]	— 399	—
— Tetrahydrofuran (THF) [200]	— 401	—
— Toluene [1.0]	X 411	3100
— 1,2,4-Trichlorobenzene [1.0]	— 419	—
— 1,1,1-Trichloroethane [1.0]	— 421	—
— 1,1,2-Trichloroethane [2.0]	— 423	—
— Trichloroethylene [1.0]	— 425	—
— Trichlorofluoromethane [1.0]	— 427	—
— Trichlorotrifluoroethane [3.0]	— 428	—
— 1,2,3-Trichloropropane [2.0]	— 432	—
— Vinyl Chloride [1.0]	— 434	—
— Xylenes [2.0]	X 437	2200

** Total Trihalomethanes

☐ NO Detects

Date Received
And Sample No. _____

AUG 12 1988

Date Reported

08/10/88

AUG 30 1988

R.H. Laessig, Ph.D., Director
Wisconsin State Laboratory of Hygiene
Madison, Wisconsin 53706

88-2099

346
2020

ES 486 HU; A08128/LALI

☒ Other LUST

County # 18 Route
Code

P.O. or City Tomah WI

Sample Location Baker Rinse Water

C. Krohn
3550 Merimon Cedar Rd.
Le Crosse WI 54601

Phone (608) 785-9000

☐ S Split ☐ E Enforcement ☐ B Field Blank
☐ S Surface Source ☐ T Treated

— Free Chlorine Residual (Field) — . — — mg/L
— Free Chlorine Residual (Lab) — . — — mg/L

Detection limits (ug/L)
are indicated by []

Detected ug/L

— Benzene [1.0]	— 025	— — — — —
— Bromobenzene [4.0]	— 046	— — — — —
— Bromodichloromethane [1.0]**	— 051	— — — — —
— Bromoform [5.0]**	— 053	— — — — —
— Bromomethane [1.0]	— 055	— — — — —
— Carbon Disulfide [5.0]	— 071	— — — — —
— Carbon Tetrachloride [2.0]	— 073	— — — — —
— Chlorobenzene [2.0]	— 083	— — — — —
— Chloroethane [2.0]	— 087	— — — — —
— 2-Chloroethylvinyl ether [4.0]	— 093	— — — — —
— Chloroform [1.0]**	— 095	— — — — —
— O-Chlorotoluene [1.0]	— 108	— — — — —
— P-Chlorotoluene [1.0]	— 110	— — — — —
— Dibromomethane [2.0]	— 146	— — — — —
— Dibromochloromethane [2.0]**	— 147	— — — — —
— 1,2-Dibromo-3-Chloropropane [7.0]	— 148	— — — — —
— 1,2-Dichlorobenzene [2.0]	— 153	— — — — —
— 1,3-Dichlorobenzene [2.0]	— 155	— — — — —
— 1,4-Dichlorobenzene [2.0]	— 157	— — — — —
— 1,1-Dichloroethane [1.0]	— 165	— — — — —
— 1,2-Dichloroethane [1.0]	— 167	— — — — —
— 1,2-Dichloroethylene, cis [1.0]	— 168	— — — — —
— 1,1-Dichloroethylene [1.0]	— 169	— — — — —
— 1,2-Dichloroethylene, trans [1.0]	— 170	— — — — —
— 1,3-Dichloropropane [1.0]	— 178	— — — — —
— 1,1-Dichloropropene [2.0]	— 180	— — — — —
— 1,2-Dichloropropene [1.0]	— 181	— — — — —

— MW	Monitoring Well	— EF	Effluent	— OW	Waste
— LY	Lysimeter	— IF	Influent		
— LE	Leachate	— SO	Soil		
— SE	Sediment	— OI	Oil		
— SU	Surface Water	— SL	Sludge		
PW	Private Well	— OT	Other		

(NOTE: if followup enter previous sample no.)

