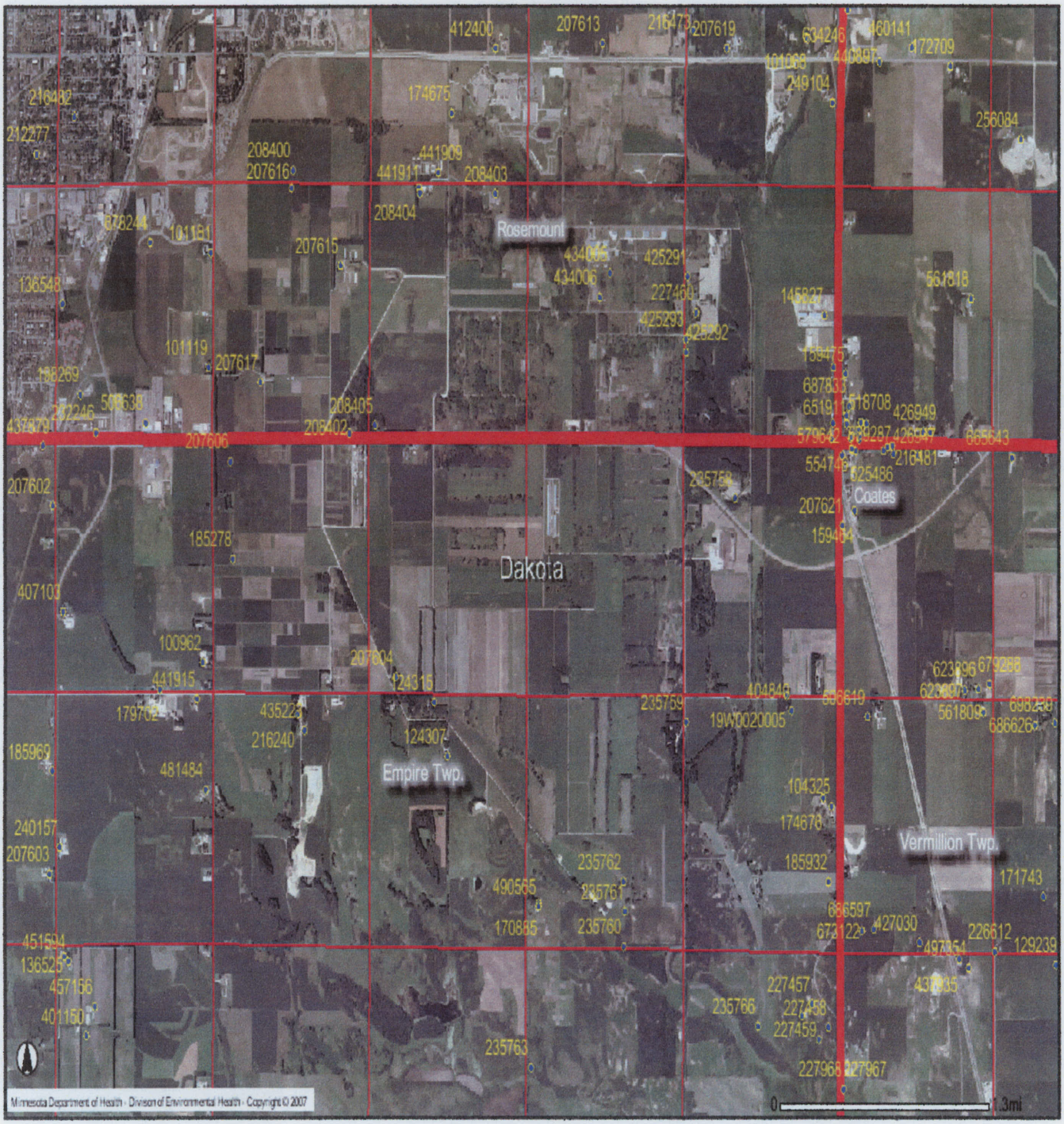
Appendix 1

Historical Well and Boring Logs

Appendix 1

Historical Documents

The Minnesota County Well Index



Highlighted records indicates a Field Verified Well Location

Click a Well Unique Number to generate a well log

Well List

Unique Number	Stratigraphy	County	Well Name	Township	Range	Dir	Section	Sub Sections	Depth (ft)	Use	Elevation (ft)	Depth Cased (ft)	SWL	Casing Diameter	Casing Material	Aquifer	Address
104325	Yes	Dakota	DECLOS, TONY	114	19	W	12	ADDACC	125	Abandoned	925	100	60	4	Steel (black or low carbon)	Prairie Du Chien Group	17461 81 CR , ROSEMOUNT
121082	Yes	Dakota	TIX, JIM	115	19	W	36	DDDDCC	365	Domestic	910	328	75	4	Steel (black or low carbon)	Jordan	15981 CLAYTON AV , ROSEMOUNT
124307	Yes	Dakota	OLSON, STEVE	114	19	W	10	BADDDD	130	Domestic	935	99	64	4	Steel (black or low carbon)	Prairie Du Chien Group	17110 STATION TR , FARMINGTON
124315	Yes	Dakota	BRODIL, GAYLE	114	19	W	10	BAABAC	135	Domestic	937	99	52	4	Steel (black or low carbon)	Prairie Du Chien Group	1210 170TH ST W , FARMINGTON
145827	Yes	Dakota	WESTIN, HAROLD J.	115	19	W	36	ADDCDC	320	Domestic	920	258	120	8	Steel (black or low carbon)	Jordan	52 HY , COATES
170826	Yes	Dakota	FRITZ, DALE	115	19	W	36	DDDACA	290	Domestic	912	273	78	4	Steel (black or low carbon)	Jordan	15915 COATES BL , COATES
170885	Yes	Dakota	ROSEMOUNT RESEARCH FARM	114	19	W	11	CCBDBB	305	Irrigation	970	134	106	8	Steel (black or low carbon)	Prairie Du Chien Group	ROSEMOUNT
174676	Yes	Dakota	DUCLOS, KENNETH	114	19	W	12	ADDBCB	280	Domestic	920	250	70	4	Steel (black or low carbon)	Jordan	17461 CLAYTON AV , ROSEMOUNT
185932	Yes	Dakota	BOHN, TED JR.	114	19	W	12	DDAACD	320	Domestic	910	280	78	4	Steel (black or low carbon)	Jordan	17801 CLAYTON AV E , COATS
207604	Yes	Dakota	FARM RUINS	114	19	W	3	CCDBDD	935	Domestic	935						
208402	Yes	Dakota	UNIV. OF MN. OFFICE BLDG.	115	19	W	33	DDDCC	166	Domestic	950	161	75	4	Steel (black or low carbon)	Prairie Du Chien Group	1605 160TH' ST W , ROSEMOUNT
