

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

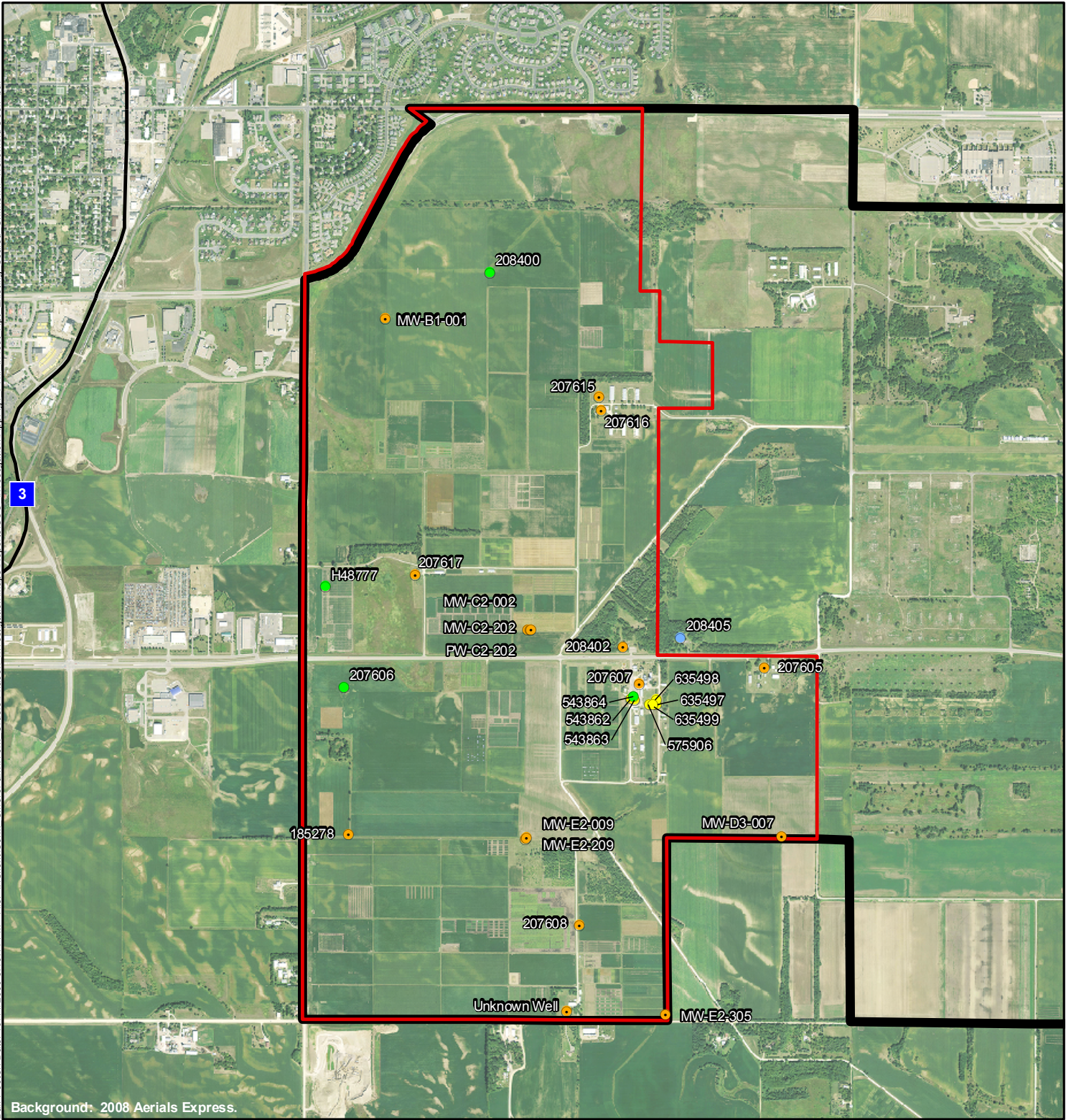
Table 1
Well Inventory Summary
Phase II Investigation SOCs 1-3 and 6-8
UMore Mining Area
Dakota County, Minnesota

Well ID	Reported Well Type	Reported Status	Current Status	Location ¹		Field Inspection		Comments
				Northing	Easting	Unique Well ID Tag	Diameter (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
208402	Existing Well	Active	Active	4951608.1	492212.6	No	6	Administration building well, well diameter not 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
543864	Monitor well	Sealed	Sealed	4951389.8	492256.2	--	--	GPS location places well on north side Building 610; local farmer not aware of well in reported 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:

¹ 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

"--" Does not apply or information not available



Background: 2008 Aerials Express.

- Umore Mining Area (UMA)
- Umore Park Boundary
- Existing well (active)
- Sealed well
- Not found, presumed active
- Not found, presumed sealed

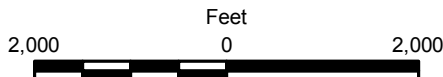


Figure 1

EXISTING, SEALED AND UNKNOWN WELLS

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

Source: Dakota County, James R. Hill, Barr, HKGi.
 Well data is from the Dakota County Well and Water Management System (WELLMAN) and from Barr.



**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 207615



Pump House for Well 207616



Well 207616



Pump House for Well 207617



Well 207617



Well 207617



Mapped Location of Well 208400



Well 208402



Well 543862



Well 543863



Well 575906



Well 635497



Well 635498



Well 635499



Mapped Location of Well H48777



Unknown well at SOC 6

Minnesota Unique Well No.

