# Appendix D Well Inventory Results



# Internal Memorandum

To: File

**From:** Kristen Betz and Ellen Considine

**Subject:** Well Inventory Results at UMore Mining Area

**Date:** July 1, 2009

**Project:** 23/19-0B05.07 SOC 300

**c:** Jim Eidem

A well survey was conducted on July 1, 2009 at the University of Minnesota Outreach, Research, and Experimentation (UMore) Mining Area (UMA). Information collected during the survey included the well diameter, location (e.g., inside pump house), and Unique ID number. The results of the well inventory are provided in Table 1 and shown on Figure 1. The photos taken during the survey are attached.

All known wells at the UMA were found with the exception of the following (identified with the Unique Well ID number):

- Well 207606. Public supply well was reportedly sealed. The reported location is being used for agricultural purposes (corn field).
- Well 208400. Well type was unknown, but appears to be domestic and reportedly still active. The well is located at a residential property and could not be found. The resident was not at home during the time of the inspection.
- Well 208405. Domestic well reportedly still active. The well is located at a residential property and could not be found during inspection. The resident was not at home during the time of the inspection.
- Well 543864. Monitoring well reportedly sealed. A local farmer was not aware of a well in the reported location.
- Well H48777. Well reportedly still active and likely a public supply well. The reported location is being used for agricultural purposes (corn field).

#### **Attachments**

Table 1 Well Inventory Summary

Figure 1 Existing, Sealed and Unknown Wells

Appendix Photologs, Well Records

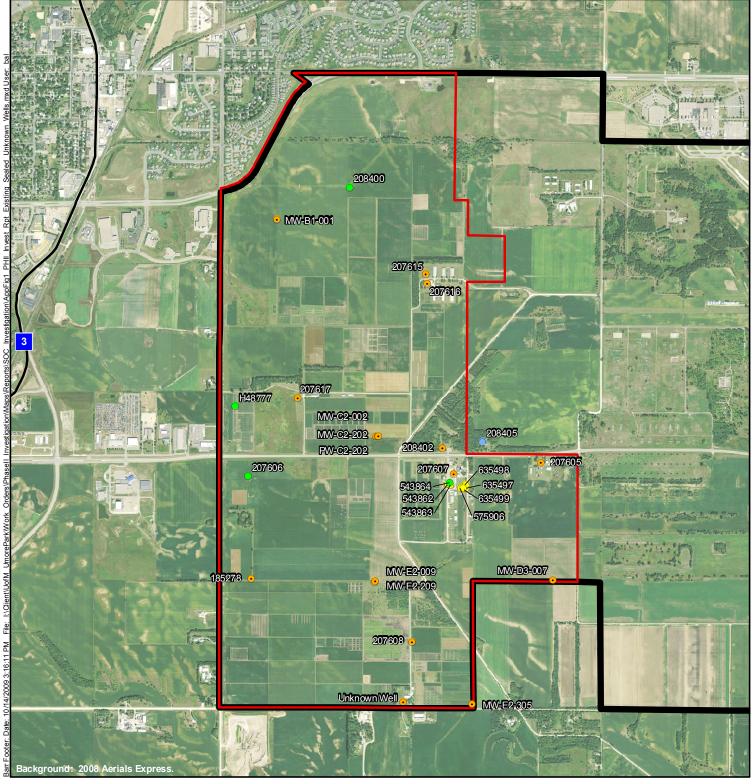
Table 1 Well Inventory Summary Phase II Investigation SOCs 1-3 and 6-8 UMore Mining Area Dakota County, Minnesota

			Current	Location 1		Field Ins	spection		
Well ID	Reported Well Type	Reported Status				Unique Well	Diameter	Comments	
			Status	Northing	Northing Easting		(inches)		
185278	Existing Well	Active	Active	4950778.9	490996.6	No	12	Irrigation well	
207605	Existing Well	Active	Active	4951516.7	492837.4	No		Located inside pump house	
207606	Public Supply/Non-Community	Sealed	Sealed	4951431.3	490976.1			Not present; site now a farm field	
207607	Public Supply/Non-Community	Active	Active	4951442.7	492285.3	No	4	Located inside pump house	
207608	Existing Well	Active	Active	4950378.9	492021.9	No	12	Located inside pump house	
207615	Irrigation	Active	Active	4952652.0	492115.4	No	6	Located at the turkey farm, inside pump house	
207616	Irrigation	Active	Active	4952715.7	492106.6	No	4	Located in well house at turkey farm	
207617	Irrigation	Active	Active	4951925.8	491292.1	No	12	Located in shed	
208400	Not reported	Active		4953262.3	491622.1			Not present; possible mislocate in database	
								Administration building well, well diameter not	
208402	Existing Well	Active	Active	4951608.1	492212.6	No	6	measured	
543862	Monitor well	Sealed	Sealed	4951376.7	492247.3	No	4 (?)	Flush with ground surface, filled	
543863	Monitor well	Sealed	Sealed	4951375.1	492264.3	No	6 (?)	Flush with ground surface, filled	
								GPS location places well on north side Building 610; local farmer not aware of well in reported	
543864	Monitor well	Sealed	Sealed	4951389.8	492256.2			location; presumed sealed like 543862/63	
575906	Monitor well	Sealed	Sealed	4951353.8	492331.3	No	2	2" well with 6" casing	
635497	Monitor well	Sealed	Sealed	4951353.7	492357.5	No	2	2" well with 6" casing	
635498	Monitor well	Sealed	Sealed	4951371.4	492358.2	No	2	2" well with 6" casing	
635499	Monitor well	Sealed	Sealed	4951354.4	492344.1	No	2	2" well with 6" casing	
H48777	Other	Active		4951878.3	490898.3			Not present; possible mislocate in database	
769796	Monitor well (MW-B1-001)	Active	Active	4953061.6	491162.4	Yes	2	Active monitoring well	
769493	Monitor well (MW-C2-002)	Active	Active	4951681.5	491799.5	Yes	2	Active monitoring well	
769489	Monitor well (MW-C2-202)	Active	Active	4951682.1	491791.0	Yes	2	Active monitoring well	
769490	Monitor well (MW-D3-007)	Active	Active	4950768.6	492911.4	Yes	2	Active monitoring well	
769488	Monitor well (MW-E2-009)	Active	Active	4950761.8	491786.0	Yes	2	Active monitoring well	
770718	Monitor well (MW-E2-012)	Active	Active	4950337.9	492396.1	Yes	2	Active monitoring well	
769483	Monitor well (MW-E2-209)	Active	Active	4950761.5	491780.5	Yes	2	Active monitoring well	
769429	Monitor well (MW-E2-305)	Active	Active	4949983.8	492402.3	Yes	2	Active monitoring well	
769482	Monitor well (PW-C2-202)	Active	Active	4951681.4	491808.0	Yes	6	Active monitoring well	
Unknown well at SOC 6	Not reported	NA	Active	4949997.8	491965.9	No	4	Located in well house; Well used to supplied water for past ag research	

#### **Notes:**

<sup>&</sup>lt;sup>1</sup> For wells located: northing and easting measured relative to Universal Transverse Mercator (UTM) Coordinates in meters (horizontal datum NAD 83(1996)). For wells not located, coordinates from database

<sup>&</sup>quot;--" Does not apply or information not available



UMore Mining Area (UMA)
UMore Park Boundary

- Existing well (active)
- Sealed well
- Not found, presumed active
- Not found, presumed sealed

Feet 2,000 0 2,000

Figure 1

EXISTING, SEALED AND UNKNOWN WELLS

Phase II Investigation Report Sites of Concern 1-3 and 6-8 UMore Mining Area Dakota County, MN



# Appendix D Well Survey Photolog

Umore Park Property Dakota County, MN July 1, 2009



Well 185278



Well 207605



Mapped Location of Well 207606



Well 207607



Pump House for Well 207608



Well 207615





Well 207616



Well 207617



Pump House for Well 207616



Pump House for Well 207617



Well 207617



Mapped Location of Well 208400



Well 208402



Well 543862



Well 543863



Well 575906



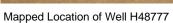
Well 635497





Well 635498 Well 635499







Unknown well at SOC 6

Well Log Report - 00185278

Minnesota Unique Well No.