208405	Yes	Dakota	UNIV. OF MN. SUPERINTENDENT RES.	115	19	W	34	CCCCD	235	Domestic	953		75	4	Steel (black or low carbon)		, ROSEMOUNT
227456	Yes	Dakota	MURA PROJECT-BORING 1	114	19	W	13	AACC	20	Other (specify in remarks)	886						
227457	Yes	Dakota	MURA PROJECT-BORING 2	114	19	W	13	AACD	25	Other (specify in remarks)	897						
227458	Yes	Dakota	MURA PROJECT-BORING 3	114	19	W	13	ADAB	25	Other (specify in remarks)	904						
227459	Yes	Dakota	MURA PROJECT-BORING 4	114	19	W	13	ADBD	43	Other (specify in remarks)	889		30.5				
404840	Yes	Dakota	CLARK, KEVIN	114	19	W	12	ABABDD	160	Domestic	915	120	70	4	Steel (black or low carbon)	Prairie Du Chien Group	
425291	Yes	Dakota	U OF M.	115	19	W	36	BCBCCC	230	Test well	930	97	80	6	Steel (black or low carbon)	Prairie Du Chien Group	
425292	Yes	Dakota	U OF M.	115	19	W	36	CBCBCB	230	Test well	926	105	85	6	Steel (black or low carbon)	Prairie Du Chien Group	
425293	Yes	Dakota	U OF M.	115	19	W	36	CBBCCC	291	Abandoned	926	271	65	4	Steel (black or low carbon)	Jordan	
434005	Yes	Dakota	U OF M SE COMPLEX MW	115	19	W	35	ACBCCB	107	Abandoned	934	97	70	4	Steel (black or low carbon)	Prairie Du Chien Group	, ROSEMOUNT
434006	Yes	Dakota	U OF M RESEARCH MW	115	19	W	35	BDDDBB	78	Abandoned	934	68	70	4	Steel (black or low carbon)	Quat. Buried Unconf. Aquife	, ROSEMOUNT
435223	Yes	Dakota	HEIGH, CHUCK	114	19	W	9	ABCABD	320	Irrigation	962	130	60	12	Steel (black or low	Prairie Du Chien	1960 170TH ST W , ROSEMOUNT

															carbon)	Group	
490565	Yes	Dakota	WCAL TRANSMITTER BLDG.	114	19	W	11	CCBDB	370	Domestic	968	346	101	4	Steel (black or low carbon)	Jordan	17979 ANNETTE AV, ROSEMOUNT
19W0000043	No	Dakota	GROTN, HUGO	115	19	W	36	DA	130	Domestic	928	130	0				15640 CLAYTON AV ROSEMOUNT

25 Well Records Returned

AOC7

Minnesota Unique Well No.
425293

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date 03/30/1990
Update Date 03/27/2006
Received Date