185278

County Dakota
 Quad Coales
 Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

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

Minnesota Statutes Chapter 103I

Well Name U OF M ROSEMOUNT #2		Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subsections Elevation		310 ft.	310 ft.	10/29/1982
114	19 W 4 BCDCBC	Elevation Method topographic map (+/- 5 feet)		
Drilling Method		Non-specified Rotary		
Drilling Fluid		Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No		
--		From Ft. to Ft.		
Use Irrigation				
Casing Type		Steel (black or low carbon) Joint Welded Drive Shoe? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
SAND & GRAVEL		No Above/Below 1 ft.		
LIMEROCK				
Color	BROWN	Hardness	MEDIUM	From To
	YELLOW		HARD	0 142
Casing Diameter		Weight	Hole Diameter	
10 in. to 145 ft.		40.48 lbs./ft.	10 in. to 145 ft.	
Open Hole from 145 ft. to 310 ft.				
Screen NO Make Type				
Diameter		Slot/Gauze	Length	Set Between
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				
<input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade				
<input checked="" type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)				
REMARKS				
WELL USE=DOMESTIC & IRRIGATION				
Located by: Minnesota Geological Survey		Method: Digitization (Screen) - Map (1:24,000)		
Unique Number Verification: Information from owner		Input Date: 04/27/2006		
System: UTM - Nad83, Zone15, Meters		X: 491000 Y: 4950815		
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Grout Material: Bentonite from to 145 ft.				
Nearest Known Source of Contamination				
2000 feet N direction Barnyard type				
Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Pump <input type="checkbox"/> Not Installed Date Installed 10/29/1982				
Manufacturer's name GRUNDFOS Model number C8244J HP 30 Volts 230				
Length of drop Pipe 105 ft. Capacity 300 g.p.m				
Type Submersible Material Galvanized				
Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Well Contractor Certification				
First Bedrock Prairie Du Chien Group		Aquifer Prairie Du Chien Group		
Last Strat Prairie Du Chien Group		Depth to Bedrock 142 ft.		
Maher Well Co.		19301	MANN, G.	
License Business Name		Lic. Or Reg. No.	Name of Driller	
County Well Index Online Report		185278		Printed 10/26/2009
				HE-01205-07

Minnesota Unique Well No.

207605

County Dakota
 Quad Coales
 Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

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

Minnesota Statutes Chapter 103I

Well Name AGRICULTURAL ENGINEERING		Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subsections Elevation		206 ft.	206 ft.	
114	19 W 3 BBAAD	Elevation Method topographic map (+/- 5 feet)		
Geological Material CLAY SAND AND GRAVEL CLAYEY GRAVEL AND BOULDERS CLAY CLAYEY GRAVEL CLAYEY GRAVEL AND BOULDERS PRAIRIE DU CHIEN LIMESTONE		Color BROWN BLUE BROWN	Hardness 0 18 18 60 60 78 78 89 89 130 130 139 139 151 151 206	From To 0 18 18 60 60 78 78 89 89 130 130 139 139 151 151 206
Drilling Fluid		Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No		
--		From Ft. to Ft.		
Use Public Supply/non-community PWS ID Source				
Casing Type		Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft.		
Casing Diameter		Weight	Hole Diameter	
Open Hole from ft. to ft.				
Screen Make Type				
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				
<input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade				
<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)				
NO REMARKS				
Grouting Information		Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Located by: Minnesota Geological Survey Method: Digitized - scale 1:24,000 or larger (Digitizing Table)				
Unique Number Verification: N/A Input Date: 01/01/1990				
System: UTM - Nad83, Zone15, Meters X: 492808 Y: 4951477				
Nearest Known Source of Contamination				
_feet _direction _type				
Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Well Contractor Certification				
First Bedrock Prairie Du Chien Group		Aquifer		
Last Strat Prairie Du Chien Group		Depth to Bedrock 151 ft.		
County Well Index Online Report		207605		Printed 10/26/2009 HE-01205-07

Minnesota Unique Well No.

207606

County Dakota
 Quad Coales
 Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

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

Minnesota Statutes Chapter 103I

Well Name DAIRY FARM		Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subsections Elevation		429 ft.	429 ft.	
114	19 W 4 BBACBB	Elevation Method topographic map (+/- 5 feet)		
Geological Material TOPSOIL SANDY CLAY HARDPAN SANDY CLAY SANDY CLAY FINE ROTTEN SANDROCK FINE DIRTY SAND AND GRAVEL DOLOMITE DOLOMITE STREAKS OF SAND DOLOMITE DOLOMITE (TRACES OF SAND) JORDAN SANDROCK		Color BLACK BLUE BROWN BROWN	Hardness 0 2 5 102 125 135 153 162 263 325 355 366	From To 2 2 5 5 102 102 125 125 135 153 153 162 162 263 263 325 325 355 355 366 366 429
Drilling Fluid --		Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft.		
Use Abandoned <input type="checkbox"/> Status Sealed <input type="checkbox"/>				
Casing Type Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft.				
Casing Diameter		Weight	Hole Diameter	
Open Hole from ft. to ft.				
Screen Make Type				
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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)				
REMARKS WELL SEALED 10-09-1996 BY 19521. ORIGINAL USE PS - PUBLIC SUPPLY/NON-COMMUNITY. Located by: Minnesota Geological Survey Method: Digitized - scale 1:24,000 or larger (Digitizing Table) Unique Number Verification: N/A Input Date: 01/01/1990 System: UTM - Nad83, Zone15, Meters X: 490976 Y: 4951431		Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Nearest Known Source of Contamination __feet __direction __type				
Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Well Contractor Certification License Business Name Lic. Or Reg. No. Name of Driller				
First Bedrock Prairie Du Chien Group Last Strat Jordan		Aquifer Depth to Bedrock 162 ft.		
County Well Index Online Report		207606		Printed 10/26/2009 HE-01205-07

Minnesota Unique Well No.

