

Location of Well

City of Fredericksburg -
 Well #3
 Fredericksburg, IA 50630
 T94N R11W

County Chickasaw
 Township Fredericksburg
 Section 18
 Quarters NWSE

Customer Information

CITY OF FREDERICKSBURG

FREDERICKSBURG, IA
 50630

Contact Date **12/29/2004**
 Confirmation
 Date

Contact Information

Home Ph:
 Work Ph:
 Cell Ph:
 Fax:

Best time to call:
 Email:
 Customer since:
 Referred By:

Job Information

Latitude
 Longitude

PWTS # **PWSID: 1940068,**
WLO3
 Permit
 Number **2010-057W**

Confirmation
 Start Date **2/4/2010**
 End Date **3/5/2010**

Warranty
 Date
 Warranty

Well Site Information

Actual Size **16" and 10"**

Depth **1221'**

Elevation
 SWL **255'**
 RPS
 Max GPM **1750'**

Pump Inst - Liner-
 ft

Sulfide - Screen -

**292' @
 45 GPM;
 577' @
 1000
 GPM;
 585' @
 500
 GPM**

Made Water

Air Lift **1150' @ 1500
 GPM**

Screen Size

Exploratory -- To Ft
 Mock Rock -- Acidize --
 Well Use

Slot Size
 Riser Pipe
 Set From
 Perforated From
 Tail Pipe

Driller **Dave Halweg; Cert #: 2814**

Remarks:

DRILL METHOD: Rotary; WELL USE: Municipal

Well Formation Log

From-To	Color	Formation
0 - 3		Topsoil
3 - 10	Red	Sand
10 - 14	Blue	Clay
14 - 16		Sand
16 - 36		Sandy - Clay
36 - 44	Blue	Clay - Hard
44 - 46	Blue	Clay
46 - 52		Sand - Gravel
52 - 64	Blue	Clay - Medium Sand
64 - 98	Blue	Clay
98 - 106		Sand - Gravel
106 - 126	Blue	Clay
126 - 178	Blue	Clay - Firm
178 - 203	Blue	Clay
203 - 214	Blue	Clay
214 - 224	Blue - Green	Shale
224 - 228	Gray	Shale - Hard
228 - 231	Gray	Shale - Hard
231 - 258	Blue - Green	Shale - Medium
258 - 264	Blue	Shale - Limerock - Streaks
264 - 275	Lt. Brown	Limestone
275 - 285	Lt. Brown	Limestone
285 - 324	Brown	Limestone
324 - 383	Blue	Shale
383 - 407	Brown	Limestone
407 - 438	Dark Brown	Limestone
438 - 552	Brown	Limestone
552 - 585	Brown	Limestone
585 - 602	Lt. Brown	Limestone
602 - 647	Dark Brown	Limestone

Bore Log

From-To	Bit Size - Number	
0 - 44	12 1/4 Bl -Cone	AC3991
0 - 41	26"	2600
44 - 228	6 1/2" Roller Cone	730227
53 - 118	7 7/8" Roller Cone	58755372
54 - 280	20" Hole Opener	SHAW20HB
280 - 724	15" Hammer	6509482007
724 - 835	14.74 Roller Cone	3X0200407
835 - 1195	9 7/8" Hammer	08110084
1195 -		
1221	9 7/8"	2445

Well Casing Log

From-To	Casing	
0 - 280	16" OD x .375 wall, structural grade, steel casing	
0 - 41	22" OD x structural grade	
280 - 835	10.75" OD x .365 wall, structural grade casing	
	Screen Size	
	Slot Size	Set From
	Riser Pipe	Tail Pipe

Well Grout Used

Amount	Type
1104 sacks	Neat Cement
12 sacks	Holeplug
16 sacks	EZ Seal
13 sacks	Casing Seal
42 sacks	Soda Ash
140 sacks	Polarset
9 sacks	High Early
226 sacks	Quick Gel

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647 - 654	Gray	Shale - Rock
654 - 660	Blue	Shale
660 - 703	Brown - Gray	Limestone
703 - 710	Blue	Shale
710 - 720	Lt. Brown	Limestone
720 - 724	Dark Blue - Gray	Shale
724 - 730	Brown - Gray	Limestone & Shale
730 - 733	Brown	Limestone
733 - 736	Blue	Shale
736 - 788		St. Peter Sandstone
788 - 791	Blue	Shale - Sandstone
791 - 800	Brown	Limestone
800 - 817	Blue - Brown	Limestone & Shale
817 - 824	Blue - Gray	Limestone
824 - 832	Brown	Limestone & Shale
832 - 835	Dark Brown	Limestone
835 - 872	Cream	Limestone
872 - 946	Cream - Red	Limestone
946 - 950		Sandstone
950 - 1031	Cream - Brown	Limestone
1031 - 1034		Soft Limestone
1034 - 1058	Lt. Gray	Limestone
1058 - 1101	Lt. Brown	Limestone
1101 - 1156	Brown	Limestone
1156 - 1168		Soft Limestone
1168 - 1187		Sandstone - Firm
1187 - 1190	Blue	Limestone & Shale
1190 - 1193		Sandstone - Firm
1193 - 1195		Limestone & Shale
1195 - 1197	Blue	Limestone & Shale
1197 - 1221	White	Sandstone - Running

