
Appendix E

Local Groundwater Elevation Information

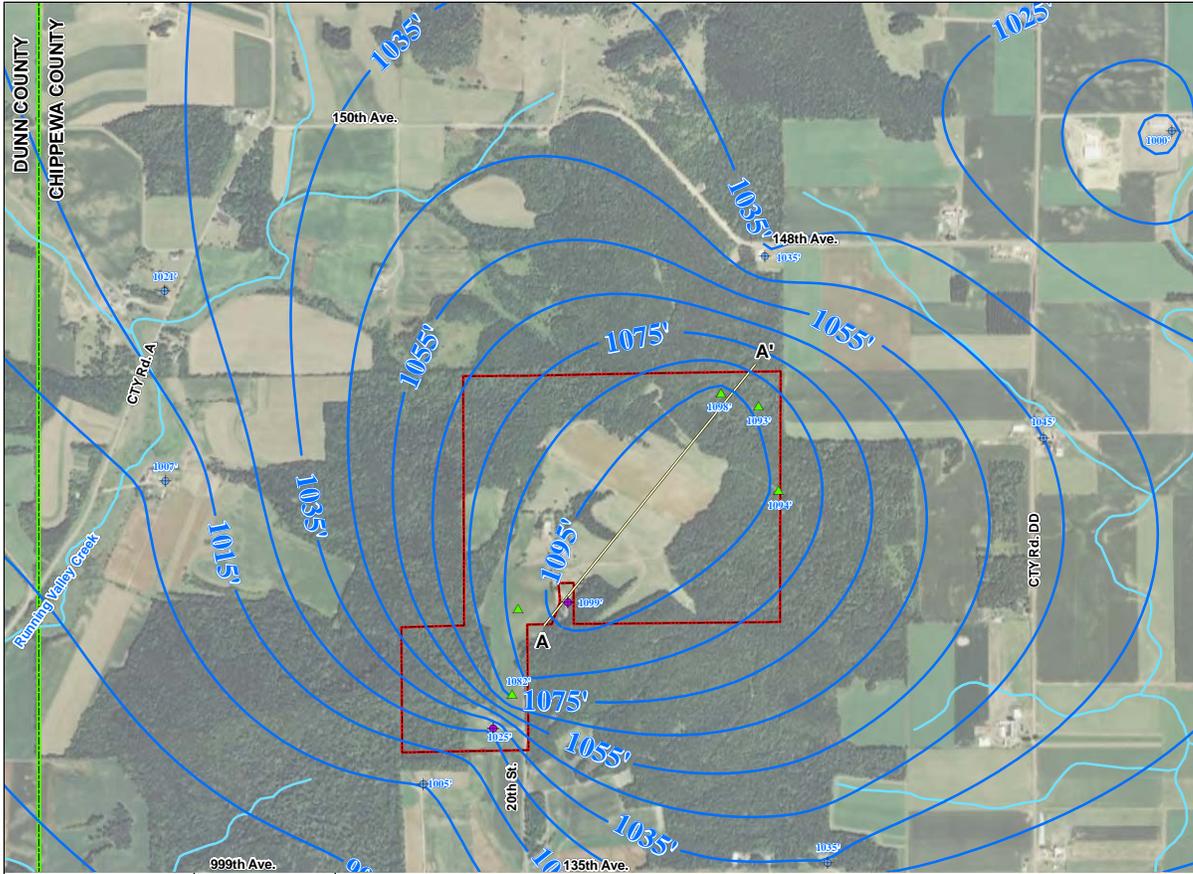
E – 1 – Groundwater Contours Map

E – 2 – Geologic Site Cross Section

E – 3 – Local Well Logs

E – 4 – On-site Soil Boring Logs

E-1 – Groundwater Contours Map



Legend

- Streams
- Roads
- Groundwater Elevation Contours (MSL)
- DS Mine Property
- County Boundary
- Cross Section Alignment
- Parcels
- Measured Groundwater Elevation *
- Estimated Groundwater Elevation **
- Soil Boring Location (Tetra Tech)

0 500 1,000 2,000 Feet

Source: Parcels = Chippewa and Dunn County Land Records
 County Boundary = WIDNR
 Roads = WIDNR
 Streams = WIDNR (Adjusted for 5/18/11 Stream Determination)
 Imagery = ESRI (2007)
 *On-Site Wells = SEH Survey
 **DNR Well Logs = WIDNR
 Soil Borings = SEH Survey

Projection: Chippewa County Coordinates, Feet

Map by: R.J.H.

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map is accurate, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring measurement of distance or direction or precision in the depiction of geographic features. If errors or discrepancies are found please contact SEH GIS Services at (715) 723-8237. This user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.