Well Name U OF M.
Township Range Dir Section Subsections Elevation 926 ft.
115 19 W 36 CBBCCC **Elevation Method** 7.5 minute topographic map (+/- 5 feet)

Well Depth	Depth Completed	Date Well Completed
291 ft.	291 ft.	09/19/1986

Drilling Method Non-specified Rotary

Drilling Fluid --

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Use Abandoned **Status** Sealed

Geological Material	Color	Hardness	From	To
CLAY	BROWN	HARD	0	10
GRAVEL	BROWN	HARD	10	71
SANDROCK	WHITE	HARD	71	94
LIMESTONE	YELLOW	HARD	94	259
SANDROCK	YELLOW	MEDIUM	259	291

Casing Type Steel (black or low carbon) **Joint** Welded **Drive Shoe?** ☑ Yes ☐ No **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
8 in. to 94 ft.	18 lbs./ft.	14 in. to 94 ft.
4 in. to 271 ft.	11 lbs./ft.	8 in. to 271 ft.

Open Hole from 271 ft. to 291 ft.

Screen NO **Make** **Type**

Diameter	Slot/Gauze	Length	Set Between

Static Water Level
65 ft. from Land surface Date Measured 09/19/1986

PUMPING LEVEL (below land surface)
90 ft. after 2 hrs. pumping 50 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 SEALED 12-05-1998 BY 71677.
ORIGINAL USE TW - TEST WELL.

Grouting Information Well Grouted? ☑ Yes ☐ No

Grout Material: Neat Cement from to 271 ft. 3 yrds.

Located Minnesota Geological Survey **Method** Digitized - scale 1:24,000 or larger

Program COUNTY WELL INDEX **Date** N/A

Unique Number Verification Other, note in

Nearest Known Source of Contamination
1000 feet N direction Septic tank/drain field type

remarks

System *UTM - Nad83, Zone15, Meters* **X:** 495652 **Y:** 4952197

Well disinfected upon completion? ☑ Yes ☐ No

Pump ☐ 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)? ☐

Yes ☑ No

Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Well Contractor Certification

Kimmes-Bauer	19521	LES/STEVE
License Business Name	Lic. Or Reg. No.	Name of Driller

First Bedrock St.Peter

Last Strat Jordan

Aquifer Jordan

Depth to Bedrock 71 **ft.**

County Well Index Online Report

425293

Printed 4/13/2007

HE-01205-07

between AOC6+7

Minnesota Unique Well No.

434005

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 103I

Entry Date 01/04/1993
Update Date 03/27/2006
Received Date

Well Name U OF M SE COMPLEX MW

Township Range Dir Section Subsections Elevation 934 ft.

115 19 W 35 ACBCCB **Elevation Method** 7.5 minute topographic map (+/- 5 feet)

Well Depth	Depth Completed	Date Well Completed
107 ft.	107 ft.	07/17/1987

Drilling Method Non-specified Rotary

Well Address

ROSEMOUNT MN 55068

Geological Material	Color	Hardness	From	To
SILTY CLAY	BLACK	SOFT	0	15
SAND	BROWN	SOFT	15	35
COARSE GRAVEL	BROWN	MEDIUM	35	62
MEDIUM GRAVEL	GRAY	MED-HRD	62	71
VERY COARSE GRAVEL	GRY/GRN	HARD	71	91
LIMESTONE WEATHERED	ORN/YEL	HARD	91	100
LIMESTONE-DOLOMITE	ORN/YEL		100	107

Drilling Fluid Additive (+ Bentonite)

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Use Abandoned **Status** Sealed

Casing Type Steel (black or low carbon) **Joint** Welded **Drive Shoe?** ☐ Yes ☐ No **Above/Below** 2 ft.

Casing Diameter	Weight	Hole Diameter
4 in. to 97 ft.	10.79 lbs./ft.	10 in. to 30 ft.
		8 in. to 107 ft.

Open Hole from ft. to ft.

Screen YES **Make** JOHNSON **Type** stainless steel

Diameter	Slot/Gauze	Length	Set Between
4	10	10	97 ft. and 107 ft.

Static Water Level
70 ft. from Land surface Date Measured 07/17/1987

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
WELL SEALED 12-05-1998 BY 71677.
ORIGINAL USE MW - MONITOR WELL.

Located Minnesota Geological Survey **Method** Digitization (Screen) - Map (1:24,000)

Program COUNTY WELL INDEX **Date** 07/27/2004

Unique Number Verification Other, note in remarks

System *UTM - Nad83, Zone15, Meters* **X:** 494870 **Y:** 4952612

Grouting Information Well Grouted? ☑ Yes ☐ No

Grout Material: Neat Cement	from 0 to 48 ft.	1 yrds.
Grout Material: Bentonite	from 48 to 84 ft.	1 yrds.

