

48365

Withdraw Permit

Iowa Department of Natural Resources Geological Survey Bureau
109 Trowbridge Hall Iowa City, Ia. 52242-1319 PH (319) 335-1575

WELL RECORD

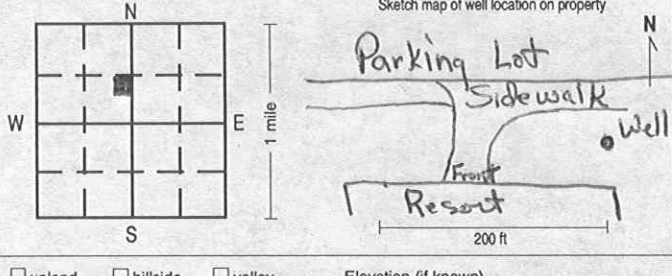
Permit No. _____

Site identification
 Property Owner Cutty's of Okoboji Well Number _____
 Address 1538 Hwy 86 Spirit Lake, IA
 Tenant _____
 Well Depth 96 ft Date Completed 01 / 23 / 98

Drill method rotary auger cable other _____
Hole size
14 inch from 0 ft to 100 ft hole size continued _____ inch from _____ ft to _____ ft
 _____ inch from _____ ft to _____ ft _____ inch from _____ ft to _____ ft
 Record all depth measurements from ground level (GL). Use (+) for above GL measurements.

Location County Dickinson
1/2 mi. N and 1/8 mi. W of intersection of 9 and 86
NE 1/4 of the SE 1/4 of the NW 1/4 of Sec 2 TWP 99 RNG 37 E W
 Show exact location of well in section grid with a dot (•).
 Sketch map of well location on property

Casing Drive shoe (yes/no) Pitless adaptor (yes/no)
 Size (ID/OD) Type / Wt Depth top Depth bottom Amount (length)
8" ID PVC/200# 2'+ 80 82'



Perforated or slotted casing? (yes/no)
 Perforated / slotted from _____ ft to _____ ft
 Perforated / slotted from _____ ft to _____ ft

upland hillside valley Elevation (if known) _____

Casing grouted? (yes/no)

Type	Depth Top	Depth Bottom	Amount
<u>Bentonite</u>	<u>10'</u>	<u>65'</u>	<u>250 gallons</u>
<u>Cement</u>	<u>7'</u>	<u>10'</u>	<u>15 gallons</u>

Formation log

From	To	Color	Hardness	Formation description
<u>0</u>	<u>2</u>			<u>Fill Material</u>
<u>2</u>	<u>4</u>			<u>Topsoil</u>
<u>4</u>	<u>38</u>			<u>Yellow Clay</u>
<u>38</u>	<u>68</u>			<u>Blue Clay</u>
<u>68</u>	<u>75</u>			<u>Fine Sand</u>
<u>75</u>	<u>85</u>			<u>Coarser Sand</u>
<u>85</u>	<u>86</u>			<u>Blue Clay</u>
<u>86</u>	<u>96</u>			<u>Coarse Gravel</u>
<u>96</u>	<u>100</u>			<u>Blue Clay</u>

use additional sheets as needed

Well screen? (yes/no)

Diameter	Slot size	Depth Top	Depth Bottom	Length	Material
<u>8" pipe</u>	<u>30</u>	<u>80'</u>	<u>96'</u>	<u>16'</u>	<u>S.Steel</u>

Bottom capped (yes/no) with Plate Bottom
 Seals / Packers (yes/no) kind _____ depth _____ ft
 Gravel packed (yes/no) from 65 ft to 100 ft
 type #30 Red Flint amount 3000#

Well developed? (yes/no)
 Explain As lifted, surged & jetted
Test Pumped

Pump installed? (yes/no) Date 12 / 02 / 97
 Installer's name Milford Well Service
 Type of pump Submersible Depth to intake 70 ft
 Pump diameter 4" Rated capacity 60 GPM

Water information Aquifer: sand/gravel limestone sandstone
 Main water-supply zone from 80 ft to 96 ft
 Final water level (static water level) 47 ft (below/above) GL.
 Pumping water level 51 ft below GL; tape airline E-line
 At yield of 120 GPM; orifice volumetric estimate Date _____

Remarks (including depth of lost drilling fluids, materials, or tools)

Water quality test? (yes/no) Date tested 12 / 10 / 97
 Tested by Mangold Environmental Testing
 Test results _____

Well use
 Domestic Municipal Industrial
 Livestock Public Supply Monitoring
 Test Well Irrigation Other _____ (explain)

Contractor Middendorff Well Co
Address Sioux Rapids, IA
Driller Craig Middendorff Certification no. 40093