611 Fenwick Drive
 Chippewa Falls, WI 54729
 PHONE: (715) 723-8200
 FAX: (715) 723-8205
 WWW: www.sehinc.com

PROJECT: 113677
DATE: 06/23/11

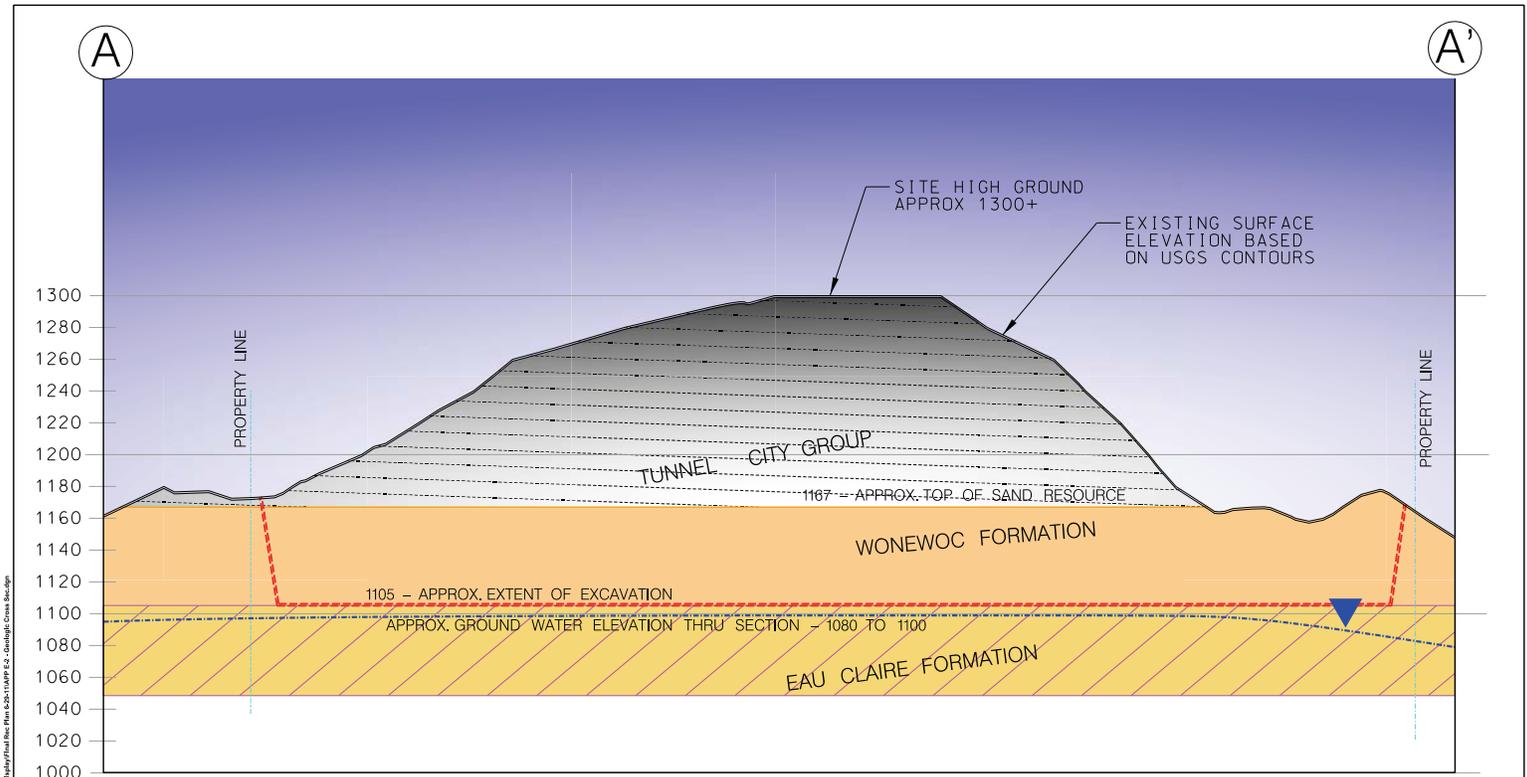
DS MINE

TOWN OF COOKS VALLEY, WI

**GROUNDWATER
 CONTOURS
 MAP**

**APPENDIX
 FIGURE
 E-1**

E-2 – Geologic Site Cross Section



ILLUSTRATIVE CROSS SECTION OF GEOLOGY
 SECTION A-A' LOOKING NORTHWEST
 (SEE GROUNDWATER CONTOUR MAP FOR LOCATION OF SECTION)

 <p>421 Fremont Drive Chippewa Falls, WI 54729 PHONE: (715) 720-6200 FAX: (715) 720-6300 WATTS: 800-525-2055 www.sehinc.com</p>	<p>PROJECT: 113677</p>		<p>DS MINE TOWN OF COOKS VALLEY, WI</p>	<p>GEOLOGIC CROSS SECTION</p>	<p>APPENDIX FIGURE E-2</p>
	<p>DATE: 06/29/11</p>				

Map Document: E:\Projects\113677\GIS\MapDocs\Geology\Section A-A'.indd 1

E-3 – Local Well Logs

WISCONSIN UNIQUE WELL NUMBER
Source: WELL CONSTRUCTION **KM832**

State of Wi-Private Water Systems-DG/2 Form 3300-77A
 Department Of Natural Resources, Box 7921 (Rev 02/02)bw
 Madison, WI 53707

Property Owner: **SARAUER, STEVE** Telephone Number: **715 -568 -1961**
 Mailing Address: **RT 2 BOX 190**
 City: **BLOOMER** State: **WI** Zip Code: **54724**
 County of Well Location: **9 CHIPPEWA** Co Well Permit No: **W W12549** Well Completion Date: **September 28, 1995**

1. Well Location Depth **200** FT
 T=Town C=City V=Village
T of COOK VALLEY Fire#
 Street Address or Road Name and Number
QUARRY ROCK LN
 Subdivision Name Lot# Block#

Well Constructor: **MICHAEL J WETTSTEIN** License #: **206** Facility ID (Public)
 Address: **RT 2 BOX 130C** Public Well Plan Approval#
 City: **EAU CLAIRE** State: **WI** Zip Code: **54703** Date Of Approval
 Hicap Permanent Well # Common Well # Specific Capacity: **gpm/ft**

Gov't Lot or **SW** 1/4 of **NE** 1/4 of
 Section **32 T 30 N R 10 W**

2. Well Type 1 (See item 12 below)
 1=New 2=Replacement 3=Reconstruction
 of previous unique well # _____ constructed in **0**
 Reason for replaced or reconstructed Well?
NEW HOME
1 1=Drilled 2=Driven Point 3=Jetted 4=Other

3. Well Serves # of homes and or
P (eg: barn, restaurant, church, school, industry, etc.) High Capacity: Well? **N** Property? **N**
 M=Munic O=OTM N=NonCom P=Private Z=Other X=NonPot A=Anode L=Loop H=Drillhole