Nearest Known Source of Contamination
_feet _direction _type

Well disinfected upon completion? ☐ Yes ☑ No

Pump ☐ 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)? ☐ Yes ☑ No
	Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No
First Bedrock Prairie Du Chien Group **Last Strat** Prairie Du Chien Group **Aquifer** Prairie Du Chien Group **Depth to Bedrock** 91 ft.	**Well Contractor Certification** Bergerson-Caswell / License Business Name 27058 / Lic. Or Reg. No. DEHN, D. / Name of Driller
County Well Index Online Report	**434005** Printed 4/13/2007 HE-01205-07

S AOC 2

Minnesota Unique Well No.
490565

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date 03/16/1993
Update Date 01/22/2003
Received Date

Well Name WCAL TRANSMITTER BLDG.
Township Range Dir Section Subsections Elevation 968 ft.
114 19 W 11 CCBDB **Elevation Method** 7.5 minute topographic map (+/- 5 feet)

Well Depth	Depth Completed	Date Well Completed
370 ft.	370 ft.	06/24/1991

Drilling Method Non-specified Rotary

Well Address
17979 ANNETTE AV
ROSEMOUNT MN 55068

Drilling Fluid Other

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Geological Material	Color	Hardness	From	To
CLAY-MUSHY	BROWN	SOFT	0	20
SAND	BROWN	SOFT	20	32
CLAY	BLUE	MEDIUM	32	111
SHAKOPEE	GRAY	HARD	111	325
JORDAN	WHITE	MEDIUM	325	370

Use Domestic

Casing Type Steel (black or low carbon) **Joint** Welded **Drive Shoe?** ☑ Yes ☐ No **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
8 in. to 113 ft.	28.55 lbs./ft.	12 in. to 113 ft.
4 in. to 346 ft.	10.79 lbs./ft.	8 in. to 346 ft.

Open Hole from 346 ft. to 370 ft.

Screen NO **Make** **Type**
Diameter **Slot/Gauze** **Length** **Set Between**

Static Water Level
101 ft. from Land surface Date Measured 06/24/1991

PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.

Well Head Completion
Pitless adapter manufacturer MONITOR Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

REMARKS
ST.OLAF COLLEGE, NORTHFIELD, MN 55057

Grouting Information Well Grouted? ☑ Yes ☐ No
Grout Material: Neat Cement from 8 to 346 ft. 7 yrds.

Located Minnesota Geological Survey
Method Digitization (Screen) - Map (1:24,000)
Program COUNTY WELL INDEX
Date N/A
Unique Number Verification Address verification
System *UTM - Nad83, Zone15, Meters* **X:** 494143 **Y:** 4948607

Nearest Known Source of Contamination
50 feet South West direction Septic tank/drain field type
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☐ Not Installed Date Installed 06/25/1991
Manufacturer's name GRUNDFOS Model number 10S10015
HP 1 Volts 240
Length of drop Pipe 144 ft. Capacity 10 g.p.m
Type Submersible Material Steel (black or low carbon)

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

Well Contractor Certification

Hartmann Well Co.	40174	JAECKELS, R.
License Business Name	Lic. Or Reg. No.	Name of Driller

First Bedrock Prairie Du Chien Group
Last Strat Jordan
Aquifer Jordan
Depth to Bedrock 111 ft.

County Well Index Online Report

490565

Printed 4/13/2007
HE-01205-07

NW AOC 4

Minnesota Unique Well No.
207604

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

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

Well Name FARM RUINS
Township Range Dir Section Subsections Elevation 935 ft. 7.5 minute topographic map (+/- 5 feet)
114 19 W 3 CCDBDD **Elevation Method**

Well Depth	Depth Completed	Date Well Completed
935 ft.	935 ft.	

Drilling Method --

Drilling Fluid --

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Geological Material	Color	Hardness	From	To
SAND AND GRAVEL			0	50
ST. PETER SANDSTONE			50	935

Use Domestic

Casing Type Joint No Information **Drive Shoe?** ☐ Yes ☐ 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
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

REMARKS
SOURCE: SWARTZ (1936).