207607

County Dakota
 Quad Coales
 Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Entry Date 10/19/1990
 Update Date 07/30/2009
 Received Date

Minnesota Statutes Chapter 103I

Well Name WORKMAN'S CHANGE HOUSE		Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subsections Elevation		170 ft.	170 ft.	
114	19 W 4 AAACBC	Elevation Method topographic map (+/- 5 feet)		
Well Address		Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No	
ROSEMOUNT MN 55068		--	From Ft. to Ft.	
Geological Material		Use Public Supply/non-community	PWS ID	Source
CLAY	Color Hardness	Casing Type Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft.		
GRAVEL		ft.		
CLAY	RED	Casing Diameter	Weight	Hole Diameter
CLAY, SAND, HARDPAN AND GRAVEL	BLUE	Open Hole from ft. to ft.		
PRAIRIE DU CHIEN LIMESTONE	RED	Screen Make Type		
		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		
		<input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade		
		<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
REMARKS		Grouting Information	Well Grouted?	<input type="checkbox"/> Yes <input type="checkbox"/> No
AT STATION SERVICE CENTER.		Nearest Known Source of Contamination		
Located by: Minnesota Geological Survey		__feet __direction __type		
Method: Digitized - scale 1:24,000 or larger (Digitizing Table)		Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Unique Number Verification: N/A		Pump <input type="checkbox"/> Not Installed Date Installed		
Input Date: 01/01/1990		Manufacturer's name Model number __ HP __ Volts		
System: UTM - Nad83, Zone15, Meters		Length of drop Pipe __ft. Capacity __g.p.m Type Material		
X: 492208 Y: 4951411		Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No		
		Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No		
		Well Contractor Certification		
First Bedrock	Prairie Du Chien Group	Aquifer		
Last Strat	Prairie Du Chien Group	Depth to Bedrock	150 ft.	
County Well Index Online Report		207607	Printed 10/26/2009	
			HE-01205-07	

Minnesota Unique Well No.

207608

County Dakota
 Quad Coales
 Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

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

Minnesota Statutes Chapter 103I

Well Name AG. EXPERIMENT STATION Township Range Dir Section Subsections Elevation 948 ft. 114 19 W 4 DACADD Elevation Method topographic map (+/- 5 feet)		Well Depth 415 ft. Depth Completed 415 ft. Date Well Completed 11/30/1960 Drilling Method Cable Tool																	
Geological Material TOPSOIL SAND SANDSTONE SAND AND GRAVEL SHALE AND GRAVEL SAND AND GRAVEL PRAIRIE DU CHIEN DOLOMITE JORDAN SANDROCK		Drilling Fluid -- Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. Use Public Supply/non-community PWS ID Source Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below 0 ft. <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Casing Diameter</th> <th>Weight</th> <th>Hole Diameter</th> </tr> </thead> <tbody> <tr> <td>10 in. to 148 ft.</td> <td>lbs./ft.</td> <td>6 in. to 415 ft.</td> </tr> <tr> <td>6 in. to 355 ft.</td> <td>lbs./ft.</td> <td></td> </tr> </tbody> </table> Open Hole from 355 ft. to 415 ft. Screen NO Make Type <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Diameter</th> <th>Slot/Gauze</th> <th>Length</th> <th>Set Between</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> Static Water Level 68 ft. from Land surface Date Measured 11/30/1960 PUMPING LEVEL (below land surface) 77 ft. after hrs. pumping 100 g.p.m. Well Head Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)	Casing Diameter	Weight	Hole Diameter	10 in. to 148 ft.	lbs./ft.	6 in. to 415 ft.	6 in. to 355 ft.	lbs./ft.		Diameter	Slot/Gauze	Length	Set Between				
Casing Diameter	Weight	Hole Diameter																	
10 in. to 148 ft.	lbs./ft.	6 in. to 415 ft.																	
6 in. to 355 ft.	lbs./ft.																		
Diameter	Slot/Gauze	Length	Set Between																
REMARKS WELL DRILLED BY ANDERSON WELL CO. FROM ROCHESTER. Located by: United States Geological Survey Method: Digitized - scale 1:24,000 or larger (Digitizing Table) Unique Number Verification: N/A Input Date: 01/01/1990 System: UTM - Nad83, Zone15, Meters X: 491962 Y: 4950085		Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No Nearest Known Source of Contamination ___feet ___direction ___type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number ___ HP ___ Volts Length of drop Pipe ___ft. Capacity ___g.p.m Type Material																	
First Bedrock Prairie Du Chien Group Aquifer Jordan Last Strat Jordan Depth to Bedrock 148 ft.		Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No Well Contractor Certification License Business Name Lic. Or Reg. No. Name of Driller																	
County Well Index Online Report		207608 Printed 10/26/2009 HE-01205-07																	

Minnesota Unique Well No.

207615

County: Dakota
 Quad: Coales
 Quad ID: 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

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

Minnesota Statutes Chapter 103I

<p>Well Name POULTRY FARM</p> <p>Township Range Dir Section Subsections Elevation 955 ft.</p> <p>115 19 W 33 ADBACC Elevation Method topographic map (+/- 5 feet)</p>	<p>Well Depth Depth Completed Date Well Completed</p> <p>432 ft. 432 ft. 00/00/1960</p> <p>Drilling Method --</p>																																																
<p>Geological Material</p> <table style="width:100%; border: none;"> <tr> <td style="width:30%; border: none;">SANDY DRIFT</td> <td style="width:15%; border: none;">Color</td> <td style="width:15%; border: none;">BROWN</td> <td style="width:15%; border: none;">Hardness</td> <td style="width:15%; border: none;">From</td> <td style="width:10%; border: none;">To</td> </tr> <tr> <td style="border: none;">CLAY</td> <td style="border: none;">GRAY</td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">SAND AND GRAVEL</td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">REMNANTS OF ST. PETER SANDSTONE</td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">ONEOTA-SHAKOPEE LIMEROCK</td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">JORDAN SANDSTONE</td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;"></td> </tr> </table>	SANDY DRIFT	Color	BROWN	Hardness	From	To	CLAY	GRAY					SAND AND GRAVEL						REMNANTS OF ST. PETER SANDSTONE						ONEOTA-SHAKOPEE LIMEROCK						JORDAN SANDSTONE						<p>Drilling Fluid: --</p> <p>Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft.</p> <p>Use: Domestic</p> <p>Casing Type: Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft.</p> <table style="width:100%; border: none;"> <tr> <td style="width:30%; border: none;">Casing Diameter</td> <td style="width:30%; border: none;">Weight</td> <td style="width:40%; border: none;">Hole Diameter</td> </tr> </table> <p>Open Hole from ft. to ft.</p> <table style="width:100%; border: none;"> <tr> <td style="width:15%; border: none;">Screen</td> <td style="width:15%; border: none;">Make</td> <td style="width:70%; border: none;">Type</td> </tr> <tr> <td style="border: none;">Diameter</td> <td style="border: none;">Slot/Gauze</td> <td style="border: none;">Length</td> </tr> <tr> <td style="border: none;">Set Between</td> <td style="border: none;"></td> <td style="border: none;"></td> </tr> </table> <p>Static Water Level ft. from Date Measured</p> <p>PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m.</p> <p>Well Head Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)</p>	Casing Diameter	Weight	Hole Diameter	Screen	Make	Type	Diameter	Slot/Gauze	Length	Set Between		
	SANDY DRIFT	Color	BROWN	Hardness	From	To																																											
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<p style="text-align: center;"><i>NO REMARKS</i></p> <p>Located by: Minnesota Geological Survey Method: Digitized - scale 1:24,000 or larger (Digitizing Table)</p> <p>Unique Number Verification: Information from owner Input Date: 01/01/1990</p> <p>System: UTM - Nad83, Zone15, Meters X: 492112 Y: 4952660</p>	<p>Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Nearest Known Source of Contamination _feet _direction _type</p> <p>Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number __ HP _ Volts Length of drop Pipe _ft. Capacity _g.p.m Type Material</p>																																																
<p>First Bedrock St.Peter Aquifer</p> <p>Last Strat Jordan Depth to Bedrock 142 ft.</p>	<p>Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Well Contractor Certification</p> <table style="width:100%; border: none;"> <tr> <td style="width:40%; border: none;">License Business Name</td> <td style="width:20%; border: none;">Lic. Or Reg. No.</td> <td style="width:40%; border: none;">Name of Driller</td> </tr> </table>	License Business Name	Lic. Or Reg. No.	Name of Driller																																													
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Minnesota Unique Well No.