County Dakota
Quad Coates
Quad ID 88A

# MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date Update Date Received Date 04/27/2006 04/27/2006

Minnesota Statutes Chapter 1031

Well Name U OF M ROSEMOUNT #2  Township Range Dir Section Subsections Elevation 951 ft.  114 19 W 4 BCDCBC Elevation Method 114 topographic map (+/- 5 feet)  Well Depth Depth Completed Date Well Completed 10/29/10 10/29	•
7.5 minute Total transfer of the state of th	982
114 19 W 4 BCDCBC Elevation Method topographic map (+/-	
Drilling Fluid Well Hydrofractured? Yes No From Ft. to Ft.	
Use Irrigation	
Geological Material Color Hardness From To No Above/Below 1 ft.	▼ Yes □
SAND & GRAVEL BROWN MEDIUM 0 142 LIMEROCK YELLOW HARD 142 310 Casing Diameter Weight Hole Diamete	r
10 in. to 145 ft. 40.48 lbs./ft. 10 in. to 14	15 ft.
Open Hole from 145 ft. to 310 ft.	
Screen NO Make Type	
Diameter Slot/Gauze Length Set Betw	een
Static Water Level	
67 ft. from Land surface Date Measured 10/29/1982	
PUMPING LEVEL (below land surface) 80 ft. after 24 hrs. pumping 300 g.p.m.	
Well Head Completion Pitless adapter manufacturer Model	
Casing Protection 12 in. above grade	
At-grade (Environmental Wells and Borings ONLY)	
REMARKS         WELL USE=DOMESTIC & IRRIGATION         Grouting Information       Well Grouted?         ✓ Yes       No	
Grout Material: Bentonite from to 145 ft.	
Located by: Minnesota Geological Survey  Method: Digitization (Screen) - Map (1:24,000)	
Unique Number Verification: Information from owner Input Date: 04/27/2006   Nearest Known Source of Contamination 2000 feet N direction Barnyard type	
System: UTM - Nad83, Zone15, Meters X: 491000 Y: 4950815  Well disinfected upon completion? Yes No	
Pump Not Installed 10/29/1982  Manufacturer's name GRUNDFOS Model number C8244J HP 30  Length of drop Pipe 105 ft. Capacity 300 g.p.m  Type Submersible Material Galvanized	Volts <u>230</u>
Abandoned Wells Does property have any not in use and not sealed well(s)?	Yes
Variance Was a variance granted from the MDH for this well?   Ves	□ No
Well Contractor Certification	140
	MANN, G.
Adulti France Du Gilleri Group	me of Driller
	d 10/26/2009 HE-01205-07

UMP007544

#### MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date Update Date Received Date 10/19/1990 02/23/2006

Minnesota Statutes Chapter 1031 Well Name AGRICULTURAL ENGINEERING Well Depth **Depth Completed Date Well Completed** Township Range Dir Section Subsections Elevation 943 ft. 206 ft. 206 ft. 7.5 minute Drilling Method --3 BBAAAD **Elevation Method** topographic map (+/-114 19 W 5 feet) **Drilling Fluid** From Ft. to Ft. Use Public Supply/non-community PWSID Source Yes No Above/Below Casing Type Joint No Information Drive Shoe? **Geological Material** Hardness From To Color CLAY Weight **Hole Diameter Casing Diameter** SAND AND GRAVEL 18 60 CLAYEY GRAVEL AND BOULDERS 78 60 BROWN 78 CLAY 89 CLAY **BLUE** 89 130 CLAYEY GRAVEL 130 139 Open Hole from ft. to CLAYEY GRAVEL AND BOULDERS **BROWN** 139 151 Screen Make Type PRAIRIE DU CHIEN LIMESTONE 151 206 Diameter Slot/Gauze Length Set Between Static Water Level ft. from Date Measured PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m. Well Head Completion Pitless adapter manufacturer Model Casing Protection 12 in. above grade At-grade (Environmental Wells and Borings ONLY) Grouting Information Well Grouted? Yes No NO REMARKS Located by: Minnesota Geological Method: Digitized - scale 1:24,000 or larger (Digitizing Table) Survey Unique Number Verification: N/A Input Date: 01/01/1990 Nearest Known Source of Contamination \_\_feet \_\_direction \_\_type System: UTM - Nad83, Zone15, X: 492808 Y: 4951477 Meters Well disinfected upon completion? No Not Installed Date Installed Manufacturer's name Model number HP Volts Length of drop Pipe \_ft. Capacity \_g.p.m Type Material Abandoned Wells Does property have any not in use and not sealed well(s)? Variance Was a variance granted from the MDH for this well? No Well Contractor Certification First Bedrock Prairie Du Chien Group **Aquifer** Last Strat Prairie Du Chien Group License Business Name Lic. Or Reg. No. Name of Driller Depth to Bedrock 151 ft. Printed 10/26/2009 207605 **County Well Index Online Report** HE-01205-07

UMP007545

#### MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING **RECORD**

**Entry Date Update Date Received Date** 

10/19/1990 02/23/2006

Minnesota Statutes Chapter 1031 Well Name DAIRY FARM Well Depth **Depth Completed Date Well Completed** Township Range Dir Section Subsections Elevation 954 ft. 429 ft. 429 ft. 7.5 minute Drilling Method --**Elevation Method** 4 BBACBB topographic map (+/-114 5 feet) **Drilling Fluid** Yes No Well Hydrofractured? From Ft. to Ft. Use Abandoned Status Sealed Yes No Above/Below Casing Type Joint No Information Drive Shoe? **Geological Material** Color Hardness From To TOPSOIL **BLACK** Weight **Hole Diameter Casing Diameter** SANDY CLAY HARDPAN 5 102 SANDY CLAY 102 **BLUE** 125 SANDY CLAY **BROWN** 125 135 FINE ROTTEN SANDROCK **BROWN** 135 153 Open Hole from ft. to FINE DIRTY SAND AND GRAVEL 153 162 Screen Make Type **DOLOMITE** 162 263 DOLOMITE STREAKS OF SAND 263 325 Diameter Slot/Gauze Length Set Between DOLOMITE 325 355 DOLOMITE (TRACES OF SAND) 355 366 JORDAN SANDROCK 366 429 Static Water Level ft. from Date Measured PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m. Well Head Completion Pitless adapter manufacturer Model Casing Protection 12 in. above grade At-grade (Environmental Wells and Borings ONLY) REMARKS Grouting Information Well Grouted? Yes No WELL SEALED 10-09-1996 BY 19521. ORIGINAL USE PS - PUBLIC SUPPLY/NON-COMMUNITY. Method: Digitized - scale 1:24,000 or larger Located by: Minnesota Geological (Digitizing Table) Nearest Known Source of Contamination Unique Number Verification: N/A Input Date: 01/01/1990 \_\_feet \_\_direction \_\_type System: UTM - Nad83, Zone15, X: 490976 Y: 4951431 Well disinfected upon completion? No Meters Not Installed Date Installed Manufacturer's name Model number HP Volts Length of drop Pipe \_ft. Capacity \_g.p.m Type Material **Abandoned Wells** Does property have any not in use and not sealed well(s)? Variance Was a variance granted from the MDH for this well? No Well Contractor Certification First Bedrock Prairie Du Chien Group **Aquifer** Last Strat Jordan License Business Name Lic. Or Reg. No. Name of Driller Depth to Bedrock 162 ft. Printed 10/26/2009 207606 **County Well Index Online Report** 