I Miscellaneous Distribution

	Detected	ug/L
— 2,2-Dichloropropane [2.0]	— 182	— — — • —
— 1,3-Dichloropropene, cis [2.5]	— 183	— — — • —
— 1,3-Dichloropropene, trans [2.5]	— 185	— — — • —
— Ethylbenzene [1.0]	— 233	— — — • —
— Ethylene Dibromide [1.0]	— 236	— — — • —
— Methyleneethylketone (MEK) [12]	— 319	— — — • —
— Methylene Chloride [5.0]	— 325	— — — • —
— Styrene [2.0]	— 393	— — — • —
— 1,1,1,2-Tetrachloroethane [3.0]	— 396	— — — • —
— 1,1,2,2-Tetrachloroethane [3.0]	— 397	— — — • —
— Tetrachloroethylene [1.0]	— 399	— — — • —
— Tetrahydrofuran (THF) [200]	— 401	— — — • —
— Toluene [1.0]	— 411	— — — • —
— 1,2,4-Trichlorobenzene [1.0]	— 419	— — — • —
— 1,1,1-Trichloroethane [1.0]	— 421	— — — • —
— 1,1,2-Trichloroethane [2.0]	— 423	— — — • —
— Trichloroethylene [1.0]	— 425	— — — • —
— Trichlorofluoromethane [1.0]	— 427	— — — • —
— Trichlorotrifluoroethane [3.0]	— 428	— — — • —
— 1,2,3-Trichloropropane [2.0]	— 432	— — — • —
— Vinyl Chloride [1.0]	— 434	— — — • —
— Xylenes [2.0]	— 437	— — — • —

•• Total Trihalomethanes

☒ NO Detects

Date Received
And Sample No.

Date Reported

AUG 12 1968

AUG 30 1988

R.H. Laessig, Ph.D., Director
Wisconsin State Laboratory of Hygiene
Madison, Wisconsin 53706

88-2097

ES484HA; A051288CALI

SW14 SEC SP637

☐ If New FacilityBill to: ☐ Solid Waste☐ Hazardous Waste☐ Wastewater☐ Water Supply☐ Spills☒ Other LUSTI.D.
NumberPoint/
Well # MW2Field
No. 4County # LS Route
CodeD.
Name Veldge: Mobil Gas. Inv.P.O. or
City Tomah WICollection
Date 08/10/88 Time: 11:30Sample
Location Monitoring Well MW-2

Description

Water SampleSend
Report
To:C Krohn
3550 Moravia Cedar Rd
LaCrosse WI 54601Account
Number SW017Collected By Charles J KrohnPhone (608) 785-9000

Check any appropriate:

☐ S Split☐ E Enforcement☐ B Field Blank☐ S Surface Source☐ T TreatedFree Chlorine Residual (Field) mg/LFree Chlorine Residual (Lab) mg/LDetection limits (ug/L)
are indicated by []

Detected ug/L

— Benzene [1.0]	X 025	20
— Bromobenzene [4.0]	046	
— Bromodichloromethane [4.0]**	051	
— Bromoform [5.0]**	053	
— Bromomethane [1.0]	055	
— Carbon Disulfide [5.0]	071	
— Carbon Tetrachloride [2.0]	073	
— Chlorobenzene [2.0]	083	
— Chloroethane [2.0]	087	
— 2-Chloroethylvinyl ether [4.0]	093	
— Chloroform [1.0]**	095	
— o-Chlorotoluene [1.0]	108	
— p-Chlorotoluene [1.0]	110	
— Dibromomethane [2.0]	146	
— Dibromochloromethane [2.0]**	147	
— 1,2-Dibromo-3-Chloropropane [7.0]	148	
— 1,2-Dichlorobenzene [2.0]	153	
— 1,3-Dichlorobenzene [2.0]	155	
— 1,4-Dichlorobenzene [2.0]	157	
— 1,1-Dichloroethane [1.0]	165	
— 1,2-Dichloroethane [1.0]	167	
— 1,2-Dichloroethylene, cis [1.0]	168	
— 1,1-Dichloroethylene [1.0]	169	
— 1,2-Dichloroethylene, trans [1.0]	170	
— 1,3-Dichloropropane [1.0]	178	
— 1,1-Dichloropropane [2.0]	180	
— 1,2-Dichloropropane [1.0]	181	

<input checked="" type="checkbox"/> MW Monitoring Well	— EF Effluent	— OW Waste
— LY Lysimeter	— IF Influent	
— LE Leachate	— SO Soil	
— SE Sediment	— OI Oil	
— SU Surface Water	— SL Sludge	
— PW Private Well	— OT Other	

Analysis Type:

☒ GC/MS Screen and Quantification

S GC/MS Screen

— O Parameter Specific

(NOTE: if followup enter previous sample no.)