208400

County Dakota
 Quad Coales
 Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

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

Minnesota Statutes Chapter 103I

Well Name AG. EXP. STATION ROSEMOU Township Range Dir Section Subsections Elevation 950 ft. 115 19 W 28 DCCCBB Elevation Method 7.5 minute topographic map (+/- 5 feet)		Well Depth 153 ft. Depth Completed 153 ft. Date Well Completed 02/00/1959																				
Geological Material LOAM & CLAY CLAY & GRAVEL GRAVEL & CLAY MIXTURE SANDSTONE LIMESTONE		Drilling Method -- Drilling Fluid -- Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. Use Casing Type Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No No Above/Below 0 ft. <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Casing Diameter</th> <th>Weight</th> <th>Hole Diameter</th> </tr> </thead> <tbody> <tr> <td>6 in. to 107 ft.</td> <td>lbs./ft.</td> <td></td> </tr> </tbody> </table> Open Hole from 107 ft. to 153 ft. <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Screen NO</th> <th>Make</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Diameter</th> <th>Slot/Gauze</th> <th>Length</th> <th>Set Between</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)	Casing Diameter	Weight	Hole Diameter	6 in. to 107 ft.	lbs./ft.		Screen NO	Make	Type				Diameter	Slot/Gauze	Length	Set Between				
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		Nearest Known Source of Contamination __feet __direction __type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number __ HP __ Volts Length of drop Pipe __ft. Capacity __g.p.m Type Material																				
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First Bedrock St.Peter Aquifer St.Peter-Prairie Du Chien Last Strat Prairie Du Chien Group Depth to Bedrock 93 ft.		Printed 10/26/2009 HE-01205-07																				
County Well Index Online Report		208400																				

Minnesota Unique Well No.

208402

County Dakota
 Quad Coales
 Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

**WELL AND BORING
 RECORD**

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

Minnesota Statutes Chapter 103I

Well Name UNIV. OF MN. OFFICE BLDG.		Well Depth	Depth Completed	Date Well Completed	
Township Range Dir Section Subsections Elevation 115 19 W 33 DDDC Elevation Method		950 ft. 7.5 minute topographic map (+/- 5 feet)	166 ft.	166 ft.	12/00/1957
Well Address 1605 160TH' ST W ROSEMOUNT MN 55068		Drilling Method --			
Geological Material CLAY GRAVEL IN LAYERS CLAY IN LAYERS WATER BEARING SAND LIMEROCK		Color	Hardness	From To	
				0 30 30 158 158 161 161 166	
		Drilling Fluid --			
		Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft.			
		Use Domestic			
		Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below 0 ft.			
		Casing Diameter	Weight	Hole Diameter	
		4 in. to 161 ft.	lbs./ft.	4 in. to 166 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)			
REMARKS WELL DRILLED BY BEAUDETTE WELL CO.		Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Located by: Minnesota Geological Survey Method: Digitized - scale 1:24,000 or larger (Digitizing Table)		Nearest Known Source of Contamination __feet __direction __type			
Unique Number Verification: Information from owner Input Date: 01/01/1990		Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No			
System: UTM - Nad83, Zone15, Meters X: 492206 Y: 4951607		Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input type="checkbox"/> No			
		Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No			
First Bedrock Prairie Du Chien Group Aquifer Prairie Du Chien Group		Well Contractor Certification			
Last Strat Prairie Du Chien Group Depth to Bedrock 161 ft.		License Business Name	Lic. Or Reg. No.	Name of Driller	
County Well Index Online Report		208402		Printed 10/26/2009 HE-01205-07	

Minnesota Unique Well No.

543862

County Dakota
 Quad
 Quad ID

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

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

Minnesota Statutes Chapter 103I

Well Name MW-1 Township Range Dir Section Subsections Elevation ft. 114 19 W 3 BBD Elevation Method	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">Well Depth</td> <td style="width:33%;">Depth Completed</td> <td style="width:33%;">Date Well Completed</td> </tr> <tr> <td>65 ft.</td> <td>63 ft.</td> <td>04/11/1994</td> </tr> <tr> <td colspan="3">Drilling Method Auger (non-specified)</td> </tr> </table>	Well Depth	Depth Completed	Date Well Completed	65 ft.	63 ft.	04/11/1994	Drilling Method Auger (non-specified)																																																																																										
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County Well Index Online Report	543862	Printed 10/26/2009 HE-01205-07																																																																																																

Minnesota Unique Well No.