HE-01205-07

County	Dakota
Quad	Coates
Quad ID	88A

# MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING **RECORD**

Entry Date Update Date Received Date

10/19/1990 07/30/2009

Well Name WORKMAN'S CHANGE HOUSE  Township Range Dir Section Subsections Elevation 945 ft.  7.5 minute topographic map (+/-	Well Depth 170 ft.  Drilling Method	Depth Completed Date Well Completed 170 ft.		
7.5 minute		170 ft.		
	Drilling Method			
114 19 W 4 AMAGEC Elevation Method topographic map (+/-				
5 feet)				
Well Address	Datition Florid			
DOOF MOUNT AND FERRO	Drilling Fluid	Well Hydrofractured? Yes No		
ROSEMOUNT MN 55068	Use Public Supply/non-com	From Ft. to Ft.		
Geological Material Color Hardness From To				
CLAY 0 5 GRAVEL 5 35	Casing Type Joint No Inf ft.	formation Drive Shoe?		
CLAY         BLUE         35         130           CLAY, SAND, HARDPAN AND GRAVEL         RED         130         150           PRAIRIE DU CHIEN LIMESTONE         150         170	Casing Diameter	Weight Hole Diameter		
	Open Hole from ft. to f	t.		
	Screen Make Type			
	Diameter Slo	t/Gauze Length Set Between		
	Static Water Level			
	ft. from Date Measured			
	PUMPING LEVEL (below lar			
	ft. after hrs. pumping g.p	o.m.		
	Well Head Completion Pitless adapter manufacturer Casing Protection	Model  12 in. above grade		
	At-grade (Environmenta	al Wells and Borings ONLY)		
REMARKS				
AT STATION SERVICE CENTER.	Grouting Information Wel	res – No		
Located by: Minnesota Geological Method: Digitized - scale 1:24,000 or larger (Digitizing Table)				
Unique Number Verification: N/A Input Date: 01/01/1990  System: <i>UTM - Nad83, Zone15,</i> X: 492208 Y: 4951411	Nearest Known Source of C _feetdirectiontype			
Meters	Well disinfected upon completion?			
	•	I Date Installed odel number HP _ Volts		
	Length of drop Pipe _ft. Cap			
	Abandoned Wells Does pro	perty have any not in use and not sealed well(s)?		
	No			
	Variance Was a variance gra	nted from the MDH for this well?		
	Well Contractor Certificatio			
First Bedrock Prairie Du Chien Group Aquifer				
Last Strat Prairie Du Chien Group Depth to Bedrock 150 ft.	License Business Nam	ne Lic. Or Reg. No. Name of Driller		
County Well Index Online Report	207607	Printed 10/26/2009 HE-01205-07		

UMP007547

# MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date Update Date Received Date 10/19/1990 02/23/2006

Minnesota Statutes Chapter 1031

Well Name AG. EXPERIMENT STATION	Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subsections Elevation 948 ft.	415 <b>ft</b> .	415 ft.	11/30/1960
7.5 minute 114 19 W 4 DACADD Elevation Method topographic map (+/	Drilling Method Cable Too	<u> </u>	
5 feet)			
	Drilling Fluid	Well Hydrofractured?	Yes No
	Use Public Supply/non-con	munity PWS ID Source	
Geological Material Color Hardness From To		r low carbon) Joint No Informati	ion Drive Shoe?
TOPSOIL	NO ABOVE/BEIOW 0 1		
SANDSTONE 72 10		J	e Diameter
SAND AND GRAVEL 105 120 131 120 131		lbs./ft. 6 i	n. to 415 ft.
SAND AND GRAVEL 130 14	6 in. to 355 ft.	lbs./ft.	
PRAIRIE DU CHIEN DOLOMITE 148 34 JORDAN SANDROCK 340 41:	CPCITIOIC HOITIOGO II. II		
	Screen NO Make Ty	oe	
	Diameter Slo	t/Gauze Length	Set Between
	Static Water Level 68 ft. from Land surface [	ata Maggurad 11/20/1060	
	PUMPING LEVEL (below la		
	77 ft. after hrs. pumping 1	•	
	Well Head Completion Pitless adapter manufacturer	Model	
		_	
	- Casing Frotection	12 in. above grade	
	At-grade (Environmen	al Wells and Borings ONLY)	
REMARKS WELL DRILLED BY ANDERSON WELL CO. FROM ROCHESTER.	Grouting Information We	I Grouted? Yes N	No
WELL DIVIDENSON WELL CO. FROM ROCHESTER.			
Located by: United States Geological Method: Digitized - scale 1:24,000 or larger			
Survey (Digitizing Table)			
Unique Number Verification: N/A Input Date: 01/01/1990	Nearest Known Source of C	Contamination	
System: <i>UTM - Nad83, Zone15,</i> X: 491962 Y: 4950085	_feet _direction _typ		
Imeters	Well disinfected upon con	pletion?	No
	Pump Not Installe	d Date Installed	
		lodel number HP <u>0</u> Volts	
	Length of drop Pipe _ft. Ca	pacity <u>g.p.m</u> Type Material	
	Abandoned Wells Does pro	perty have any not in use and not	sealed well(s)? Yes
	□ No	-	
	140		
	3	inted from the MDH for this well?	Yes No
First Bedrock Prairie Du Chien Group	Well Contractor Certification	OTI	
Aquite Jordan	License Business Nar	ne Lic. Or Reg. No	o. Name of Driller
Doparto Boarook 110 10		ie Lic. Oi Reg. No	
County Well Index Online Report	207608		Printed 10/26/2009 HE-01205-07

# MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date Update Date Received Date 09/15/1988 03/24/2006

				Minnesota Statutes Chap	oter 103I	
Well Name POULTRY FARM				Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subsection	is Elevation	955 ft. 7.5 minute topographic map (+/- 5 feet)		432 ft.	432 ft.	00/00/1960
115 19 W 33 ADBACC	Elevation Method			Drilling Method		
				Drilling Fluid	Well Hydrofractured? From Ft. to Ft.	□ <sub>Yes</sub> □ <sub>No</sub>
				Use Domestic		
Geological Material		lardness Froi		Casing Type Joint No In ft.	formation Drive Shoe?	Yes No Above/Below
SANDY DRIFT CLAY SAND AND GRAVEL REMNANTS OF ST. PETER SANDS ONEOTA-SHAKOPEE LIMEROCK	BROWN GRAY STONE	0 45 120 142 181	181	Casing Diameter	Weight	Hole Diameter
JORDAN SANDSTONE		350		Open Hole from ft. to	ft.	
				Screen Make Type		
				Diameter Slo	ot/Gauze Leng	gth Set Between
				Static Water Level		
				ft. from Date Measured  PUMPING LEVEL (below la	nd surface)	
				ft. after hrs. pumping g	•	
				Well Head Completion Pitless adapter manufacturer  Casing Protection	Model  12 in. above grade	
				At-grade (Environmen	tal Wells and Borings ONL	
NO F	REMARKS			Grouting Information We	Il Grouted? Yes	No
Located by: Minnesota Geological Survey	(Digitizing Lable)	· ·	jer			
Unique Number Verification: Information from owner	Input Date: 01/01/1990			Nearest Known Source of C		
System: UTM - Nad83, Zone15, Meters	X: 492112 Y: 4952660	)		Well disinfected upon con	npletion?	No
					d Date Installed Model number HP _ W pacity _g.p.m Type M	
				Abandoned Wells Does pro	operty have any not in use a	nd not sealed well(s)?
					antod from the MDU for #-!-	well? Yes No
				Variance Was a variance gra Well Contractor Certification		weiir — res — NO
First Bedrock St.Peter	Aquifer					
Last Strat Jordan	Depth to Bedrock 142 f	ft.		License Business Nar	me Lic. Or F	Reg. No. Name of Driller
County Well Index C	nline Report			207615		Printed 10/26/2009 HE-01205-07

#### MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date 03/30/1990 Update Date 03/24/2006 Received Date

Minnesota Statutes Chapter 1031 Well Name AG. EXP. STATION ROSEMOU Well Depth **Depth Completed Date Well Completed** 950 ft. **Township Range Dir Section Subsections Elevation** 153 ft. 02/00/1959 153 ft. 7.5 minute Drilling Method --19 W 28 DCCCBB **Elevation Method** topographic map (+/-115 5 feet) **Drilling Fluid** From Ft. to Ft. Use Casing Type Joint No Information Drive Shoe? **Geological Material** Color Hardness From Τo No Above/Below 0 ft. LOAM & CLAY 0 Weight **Hole Diameter Casing Diameter** CLAY & GRAVEL 3 60 **GRAVEL & CLAY MIXTURE** 60 93 6 in. to 107 ft. SANDSTONE 93 153 LIMESTONE 153 153 Open Hole from 107 ft. to 153 ft. Screen NO Make Type Diameter Slot/Gauze Length Set Between Static Water Level 98 ft. from Land surface Date Measured 02/00/1959 PUMPING LEVEL (below land surface) 98 ft. after 6 hrs. pumping 30 g.p.m. Well Head Completion Pitless adapter manufacturer Model Casing Protection 12 in. above grade At-grade (Environmental Wells and Borings ONLY) Grouting Information Well Grouted? Yes No NO REMARKS Method: Digitized - scale 1:24,000 or larger Located by: Minnesota Geological Survey (Digitizing Table) Unique Number Verification: Information Nearest Known Source of Contamination Input Date: 01/01/1990 from owner \_\_feet \_\_direction \_\_type System: UTM - Nad83, Zone15, Meters X: 491622 Y: 4953262 Well disinfected upon completion? No Not Installed Date Installed Manufacturer's name Model number HP 0 Volts Length of drop Pipe \_ft. Capacity \_g.p.m Type Material Abandoned Wells Does property have any not in use and not sealed well(s)? Variance Was a variance granted from the MDH for this well? No Well Contractor Certification First Bedrock St.Peter Corcoran Well Co. <u>19163</u> Aquifer St.Peter-Prairie Du Chien Last Strat Prairie Du Chien Group License Business Name Lic. Or Reg. No. Name of Driller Depth to Bedrock 93 ft. Printed 10/26/2009 208400 **County Well Index Online Report** HE-01205-07

UMP007550

208402 County Dakota Quad Coates Quad ID 88A

#### MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date Update Date Received Date 09/15/1988 03/24/2006

Minnesota Statutes Chapter 1031 Well Name UNIV. OF MN. OFFICE BLDG Well Depth **Depth Completed Date Well Completed** Township Range Dir Section Subsections Elevation 950 ft. 166 ft. 12/00/1957 166 ft. 7.5 minute Drilling Method --W 33 DDDCC **Elevation Method** topographic map (+/-115 5 feet) Well Address **Drilling Fluid** 1605 160TH' ST W ROSEMOUNT MN 55068 From Ft. to Ft. Use Domestic **Geological Material** Color Hardness From Tο Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? CLAY GRAVEL IN LAYERS 30 **CLAY IN LAYERS** 30 158 No Above/Below 0 ft. WATER BEARING SAND 158 161 LIMEROCK 161 166 Weight Hole Diameter **Casing Diameter** 4 in. to 166 ft. lbs./ft. 4 in. to 161 ft. Open Hole from 161 ft. to 166 ft. Screen NO Make Type Diameter Slot/Gauze Length Set Between Static Water Level 75 ft. from Land surface Date Measured 12/00/1957 PUMPING LEVEL (below land surface) ft. after 4 hrs. pumping 14 g.p.m. Well Head Completion Pitless adapter manufacturer Model 12 in. above grade Casing Protection At-grade (Environmental Wells and Borings ONLY) REMARKS Grouting Information Well Grouted? Yes No WELL DRILLED BY BEAUDETTE WELL CO. Method: Digitized - scale 1:24,000 or larger Located by: Minnesota Geological Survey (Digitizing Table) Unique Number Verification: Information Input Date: 01/01/1990 Nearest Known Source of Contamination from owner \_feet \_direction \_type System: UTM - Nad83, Zone15, Meters X: 492206 Y: 4951607 Well disinfected upon completion? Not Installed Date Installed Manufacturer's name Model number \_\_ HP <u>0</u> Volts Length of drop Pipe \_ft. Capacity \_g.p.m Type Material **Abandoned Wells** Does property have any not in use and not sealed well(s)? Variance Was a variance granted from the MDH for this well? Well Contractor Certification First Bedrock Prairie Du Chien Group Aquifer Prairie Du Chien Group

License Business Name

208402

Lic. Or Reg. No.

UMP007551

Name of Driller

Printed 10/26/2009

HE-01205-07

Last Strat Prairie Du Chien Group

**County Well Index Online Report** 

Depth to Bedrock 161 ft.

Minnesota Unique Well No. County Dakota Quad

#### MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date 10/28/2008 Update Date 10/28/2008 Received Date

Quad ID **Received Date** Minnesota Statutes Chapter 1031 Well Name MW-1 Well Depth **Depth Completed Date Well Completed** ft. Township Range Dir Section Subsections Elevation 04/11/1994 63 ft. 65 ft. 19 W 3 BBD **Elevation Method** Drilling Method Auger (non-specified) Well Address **Drilling Fluid** □ <sub>Yes</sub> □ <sub>No</sub> Well Hydrofractured? 1605 160TH ST ROSEMOUNT MN From Ft. to Ft. Use Monitor well **Geological Material** Color Hardness From To Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? FILL DENSE 0 F-C SAND MED DENSE **BROWN** 4 19 29 34 19 No Above/Below ft. BROWN F-M SAND MED DENSE 29 F-M SAND W/ GRAVEL MED DENSE 34 **BROWN Casing Diameter** Weight **Hole Diameter** M-C SAND W/ GRAVEL M DENSE **BROWN** 39 39 8 in. to 65 ft. F-M SAND LITTLE GRAVEL M DENSE **BROWN** 2 in. to 53 ft. lbs./ft. Open Hole from ft. to ft. Screen YES Make JOHNSON Type stainless steel Diameter Slot/Gauze Length Set Between 53 ft. and 63 ft. 10 Static Water Level 56 ft. from Land surface Date Measured 04/11/1994 PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m. Well Head Completion Pitless adapter manufacturer Model Casing Protection Y 12 in. above grade At-grade (Environmental Wells and Borings ONLY) Yes Grouting Information Well Grouted? NO REMARKS Grout Material: Neat Cement from to 48 ft. Nearest Known Source of Contamination \_feet \_direction \_type Well disinfected upon completion? Not Installed Date Installed Model number \_\_ HP \_ Volts Manufacturer's name Length of drop Pipe \_ft. Capacity \_g.p.m Type Material Abandoned Wells Does property have any not in use and not sealed well(s)? □ No Variance Was a variance granted from the MDH for this well? Well Contractor Certification BURANDT, P First Bedrock M0054 **Dpra** Aquifer Last Strat License Business Name Lic. Or Reg. No. Name of Driller Depth to Bedrock ft. Printed 10/26/2009 543862 **County Well Index Online Report** 