4. Is the well located upslope or sideslope and not downslope from any contamination sources, including those on neighboring properties? **Y**
 Well located in floodplain? **N**
 Distance in feet from well to nearest: (including proposed)

1. Landfill	9. Downspout/ Yard Hydrant	17. Wastewater Sump
10 2. Building Overhang	10. Privy	18. Paved Animal Barn Pen
40 3. 1=Septic 2= Holding Tank	11. Foundation Drain to Clearwater	19. Animal Yard or Shelter
100 4. Sewage Absorption Unit	12. Foundation Drain to Sewer	20. Silo
5. Nonconforming Pit	13. Building Drain 1	21. Barn Gutter
6. Buried Home Heating Oil Tank	1=Cast Iron or Plastic 2=Other	22. Manure Pipe 1=Gravity 2=Pressure
7. Buried Petroleum Tank	25 14. Building Sewer 1 1=Gravity 2=Pressure	1=Cast iron or Plastic 2=Other
8. 1=Shoreline 2= Swimming Pool	15. Collector Sewer: ___ units ___ in. diam.	23. Other manure Storage
	16. Clearwater Sump	24. Ditch
		25. Other NR 812 Waste Source

Wellhole Dimensions and Construction Method			Lower Open Bedrock
Dia. (in.)	From (ft)	To (ft)	
10.0	surface	42	Upper Enlarged Drillhole -- 1. Rotary - Mud Circulation ----- -- 2. Rotary - Air ----- X -- 3. Rotary - Air and Foam ----- -- 4. Drill-Through Casing Hammer -- 5. Reverse Rotary -- 6. Cable-tool Bit _ n. dia ----- X -- 7. Temp. Outer Casing 10 in. dia. ____ depth ft. Removed? X Other
6.0	42	200	

Geology Codes	8. Type, Caving/Noncaving, Color, Hardness, etc	From (ft.)	To (ft.)
T_C_	BROWN CLAY	0	60
T_N_	BROWN SANDROCK	6	75
G_N_	LIGHT GRAY SANDROCK	75	170
T_N_	LIGHT BROWN SANDROCK	170	200

6. Casing Liner Screen			
Dia. (in.)	Material, Weight, Specification	From (ft.)	To (ft.)
6.0	NEW STEEL THREADED @ CUPPLED 20 LBS PER FT ASTM A53B 1800 PSI	surface	42
Dia. (in.)	Screen type, material & slot size	From	To
	NONE		

9. Static Water Level
110.0 feet **B** ground surface
 A=Above B=Below

11. Well Is: 15 in. **A** Grade
 A=Above B=Below

10. Pump Test
 Pumping level **110.0** ft. below surface
 Pumping at **12.0** GP M **3.0** Hrs
 Developed? **Y**
 Disinfected? **Y**
 Capped? **Y**

7. Grout or Other Sealing Material				
Method	Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
TREMIE PIPE PUMPED	CLEAR CEMENT @ WATER	surface	42.0	12 S

12. Did you notify the owner of the need to permanently abandon and fill all unused wells on this property? **Y**
 If no, explain

13. Initials of Well Constructor or Supervisory Driller **MW** Date Signed **10/4/95**
Initials of Drill Rig Operator (Mandatory unless same as above) **MW** Date Signed **10/4/95**

WISCONSIN UNIQUE WELL NUMBER
Source: ELECTRONICALLY **WL224**

State of WI-Private Water Systems-DG/2 Form 3300-77A
 Department Of Natural Resources, Box 7921 (Rev 02/02)bw
 Madison, WI 53707

Property Owner **JOHNSON, SCOTT** Telephone Number **715 -879 -4190**
 Mailing Address **129 PRINCETON DRIVE**

1. Well Location
 T=Town C=City V=Village
 T of **COOKS VALLEY** Fire#
 Depth **160** FT

ELK MOUND State WI Zip Code 54739

Street Address or Road Name and Number
1892 135TH AVENUE

County of Well Location **WC** Co Well Permit No **W 28454** Well Completion Date **October 30, 2007**

Subdivision Name Lot# Block #

Well Constructor **MICHAEL J WETTSTEIN** License # **206** Facility ID (Public)

Gov't Lot or **SE** 1/4 of **NE** 1/4 of

Address **WETTSTEIN WELL DRILLING** Public Well Plan Approval#

Section **31** T **30** N R **10** W

City **EAU CLAIRE** State **WI** Zip Code **54703** Date Of Approval

2. Well Type 1 (See item 12 below)
 1=New 2=Replacement 3=Reconstruction

Hicap Permanent Well # Common Well # Specific Capacity **3.8** gpm/ft

of previous unique well # _____ constructed in _____

3. Well Serves # of homes and or **P** (eg: barn, restaurant, church, school, industry, etc.)
 High Capacity: Well? **N** Property? **N**

Reason for replaced or reconstructed Well?
1 1=Drilled 2=Driven Point 3=Jetted 4=Other

4. Is the well located upslope or sideslope and not downslope from any contamination sources, including those on neighboring properties? **Y**

- Well located in floodplain? **N**
 Distance in feet from well to nearest: (including proposed)
- | | | |
|-----------------------------------|---|--------------------------------------|
| 1. Landfill | 9. Downspout/ Yard Hydrant | 17. Wastewater Sump |
| 15 2. Building Overhang | 10. Privy | 18. Paved Animal Barn Pen |
| 45 3. 1=Septic 2= Holding Tank | 11. Foundation Drain to Clearwater | 19. Animal Yard or Shelter |
| 150 4. Sewage Absorption Unit | 12. Foundation Drain to Sewer | 20. Silo |
| 5. Nonconforming Pit | 21 13. Building Drain 1 | 21. Barn Gutter |
| 6. Buried Home Heating Oil Tank | 1=Cast Iron or Plastic 2=Other | 22. Manure Pipe 1=Gravity 2=Pressure |
| 7. Buried Petroleum Tank | 32 14. Building Sewer 1 1=Gravity 2=Pressure | 1=Cast iron or Plastic 2=Other |
| 8. 1 1=Shoreline 2= Swimming Pool | 1=Cast Iron or Plastic 2=Other | 23. Other manure Storage |
| | 15. Collector Sewer: ___ units ___ in. diam. | 24. Ditch |
| | 16. Clearwater Sump | 25. Other NR 812 Waste Source |