543863

County **Dakota**
 Quad
 Quad ID

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

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

Minnesota Statutes Chapter 103I

Well Name MW-2 Township Range Dir Section Subsections Elevation ft. 114 19 W 3 BBD Elevation Method	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">Well Depth</td> <td style="width:33%;">Depth Completed</td> <td style="width:34%;">Date Well Completed</td> </tr> <tr> <td>65 ft.</td> <td>63 ft.</td> <td>04/12/1994</td> </tr> <tr> <td colspan="3">Drilling Method Non-specified Rotary</td> </tr> <tr> <td>Drilling Fluid --</td> <td colspan="2">Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft.</td> </tr> <tr> <td colspan="3">Use Monitor well</td> </tr> <tr> <td>Casing Type Steel (black or low carbon)</td> <td>Joint No Information</td> <td>Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft.</td> </tr> <tr> <td>Casing Diameter</td> <td>Weight</td> <td>Hole Diameter</td> </tr> <tr> <td>2 in. to 53 ft.</td> <td>lbs./ft.</td> <td>8 in. to 65 ft.</td> </tr> <tr> <td colspan="3">Open Hole from ft. to ft.</td> </tr> <tr> <td>Screen YES</td> <td>Make JOHNSON</td> <td>Type stainless steel</td> </tr> <tr> <td>Diameter</td> <td>Slot/Gauze</td> <td>Length</td> <td>Set Between</td> </tr> <tr> <td>2</td> <td>10</td> <td>10</td> <td>53 ft. and 63 ft.</td> </tr> <tr> <td colspan="3">Static Water Level 56 ft. from Land surface Date Measured 04/12/1994</td> </tr> <tr> <td colspan="3">PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m.</td> </tr> <tr> <td colspan="3">Well Head Completion Pitless adapter manufacturer Model <input checked="" type="checkbox"/> Casing Protection Y <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)</td> </tr> </table>	Well Depth	Depth Completed	Date Well Completed	65 ft.	63 ft.	04/12/1994	Drilling Method Non-specified Rotary			Drilling Fluid --	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft.		Use Monitor well			Casing Type Steel (black or low carbon)	Joint No Information	Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft.	Casing Diameter	Weight	Hole Diameter	2 in. to 53 ft.	lbs./ft.	8 in. to 65 ft.	Open Hole from ft. to ft.			Screen YES	Make JOHNSON	Type stainless steel	Diameter	Slot/Gauze	Length	Set Between	2	10	10	53 ft. and 63 ft.	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 <input checked="" type="checkbox"/> Casing Protection Y <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
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Minnesota Unique Well No.

543864

County Dakota
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MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

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

Minnesota Statutes Chapter 103I

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Minnesota Unique Well No.

575906

County Dakota
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MINNESOTA DEPARTMENT OF HEALTH

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Minnesota Statutes Chapter 103I

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635497

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 Received Date

Minnesota Statutes Chapter 103I

Well Name MW-2 Township Range Dir Section Subsections Elevation ft. 114 19 W 4 AAD Elevation Method	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">Well Depth</td> <td style="width:33%;">Depth Completed</td> <td style="width:33%;">Date Well Completed</td> </tr> <tr> <td>50 ft.</td> <td>50 ft.</td> <td>11/29/1999</td> </tr> <tr> <td colspan="3">Drilling Method Auger (non-specified)</td> </tr> </table>	Well Depth	Depth Completed	Date Well Completed	50 ft.	50 ft.	11/29/1999	Drilling Method Auger (non-specified)																																																																									
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Well Address 1605 160TH ST W ROSEMOUNT MN Geological Material TOP SOIL, SAND & ROCKS SAND GRAVEL SAND GRAVEL MED COARSE ROCKY SAND GRAVEL M COARSE WET GRAVELY SAND M COARSE	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Color</td> <td style="width:15%;">Hardness</td> <td style="width:15%;">From</td> <td style="width:15%;">To</td> </tr> <tr> <td>BROWN</td> <td>MEDIUM</td> <td>0</td> <td>3</td> </tr> <tr> <td>BROWN</td> <td>MEDIUM</td> <td>3</td> <td>8</td> </tr> <tr> <td>BROWN</td> <td></td> <td>8</td> <td>35</td> </tr> <tr> <td>BROWN</td> <td></td> <td>35</td> <td>43</td> </tr> <tr> <td>BROWN</td> <td></td> <td>43</td> <td>50</td> </tr> </table>	Color	Hardness	From	To	BROWN	MEDIUM	0	3	BROWN	MEDIUM	3	8	BROWN		8	35	BROWN		35	43	BROWN		43	50																																																								
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Capacity __g.p.m Type Material</td> </tr> <tr> <td colspan="2">Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes</td> </tr> <tr> <td colspan="2"><input checked="" type="checkbox"/> No</td> </tr> <tr> <td colspan="2">Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</td> </tr> <tr> <td colspan="2">Well Contractor Certification</td> </tr> <tr> <td>First Bedrock</td> <td>Aquifer</td> </tr> <tr> <td>Last Strat</td> <td>Depth to Bedrock ft.</td> </tr> <tr> <td colspan="2">Thein Well Co. 34625 HERRBOLDT, N.</td> </tr> <tr> <td colspan="2">License Business Name Lic. Or Reg. No. Name of Driller</td> </tr> </table>	Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	--	From Ft. to Ft.	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Minnesota Unique Well No.