Located Minnesota Geological Survey **Method** Digitized - scale 1:24,000 or larger
Program COUNTY WELL INDEX **Date** N/A
Unique Number Verification N/A

Grouting Information Well Grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination

System *UTM - Nad83, Zone15, Meters* **X:** 492679 **Y:** 4950066	_feet _direction _type Well disinfected upon completion? ☐ Yes ☐ No
	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 St.Peter **Last Strat** St.Peter **Aquifer** **Depth to Bedrock** 50 **ft.**	**Well Contractor Certification** License Business Name Lic. Or Reg. No. Name of Driller
County Well Index Online Report	**207604** Printed 4/13/2007 HE-01205-07

AOC 4

Minnesota Unique Well No.
124315

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date 03/30/1990
Update Date 02/23/2006
Received Date

Well Name BRODIL, GAYLE

Township Range Dir Section Subsections Elevation 937 ft.
114 19 W 10 BAABAC **Elevation Method** 7.5 minute topographic map (+/- 5 feet)

Well Depth	Depth Completed	Date Well Completed
135 ft.	135 ft.	00/00/1976

Drilling Method Cable Tool

Well Address
1210 170TH ST W
FARMINGTON MN 55068

Drilling Fluid --

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Geological Material	Color	Hardness	From	To
SOIL	BLACK	SOFT	0	1
COARSE GRAVEL	BROWN	HARD	1	16
BLUE CLAY	BLUE	SOFT	16	39
CLAY	RED	SOFT	39	46
GRAVEL	BROWN	HARD	46	47
SANDSTONE	WHITE	SOFT	47	93
LIMESTONE	YELLOW	HARD	93	135

Use Domestic

Casing Type Steel (black or low carbon) **Joint** Threaded **Drive Shoe?** ☑ Yes ☐ No **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. to 99 ft.	lbs./ft.	4 in. to 135 ft.

Open Hole from 99 ft. to 135 ft.

Screen NO **Make** **Type**

Diameter	Slot/Gauze	Length	Set Between

Static Water Level
52 ft. from Land surface Date Measured 04/16/1976

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
FORMER OWNER WALTER CHRISTENSON.

Grouting Information Well Grouted? ☐ Yes ☐ No

Located Minnesota Geological Survey **Method** Digitized - scale 1:24,000 or larger
Program COUNTY WELL INDEX **Date** N/A
Unique Number Verification Information from owner
System *UTM - Nad83, Zone15, Meters* **X:** 493071 **Y:** 4949906

Nearest Known Source of Contamination
116 feet S direction Septic tank/drain field type
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☑ Not Installed Date Installed 04/16/1976

	Manufacturer's name FAIRBANKS MORSE Model number 7511 HP 0.75 Volts 230 Length of drop Pipe 84 ft. Capacity 10 g.p.m Type Submersible Material Steel (black or low carbon)
	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 St.Peter **Last Strat** Prairie Du Chien Group **Aquifer** Prairie Du Chien Group **Depth to Bedrock** 47 ft.	**Well Contractor Certification** Corcoran Well Co. / 19163 / SCHWANZ, M. License Business Name / Lic. Or Reg. No. / Name of Driller
County Well Index Online Report	**124315** Printed 4/13/2007 HE-01205-07

N ADC5

Minnesota Unique Well No.

208402

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 103I

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

Well Name UNIV. OF MN. OFFICE BLDG.

Township Range Dir Section Subsections Elevation 950 ft.

115 19 W 33 DDDCC **Elevation Method** 7.5 minute topographic map (+/- 5 feet)

Well Depth	Depth Completed	Date Well Completed
166 ft.	166 ft.	12/00/1957

Drilling Method --

Well Address
1605 160TH' ST W
ROSEMOUNT MN 55068

Geological Material	Color	Hardness	From	To
CLAY GRAVEL IN LAYERS			0	30
CLAY IN LAYERS			30	158
WATER BEARING SAND			158	161
LIMEROCK			161	166

Drilling Fluid --

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Use Domestic

Casing Type Steel (black or low carbon) **Joint** No Information **Drive Shoe?** ☐ Yes ☐ 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
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

REMARKS
WELL DRILLED BY BEAUDETTE WELL CO.

Grouting Information Well Grouted? ☐ Yes ☐ No

Located Minnesota Geological Survey **Method** Digitized - scale 1:24,000 or larger

Program COUNTY WELL INDEX **Date** N/A

Unique Number Verification Information from owner

System *UTM - Nad83, Zone15, Meters* **X:** 492206 **Y:** 4951607

Nearest Known Source of Contamination
_feet _direction _type

Well disinfected upon completion? ☐ Yes ☐ No

	Pump ☐ 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)? ☐ Yes ☐ No
	Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No
First Bedrock Prairie Du Chien Group **Last Strat** Prairie Du Chien Group **Aquifer** Prairie Du Chien Group **Depth to Bedrock** 161 ft.	**Well Contractor Certification** License Business Name Lic. Or Reg. No. Name of Driller
County Well Index Online Report	**208402** Printed 4/13/2007 HE-01205-07

NE AOC 5

Minnesota Unique Well No.
208405

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

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

Well Name UNIV. OF MN. SUPERINTENDENT RES.
Township Range Dir Section Subsections Elevation 953 ft.
115 19 W 34 CCCCD **Elevation Method** 7.5 minute topographic map (+/- 5 feet)

Well Depth	Depth Completed	Date Well Completed
235 ft.	235 ft.	03/00/1953

Drilling Method Cable Tool

Well Address
ROSEMOUNT MN 55068

Drilling Fluid --

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Geological Material	Color	Hardness	From	To
CLAY TO NEARLY LOAM (LOWER)			0	140
SANDY CLAY			140	180
SAND-COARSE SAND & GRAVEL			180	195
GRAVEL TO LIMESTONE			195	235

Use Domestic

Casing Type Steel (black or low carbon) **Joint** No Information **Drive Shoe?** ☐ Yes ☐ No **Above/Below** 1.5 ft.