Wellhole Dimensions and Construction Method			Upper Enlarged Drillhole	Lower Open Bedrock
From	To			
Dia.(in.)	(ft)	(ft)		
10.0	surface	42	-- 1. Rotary - Mud Circulation -----	
			-- 2. Rotary - Air -----	
			X -- 3. Rotary - Air and Foam -----	X
6.0	42	160	-- 4. Drill-Through Casing Hammer	
			-- 5. Reverse Rotary	
			-- 6. Cable-tool Bit _____ n. dia -----	
			X -- 7. Temp. Outer Casing 10 in. dia. 12 depth ft.	
			Removed? X	
			Other	

Geology Codes	8. Geology Type, Caving/Noncaving, Color, Hardness, etc	From (ft.)	To (ft.)
TVC_	Tan/Brown, Non-Caving, Clay	0	12
THN_	Tan/Brown, Hard/Firm, Sandstone	12	95
GHN_	Gray, Hard/Firm, Sandstone	95	133
THN_	Tan/Brown, Hard/Firm, Sandstone	133	160

6. Casing Liner Screen			
Dia. (in.)	Material, Weight, Specification	From (ft.)	To (ft.)
6.0	NEW STEEL THREADED AND CUPPLED 20 LBS PER FT ASTM A 53 B 1800 PSI	surface	42
Dia. (in.)	Manufacturer & Method of Assembly	From	To
	Screen type, material & slot size		

9. Static Water Level **110.0** feet **B** ground surface
 A=Above B=Below

10. Pump Test
 Pumping level **114.0** ft. below surface
 Pumping at **15.0** GP M **3.0** Hrs

11. Well Is: **19** in. **A** Grade
 A=Above B=Bclow
 Developed? **Y**
 Disinfected? **Y**
 Capped? **Y**

7. Grout or Other Sealing Material			
Method	Kind of Sealing Material	From (ft.)	To (ft.)
Tremie Pipe - Pumped	Neat cement grout	surface	42.0
			15 S

12. Did you notify the owner of the need to permanently abandon and fill all unused wells on this property? **Y**
 If no, explain

13. Initials of Well Constructor or Supervisory Driller **MW** Date Signed **11/5/07**
 Initials of Drill Rig Operator (Mandatory unless same as above) **MW** Date Signed **11/5/07**

WISCONSIN UNIQUE WELL NUMBER
Source: WELL CONSTRUCTION **LF684**

State of WI-Private Water Systems-DG/2 Form 3300-77A
 Department Of Natural Resources, Box 7921 (Rev 02/02)bw
 Madison, WI 53707

Property Owner **SCHINDLER, DENNIS** Telephone Number **715 -962 -3026**
 Mailing Address **RT 1 20TH ST BLUFF**

1. Well Location Depth **120** FT
 T=Town C=City V=Village
 T of **COOKS VALLEY** Fire#

COLFAX State WI Zip Code 54730

Street Address or Road Name and Number

County of Well Location **WC** Co Well Permit No **W13633** Well Completion Date **October 22, 1996**

Subdivision Name Lot# Block #

Well Constructor **KRAMER WELL DRILLING INC** License # **45** Facility ID (Public)

Gov't Lot or **NE** 1/4 of **NE** 1/4 of

Address **N3055 COUNTY W** Public Well Plan Approval#

Section **31** T **30** N R **10** W

City **WEYERHAEUSER** State **WI** Zip Code **54895** Date Of Approval

2. Well Type **1** (See item 12 below)

Hicap Permanent Well # Common Well # Specific Capacity **gpm/ft**

1=New 2=Replacement 3=Reconstruction
 of previous unique well # _____ constructed in **0**

3. Well Serves # of homes and or **P** (eg: barn, restaurant, church, school, industry, etc.)
 High Capacity: Well? **N** Property? **N**

Reason for replaced or reconstructed Well?
NEW HOME
1 1=Drilled 2=Driven Point 3=Jetted 4=Other

4. Is the well located upslope or sideslope and not downslope from any contamination sources, including those on neighboring properties? **N**

- Well located in floodplain? **N**
 Distance in feet from well to nearest: (including proposed)
- | | | |
|---------------------------------|---|--------------------------------------|
| 1. Landfill | 9. Downspout/ Yard Hydrant | 17. Wastewater Sump |
| 2. Building Overhang | 10. Privy | 18. Paved Animal Barn Pen |
| 3. 1=Septic 2= Holding Tank | 11. Foundation Drain to Clearwater | 19. Animal Yard or Shelter |
| 4. Sewage Absorption Unit | 12. Foundation Drain to Sewer | 20. Silo |
| 5. Nonconforming Pit | 10 13. Building Drain 1 | 21. Barn Gutter |
| 6. Buried Home Heating Oil Tank | 1=Cast Iron or Plastic 2=Other | 22. Manure Pipe 1=Gravity 2=Pressure |
| 7. Buried Petroleum Tank | 14. Building Sewer 1=Gravity 2=Pressure | 1=Cast iron or Plastic 2=Other |
| 8. 1=Shoreline 2= Swimming Pool | 15. Collector Sewer: ___ units ___ in . diam. | 23. Other manure Storage |
| | 16. Clearwater Sump | 24. Ditch |
| | | 25. Other NR 812 Waste Source |