635498

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

Minnesota Statutes Chapter 103I

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 Elevation Method		Drilling Method Auger (non-specified)		
Well Address 1605 160TH ST W ROSEMOUNT MN		Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Geological Material		--	From Ft. to Ft.	
TOP SOIL, GRAVELY SAND		Use Abandoned Status Sealed		
GRAVELY SAND MED COARSE		Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? <input type="checkbox"/> Yes		
SANDY CLAY		<input checked="" type="checkbox"/> No Above/Below ft.		
Color	Hardness	From	To	
BROWN	MEDIUM	0	3	
BROWN		3	38	
BROWN	MEDIUM	38	50	
		Casing Diameter	Weight	Hole Diameter
		2 in. to 40 ft.	3.65 lbs./ft.	4.25 in. to 50 ft.
Open Hole from ft. to ft.				
Screen YES Make TIMCO Type plastic				
Diameter	Slot/Gauze	Length	Set Between	
2	10	10	40 ft. and 50 ft.	
Static Water Level				
45 ft. from Land surface Date Measured 11/30/1999				
PUMPING LEVEL (below land surface)				
ft. after hrs. pumping g.p.m.				
Well Head Completion				
Pitless adapter manufacturer Model				
<input checked="" type="checkbox"/> Casing Protection Y <input type="checkbox"/> 12 in. above grade				
<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)				
REMARKS		Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
WELL SEALED 11-01-2001 BY 71677		Grout Material: Neat Cement from 0 to 35 ft. 3 bags		
ORIGINAL USE MW - MONITOR WELL		Grout Material: Bentonite from 35 to 37 ft. 1 bags		
Nearest Known Source of Contamination				
__feet __direction __type				
Well disinfected upon completion? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Pump <input type="checkbox"/> Not Installed Date Installed				
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Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Well Contractor Certification				
First Bedrock	Aquifer	Thein Well Co.	34625	HERRBOLDT, N.
Last Strat	Depth to Bedrock ft.	License Business Name	Lic. Or Reg. No.	Name of Driller
County Well Index Online Report		635498		Printed 10/26/2009 HE-01205-07

Minnesota Unique Well No.

635499

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

Minnesota Statutes Chapter 103I

Well Name MW-4 Township Range Dir Section Subsections Elevation ft. 114 19 W 4 AAD Elevation Method	Well Depth 59 ft. Depth Completed 59 ft. Date Well Completed 11/30/1999 Drilling Method Auger (non-specified)
Well Address 1605 160TH ST W ROSEMOUNT MN Geological Material SANDY CLAY GRAVEL GRAVELY SAND MED COARSE GRAVELY SAND SAND	Drilling Fluid -- Well Hydrofractured? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No From Ft. to Ft. Use Abandoned Status Sealed Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Above/Below ft. Casing Diameter Weight Hole Diameter 2 in. to 49 ft. 3.65 lbs./ft. 4.25 in. to 59 ft. 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. Static Water Level 52 ft. from Land surface Date Measured 11/30/1999 PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m. Well Head Completion Pitless adapter manufacturer Model <input checked="" type="checkbox"/> Casing Protection Y <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)
REMARKS WELL SEALED 11-01-2001 BY 71677 ORIGINAL USE MW - MONITOR WELL	Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Grout Material: Neat Cement from 0 to 44 ft. 3 bags Grout Material: Bentonite from 44 to 46 ft. 1 bags Nearest Known Source of Contamination __feet __direction __type Well disinfected upon completion? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number __ HP __ Volts Length of drop Pipe __ft. Capacity __g.p.m Type Material
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County Well Index Online Report	635499
Printed 10/26/2009 HE-01205-07	

Minnesota Unique Well No.

769482

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

Well Name UNIVERSITY OF MN PW-C2-202 Township Range Dir Section Subsections Elevation ft. 115 19 W 33 DDD Elevation Method	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">Well Depth</td> <td style="width:33%;">Depth Completed</td> <td style="width:33%;">Date Well Completed</td> </tr> <tr> <td>147 ft.</td> <td>145 ft.</td> <td>01/27/2009</td> </tr> <tr> <td colspan="3">Drilling Method Non-specified Rotary</td> </tr> </table>	Well Depth	Depth Completed	Date Well Completed	147 ft.	145 ft.	01/27/2009	Drilling Method Non-specified Rotary																																																																																																																	
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Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																																																																																																									
Grout Material: Bentonite from to 115 ft. 12 bags																																																																																																																									
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First Bedrock Aquifer Last Strat Depth to Bedrock ft.	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">County Well Index Online Report</td> <td style="width:25%; text-align: center;">769482</td> <td style="width:25%; text-align: right;">Printed 10/26/2009 HE-01205-07</td> </tr> </table>	County Well Index Online Report	769482	Printed 10/26/2009 HE-01205-07																																																																																																																					
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Minnesota Unique Well No.

769483

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

Well Name UNIVERSITY OF MN MW-E2-209		Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subsections Elevation ft.		126 ft.	126 ft.	01/27/2009
114 19 W 4 DBB Elevation Method		Drilling Method Other		
Well Address STATION TRL&160TH ST W MN		Drilling Fluid Water	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft.	
Geological Material		Use Monitor well		
Color	Hardness	From	To	Casing Type Steel (black or low carbon) Joint Threaded Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft.
TOPSOIL	BLACK	0	1	Casing Diameter Weight Hole Diameter 2 in. to 116 ft. 3.65 lbs./ft. 7 in. to 126 ft.
SILTY SAND	BROWN	1	5	
SAND & GRAVEL	BROWN	5	40	Open Hole from ft. to ft.
SAND	BROWN	40	100	Screen YES Make JOHNSON Type stainless steel
ROCK	BLACK	100	110	Diameter Slot/Gauze Length Set Between 2 10 10 116 ft. and 126 ft.
SILTY SAND & CLAY	GRAY	110	116	Static Water Level 60 ft. from Land surface Date Measured 01/27/2009
GRAVEL	BROWN	116	119	PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m.
SILTY CLAY	BROWN	119	121	Well Head Completion Pitless adapter manufacturer Model <input checked="" type="checkbox"/> Casing Protection Y <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)
GRAVEL	BROWN	121	122	Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Grout Material: Bentonite from to 113 ft. 11 bags
SANDSTONE	GRAY	122	126	
NO REMARKS		Nearest Known Source of Contamination __feet __direction __type		
		Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No		
NO REMARKS		Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input type="checkbox"/> No		
NO REMARKS		Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No		
		Well Contractor Certification Mark J Traut Wells, Inc. 1404 ANDERSON, M. License Business Name Lic. Or Reg. No. Name of Driller		
First Bedrock Aquifer		Printed 10/26/2009		
Last Strat Depth to Bedrock ft.		769483		HE-01205-07
County Well Index Online Report				

Minnesota Unique Well No.