Casing Diameter	Weight	Hole Diameter
4 in. to ft.	lbs./ft.	4 in. to 235 ft.

Open Hole from ft. to ft.

Screen **Make** **Type**
Diameter **Slot/Gauze** **Length** **Set Between**

Static Water Level
75 ft. from Land surface Date Measured 03/00/1953

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)

NO REMARKS

Grouting Information Well Grouted? ☐ Yes ☐ No

Located Minnesota Geological Survey
Method Digitized - scale 1:24,000 or larger
Program COUNTY WELL INDEX
Date N/A
Unique Number Verification Information from owner

Nearest Known Source of Contamination
_feet _direction _type
Well disinfected upon completion? ☐ Yes ☐ No

System *UTM - Nad83, Zone15, Meters* **X:** 492463 **Y:** 4951658	**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 Prairie Du Chien Group **Last Strat** Prairie Du Chien Group **Aquifer** **Depth to Bedrock** 195 ft.	**Well Contractor Certification** Corcoran Well Co. 19163 License Business Name Lic. Or Reg. No. Name of Driller
County Well Index Online Report	**208405** Printed 4/13/2007 HE-01205-07

NE AOC1 South

Minnesota Unique Well No.
227456

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date 02/25/2003
Update Date 02/25/2003
Received Date

Well Name MURA PROJECT-BORING 1
Township Range Dir Section Subsections Elevation 886 ft.
114 19 W 13 AACC **Elevation Method** Surveyed

Well Depth	Depth Completed	Date Well Completed
20 ft.	20 ft.	03/08/1956

Drilling Method Jetted

Drilling Fluid –

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Geological Material	Color	Hardness	From	To
SANDY LOAM	GRY/BRN		0	1
CLAY LOAM	LT. BRN		1	2
SAND	BRN/TAN		2	7
SANDSTONE	WHT/TAN		7	20

Use Other (specify in remarks)

Casing Type Joint No Information **Drive Shoe?** ☐ Yes ☐ 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
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

REMARKS
USE-SOIL BORING BY TWIN CITY TESTING

Located Minnesota Geological Survey
Method Digitized - scale 1:24,000 or larger
Program COUNTY WELL INDEX
Date N/A
Unique Number Verification Information from owner

Grouting Information Well Grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination
_feet _direction _type
Well disinfected upon completion? ☐ Yes ☐ No

System *UTM - Nad83, Zone15, Meters* **X:** 496846 **Y:** 4947918	**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 St.Peter **Aquifer** **Last Strat** St.Peter **Depth to Bedrock** 7 **ft.**	**Well Contractor Certification** Minnesota Geological Survey MGS License Business Name Lic. Or Reg. No. Name of Driller
County Well Index Online Report	**227456** Printed 4/13/2007 HE-01205-07

NE AOC1 South

Minnesota Unique Well No.

227459

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 103I

Entry Date 02/25/2003
Update Date 02/25/2003
Received Date

Well Name MURA PROJECT-BORING 4

Township Range Dir Section Subsections Elevation 889 ft.

114 19 W 13 ADBD **Elevation Method** Surveyed

Well Depth	Depth Completed	Date Well Completed
43 ft.	43 ft.	03/08/1956

Drilling Method Jetted

Drilling Fluid –

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Geological Material	Color	Hardness	From	To
SANDY LOAM	GRY/BRN		0	1
SANDY LOAM	DK. BRN		1	2
CLAY LOAM	BROWN		2	4
SANDY LOAM	LT. BRN		4	5
SANDSTONE	WHT/TAN		5	10
SANDSTONE	WHT/TAN		10	43

Use Other (specify in remarks)

Casing Type Joint No Information **Drive Shoe?** ☐ Yes ☐ 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
30.5 ft. from Land surface Date Measured 03/08/1956

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
USE-SOIL BORING BY TWIN CITY TESTING.

Grouting Information Well Grouted? ☐ Yes ☐ No

Located Minnesota Geological Survey **Method** Digitized - scale 1:24,000 or larger

Program COUNTY WELL INDEX **Date** N/A

Unique Number Verification Information from owner

System *UTM - Nad83, Zone15, Meters* **X:** 497015 **Y:** 4947765

Nearest Known Source of Contamination
_feet _direction _type

Well disinfected upon completion? ☐ Yes ☐ No

	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 St.Peter **Last Strat** St.Peter **Aquifer** **Depth to Bedrock** 5 ft.	**Well Contractor Certification** Minnesota Geological Survey MGS License Business Name Lic. Or Reg. No. Name of Driller
County Well Index Online Report	**227459** Printed 4/13/2007 HE-01205-07

NE ¼ A001 - South

Minnesota Unique Well No.