HE-01205-07

County Quad Quad ID Dakota

#### MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date
Update Date
Received Date

10/28/2008 10/28/2008

Minnesota Statutes Chapter 1031 Well Name MW-2 Well Depth **Depth Completed Date Well Completed** ft. Township Range Dir Section Subsections Elevation 04/12/1994 63 ft. 65 ft. 19 W 3 BBD **Elevation Method Drilling Method** Non-specified Rotary **Drilling Fluid** Well Hydrofractured? Yes No From Ft. to Ft. Use Monitor well Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? **Geological Material** Color Hardness From To No Above/Below ft. M-C SAND & GRAVEL M-DENSE **BROWN** 0 14 14 29 F-M SAND M DENSE BROWN 29 **Casing Diameter** Weight **Hole Diameter** M-C SAND W/ GRAVEL M DENSE **BROWN** 44 F-C SAND M DENSE **BROWN** 44 49 8 in. to 65 ft. 2 in. to 53 ft. lbs./ft. F-M SAND M DENSE **BROWN** 49 54 M-C SAND M DENSE **BROWN** 65 Open Hole from ft. to ft. Screen YES Make JOHNSON Type stainless steel Diameter Slot/Gauze Length Set Between 53 ft. and 63 ft. 10 Static Water Level 56 ft. from Land surface Date Measured 04/12/1994 PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m. Well Head Completion Pitless adapter manufacturer Model Casing Protection Y 12 in. above grade At-grade (Environmental Wells and Borings ONLY) Yes Grouting Information Well Grouted? NO REMARKS Grout Material: Neat Cement from to 48 ft. Nearest Known Source of Contamination \_feet \_direction \_type Well disinfected upon completion? Not Installed Date Installed Model number \_\_ HP \_ Volts Manufacturer's name Length of drop Pipe \_ft. Capacity \_g.p.m Type Material Abandoned Wells Does property have any not in use and not sealed well(s)? □ No Variance Was a variance granted from the MDH for this well? Well Contractor Certification BURANDT, P First Bedrock M0054 **Dpra** Aquifer Last Strat License Business Name Lic. Or Reg. No. Name of Driller Depth to Bedrock ft. Printed 10/26/2009 543863 **County Well Index Online Report** HE-01205-07 Minnesota Unique Well No.

543864
County
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date Update Date Received Date

10/28/2008 10/28/2008

Minnesota Statutes Chapter 1031 Well Name MW-3 Well Depth **Depth Completed Date Well Completed** Township Range Dir Section Subsections Elevation ft. 04/13/1994 63 ft. 65 ft. 19 W 3 BBD **Elevation Method** Drilling Method Auger (non-specified) Well Address **Drilling Fluid** □ <sub>Yes</sub> □ <sub>No</sub> Well Hydrofractured? 1605 160TH ST W ROSEMOUNT MN From Ft. to Ft. Use Monitor well **Geological Material** Color **Hardness** From To Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? M-C SAND M DENSE **BROWN** 0 F-M SAND W/ GRAVEL M DENSE **BROWN** 9 19 No Above/Below ft. F-M SAND M DENSE **BROWN** 19 29 M-C SAND W/ GRAEL M DENSE 39 **BROWN** 29 **Casing Diameter** Weight **Hole Diameter** F-M SAND M DENSE **BROWN** 8 in. to 65 ft. 2 in. to 53 ft. lbs./ft. Open Hole from ft. to ft. Screen YES Make JOHNSON Type stainless steel Diameter Slot/Gauze Length Set Between 53 ft. and 63 ft. 10 Static Water Level 56 ft. from Land surface Date Measured 04/13/1994 PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m. Well Head Completion Pitless adapter manufacturer Model At-grade (Environmental Wells and Borings ONLY) Yes Grouting Information Well Grouted? NO REMARKS Grout Material: Neat Cement from to 48 ft. Nearest Known Source of Contamination \_feet \_direction \_type Well disinfected upon completion? Not Installed Date Installed Model number \_\_ HP \_ Volts Manufacturer's name Length of drop Pipe \_ft. Capacity \_g.p.m Type Material Abandoned Wells Does property have any not in use and not sealed well(s)? □ No Variance Was a variance granted from the MDH for this well? Well Contractor Certification BURANDT, P First Bedrock M0054 **Dpra** Aquifer Last Strat License Business Name Lic. Or Reg. No. Name of Driller Depth to Bedrock ft. Printed 10/26/2009 543864 **County Well Index Online Report** HE-01205-07

County Quad Quad ID Dakota

# MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date Update Date Received Date 10/28/2008 10/28/2008

Quad ID			Minnesota Statutes Chap		cerved bate
Well Name MW-1			Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subsections Elevation	ft.		63 ft.	63 ft.	12/02/1995
114 19 W 4 AAC Elevation I	Method		Drilling Method Auger (non	-specified)	
Well Address 1605 160TH ST W ROSEMOUNT MN			Drilling Fluid	Well Hydrofractured? From Ft. to Ft.	Yes No
			Use Monitor well		
GRAVELY SAND / COBBLES COARSE B SAND / GRAVEL MED COARSE L'	Color Hardness BROWN T. BRN T. BRN	From To 0 4 4 48 48 56	Casing Type Steel (black or		Information Drive Shoe?
	T. BRN	56 63	Casing Diameter	Weight	Hole Diameter
			2 in. to 53 ft.	lbs./ft.	8.25 in. to 63 ft.
			Open Hole from ft. to f	t.	
			Screen YES Make TIMC	O Type plastic	
			Diameter Slot/Gi 2 10	<b>auze Length</b> 10	Set Between 53 ft. and 63 ft.
			Static Water Level 55 ft. from Land surface D	ato Moasurod 12/02/10	05
			PUMPING LEVEL (below lar		73
			ft. after hrs. pumping g.		
			Well Head Completion Pitless adapter manufacturer  Casing Protection Y  At-grade (Environment	Model  ✓ 12 in. above grad al Wells and Borings ON	
					_
NO REMARKS			Grouting Information Wel		No
			Grout Material: Bentonit		49 to 51 ft. 2 bags
			Grout Material: Neat Ce	ment from	to 49 ft. 30 bags
			Nearest Known Source of C _feet _direction _type Well disinfected upon com		✓ No
				•	
				Date Installed  lodel number HP _	Volts
			Length of drop Pipe _ft. Cap		Material
			Abandoned Wells Does pro	perty have any not in use	and not sealed well(s)?
			Variance Was a variance gra	inted from the MDH for th	nis well? Yes No
<u></u>			Well Contractor Certification		
First Bedrock Aquifer			Thein Well Co.	_	4050 THEIN, M
Last Strat Depth to Bedrock	С П.		License Business Nam	ie Lic. Of	r Reg. No. Name of Driller
County Well Index Online F	Report		575906		Printed 10/26/2009 HE-01205-07

County Quad Quad ID Dakota

MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date 05/2 Update Date 10/2 Received Date