5. Wellhole Dimensions and Construction Method

From (ft)	To (ft)	Upper Enlarged Drillhole	Lower Open Bedrock
10.0	surface	50	
6.0	50	120	

1. Rotary - Mud Circulation
 2. Rotary - Air
 3. Rotary - Air and Foam
 4. Drill-Through Casing Hammer
 5. Reverse Rotary
 6. Cable-tool Bit ___ n. dia
 7. Temp. Outer Casing **10** in. dia. ___ depth ft.
 Removed? X
 Other

8. Geology

Geology Codes	Type, Caving/Noncaving, Color, Hardness, etc	From (ft.)	To (ft.)
1	TOP SOIL	0	1
VC	NON CAVING BR CLAY	1	4
VN	NON CAVING YELLOW SANDSTONE	4	120

6. Casing Liner Screen

Dia. (in.)	Material, Weight, Specification	From (ft.)	To (ft.)
6.0	PE SAWHILL STEEL 19 LBS FT ASTM A53	surface	50

Dia. (in.) Screen type, material & slot size From To

9. Static Water Level
73.0 feet **B** ground surface
 A=Above B=Below

11. Well Is: 20 in. A Grade
 A=Above B=Below

Developed? **Y**
 Disinfected? **Y**
 Capped? **Y**

10. Pump Test
 Pumping level **90.0** ft. below surface
 Pumping at **10.0** GP M **2.0** Hrs

7. Grout or Other Sealing Material

Method	Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
TREMIE PRESSURE	NEAT CEMENT	surface	50.0	16 S

12. Did you notify the owner of the need to permanently abandon and fill all unused wells on this property?
 If no, explain

13. Initials of Well Constructor or Supervisory Driller **GJ** Date Signed **10/29/96**

Initials of Drill Rig Operator (Mandatory unless same as above) Date Signed

Additional Comments? Variance Issued?
 Owner Sent Label? **Y** More Geology?

WISCONSIN UNIQUE WELL NUMBER
Source: WELL CONSTRUCTION **DO252**

State of Wi-Private Water Systems-DG/2
 Department Of Natural Resources, Box 7921
 Madison, WI 53707
 Form 3300-77A
 (Rev 02/02)bw
 Depth 50.5 FT

Property Owner: JOSEPH SWARTZ Telephone: 715 -962 -3401
 Mailing Address: RT 1
 City: COLFAX State: WI Zip Code: 54730
 County of Well Location: CHIPPEWA WC Co Well Permit No: W03589 Well Completion Date: July 30, 1990

1. Well Location
 T=Town C=City V=Village
 T of COOKS VALLEY Fire#
 Street Address or Road Name and Number: CO A
 Subdivision Name Lot# Block#

Well Constructor: WETTSTEIN ROBERT License #: 506 Facility ID (Public)
 Address: RT 2 BOX 130C Public Well Plan Approval#
 City: EAU CLAIRE State: WI Zip Code: 54703 Date Of Approval
 Hicap Permanent Well # Common Well # Specific Capacity: gpm/ft

Gov't Lot or NE 1/4 of SW 1/4 of
 Section 30 T 30 N R 10 W

2. Well Type 1 (See item 12 below)
 1=New 2=Replacement 3=Reconstruction
 of previous unique well # _____ constructed in 0
 Reason for replaced or reconstructed Well?
NEED FOR WATER
 1 1=Drilled 2=Driven Point 3=Jetted 4=Other

3. Well Serves # of homes and or
 P (eg: barn, restaurant, church, school, industry, etc.)
 High Capacity: Well? N Property? N
 M=Munic O=OTM N=NonCom P=Private Z=Other X=NonPot A=Anode L=Loop H=Drillhole

4. Is the well located upslope or sideslope and not downslope from any contamination sources, including those on neighboring properties? Y
 Well located in floodplain? N
 Distance in feet from well to nearest: (including proposed)

1. Landfill	9. Downspout/ Yard Hydrant	17. Wastewater Sump
2. Building Overhang	10. Privy	18. Paved Animal Barn Pen
> 100 3. 1=Septic 2= Holding Tank	11. Foundation Drain to Clearwater	19. Animal Yard or Shelter
> 100 4. Sewage Absorption Unit	12. Foundation Drain to Sewer	65 20. Silo CONCRETE
5. Nonconforming Pit	13. Building Drain 1	68 21. Barn Gutter
6. Buried Home Heating Oil Tank	1=Cast Iron or Plastic 2=Other	22. Manure Pipe 1=Gravity 2=Pressure
7. Buried Petroleum Tank	90 14. Building Sewer 1 1=Gravity 2=Pressure	1=Cast iron or Plastic 2=Other
8. 1=Shoreline 2= Swimming Pool	11=Cast Iron or Plastic 2=Other	23. Other manure Storage
	15. Collector Sewer: ___ units ___ in. diam.	24. Ditch
	16. Clearwater Sump	25. Other NR 812 Waste Source

5. Drillhole Dimensions and Construction Method

From (ft)	To (ft)	Upper Enlarged Drillhole	Lower Open Bedrock
6.0	51	surface	

Construction Method:
 -- 1. Rotary - Mud Circulation
 -- 2. Rotary - Air
 -- 3. Rotary - Air and Foam
 -- 4. Drill-Through Casing Hammer
 -- 5. Reverse Rotary
 -- 6. Cable-tool Bit n. dia
 -- 7. Temp. Outer Casing in. dia. depth ft. Removed?
 Other

8. Geology

Geology Codes	Type, Caving/Noncaving, Color, Hardness, etc	From (ft.)	To (ft.)
T_Y_	BROWN SAND AND GRAVEL	0	50.5