227457

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 103I

Entry Date 02/25/2003
Update Date 02/25/2003
Received Date

Well Name MURA PROJECT-BORING 2

Township Range Dir Section Subsections Elevation 897 ft.

114 19 W 13 AACD **Elevation Method** Surveyed

Well Depth	Depth Completed	Date Well Completed
25 ft.	25 ft.	03/08/1956

Drilling Method Jetted

Drilling Fluid –

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Geological Material	Color	Hardness	From	To
SANDY LOAM	GRY/BRN		0	1
SANDY LOAM	DK. BRN		1	2
SANDY LOAM	BROWN		2	3
SANDSTONE	WHT/TAN		3	25

Use Other (specify in remarks)

Casing Type Joint No Information **Drive Shoe?** ☐ Yes ☐ 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
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

REMARKS
USE-SOIL BORING BY TWIN CITY TESTING.

Located Minnesota Geological Survey **Method** Digitized - scale 1:24,000 or larger

Program COUNTY WELL INDEX **Date** N/A

Unique Number Verification Information from owner

Grouting Information Well Grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination
_feet _direction _type

Well disinfected upon completion? ☐ Yes ☐ No

System *UTM - Nad83, Zone15, Meters* **X:** 496945 **Y:** 4947993	**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 St.Peter **Last Strat** St.Peter **Aquifer** **Depth to Bedrock** 3 ft.	**Well Contractor Certification** Minnesota Geological Survey MGS License Business Name Lic. Or Reg. No. Name of Driller
County Well Index Online Report	**227457** Printed 4/13/2007 HE-01205-07

AOC 1

Minnesota Unique Well No.
425292

County Dakota
Quad Vermillion
Quad ID 87B

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date 12/09/1992
Update Date 03/27/2006
Received Date

Well Name U OF M.
Township Range Dir Section Subsections Elevation 926 ft.
115 19 W 36 CBCBCB **Elevation Method** 7.5 minute topographic map (+/- 5 feet)

Well Depth	Depth Completed	Date Well Completed
230 ft.	230 ft.	09/18/1986

Drilling Method Non-specified Rotary

Drilling Fluid --

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Use Test well

Geological Material	Color	Hardness	From	To
CLAY	BROWN	MEDIUM	0	10
GRAVEL	BROWN	SOFT	10	75
CLAY	BROWN	SOFT	75	99
LIME	BROWN	MEDIUM	99	230

Casing Type Steel (black or low carbon) **Joint** Welded **Drive Shoe?** ☑ Yes ☐ No **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
6 in. to 105 ft.	18.97 lbs./ft.	12 in. to 105 ft.
		6 in. to 230 ft.

Open Hole from 105 ft. to 230 ft.

Screen NO **Make** **Type**
Diameter **Slot/Gauze** **Length** **Set Between**

Static Water Level
85 ft. from Land surface Date Measured 09/18/1986

PUMPING LEVEL (below land surface)
115 ft. after 2 hrs. pumping 50 g.p.m.

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: Neat Cement from 0 to 105 ft. 3 yrds.

Located Minnesota Geological Survey **Method** Digitized - scale 1:24,000 or larger
Program COUNTY WELL INDEX **Date** N/A
Unique Number Verification Other, note in

Nearest Known Source of Contamination
500 feet S direction Septic tank/drain field type

remarks

System *UTM - Nad83, Zone15, Meters* **X:** 495654 **Y:** 4952117

Well disinfected upon completion? ☑ Yes ☐ No

Pump ☐ 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)? ☐

Yes ☑ No

Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No

First Bedrock Prairie Du Chien Group

Last Strat Prairie Du Chien Group

Aquifer Prairie Du Chien Group

Depth to Bedrock 99 **ft.**

Well Contractor Certification

Kimmes-Bauer	19521	BAUER, S.
License Business Name	Lic. Or Reg. No.	Name of Driller

County Well Index Online Report **425292** Printed 4/13/2007 HE-01205-07

Aoc 1

Minnesota Unique Well No.
425291

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date 03/30/1990
Update Date 03/27/2006
Received Date

Well Name U OF M.
Township Range Dir Section Subsections Elevation 930 ft.
115 19 W 36 BCBCCC **Elevation Method** 7.5 minute topographic map (+/- 5 feet)

Well Depth	Depth Completed	Date Well Completed
230 ft.	230 ft.	09/17/1986

Drilling Method Non-specified Rotary

Drilling Fluid Bentonite

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Use Test well

Geological Material	Color	Hardness	From	To
CLAY	BROWN	MEDIUM	0	10
GRAVEL	BROWN	MEDIUM	10	89
SANDROCK	YELLOW	HARD	89	92
LIMESTONE	BLUE	HARD	92	110
LIMESTONE	YELLOW	HARD	110	230

Casing Type Steel (black or low carbon) **Joint** Welded **Drive Shoe?** ☐ Yes ☑ No **Above/Below** 2 ft.