05/29/2001 10/28/2008

Minnesota Statutes Chapter 1031 Well Name MW-2 Well Depth **Depth Completed Date Well Completed** ft. Township Range Dir Section Subsections Elevation 11/29/1999 50 ft. 50 ft. 19 W 4 AAD **Elevation Method** Drilling Method Auger (non-specified) Well Address **Drilling Fluid** 1605 160TH ST W ROSEMOUNT MN From Ft. to Ft. Use Abandoned Status Sealed **Geological Material** Color Hardness From To Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? TOP SOIL, SAND & ROCKS BROWN MEDIUM 0 3 8 SAND GRAVEL BROWN MEDIUM 3 No Above/Below ft. SAND GRAVEL MED COARSE **BROWN** 8 35 ROCKY SAND GRAVEL M COARSE **BROWN** 35 43 **Casing Diameter** Weight **Hole Diameter** WET GRAVELY SAND M COARSE **BROWN** 43 3.65 lbs./ft. 4.25 in. to 50 ft. 2 in. to 40 ft. Open Hole from ft. to ft. Screen YES Make TIMCO Type plastic Diameter Slot/Gauze Length Set Between 40 ft. and 50 ft. 10 Static Water Level 43 ft. from Land surface Date Measured 11/29/1999 PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m. Well Head Completion Pitless adapter manufacturer Model Casing Protection Y 12 in. above grade At-grade (Environmental Wells and Borings ONLY) REMARKS Yes Grouting Information Well Grouted? WELL SEALED 11-01-2001 BY 71677 ORIGINAL USE MW - MONIT OR WELL Grout Material: Neat Cement from 0 to 35 ft. 3 bags from 35 to 37 ft. Grout Material: Bentonite 1 bags Nearest Known Source of Contamination \_feet \_direction \_type Well disinfected upon completion? Not Installed Date Installed Model number \_\_ HP \_ Volts Manufacturer's name Length of drop Pipe \_ft. Capacity \_g.p.m Type Material Abandoned Wells Does property have any not in use and not sealed well(s)? ✓ No Variance Was a variance granted from the MDH for this well? Well Contractor Certification First Bedrock Thein Well Co. HERRBOLDT, N. 34625 Aquifer Last Strat Depth to Bedrock ft. License Business Name Lic. Or Reg. No. Name of Driller Printed 10/26/2009 **County Well Index Online Report** 635497 HE-01205-07

County Quad Quad ID Dakota

MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date Update Date Received Date 05/29/2001 10/28/2008

Minnesota Statutes Chapter 1031

					wiinnesota Statutes Chap	ter 1031		
Well Name MW-3					Well Depth	Depth Completed	Date Well	Completed
Township Range Dir Section Subsections Elevation ft.					50 ft. 50 ft. 11/30/1999			
114 19 W 4 AAD Ele					,,			
					Drilling Method Auger (non	-speciliea)		
Well Address 1605 160TH ST W					Drilling Fluid	Well Hydrofractured?	□ <sub>Yes</sub> ☑ <sub>1</sub>	No
ROSEMOUNT MN						From Ft. to Ft.		
					Use Abandoned Status Se			
Geological Material	Color	Hardness	From	То				
TOP SOIL, GRAVELY SAND	BROWN	MEDIUM		3	Casing Type Steel (black or	r low carbon) <b>Joint</b> No In	formation Drive S	shoe? Yes
GRAVELY SAND MED COARSE SANDY CLAY	BROWN BROWN	MEDIUM		38 50	No Above/Below ft.			
SANDICLAI	DICOVIN	IVILDIOIVI	30	30	Casing Diameter	Weight	Hole Diamete	er
						•		
					2 in. to 40 ft.	3.65 lbs./ft.	4.25 in. to	50 π.
					Open Hole from ft. to f	1		
					·	O Type plastic		
					Di	L	0-4 D-4	
					Diameter Slot/G	auze Length : 10	Set Between 40 ft. and	50 ft
					2 10	10	40 It. and t	50 II.
					<u> </u>			
					Static Water Level 45 ft. from Land surface D	ata Maggurad 11/20/1000	1	
					PUMPING LEVEL (below lar		,	
					ft. after hrs. pumping g.	,		
					Well Head Completion			
					Pitless adapter manufacturer	Model		
					Casing Protection Y	12 in. above grade		
					_		٨	
REMARKS					At-grade (Environment		_	
WELL SEALED 11-01-2001 BY 71677					Grouting Information Wel	I Grouted? Yes	No	
ORIGINAL USE MW - MONIT OR WELL								
					Grout Material: Neat Ce	ment from	0 to 35 ft.	3 bags
					Grout Material: Bentonit	e from	35 to 37 ft.	1 bags
					Nearest Known Source of Cfeetdirectiontype			
					Well disinfected upon com		✓ No	
						•		
						Date Installed	-14-	
					Manufacturer's name   M   Length of drop Pipe _ft.   Cap	lodel number HP _ Vo bacity _g.p.m Type N		
					Abandoned Wells Does pro		nd not coaled well/	s)?
						рену наче ану посин use a	nu noi sealeu well(	sy: Tes
					<b>№</b> No			
					Variance Was a variance gra	inted from the MDH for this	well?	s 🔽 No
					Well Contractor Certification			
First Bedrock Aquifer					Thein Well Co.	34625	5 HE	RRBOLDT, N.
	Bedrock ft.				License Business Nam			ame of Driller
County Well Index Onli	ne Rep	ort			635498		Prin	ted 10/26/2009 HE-01205-07

County Dakota
Quad
Quad ID

# MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date 05/29/2001 Update Date 10/28/2008 Received Date

RECORD Received Date

Minnesota Statutes Chapter 1031

					Willingsold Statutes Chapter 1031
Well Name MW-4					Well Depth Depth Completed Date Well Completed
Township Range Dir Section Subsections Elevation ft.					59 ft. 59 ft. 11/30/1999
114 19 W 4 AAD Elevation Method					Drilling Method Auger (non-specified)
Well Address					
1605 160TH ST W					Drilling Fluid Well Hydrofractured? ☐ Yes ☑ No
ROSEMOUNT MN					From Ft. to Ft.
					Use Abandoned Status Sealed
Geological Material	Color	Hardness	From		Casing Type Steel (black or low carbon) Joint No Information Drive Shoe?
SANDY CLAY GRAVEL GRAVELY SAND MED COARSE	BROWN	MEDIUM		5	
GRAVELY SAND WED COARSE	BROWN BROWN	MEDIUM		40 48	No Above/Below ft.
SAND	YELLOW	MEDIUM		59	Casing Diameter Weight Hole Diameter
					2 in. to 49 ft. 3.65 lbs./ft. 4.25 in. to 59 ft.
					2 III. 10 49 II. 3.03 IDS./II. 4.23 III. 10 39 II.
					Open Hole from ft. to ft.
					Screen YES Make TIMCO Type plastic
					Diameter Slot/Gauze Length Set Between 2 10 10 49 ft. and 59 ft.
					2 10 10 43 11. 210 33 11.
					Static Water Level
					52 ft. from Land surface Date Measured 11/30/1999
					PUMPING LEVEL (belowland surface)
					ft. after hrs. pumping g.p.m.
					Well Head Completion
					Pitless adapter manufacturer Model
					Casing Protection Y 12 in. above grade
251128112					At-grade (Environmental Wells and Borings ONLY)
REMARKS WELL SEALED 11-01-2001 BY 71677					Grouting Information Well Grouted? Yes No
ORIGINAL USE MW - MONIT OR WELL					
					Grout Material: Neat Cement from 0 to 44 ft. 3 bags
					Grout Material: Bentonite from 44 to 46 ft. 1 bags
					None de Maria de Companya de C
					Nearest Known Source of Contamination _feet _direction _type
					Well disinfected upon completion? ☐ Yes No
					Pump  Not Installed Date Installed  Manufactured page  11D Velta
					Manufacturer's name   Model number _ HP _ Volts     Length of drop Pipe _ft. Capacity _g.p.m   Type   Material
					Thanke wen's boes properly have any not in use and not scaled wen's.
					✓ No
					Variance Was a variance granted from the MDH for this well? ☐ Yes ☑ No
					Well Contractor Certification
First Bedrock					Thein Well Co. 34625 HERRBOLDT, N.
79	uifer				
Last Strat De	pth to Bedrock ft.				, , , , , , , , , , , , , , , , , , ,
County Well Index	Online Rep	ort			635499 Printed 10/26/2009
					HE-01205-07