6. Casing Liner Screen

Dia. (in.)	Material, Weight, Specification	From (ft.)	To (ft.)
6.0	NEW STEEL THREADED @ CUPPLED 20 LBS PER FT ASTMA53 B 1780 PSI	surface	48
Dia.(in.)	Screen type, material & slot size	From	To
6.0	JOHNSON STAINLESS STEEL	48	51

9. Static Water Level
 23.0 feet B ground surface
 A=Above B=Below

11. Well Is: 16 in. A Grade
 A=Above B=Below

10. Pump Test
 Pumping level 23.0 ft. below surface
 Pumping at 18.0 GP 3.0 Hrs
 Developed? Y
 Disinfected? Y
 Capped? Y

7. Grout or Other Sealing Material

Method	From (ft.)	To (ft.)	# Sacks Cement
Kind of Sealing Material	surface		

12. Did you notify the owner of the need to permanently abandon and fill all unused wells on this property? Y
 If no, explain

13. Initials of Well Constructor or Supervisory Driller RW Date Signed 8/31/90
Initials of Drill Rig Operator (Mandatory unless same as above) MW Date Signed 8/31/90

WISCONSIN UNIQUE WELL NUMBER
Source: WELL CONSTRUCTION **CM017**

State of WI-Private Water Systems-DG/2 Form 3300-77A
 Department Of Natural Resources, Box 7921 (Rev 02/02)bw
 Madison, WI 53707

Property Owner THOMAS-SCHINDLER Telephone Number 715 -568 -1034
 Mailing Address RT 2 BOX 183

1. Well Location
 T=Town C=City V=Village
 T of COOKS VALLEY Fire#
 Depth 185 FT

BLOOMER State WI Zip Code 54724
 County of Well Location WC Co Well Permit No W W04824 Well Completion Date May 21, 1991

Street Address or Road Name and Number MOUNTAIN RD
 Subdivision Name Lot# Block #

Well Constructor MICHAEL J WETTSTEIN License # 206 Facility ID (Public)
 Address RT 2 BOX 130C Public Well Plan Approval#
 City EAU CLAIRE State WI Zip Code 54703 Date Of Approval
 Hicap Permanent Well # Common Well # Specific Capacity gpm/ft

Gov't Lot or SE 1/4 of NW 1/4 of Section 29 T 30 N R 10 W
2. Well Type 1 (See item 12 below)
 1=New 2=Replacement 3=Reconstruction
 of previous unique well # _____ constructed in 0

3. Well Serves # of homes and or P (eg: barn, restaurant, church, school, industry, etc.)
 High Capacity: Well? N Property? N
 M=Munic O=OTM N=NonCom P=Private Z=Other X=NonPot A=Anode L=Loop H=Drillhole

Reason for replaced or reconstructed Well?
NEW HOME
 1 1=Drilled 2=Driven Point 3=Jetted 4=Other

- 4. Is the well located upslope or sideslope and not downslope from any contamination sources, including those on neighboring properties?** Y
 Well located in floodplain? N
 Distance in feet from well to nearest: (including proposed)
- | | | |
|---------------------------------|--|--------------------------------------|
| 1. Landfill | 9. Downspout/ Yard Hydrant | 17. Wastewater Sump |
| 10 2. Building Overhang | 10. Privy | 18. Paved Animal Barn Pen |
| 65 3. 1=Septic 2= Holding Tank | 11. Foundation Drain to Clearwater | 19. Animal Yard or Shelter |
| 75 4. Sewage Absorption Unit | 12. Foundation Drain to Sewer | 20. Silo |
| 5. Nonconforming Pit | 30 13. Building Drain 1 | 21. Barn Gutter |
| 6. Buried Home Heating Oil Tank | 1=Cast Iron or Plastic 2=Other | 22. Manure Pipe 1=Gravity 2=Pressure |
| 7. Buried Petroleum Tank | 50 14. Building Sewer 1 1=Gravity 2=Pressure | 1=Cast iron or Plastic 2=Other |
| 8. 1=Shoreline 2= Swimming Pool | 1 1=Cast Iron or Plastic 2=Other | 23. Other manure Storage |
| | 15. Collector Sewer: ___ units ___ in. diam. | 24. Ditch |
| | 16. Clearwater Sump | 25. Other NR 812 Waste Source |

5. Wellhole Dimensions and Construction Method

From (ft)		To (ft)	Upper Enlarged Drillhole	Lower Open Bedrock
10.0	surface	46	-- 1. Rotary - Mud Circulation -----	
			-- 2. Rotary - Air -----	
			X -- 3. Rotary - Air and Foam -----	
			-- 4. Drill-Through Casing Hammer	
6.0	46	185	-- 5. Reverse Rotary	
			-- 6. Cable-tool Bit _ n. dia -----	
			X -- 7. Temp. Outer Casing _10_ in. dia. ___ depth ft.	
			Removed? X	
			Other	

8. Geology

Geology Codes	Type, Caving/Noncaving, Color, Hardness, etc	From (ft.)	To (ft.)
T_X_	BROWN SAND AND CLAY	0	10
T_N_	LIGHT BROWN SANDROCK	10	75
T_N_	BROWN SANDROCK	75	145
T_N_	LIGHT BROWN SANDROCK	145	185

6. Casing Liner Screen

Dia. (in.)	Material, Weight, Specification	From (ft.)	To (ft.)
6.0	NEW STEEL THREADED AND CUPPLED 20 LBS PER FT ASTMA53B 1780 PSI	surface	46

9. Static Water Level 115.0 feet ground surface A=Above B=Below
10. Pump Test Pumping level 115.0 ft. below surface Disinfected? Y
 Pumping at 12.0 GP 5.0 Hrs Capped? Y

7. Grout or Other Sealing Material

Method	Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
PRESSURE TREMIE LINE	CLEAR CEMENT @ WATER	surface	46.0	15

11. Well Is: 20 in. A Grade A=Above B=Below
 Developed? Y
12. Did you notify the owner of the need to permanently abandon and fill all unused wells on this property? Y
 If no, explain
13. Initials of Well Constructor or Supervisory Driller MW Date Signed 6/14/91
 Initials of Drill Rig Operator (Mandatory unless same as above) MW Date Signed 6/14/91

Additional Comments? Variance Issued?
 Owner Sent Label? Y More Geology?