Casing Diameter	Weight	Hole Diameter
6 in. to 97 ft.	18 lbs./ft.	12 in. to 97 ft.
		6 in. to 230 ft.

Open Hole from 97 ft. to 230 ft.

Screen NO **Make** **Type**

Diameter	Slot/Gauze	Length	Set Between

Static Water Level
80 ft. from Land surface Date Measured 09/17/1986

PUMPING LEVEL (below land surface)
95 ft. after 2 hrs. pumping 20 g.p.m.

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: Neat Cement from to 97 ft. 2
Grout Material: Cuttings from to ft.

Located Minnesota Geological Survey
Method Digitized - scale 1:24,000 or larger
Program COUNTY WELL INDEX
Date N/A
Unique Number Verification Other, note in remarks

Nearest Known Source of Contamination
150 feet W direction type

System *UTM - Nad83, Zone15, Meters* **X:** 495665 **Y:** 4952591	Well disinfected upon completion? ☐ Yes ☑ No
	Pump ☐ 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)? ☐ Yes ☑ No
	Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No
First Bedrock St.Peter **Last Strat** Prairie Du Chien Group **Aquifer** Prairie Du Chien Group **Depth to Bedrock** 89 **ft.**	**Well Contractor Certification** Kimmes-Bauer 19521 STEVE/LES License Business Name Lic. Or Reg. No. Name of Driller
County Well Index Online Report	**425291** Printed 4/13/2007 HE-01205-07

EJ AOC 1-Southern

Minnesota Unique Well No.

227968

County Dakota
Quad Coates
Quad ID 88A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 103I

Entry Date 03/10/1994
Update Date 06/27/2006
Received Date

Well Name

Township Range Dir Section Subsections Elevation 860 ft. 7.5 minute topographic map (+/- 5 feet)

114 18 W 18 CBBBCB **Elevation Method**

Well Depth	Depth Completed	Date Well Completed
25 ft.	24 ft.	11/29/1989

Drilling Method Power Auger

Drilling Fluid --

Well Hydrofractured? ☐ Yes ☐ No
From Ft. to Ft.

Use Monitor well

Geological Material	Color	Hardness	From	To
LOAM	BLACK	SOFT	0	4
CLAY	BROWN	MEDIUM	4	5
COARSE SAND, DIRTY	BROWN	SOFT	5	12
MED. COARSE SAND, DIRTY	LT. BRN	SOFT	12	18
GRAVEL	LT. BRN		18	20
FINE/COARSE GRAVEL, CLEAN	LT. BRN		20	24
FINE SAND & LARGE CHUNCKS REFUSAL	YELLOW	HARD	24	25

Casing Type Galvanized **Joint** Threaded **Drive Shoe?** ☐ Yes ☐ No **Above/Below** 3.8 ft.

Casing Diameter	Weight	Hole Diameter
2 in. to 21 ft.	lbs./ft.	4 in. to 25 ft.

Open Hole from ft. to ft.

Screen YES **Make** JOHNSON **Type** stainless steel

Diameter	Slot/Gauze	Length	Set Between
2	10	3	21 ft. and 24 ft.

Static Water Level
8.8 ft. from Land surface Date Measured 11/29/1989

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
REFUSAL AT 24-25 FT. POSSIBLY ST. PETER SANDSTONE.

Grouting Information Well Grouted? ☑ Yes ☐ No

Grout Material: Neat Cement from 0 to ft. 0
Grout Material: Bentonite from 0 to ft. 0

Located United States Geological Survey
Method Public Land Survey - QQQQQQ Section
Program COUNTY WELL INDEX
Date N/A
Unique Number Verification Information from owner
System *UTM - Nad83, Zone15, Meters* **X:** 497270 **Y:** 4947451

Nearest Known Source of Contamination
80 feet S direction Body of water type
Well disinfected upon completion? ☐ Yes ☑ No

	Pump ☐ 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)? ☐ Yes ☐ No
	Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No
First Bedrock **Last Strat** Sand-yellow **Aquifer** Quat. Water Table Aquifer **Depth to Bedrock ft.**	**Well Contractor Certification** U.s. Geol Survey M0113 License Business Name Lic. Or Reg. No. Name of Driller
County Well Index Online Report	**227968** Printed 4/13/2007 HE-01205-07