ENF

Water System Type (Water Supply Use ONLY)

— M Community-Municipal	Sample Type:
— O Community-OTM	— D (SDWA) Compliance Sample
— N Non-community	— C (SDWA) Check
— P Private	(Initial Sample Date)
— X Non-potable	— W Raw Water <input checked="" type="checkbox"/> if New Well
	— I Miscellaneous Distribution

Detected ug/L

— 2,2-Dichloropropane [2.0]	182	
— 1,3-Dichloropropane, cis [2.5]	183	
— 1,3-Dichloropropane, trans [2.5]	185	
— Ethylbenzene [1.0]	233	
— Ethylene Dibromide [1.0]	236	
— Methyl ethyl ketone (MEK) [12]	319	
— Methylene Chloride [5.0]	325	
— Styrene [2.0]	393	
— 1,1,1,2-Tetrachloroethane [3.0]	396	
— 1,1,2,2-Tetrachloroethane [3.0]	397	
— Tetrachloroethylene [1.0]	399	
— Tetrahydrofuran (THF) [200]	401	
— Toluene [1.0]	411	
— 1,2,4-Trichlorobenzene [1.0]	419	
— 1,1,1-Trichloroethane [1.0]	421	
— 1,1,2-Trichloroethane [2.0]	423	
— Trichloroethylene [1.0]	425	
— Trichlorofluoromethane [1.0]	427	
— Trichlorotrifluoroethane [3.0]	428	
— 1,2,3-Trichloropropane [2.0]	432	
— Vinyl Chloride [1.0]	434	
— Xylenes [2.0]	X 437	2.8

** Total Trihalomethanes

☐ NO DetectsDate Received
And Sample No.

AUG 10 1988

Date Reported

AUG 30 1988

R.H. Laessig, Ph.D., Director
Wisconsin State Laboratory of Hygiene
Madison, Wisconsin 53706

88-2096

ES483HA; A081286ALI

SW14 SCL SP637

Department of Natural Resources

VOCS

Form 4800-5

Rev. 12-87

☐ If New Facility
 Bill to: ☐ Solid Waste ☐ Hazardous Waste ☐ Wastewater ☐ Water Supply ☐ Spills ☒ Other LUST

I.D. Number _____ Point/Well # MW3 Field No. 5 County # 18 Route Code _____

I.D. Name Velders Mobil Gas Inv. P.O. or City Tombah WI

Collection Date 08/10/88 Time: 12:00 Sample Location MW-3

Description

Monitoring Well MW-3

Send Report To:

C. Krohn
3550 Mormon Lake Rd
La Crosse, WI 54601

Account Number SW017

Collected By C. Krohn

Phone (608) 785-9000

Check any appropriate:

☐ S Split ☐ E Enforcement ☐ B Field Blank
☐ S Surface Source ☐ T Treated

Free Chlorine Residual (Field) _____ mg/L
 Free Chlorine Residual (Lab) _____ mg/L

Detection limits (ug/L) are indicated by []	Detected	ug/L
— Benzene [1.0]	— 025	—
— Bromobenzene [4.0]	— 046	—
— Bromodichloromethane [1.0]**	— 051	—
— Bromoform [5.0]**	— 053	—
— Bromomethane [1.0]	— 055	—
— Carbon Disulfide [5.0]	— 071	—
— Carbon Tetrachloride [2.0]	— 073	—
— Chlorobenzene [2.0]	— 083	—
— Chloroethane [2.0]	— 087	—
— 2-Chloroethylvinyl ether [4.0]	— 093	—
— Chloroform [1.0]**	— 095	—
— o-Chlorotoluene [1.0]	— 108	—
— p-Chlorotoluene [1.0]	— 110	—
— Dibromomethane [2.0]	— 146	—
— Dibromochloromethane [2.0]**	— 147	—
— 1,2-Dibromo-3-Chloropropane [7.0]	— 148	—
— 1,2-Dichlorobenzene [2.0]	— 153	—
— 1,3-Dichlorobenzene [2.0]	— 155	—
— 1,4-Dichlorobenzene [2.0]	— 157	—
— 1,1-Dichloroethane [1.0]	— 165	—
— 1,2-Dichloroethane [1.0]	— 167	—
— 1,2-Dichloroethylene, cis [1.0]	— 168	—
— 1,1-Dichloroethylene [1.0]	— 169	—
— 1,2-Dichloroethylene, trans [1.0]	— 170	—
— 1,3-Dichloropropane [1.0]	— 178	—
— 1,1-Dichloropropene [2.0]	— 180	—
— 1,2-Dichloropropane [1.0]	— 181	—