E-4 – On-site Soil Boring Logs

Project Name: Denny S Property; Town of Cooks Valley, WI Client Name: Canadian Sand and Proppant

Borehole Location: Sheet 1 of 1

Borehole Number: B-05 Driller: J. Hernandez Logger: M. Hernandez

Drilling Equipment: CME-750 Borehole Diameter (in.): 7.50 Date Started: 5-26-10 Date Finished: 5-26-10

Elevation and Datum: Ground: Casing: Notes: 4.25" HSA 0' to 20' - Air Rotary 20' to 95'

DEPTH (ft)	DRILL				RECOVERY (%)	STANDARD PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	LIQUID LIMIT	PLASTICITY INDEX	MINUS NO. 200 (%)	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	REMARKS
	OPERATION TYPES	PRESSURE (mph)	RATE (mph)	CORE PERCENT RECOVERY											
0															
5.00													SILTY SAND, tan and brown, moist (SM)	5.00	
10.00													SAND, fine to medium grained, light brown, moist (SP)	10.00	
20.00													SAND, fine to medium grained, tan, moist (SP)	20.00	
30.00														30.00	
40.00													SANDSTONE, fine grained, tan, moist	40.00	
50.00													SANDSTONE, fine grained, yellowish brown, moist	50.00	
60.00														60.00	
70.00													SANDSTONE, fine grained, reddish brown, moist	70.00	
80.00														80.00	
90.00														90.00	
91.00													SANDSTONE, fine grained, reddish brown, waterbearing	91.00	
100.00														100.00	

End of Boring @ 100'

Sampler Types: Split Spoon Shelby Bulk Sample Grab Sample Flight Auger Vane Shear California Testpit	Operation Types: Mud Rotary Hand Auger Wash Rotary Auger Air Rotary Diamond Core Drive Casing	WATER LEVEL OBSERVATIONS While Drilling ∇ 91.00 ft Upon Completion of Drilling ∇ _____ ft Time After Drilling _____ Depth To Water (ft) _____ Remarks: _____	
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TETRA TECH CHIP FALLS ENGLISH 830166.GPJ TETRATECHTEMPLATE.GDT 7/23/10

TETRA TECH 1837 CTH "OO" Chippewa Falls, Wisconsin Phone 715-832-0282 Fax 715-832-0541	LOG OF EXPLORATORY BORING B-05	
	Project Number 114-830166	Figure B-05

Project Name: Denny S Property; Town of Cooks Valley, WI Client Name: Canadian Sand and Proppant

Borehole Location: Sheet 1 of 1

Borehole Number: B-46 Driller: T. Fields Logger: E. Anderson

Drilling Equipment: CME-750 Borehole Diameter (in.): 7.50 Date Started: 4-26-10 Date Finished: 4-26-10

Elevation and Datum: Ground: Casing: Notes: 4.25" HSA 0' to 20' - Air Rotary 20' to 75'

DEPTH (ft)	DRILL										GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	REMARKS	
	OPERATION TYPES	PRESSURE (mph)	RATE (mph)	CORE PERCENT RECOVERY	ROCK QUALITY DESIGNATION (RQD)	SAMPLE	RECOVERY (%)	STANDARD PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)					LIQUID LIMIT
0														1.70	
5														5.00	
10														10.00	
20														20.00	
30														40.00	
40														55.00	
50														70.00	
60														75.00	
70															
End of Boring @ 75'															

Sampler Types:

	Split Spoon		Flight Auger
	Shelby		Vane Shear
	Bulk Sample		California
	Grab Sample		Testpit

Operation Types:

	Auger
	Mud Rotary
	Hand Auger
	Wash Rotary
	Air Rotary
	Diamond Core
	Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ∇ 31.00 ft Upon Completion of Drilling ∇ _____ ft

Time After Drilling _____

Depth To Water (ft) _____

Remarks: _____

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TETRA TECH 1837 CTH "OO" Chippewa Falls, Wisconsin Phone 715-832-0282 Fax 715-832-0541	LOG OF EXPLORATORY BORING B-46	
	Project Number 114-830166	Figure B-46

Project Name: Denny S Property; Town of Cooks Valley, WI Client Name: Canadian Sand and Proppant

Borehole Location: Sheet 1 of 1

Borehole Number: B-38 Driller: T. Fields Logger: E. Anderson

Drilling Equipment: CME-750 Borehole Diameter (in.): 7.50 Date Started: 4-27-10 Date Finished: 4-27-10

Elevation and Datum: Ground: Casing: Notes: 4.25" HSA 0' to 15' - Air Rotary 15' to 100'

DEPTH (ft)	DRILL		CORE PERCENT RECOVERY	ROCK QUALITY DESIGNATION (RQD)	SAMPLE	RECOVERY (%)	STANDARD PENETRATION TEST (blows/ft) SPT	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	LIQUID LIMIT	PLASTICITY INDEX	MINUS NO. 200 (%)	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	REMARKS
	OPERATION TYPES	PRESSURE (mph)														
0														TOPSOIL (20")	1.70	
1.70														SILTY CLAY WITH SAND, brown, moist (CL-ML)	13.00	
13.00														SANDSTONE, fine grained, light brown and whitish brown, moist	45.00	
45.00														SANDSTONE, fine grained, light brown and whitish brown, waterbearing	60.00	
60.00														SANDSTONE, fine grained, brown, waterbearing	65.00	
65.00														SANDSTONE, fine grained, grayish brown, waterbearing	80.00	
80.00														SANDSTONE, fine grained, brown, waterbearing	100.00	
100.00																End of Boring @ 100'