UMP007558

County Dakota
Quad
Quad ID

# MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date 06/23/2009 Update Date 06/23/2009 Received Date

Minnesota Statutes Chapter 1031 Well Name UNIVERSITY OF MN PW-C2-202 Well Depth **Depth Completed Date Well Completed** ft. Township Range Dir Section Subsections Elevation 01/27/2009 145 ft. 147 ft. 19 W 33 DDD **Elevation Method Drilling Method** Non-specified Rotary Well Address **Drilling Fluid** 160TH ST&STATION TRL Bentonite ROSEMOUNT MN From Ft. to Ft. Use Test well **Geological Material** Color Hardness From То Casing Type Steel (black or low carbon) Joint Unknown Drive Shoe? **BROWN** MEDIUM CLAY 0 SND GVL RCK **BROWN** 145 SOFT 4 No Above/Below ft. **MEDIUM** CLAY **GRAY** 145 147 LIMESTONE TAN HARD 147 147 **Casing Diameter** Weight **Hole Diameter** 18.97 lbs./ft. 10 in. to 145 ft. 6 in. to 125 ft. Open Hole from ft. to ft. Screen YES Make JOHNSON Type stainless steel Diameter Slot/Gauze Length Set Between 125 ft. and 145 ft. Static Water Level 67 ft. from Land surface Date Measured 01/27/2009 PUMPING LEVEL (below land surface) 88.9 ft. after 9.5 hrs. pumping 250 g.p.m. Well Head Completion Pitless adapter manufacturer Model 12 in. above grade Casing Protection At-grade (Environmental Wells and Borings ONLY) REMARKS Yes Grouting Information Well Grouted? PW-C2-202 DRILLED NEAR MW-C2-202 Grout Material: Bentonite from to 115 ft. 12 bags Nearest Known Source of Contamination \_feet \_direction \_type Well disinfected upon completion? Not Installed Date Installed Model number \_\_ HP \_ Volts Manufacturer's name Length of drop Pipe \_ft. Capacity \_g.p.m Type Material Abandoned Wells Does property have any not in use and not sealed well(s)? **☑** No Variance Was a variance granted from the MDH for this well? Well Contractor Certification First Bedrock Mark J Traut Wells, Inc. 1404 STORKAMP,P. Aquifer License Business Name Last Strat Lic. Or Reg. No. Name of Driller Depth to Bedrock ft. Printed 10/26/2009 769482 **County Well Index Online Report** HE-01205-07

County Dakota
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

 Entry Date
 06/23/2009

 Update Date
 06/23/2009

 Received Date

Minnesota Statutes Chapter 1031

Well Name UNIVERSITY OF MN MW-E2-20	09			Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subsection	ns Elevation ft.			126 <b>ft</b> .	126 ft.	01/27/2009
114 19 W 4 DBB	Elevation Method			Drilling Method Other		
Well Address STATION TRL&160TH ST W MN				<b>Drilling Fluid</b> Water	Well Hydrofractured?	Yes No
Coological Material Co	olor Hardness	From	То	Use Monitor well		
TOPSOIL BL SILTY SAND BR	ACK MEDIUM ROWN MEDIUM ROWN MEDIUM	0 1 5	1 5 40	Casing Type Steel (black or No Above/Below ft.		d Drive Shoe? Yes
SAND BR	ROWN MEDIUM	40	100	Casing Diameter	Weight	Hole Diameter
SILTY SAND & CLAY GR GRAVEL BR	LACK HARD RAY MEDIUM ROWN MEDIUM ROWN MEDIUM	100 110 116 119	110 116 119 121	2 in. to 116 ft.	3.65 lbs./ft.	7 in. to 126 ft.
GRAVEL BR	ROWN MEDIUM RAY MEDIUM	121 122	122 126	Open Hole from ft. to f		
SANDSTONE GIV	VAI WEDIOW	122	120	Screen YES Make JOHN	ISON Type stainless steel	
				Diameter Slot/Ga 2 10	•	<b>Between</b> 5 ft. and 126 ft.
				Static Water Level		
				60 ft. from Land surface D	ate Measured 01/27/2009	
				PUMPING LEVEL (below lar ft. after hrs. pumping g.;		
				it. aiter Tirs. pumping 9.	μ	
				Well Head Completion	Madal	
				Pitless adapter manufacturer  Casing Protection V	Model	
				Odding Froiceion F	12 in. above grade	
				At-grade (Environmenta	al Wells and Borings ONLY)	
NO R	REMARKS			Grouting Information Wel	I Grouted? Yes	No
				Grout Material: Bentonite	e from to 1	13 ft. 11 bags
				Nearest Known Source of Cfeetdirectiontype		
				Well disinfected upon com	pletion? Yes	No
				Pump Not Installed	d Date Installed	
					lodel number HP_ Volts	vial
				Length of drop Pipe _ft. Cap	, <u></u>	
				Abandoned Wells Does pro	perty have any not in use and i	not sealed well(s)? Yes
				Variance Was a variance gra	inted from the MDH for this we	II? Yes No
				Well Contractor Certification		
First Bedrock Aqui				Mark J Traut Wells, Inc		ANDERSON,M.
Last Strat Depti	th to Bedrock ft.			License Business Nam	ne Lic. Or Reg.	
County Well Index O	Inline Report			769483		Printed 10/26/2009 HE-01205-07

County Dakota Quad Quad ID

MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING **RECORD**

Entry Date 06/23/2009 Update Date 06/23/2009

Received Date

	Quad ID				Minnesota Statutes Chap	ter 103I	cu butc
Well Name UNIVERSITY OF MN MW I	E2 009				Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subse	ctions Elevation	ft.			70 ft.	67.7 ft.	12/21/2008
114 19 W 4 DBB	Elevation	Method			Drilling Method Other		
Well Address STATION TRAIL&160TH ROSEMOUNT MN					Drilling Fluid Water	Well Hydrofractured?	Yes No
Geological Material	Color	Hardness	From	То	Use Monitor well		
TOP SOIL SILTY SAND SAND & GRAVEL	BLACK BROWN BROWN	MEDIUM MEDIUM MEDIUM	0 1 5	1 5 40	Casing Type Steel (black or No Above/Below ft.	,	ed Drive Shoe? Yes
SAND	BROWN	MEDIUM	40	70	Casing Diameter	Weight	Hole Diameter
					2 in. to 57.7 ft.	3.65 lbs./ft.	7 in. to 70 ft.
					Open Hole from ft. to ft	<u> </u>	
					Screen YES Make JOHN	SON Type stainless steel	
					Diameter Slot/Gai 2 10	•	<b>etween</b> 'ft. and 67.7 ft.
					Static Water Level 57 ft. from Land surface Da	ata Maasurad 12/21/2008	
					PUMPING LEVEL (below lan		
					ft. after hrs. pumping g.p	o.m.	
					Well Head Completion Pitless adapter manufacturer	Model	
					Casing Protection Y	12 in. above grade	
					At-grade (Environmenta	al Wells and Borings ONLY)	
REMARKS							1 <sub>No</sub>
MW-E2-009					Grouting Information Well	Grouted? — Yes —	NO NO
					Grout Material: Bentonite	e from to	58.7 ft. 6 bags
					Nearest Known Source of C _feetdirectiontype	_	_
					Well disinfected upon comp	pletion? Yes	No
					'	I Date Installed odel number HP_ Volts actity _g.p.m Type Mate	
					Abandoned Wells Does pro	perty have any not in use and	not sealed well(s)?
					Variance Was a variance gra	nted from the MDH for this we	ell? Yes Vo
					Well Contractor Certificatio		
First Bedrock	Aquifer				Mark J Traut Wells, Inc		ANDERSON,M.
Last Strat	Depth to Bedroc	k ft.			License Business Nam	e Lic. Or Reg.	No. Name of Driller
County Well Index	online F	Report			769488		Printed 10/26/2009 HE-01205-07

