75325

Shawver Well Company, Inc.
2700 Stanley Avenue
Fredericksburg, IA 50630

(563) 237-5341
(800) 568-4449

Location of Well

Louise St and Charles St Intersection
Charlotte, IA 52731

T83N R4E

County **Clinton**
Township **Waterford**
Section **26**
Quarters **SW**

Customer Information

Bob Meyers
Engineer
City of Charlotte
GM Engineering and Surveying
125 39th Avenue
East Moline, IL 61244

Job Information

Area **FB**
T83N R4E
Latitude
Longitude
PWTS #
Permit Number

Confirmation
Start Date **9/26/2012**
End Date **10/11/2012**
Warranty Date
Warranty

Well Site Information

Actual Size **10"**
Depth **160'**
Elevation
SWL
RPS
Max GPM
Air Lift **160' @ 59 GPM; 90' @ 41 GPM**
Exploratory -- To Ft --
Mock Rock Acidize --
Well Use

Pump Inst --
Sulfide --
Made Water **59' - 60'; 76'**
Screen Size
Slot Size
Riser Pipe
Set From
Perforated From
Tail Pipe

Liner ✔ 92ft
Screen--

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

Remarks:
Acidized with 900 gallons

Well Formation Log

From-To	Color	Formation
0 - 9	Brown	Clay
9 - 14	Brown	Clay - Sand
14 - 17		Sand
17 - 58	Orange - Yellow	Limestone
58 - 62	Brown	Clay - Limey - Shaley
62 - 76	Gray - Cream	Limestone
76 - 77	Gray	Limestone - Soft
77 - 79	Gray	Limestone
79 - 81	Blue - Green	Shale & Limestone
81 - 108	Blue - Green	Shale
108 - 110	Gray	Limestone
110 - 139	Blue	Shale
139 - 155	Blue - Gray	Shale & Limestone
155 - 160	Blue	Shale

Bore Log

From-To	Bit Size - Number
0 - 21	19"
0 - 23	12 1/4"
21 - 160	9 7/8"
21 - 71	15"

Well Casing Log

From-To	Casing
0 - 71	10" x Steel
2 - 0	10" x Steel
68 - 160	8.625" OD x .322 wall steel liner

Screen Size
Slot Size — Set From
Riser Pipe — Tail Pipe

Well Grout Used

Amount	Type
95 sacks	Neat Cement
6 sacks	High Early
6 sacks	Holeplug
12 sacks	EZ Seal

Received - 11/02/2012

City of Charlotte
Well #5

Charlotte, IA

PWS# 2324016 FACILITY # WL05

Started 09/26/12, Completed 10/11/12

Log of Well

0’	to	9’	Brown Clay
9’	to	14’	Sandy Brown Clay
14’	to	17’	Sand
17’	to	58’	Orange/Yellow Limestone
58’	to	62’	Brown Clay Shale & Limestone
62’	to	76’	Gray/Crème Limestone
76’	to	77’	Soft Gray Limestone
77’	to	79’	Gray Limestone
79’	to	81’	Blue/Green Shale & Limestone
81’	to	108’	Blue/Green Shale
108’	to	110’	Gray Limestone
110’	to	139’	Blue Shale
139’	to	155’	Blue/Gray Shale & Limestone
155’	to	160’	Blue Shale

Construction Record

A 19” hole was drilled to a depth of 21’ and 22’ of 16” surface casing was installed, grouted and removed upon completion of the well. A 15” hole was then drilled to 71’, which is the bottom of the casing. 73’ of 10.75” OD x .365” A53B primary casing was installed and grouted with 101 sacks of neat cement. A 9.875” hole was then drilled to the final well depth of 160’. 92’ of an 8” ID steel liner was then installed from 68’ to 160’ and was perforated from 71½’ to 79’ while the remainder of the liner was left solid, non-perforated. The well was then airlifted until clear. The static water level upon completion was at a depth of 37’

The well had a static water level of 39.4’, upon completion. The final pumping water level was 69’ at a flow rate of 70 GPM.

SECTION 11216

w75325

SUBMERSIBLE PUMPS

PART 1 GENERAL

1.1 WORK INCLUDES

A. Submersible motor-driven pump including: motor and pump; discharge column assembly; bowl assembly; suction pipe and strainer; power cable; water level indicators; and accessories and fittings.

1.2 SUBMITTALS

A. Product Data:
1. Submit certified pump curves showing pump performance characteristics with pump and system operating point plotted.
2. Include NPSH curve.

B. Submit 2 copies of start-up report to Engineer.

C. Submit shop drawings, manufacturer's operation, maintenance, and installation instructions under provisions of Section 01300.

PART 2 PRODUCTS

2.1 SUBMERSIBLE VERTICAL TURBINE PUMP

A. Operating Conditions:

1. Size of well (inside diameter)	10	inches
2. Size of Liner Pipe	8	inches
3. Depth of well	160	feet
4. Static water level below top of well	55	feet
5. Pumping level below top of well	69	feet
6. Pump mounting level below top of well	90	feet
7. Pumping head above top of well (static)	100	feet
8. Total pumping head	178	feet
9. Capacity of pump	60	GPM

B. Total pumping head does not include losses in pumping unit, which must be evaluated by Contractor.
1. Provide maximum field efficiency of pump unit.
2. Consideration will be given to overall pumping costs.

C. Bowl Assembly:
1. Impellers: Bronze; accurately fitted, smoothly finished and balanced to give smooth efficient operation.

system.

3. After flushing, collect water samples from treated system on 2 successive days, and demonstrate satisfactory bacteriological results from laboratory approved by Iowa Department of Natural Resources.
4. Should initial treatment prove unsatisfactory by test, repeat tests until satisfactory results are obtained.

3.5 PUMP SCHEDULE

Location	Well #5
Manufacturer	Grundfos, or equal
Model	~~60SE6-9~~
Pumping Requirement	
Capacity	60 GPM
Maximum Head (TOH)	178 Ft.
Stages	12
Efficiency	58% (Min.)
Motor Horsepower	5 HP
RPM	3450
Column Pipe Size	3"
Electrical Service	280 ~~460~~ Volt; 3 Phase
Miscellaneous Requirements	1. Trim each stage to meet head/discharge condition given. 2. Grundfos or equal.

90' of 3 inch column