Split Spoon	Flight Auger
Shelby	Vane Shear
Bulk Sample	California
Grab Sample	Testpit

Auger
Air Rotary
Mud Rotary
Hand Auger
Wash Rotary
Diamond Core
Drive Casing

WATER LEVEL OBSERVATIONS	
While Drilling	Upon Completion of Drilling
∇ 44.00 ft	∇ 47.00 ft
Time After Drilling	
Depth To Water (ft)	
Remarks:	

TETRA TECH
 1837 CTH "OO"
 Chippewa Falls, Wisconsin
 Phone 715-832-0282 Fax 715-832-0541

LOG OF EXPLORATORY BORING B-38

Project Number	114-830166	Figure	B-38
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TETRA TECH CHIPP... FALLS ENGLISH 830166.GPJ TETRATECHTEMPLATE.GDT 7/23/10

Project Name: Denny S Property; Town of Cooks Valley, WI Client Name: Canadian Sand and Proppant
 Borehole Location: Sheet 1 of 1
 Borehole Number: B-21 Driller: N. Dispensa Logger: A. Peters
 Drilling Equipment: CME-750 Borehole Diameter (In.): 7.50 Date Started: 5-6-10 Date Finished: 5-6-10

Elevation and Datum: Ground: Casing: Notes: 4.25" HSA 0' to 20' - Air Rotary 20' to 95'

DEPTH (ft)	DRILL		CORE PERCENT RECOVERY	ROCK QUALITY DESIGNATION (RQD)	SAMPLE	RECOVERY (%)	STANDARD PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	LIQUID LIMIT	PLASTICITY INDEX	MINUS NO. 200 (%)	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	REMARKS
	OPERATION TYPES	PRESSURE (mph)														
0-5														LEAN CLAY, brown, moist (CL)	5.00	
5-20														SILTY CLAY WITH SAND, brown, moist (CL-ML)	20.00	
20-25														SANDSTONE, fine to medium grained, light brown, moist	30.00	
25-30														SANDSTONE, fine to medium grained, whitish brown and brown, moist	35.00	
30-35														SANDSTONE, fine to medium grained, tan, moist	40.00	
35-40														SANDSTONE, fine grained, brown, moist	55.00	
40-45														SANDSTONE, fine grained, whitish brown, moist	60.00	
45-50														SANDSTONE, fine grained, white and orange, moist	80.00	
50-55														SANDSTONE, fine grained, tan, moist	85.00	
55-60														SANDSTONE, fine grained, tan and white, moist	90.00	
60-65														SANDSTONE, fine grained, orangish brown, moist	95.00	

End of Boring @ 95'

Sampler Types: Split Spoon Shelby Bulk Sample Grab Sample Flight Auger Vane Shear California Testpit	Operation Types: Mud Rotary Hand Auger Wash Rotary Auger Air Rotary Diamond Core Drive Casing	WATER LEVEL OBSERVATIONS While Drilling ∇ 88.00 ft Upon Completion of Drilling ∇ _____ ft Time After Drilling _____ Depth To Water (ft) _____ Remarks: _____	
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TETRA TECH CHIP: ... FALLS ENGLISH 830166.GPJ TETRATECHTEMPLATE.GDT 7/23/10

TETRA TECH 1837 CTH "OO" Chippewa Falls, Wisconsin Phone 715-832-0282 Fax 715-832-0541	LOG OF EXPLORATORY BORING B-21	
	Project Number 114-830166	Figure B-21

Project Name: Denny S Property; Town of Cooks Valley, WI Client Name: Canadian Sand and Proppant

Borehole Location: Sheet 1 of 1

Borehole Number: B-07 Driller: J. Hernandez Logger: M. Hernandez

Drilling Equipment: CME-750 Borehole Diameter (in.): 7.50 Date Started: 5-27-10 Date Finished: 5-27-10

Elevation and Datum: Ground: Casing: Notes: 4.25" HSA 0' to 20' - Air Rotary 20' to 50'

DEPTH (ft)	DRILL		CORE PERCENT RECOVERY	ROCK QUALITY DESIGNATION (RQD)	SAMPLE	RECOVERY (%)	STANDARD PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	LIQUID LIMIT	PLASTICITY INDEX	MINUS NO. 200 (%)	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	REMARKS
	OPERATION TYPES	PRESSURE (mph)														
0														TOPSOIL	2.00	
10														LEAN CLAY, brown, moist	10.00	
20														LEAN CLAY WITH SAND, brown, moist	15.00	
30														SILTY SAND, brown, moist	20.00	
40														SANDSTONE, fine to medium grained, golden tan, moist	46.00	
50														End of Boring @ 46'		

Sampler Types:

- Split Spoon
- Shelby
- Bulk Sample
- Grab Sample
- Flight Auger
- Vane Shear
- California
- Testpit

Operation Types:

- Auger
- Mud Rotary
- Hand Auger
- Wash Rotary
- Air Rotary
- Diamond Core
- Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ∇ 46.00 ft Upon Completion of Drilling ∇ _____ ft

Time After Drilling _____

Depth To Water (ft) _____

Remarks: _____

TETRA TECH CHIPP. - FALLS ENGLISH 830166.GPJ TETRA TECH TEMPLATE.GDT 7/23/10

TETRA TECH 1837 CTH "OO" Chippewa Falls, Wisconsin Phone 715-832-0282 Fax 715-832-0541	LOG OF EXPLORATORY BORING B-07	
	Project Number 114-830166	Figure B-07