769488

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

Well Name UNIVERSITY OF MN MWE2 009		Well Depth	Depth Completed	Date Well Completed
Township Range Dir Section Subsections Elevation ft. 114 19 W 4 DBB Elevation Method		70 ft.	67.7 ft.	12/21/2008
Drilling Method Other				
Well Address STATION TRAIL&160TH ROSEMOUNT MN		Drilling Fluid Water	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft.	
Use Monitor well				
Geological Material		Casing Type	Joint Threaded	Drive Shoe? <input type="checkbox"/> Yes
TOP SOIL	Color BLACK	Steel (black or low carbon)		<input type="checkbox"/> No Above/Below ft.
SILTY SAND	BROWN			
SAND & GRAVEL	BROWN			
SAND	BROWN			
	Hardness	From	To	
	MEDIUM	0	1	
	MEDIUM	1	5	
	MEDIUM	5	40	
	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.				
Screen YES Make JOHNSON Type stainless steel				
Diameter		Slot/Gauze	Length	Set Between
2		10	10	57.7 ft. and 67.7 ft.
Static Water Level 57 ft. from Land surface Date Measured 12/21/2008				
PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m.				
Well Head Completion Pitless adapter manufacturer Model <input checked="" type="checkbox"/> Casing Protection Y <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)				
REMARKS MW-E2-009		Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Grout Material: Bentonite from to 58.7 ft. 6 bags		
Nearest Known Source of Contamination __feet __direction __type Well disinfected upon completion? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Well Contractor Certification		Mark J Traut Wells, Inc. 1404 ANDERSON, M. License Business Name Lic. Or Reg. No. Name of Driller		
First Bedrock	Aquifer			
Last Strat	Depth to Bedrock ft.			
County Well Index Online Report		769488		Printed 10/26/2009 HE-01205-07

Minnesota Unique Well No.

769489

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

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 Elevation Method	Drilling Method Non-specified Rotary		
Well Address 160TH ST&STATION TRL ROSEMOUNT MN	Drilling Fluid Bentonite	Well Hydrofractured? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No From Ft. to Ft.	
Geological Material CLAY SAND GRVL ROCKS LIMESTONE	Use Monitor well		
Color BROWN BROWN TAN	Hardness MEDIUM SOFT HARD	From 0 4 147	To 4 147 147
Casing Type Steel (black or low carbon) Joint Threaded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 g.p.m.			
Well Head Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)			
NO REMARKS			
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Grout Material: Bentonite from to 134 ft.			
Nearest Known Source of Contamination __feet __direction __type Well disinfected upon completion? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Well Contractor Certification First Bedrock Aquifer Mark J Traut Wells, Inc. 1404 STORKAMP,P. 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

Minnesota Unique Well No.

769490

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

Well Name UNIVERSITY OF MN MW D3 007 Township Range Dir Section Subsections Elevation ft. 114 19 W 3 BAB Elevation Method	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">Well Depth</td> <td style="width:33%;">Depth Completed</td> <td style="width:33%;">Date Well Completed</td> </tr> <tr> <td>70 ft.</td> <td>70 ft.</td> <td>01/07/2009</td> </tr> <tr> <td colspan="3">Drilling Method Other</td> </tr> </table>	Well Depth	Depth Completed	Date Well Completed	70 ft.	70 ft.	01/07/2009	Drilling Method Other																																																																																				
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Well Address AKRON & 164TH ST W ROSEMOUNT MN Geological Material TOP SOIL SILTY SAND SAND & GRAVEL	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Color</td> <td style="width:15%;">Hardness</td> <td style="width:15%;">From</td> <td style="width:15%;">To</td> </tr> <tr> <td>BLACK</td> <td>MEDIUM</td> <td>0</td> <td>1</td> </tr> <tr> <td>BROWN</td> <td>MEDIUM</td> <td>1</td> <td>3</td> </tr> <tr> <td>BROWN</td> <td>MEDIUM</td> <td>3</td> <td>70</td> </tr> </table>	Color	Hardness	From	To	BLACK	MEDIUM	0	1	BROWN	MEDIUM	1	3	BROWN	MEDIUM	3	70																																																																											
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REMARKS MW-D3-007	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Drilling Fluid</td> <td style="width:50%;">Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Water</td> <td>From Ft. to Ft.</td> </tr> <tr> <td colspan="2">Use Monitor well</td> </tr> <tr> <td>Casing Type Steel (black or low carbon) Joint Threaded Drive Shoe? <input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No Above/Below ft.</td> </tr> <tr> <td>Casing Diameter</td> <td>Weight</td> <td>Hole Diameter</td> </tr> <tr> <td>2 in. to 60 ft.</td> <td>3.65 lbs./ft.</td> <td>7 in. to 70 ft.</td> </tr> <tr> <td colspan="3">Open Hole from ft. to ft.</td> </tr> <tr> <td>Screen YES</td> <td>Make JOHNSON</td> <td>Type stainless steel</td> </tr> <tr> <td>Diameter</td> <td>Slot/Gauze</td> <td>Length</td> <td>Set Between</td> </tr> <tr> <td>2</td> <td>10</td> <td>10</td> <td>60 ft. and 70 ft.</td> </tr> <tr> <td colspan="3">Static Water Level</td> </tr> <tr> <td colspan="3">58 ft. from Land surface Date Measured 01/07/2009</td> </tr> <tr> <td colspan="3">PUMPING LEVEL (below land surface)</td> </tr> <tr> <td colspan="3">ft. after hrs. pumping g.p.m.</td> </tr> <tr> <td colspan="3">Well Head Completion</td> </tr> <tr> <td colspan="3">Pitless adapter manufacturer Model</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)</td> </tr> <tr> <td colspan="3">Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td colspan="3">Grout Material: Bentonite from to 54 ft. 4 bags</td> </tr> <tr> <td colspan="3">Nearest Known Source of Contamination</td> </tr> <tr> <td colspan="3">__feet __direction __type</td> </tr> <tr> <td colspan="3">Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td colspan="3">Pump <input type="checkbox"/> Not Installed Date Installed</td> </tr> <tr> <td colspan="3">Manufacturer's name Model number __ HP __ Volts</td> </tr> <tr> <td colspan="3">Length of drop Pipe __ft. Capacity __g.p.m. Type Material</td> </tr> <tr> <td colspan="3">Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td colspan="3">Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td colspan="3">Well Contractor Certification</td> </tr> <tr> <td>First Bedrock</td> <td>Aquifer</td> <td>Mark J Traut Wells, Inc. 1404 ANDERSON, M.</td> </tr> <tr> <td>Last Strat</td> <td>Depth to Bedrock ft.</td> <td>License Business Name Lic. Or Reg. No. Name of Driller</td> </tr> </table>	Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No	Water	From Ft. to Ft.	Use Monitor well		Casing Type Steel (black or low carbon) Joint Threaded Drive Shoe? <input type="checkbox"/> Yes	<input type="checkbox"/> No Above/Below ft.	Casing Diameter	Weight	Hole Diameter	2 in. to 60 ft.	3.65 lbs./ft.	7 in. to 70 ft.	Open Hole from ft. to ft.			Screen YES	Make JOHNSON	Type stainless steel	Diameter	Slot/Gauze	Length	Set Between	2	10	10	60 ft. and 70 ft.	Static Water Level			58 ft. from Land surface Date Measured 01/07/2009			PUMPING LEVEL (below land surface)			ft. after hrs. pumping g.p.m.			Well Head Completion			Pitless adapter manufacturer Model			<input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade			<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)			Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			Grout Material: Bentonite from to 54 ft. 4 bags			Nearest Known Source of Contamination			__feet __direction __type			Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No			Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input type="checkbox"/> No			Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No			Well Contractor Certification			First Bedrock	Aquifer	Mark J Traut Wells, Inc. 1404 ANDERSON, M.	Last Strat	Depth to Bedrock ft.	License Business Name Lic. Or Reg. No. Name of Driller
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Last Strat	Depth to Bedrock ft.	License Business Name Lic. Or Reg. No. Name of Driller																																																																																										
County Well Index Online Report	769490	Printed 10/26/2009 HE-01205-07																																																																																										