9 sacks	Quick Trol
86 sacks	Quick Trol LV

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City of Fredericksburg

Well #3

Fredericksburg, IA

Public Water ID #1940068

Well ID # WL03

Started 2/4/10, Completed 3/5/10

GPS: N 42.96023 x W -92.19459

Log of Well

0'	to	3'	Top Soil – Coarse
3'	to	10'	Red Sand
10'	to	14'	Blue Clay
14'	to	16'	Sand
16'	to	36'	Soft, Sandy Clay
36'	to	44'	Blue Clay – Hard
44'	To	46'	Blue Clay
46'	to	52'	Sandy Gravel & Pea Rock
52'	to	64'	Sand Mixed with Blue Clay
64'	to	98'	Blue Clay
98'	to	106'	Sand and Gravel
106'	to	126'	Blue Clay
126'	to	178'	Blue Clay – Medium Firm
178'	to	203'	Blue Clay
203'	to	214'	Blue Clay
214'	to	224'	Blue Green Shale
224'	to	228'	Gray Shale - Hard
228'	to	231	Gray Shale – Hard
231'	to	258'	Blue Green Shale – Medium
258'	to	264'	Blue Shale with Limestone Streaks
264'	to	275'	Light Brown Limestone (Ft. Atkinson)
275'	to	285'	Light Brown Limestone (Ft. Atkinson)
285'	to	324'	Brown Limestone (Ft. Atkinson)
324'	to	383'	Blue Shale
383'	to	407'	Brown Limestone
407'	to	438'	Dark Brown Limestone
438'	to	552'	Brown Limestone (Galena)
552'	to	585'	Brown Limestone (Galena) & porous
585'	to	602'	Light Brown Limestone (Galena)
602'	to	647'	Dark Brown Limestone (Galena)
647'	to	654'	Gray Shale Rock
654'	to	660'	Blue Shale
660'	to	703'	Brown & Gray Limestone

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703'	to	710'	Blue Shale
710'	to	720'	Light Brown Limestone
720'	to	724'	Dark Gray & Blue Shale
724'	to	730'	Brown & Gray Limestone & shale
730'	to	733'	Brown Limestone
733'	to	736'	Blue Shale
736'	to	788'	St. Peter Sandstone
788'	to	791'	Blue Shale & Sandstone
791'	to	800'	Brown Limestone (top of Prairie du Chien)
800'	to	817'	Blue & Brown Limestone & Shale
817'	to	824'	Blue & Gray Limestone
824'	to	832'	Brown Limestone and Shale
832'	to	835'	Dark Brown Limestone
835'	to	872'	Cream Limestone
872'	to	946'	Cream Limestone with red tint
946'	to	950'	Sandstone
950'	to	1031'	Brown Cream Limestone
1031'	to	1034'	Soft Limestone
1034'	to	1058'	Light Gray Limestone
1058'	to	1101'	Light Brown Limestone
1101'	to	1156'	Brown Limestone
1156'	to	1168'	Soft & Runs - Limestone
1168'	to	1187'	Firm Sandstone
1187'	to	1190'	Blue Limestone & Shale
1190'	to	1193'	Firm Sandstone (Jordan)
1193'	to	1195'	Light Limestone & Shale
1195'	to	1197'	Blue Limestone & Shale
1197'	to	1221'	White Sandstone (Jordan)

Construction Record

The well was constructed by drilling a 26" diameter hole to 41' and installing 44'3" of 22" OD, structural grade, surface casing. The well is then cased to 280' below grade with 16" OD X .375 wall, structural grade, steel casing. A 20" hole was drilled to 280' to facilitate installation of the 16" casing and grout. The 16" casing was pressure grouted with neat cement grout utilizing a grout shoe and 2" tremie. A 15" hole was then drilled to 835' and 836' of 10.75" OD X .365 wall, A53 B steel casing was installed. A grout shoe was installed on the bottom of the casing. The 10" casing was then pressure grouted with neat cement grout.

A 9.875" hole was then drilled to a final depth of 1,221'. The static water level upon completion was 255'. The well was test pumped at a rate of 400 gallons per minute for 24 hours. The water drew down to a final pumping level of 276.584'. The well pumped sand free @ a rate of approximately 550 GPM.