County Dakota
Quad
Quad ID

# MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date Update Date Received Date 06/23/2009 06/23/2009

Minnesota Statutes Chapter 1031

Well Name UNIVERSITY OF MN MW-C2-202	Well Depth Depth Completed Date Well Completed
Township Range Dir Section Subsections Elevation ft.	147 ft. 147 ft. 01/22/2009
115 19 W 33 DDD <b>Elevation Method</b>	Drilling Method Non-specified Rotary
Well Address 160TH ST&STATION TRL ROSEMOUNT MN	Drilling Fluid Bentonite  Well Hydrofractured? □ Yes ☑ No From Ft. to Ft.
Geological Material Color Hardness From To	Use Monitor well
CLAY	Casing Type Steel (black or low carbon) Joint Threaded Drive Shoe? Yes  No Above/Below ft.
	Casing Diameter Weight Hole Diameter
	2 in. to 137 ft. 3.65 lbs./ft. 6 in. to 147 ft.
	Open Hole from ft. to ft.
	Screen YES Make JOHNSON Type stainless steel
	Diameter Slot/Gauze Length Set Between 2 10 10 137 ft. and 147 ft.
	Static Water Level
	67 ft. from Land surface Date Measured 01/22/2009
	PUMPING LEVEL (below land surface) ft. after hrs. pumping q.p.m.
	a distributing gipmin
	Well Head Completion Pitless adapter manufacturer Model
	Casing Protection 12 in. above grade
	At-grade (Environmental Wells and Borings ONLY)
NO REMARKS	Grouting Information Well Grouted?  Yes  No
	Grout Material: Bentonite from to 134 ft.
	Nearest Known Source of Contamination _feet _direction _type
	Well disinfected upon completion?
	Pump Not Installed Date Installed  Manufacturer's name Model number HP_Volts  Length of drop Pipe ft. Capacity _g.p.m Type Material
	Abandoned Wells Does property have any not in use and not sealed well(s)? ☐ Yes No
	Variance Was a variance granted from the MDH for this well? Yes No
First Bedrock Aquifor	Well Contractor Certification  Mark J Traut Wells, Inc. 1404 STORKAMP,P.
Aquifer Last Strat Depth to Bedrock ft.	License Business Name  Lic. Or Reg. No.  Name of Driller
County Well Index Online Report	769489 Printed 10/26/2009 HE-01205-07

County Dakota
Quad
Quad ID

# MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING RECORD

Entry Date 06/23/2009 Update Date 06/23/2009 Received Date

Minnesota Statutes Chapter 103I

					wiinicsola Statutes Chap	107 1001				
Well Name UNIVERSITY OF MN MW	D3 007				Well Depth	Depth Completed	Date Well Completed			
Township Range Dir Section Subse	ections Elevation	n ft.			70 <b>ft</b> .	70 ft.	01/07/2009			
114 19 W 3 BAB	Elevation	n Method			Drilling Method Other					
Well Address										
AKRON & 164TH ST W ROSEMOUNT MN					Drilling Fluid Water	Well Hydrofractured? From Ft. to Ft.	Yes No			
					Use Monitor well					
SILTY SAND BROWN MEDIUM 1 3						asing Type Steel (black or low carbon) Joint Threaded Drive Shoe?  Yes  No Above/Below ft.				
SAND & GRAVEL	BROWN	MEDIOW	3	70	Casing Diameter	Weight	Hole Diameter			
					2 in. to 60 ft.	3.65 lbs./ft.	7 in. to 70 ft.			
					2 111.10 00 11.	3.00 103.71.	7 III. 10 70 II.			
					Open Hole from ft. to f	t.				
						ISON Type stainless ste	eel			
					Diameter Slot/G	auze Length S	Set Between			
					2 10	10	60 ft. and 70 ft.			
					Static Water Level	ato Moasurod 01/07/2000				
					58 ft. from Land surface Date Measured 01/07/2009  PUMPING LEVEL (below land surface)					
					ft. after hrs. pumping g.	,				
					Well Head Completion					
					Pitless adapter manufacturer	_				
						12 in. above grade				
D544.0%					At-grade (Environmenta	al Wells and Borings ONLY	)			
REMARKS MW-D3-007					Grouting Information Wel	I Grouted?	No			
					Grout Material: Bentonit	e from	to 54 ft. 4 bags			
					Na area de Maranes Carres a de C	No A				
					Nearest Known Source of Cfeetdirectiontype					
					Well disinfected upon com	pletion?	No			
					Pump Not Installed	d Date Installed				
					Manufacturer's name Model number HP_ Volts					
					Length of drop Pipe _ft. Cap					
					Abandoned Wells Does property have any not in use and not sealed well(s)?					
					□ No					
					Variance Was a variance granted from the MDH for this well? Yes No					
					Well Contractor Certificatio		122 110			
First Bedrock	Aquifer				Mark J Traut Wells, Inc	<u>c.</u> <u>140</u>	4 ANDERSON,M.			
Last Strat	Depth to Bedro	ck ft.			License Business Nam					
County Well Inde	x Online	Report			769490		Printed 10/26/2009 HE-01205-07			

County Dakota Quad Quad ID

# MINNESOTA DEPARTMENT OF HEALTH

# WELL AND BORING **RECORD**

Entry Date 06/23/2009 Update Date 06/23/2009

Received Date

					Minnesota Statutes Chap	ter 103I			
Well Name UNIVERSITY OF MN MV	V-C2-002			Well Depth	Depth Completed	Date Well Completed			
Township Range Dir Section Subs	sections Elevation	ft.			75 <b>ft</b> .	75 <b>ft</b> .	01/28/2009		
115 19 W 33 DDD	Elevation I	Method			Drilling Method Other				
Well Address STATION TRL&160TH W ROSEMOUNT MN					Drilling Fluid Water Use Monitor well	Well Hydrofractured? From Ft. to Ft.	Yes No		
Geological Material         Color         Hardness         From           TOP SOIL         BLACK         MEDIUM         0           SILTY SAND         BROWN         MEDIUM         2           SAND WITH GRAVEL         BROWN         MEDIUM         5			2	<b>To</b> 2 5 75	Casing Type Steel (black of		ded Drive Shoe? Yes		
O/WE WITH ORANGE	BROWN	WEDIOW	J	70	Casing Diameter	Weight	Hole Diameter		
					2 in. to 65 ft.	3.65 lbs./ft.	7 in. to 75 ft.		
					Open Hole from ft. to 1	 ft.			
					Screen YES Make JOHNSON Type stainless steel				
					Diameter Slot/G 2 10	auze Length S 10	set Between 65 ft. and 75 ft.		
					Static Water Level				
					ft. from Date Measured   PUMPING LEVEL (below land surface)				
	ft. after hrs. pumping g.p.m.								
					Well Head Completion Pitless adapter manufacturer  Casing Protection Y	12 in. above grade			
REMARKS					7 th grade (Environmental weils and Bornigs ONET)				
MW-C2-002					Grouting Information Wel		to 62 ft. 5 bags		
					Nearest Known Source of C _feet _direction _type Well disinfected upon com		□ <sub>No</sub>		
					Pump  Not Installed Date Installed Manufacturer's name  Model number  HP_ Volts Length of drop Pipe _ft. Capacity _g.p.m Type Material  Abandoned Wells Does property have any not in use and not sealed well(s)? Yes  No				
					Well Contractor Certification	on			
First Bedrock	Aquifer				Mark J Traut Wells, Inc				
Last Strat	Depth to Bedrock	t ft.			License Business Nam	ne Lic. Or Re	g. No. Name of Driller		
County Well Index Online Report			769493		Printed 10/26/2009 HE-01205-07				