R.H. Laessig, Ph.D., Director
 Wisconsin State Laboratory of Hygiene
 Madison, Wisconsin 53706

88-2100

☒ MW Monitoring Well — EF Effluent — OW Waste
 — LY Lysimeter — IF Infiltrant
 — LE Leachate — SO Soil
 — SE Sediment — OI Oil
 — SU Surface Water — SL Sludge
 — PW Private Well — OT Other

Analysis Type:

☒ Q GC/MS Screen and Quantification☐ S GC/MS Screen☐ O Parameter Specific

(NOTE: if followup enter previous sample no.) _____

ENF

Water System Type (Water Supply Use ONLY)

☐ M Community-Municipal Sample Type:☐ O Community-OTM — D (SDWA) Compliance Sample☐ N Non-community — C (SDWA) Check☐ P Private (Initial Sample Date) _____☐ X Non-potable — W Raw Water — ☒ if New Well☐ I Miscellaneous Distribution

	Detected	ug/L
— 2,2-Dichloropropene [2.0]	— 182	—
— 1,3-Dichloropropene, cis [2.5]	— 183	—
— 1,3-Dichloropropene, trans [2.5]	— 185	—
— Ethylbenzene [1.0]	— 233	—
— Ethylene Dibromide [1.0]	— 236	—
— Methyl ethyl ketone (MEK) [12]	— 319	—
— Methylene Chloride [5.0]	— 325	—
— Styrene [2.0]	— 393	—
— 1,1,1,2-Tetrachloroethane [3.0]	— 396	—
— 1,1,2,2-Tetrachloroethane [3.0]	— 397	—
— Tetrachloroethylene [1.0]	— 399	—
— Tetrahydrofuran (THF) [200]	— 401	—
— Toluene [1.0]	— 411	—
— 1,2,4-Trichlorobenzene [1.0]	— 419	—
— 1,1,1-Trichloroethane [1.0]	— 421	—
— 1,1,2-Trichloroethane [2.0]	— 423	—
— Trichloroethylene [1.0]	— 425	—
— Trichlorofluoromethane [1.0]	— 427	—
— Trichlorotrifluoroethane [3.0]	— 428	—
— 1,2,3-Trichloropropane [2.0]	— 432	—
— Vinyl Chloride [1.0]	— 434	—
— Xylenes [2.0]	— 437	—

** Total Trihalomethanes

☒ NO Detects

Date Received _____ And Sample No. _____ AUG 12 1988

Date Reported 8/30/88 AUG 30 1988

ES487HA; AO 8/28/88

☐ If New FacilityBill to: ☐ Solid Waste ☐ Hazardous Waste ☐ Wastewater ☐ Water Supply ☐ Spills ☐ Other LUSTI.D. Number _____ Point/Well # MW 4 Field No. 6 County # 18 Route Code _____Name Veldys M&L Gas. Inc. P.O. or City Tremont, WI.Collection Date 05/10/88 Time 12:30 Sample Location Monitoring well MW-4Description Monitoring well MW-4

Send Report To:

C. Krohn DNR
3550 Mormon Cove Rd
La Crosse WI 54601
5701

Account Number _____

Collected By C. KrohnPhone (608) 735-9000

Check any appropriate:

☐ S Split ☐ E Enforcement ☐ B Field Blank
☐ S Surface Source ☐ T Treated

Free Chlorine Residual (Field) _____ mg/L
Free Chlorine Residual (Lab) _____ mg/L

Detection limits (ug/L)
are indicated by []

	Detected	ug/L
Benzene [1.0]	X 025	110
Bromobenzene [4.0]	046	
Bromodichloromethane [1.0]**	051	
Bromoform [5.0]**	053	
Bromomethane [1.0]	055	
Carbon Disulfide [5.0]	071	
Carbon Tetrachloride [2.0]	073	
Chlorobenzene [2.0]	083	
Chloroethane [2.0]	087	
2-Chloroethylvinyl ether [4.0]	093	
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O-Chlorotoluene [1.0]	108	
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1,2-Dibromo-3-Chloropropane [7.0]	148	
1,2-Dichlorobenzene [2.0]	153	
1,3-Dichlorobenzene [2.0]	155	
1,4-Dichlorobenzene [2.0]	157	
1,1-Dichloroethane [1.0]	165	
1,2-Dichloroethane [1.0]	167	
1,2-Dichloroethylene, cis [1.0]	168	
1,1-Dichloroethylene [1.0]	169	
1,2-Dichloroethylene, trans [1.0]	170	
1,3-Dichloropropane [1.0]	178	
1,1-Dichloropropane [2.0]	180	
1,2-Dichloropropane [1.0]	181	