Minnesota Unique Well No.

769493

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

Well Name UNIVERSITY OF MN MW-C2-002 Township Range Dir Section Subsections Elevation ft. 115 19 W 33 DDD Elevation Method	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">Well Depth</td> <td style="width:33%;">Depth Completed</td> <td style="width:33%;">Date Well Completed</td> </tr> <tr> <td>75 ft.</td> <td>75 ft.</td> <td>01/28/2009</td> </tr> <tr> <td colspan="3">Drilling Method Other</td> </tr> </table>	Well Depth	Depth Completed	Date Well Completed	75 ft.	75 ft.	01/28/2009	Drilling Method Other																																																																							
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Well Address STATION TRL&160TH W ROSEMOUNT MN Geological Material TOP SOIL SILTY SAND SAND WITH GRAVEL	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Color</td> <td style="width:15%;">Hardness</td> <td style="width:15%;">From</td> <td style="width:15%;">To</td> </tr> <tr> <td>BLACK</td> <td>MEDIUM</td> <td>0</td> <td>2</td> </tr> <tr> <td>BROWN</td> <td>MEDIUM</td> <td>2</td> <td>5</td> </tr> <tr> <td>BROWN</td> <td>MEDIUM</td> <td>5</td> <td>75</td> </tr> </table>	Color	Hardness	From	To	BLACK	MEDIUM	0	2	BROWN	MEDIUM	2	5	BROWN	MEDIUM	5	75																																																														
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REMARKS MW-C2-002	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"> Drilling Fluid Water </td> <td style="width:50%;"> Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. </td> </tr> <tr> <td colspan="2">Use Monitor well</td> </tr> <tr> <td colspan="2"> Casing Type Steel (black or low carbon) Joint Threaded Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft. </td> </tr> <tr> <td style="width:33%;">Casing Diameter</td> <td style="width:33%;">Weight</td> <td style="width:33%;">Hole Diameter</td> </tr> <tr> <td>2 in. to 65 ft.</td> <td>3.65 lbs./ft.</td> <td>7 in. to 75 ft.</td> </tr> <tr> <td colspan="3">Open Hole from ft. to ft.</td> </tr> <tr> <td colspan="3">Screen YES Make JOHNSON Type stainless steel</td> </tr> <tr> <td style="width:25%;">Diameter</td> <td style="width:25%;">Slot/Gauze</td> <td style="width:25%;">Length</td> <td style="width:25%;">Set Between</td> </tr> <tr> <td>2</td> <td>10</td> <td>10</td> <td>65 ft. and 75 ft.</td> </tr> <tr> <td colspan="4">Static Water Level ft. from Date Measured</td> </tr> <tr> <td colspan="4">PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m.</td> </tr> <tr> <td colspan="4"> Well Head Completion Pitless adapter manufacturer Model <input checked="" type="checkbox"/> Casing Protection Y <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) </td> </tr> <tr> <td colspan="4"> Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Grout Material: Bentonite from to 62 ft. 5 bags </td> </tr> <tr> <td colspan="4"> Nearest Known Source of Contamination ___feet ___direction ___type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No </td> </tr> <tr> <td colspan="4"> Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number __ HP _ Volts Length of drop Pipe _ft. Capacity _g.p.m Type Material </td> </tr> <tr> <td colspan="4"> Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No </td> </tr> <tr> <td colspan="4"> Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No </td> </tr> <tr> <td colspan="4"> Well Contractor Certification <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Mark J Traut Wells, Inc.</td> <td style="width:25%;">1404</td> <td style="width:25%;">ANDERSON, M.</td> </tr> <tr> <td>License Business Name</td> <td>Lic. Or Reg. 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