☒ MW Monitoring Well ☐ EF Effluent ☐ OW Waste
☐ LY Lysimeter ☐ IF Influent
☐ LE Leachate ☐ SO Soil
☐ SE Sediment ☐ OI Oil
☐ SU Surface Water ☐ SL Sludge
☐ PW Private Well ☐ OT Other



Analysis Type:

☒ Q GC/MS Screen and Quantification☐ S GC/MS Screen☐ O Parameter Specific

(NOTE: if followup enter previous sample no.) _____

Water System Type (Water Supply Use ONLY)

☐ M Community-Municipal Sample Type:
☐ O Community-OTM ☐ D (SDWA) Compliance Sample
☐ N Non-community ☐ C (SDWA) Check
☐ P Private ☐ (Initial Sample Date) _____
☐ X Non-potable ☐ W Raw Water ☒ if New Well
☐ I Miscellaneous Distribution

	Detected	ug/L
2,2-Dichloropropane [2.0]	182	
1,3-Dichloropropene, cis [2.5]	183	
1,3-Dichloropropene, trans [2.5]	185	
Ethylbenzene [1.0]	233	
Ethylene Dibromide [1.0]	236	
Methylethylketone (MEK) [12]	319	
Methylene Chloride [5.0]	325	
Styrene [2.0]	393	
1,1,1,2-Tetrachloroethane [3.0]	396	
1,1,2,2-Tetrachloroethane [3.0]	397	
Tetrachloroethylene [1.0]	399	
Tetrahydrofuran (THF) [200]	401	
Toluene [1.0]	411	
1,2,4-Trichlorobenzene [1.0]	419	
1,1,1-Trichloroethane [1.0]	421	
1,1,2-Trichloroethane [2.0]	423	
Trichloroethylene [1.0]	425	
Trichlorofluoromethane [1.0]	427	
Trichlorotrifluoroethane [3.0]	428	
1,2,3-Trichloropropane [2.0]	432	
Vinyl Chloride [1.0]	434	
Xylenes [2.0]	X 437	4.3

** Total Trihalomethanes _____

☐ NO DetectsDate Received _____
And Sample No. _____

Date Reported _____

AUG 3 0 1988

ES488HA; A08128/CAI

Sample Collector(s) <i>C. Krub</i>	Title/Work Station <i>Hydrogeologist / La Crosse</i>	Telephone No. (include area code) <i>608-785-9000</i>
Property Owner <i>City of Tornado</i>	Property Address <i>City Right of Way</i>	Telephone No. (include area code)

Spit Samples: Offered? ☐ Yes ☐ No (Check One)
Accepted? ☐ Yes ☐ No (Check One)

Accepted By: _____ Signature

Sample ID No.	Date	Time	Sample Type		Station Location Sample Description	Lab ID Number	No. of Containers	Comments
			Comp	Grah				
MW-1	8/10/88	10:30		✓	Actual-1	485	4	Hydrocarbon odor
MW-1 D	8/10/88	10:45		✓	MW-1 Duplicate	486	4	"
MW-2	8/10/88	11:30		✓	MW-2	483	4	
MW-3		12:00		✓	MW-3	487	4	
MW-4		12:30		✓	MW-4	488	4	
Balloon Sample		11:00		✓	Balloon Bore - Final	484	4	

I hereby certify that I received, properly handled, and disposed of these samples as noted below:		
Relinquished By (Signature) <i>Chris J. Krub</i>	Date/Time <i>8/10/88 4:15 PM</i>	Received by: (Signature)
Relinquished By (Signature)	Date/Time	Received by: (Signature)
Relinquished By (Signature)	Date/Time <i>8/12/88 7:30 am</i>	Received for Laboratory By: (Signature) <i>David Pegenhardt</i>

Disposition of Unused Portion of Sample:

Dispose ☒ Retain for _____ days
Return _____ Other _____

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APPENDIX F: STATION PHOTOGRAPHS

050863- Monitoring of Volatile
Organic Compounds
(VOCs) in Tomah, Wis-
consin

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