

IOWA GEOLOGICAL SURVEY
In Cooperation with U. S. Geological Survey

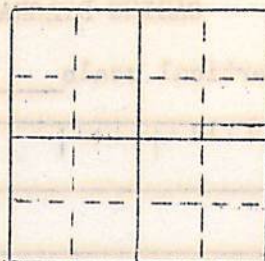
W-0112

RECORD OF WELL

Location:

Town: Delmar (NE) (SW): County Clinton

SE-NE-NE sec. 14 T 83 N., R. 3 W. Blountfield Twp.



Well name and number C. L. Well

Owner City of Delmar Address _____

Tenant _____ Address _____

Contractor Gray Well Drilling Co. Address _____

Drillers C. S. Martin

Drilling dates May 15 - Aug. 29, 1927

Well data:

Elevations: Drilling curb 807 feet; Land surface _____ feet

Determined by _____

Topographic position _____

Total depth: Reported 1592 feet, Measured _____ feet

Drilling method cable

Hole and casing data 58'8" of 12 1/2" 50# drive pipe 0-58'8", 407'8" of 10"

casing 58'8" to 466'4", 297'8" of open 10" hole 458' to

745'8" 129'4" of 8" liner from 745'8" - 875'; open 8"

hole to bottom.

Original depth to water _____ ft. above _____ ft. below _____ Date _____

Original elevation of water level _____ ft.; Source of data _____

Sources of water: Principal _____; Others _____

Production data: _____ Date _____

Static depth to water _____ Measuring point _____

Pumping level _____ at _____ g.p.m.

Specific capacity _____ g.p.m. per ft. drawdown; Temperature _____ °F.

Pump data: Type pump _____ Column Dia. _____ Length _____

Cylinder or bowls: Dia. _____ Length _____ Suction pipe _____

Power _____ Airline _____

Estimated rate of production: _____ g.p.m. for _____ hrs. a day

Use of water _____

WATER ANALYSES (in parts per million)

Date samples	_____	_____	_____	_____
Sampled by	_____	_____	_____	_____
Total solids	_____	_____	_____	_____
Insoluble matter	_____	_____	_____	_____
Alkalinity (Meo)	_____	_____	_____	_____
Alkalinity (Phn)	_____	_____	_____	_____
pH	_____	_____	_____	_____
Fe ₂ O ₃ + Mn ₂ O ₃ + Al ₂ O ₃	_____	_____	_____	_____
Alkali as sodium	_____	_____	_____	_____
Calcium	_____	_____	_____	_____
Magnesium	_____	_____	_____	_____
Iron (unfiltered)	_____	_____	_____	_____
Manganese	_____	_____	_____	_____
Nitrate	_____	_____	_____	_____
Fluoride	_____	_____	_____	_____
Chloride	_____	_____	_____	_____
Sulfate	_____	_____	_____	_____
Bicarbonate	_____	_____	_____	_____
Hardness (ppm)	_____	_____	_____	_____
Hardness (gpg)	_____	_____	_____	_____
Remarks	_____	_____	_____	_____

Laboratory data: _____ Sample storage location _____

Sample range 0-1592 No. spls. 169 No. dupls. & cond. 127

Spls. prepared by _____ Washed range _____ by _____

Driller's log and cond. _____

Insoluble residues: Prepared by _____ Studied by _____ Strip log _____

Microscopic study Shuff. & Agnew strip log Shuff. & Agnew & Harris

Gen. log _____ Correl. by Shuff. & Agnew & Harris

Dear Sir:

In connection with the investigation of the water resources of Iowa, the Geological Survey is endeavoring to secure all the important facts relating to the deep wells of the state. It would be a special favor if you, as the owner of such a well, would fill out the blanks in the following schedule, so far as may be possible, and return this sheet at your earliest convenience in the inclosed addressed envelope. The facts thus obtained will be placed on permanent record and in return for your co-operation it will be our pleasure to send you our full reports when published.

Yours very truly,

W. H. NORTON, Asst. in charge of Artesian Wells.

Locality; Town Delmar, Iowa. County, gr. gr. sec. tp. R.

Owner C. M. & St. P. Ry.

Name and address of driller W. H. Gray & Bros., Milw. Wis.

Depth 1216' Diameters from top to bottom 57' of 16", 391' of 10", 305' of 8", 461' of 6".
(Cased as below)

Date of completion Dec. 1917 Elevation relative to railway grade at station

Depth at which principal supply of water was found

Depths of other water beds

If a flowing well, how high would water rise above surface in pipe on completion of well?

How high will it rise in pipe at present? Flow in gallons per minute on completion

Present flow If a non-flowing well, how near the surface did the water rise on completion

How near the surface does it now rise? 80 ft.

Pumping capacity on completion 200 G.P.M. at present 200 G.P.M.

Depth of cylinder 140 ft. Effect of continuous pumping
on level of water Lowers water only slight amount, @ 108 G.P.M.

If the flow or pumping capacity has diminished, can you assign cause?

Have you any records to show the heights at which the water stood as the well was being drilled?

Temperature

Casing: size, length and where placed 57' of 16" at Top
106' of 6" between 755' & 861'

Packing: kind and place

Quality of water, hard, soft, salty, alkaline, iron or sulphur bearing

Effect on boilers Good Water for boilers

Effect on health of users

If you have an analysis of water please place on back of this sheet. — attached —
If you have record of the beds passed through, please place it on back of this sheet.

Names of persons who may have samples of drillings

Cost of well Cost of pumping machinery

NAMES AND ADDRESSES OF OWNERS OF OTHER WELLS RECENTLY DRILLED

Date JUN 10 '26

Signed

CITY WELL

Delmar Iowa

Gray Well Drilling Company - Contractors, 1927

1.	0 - 20	Clay, yellow-brown (loess?)
2.	20 - 30	Same, may include weathered till
3.	30 - 40	Till, blue, calcareous
4.	40 - 50	Same
5.	50 - 59	Same
6.	59 - 65	Niagara - dolomite, light yellowish gray
7.	65 - 75	Same
8.	75 - 85	Same
9.	85 - 95	Same
10.	95 - 105	Same
11.	105 - 115	Same
12.	115 - 125	Same
13.	125 - 135	Same
14.	135 - 145	Dolomite, very light gray
15.	145 - 155	Same
16.	155 - 165	Same
17.	165 - 175	Same (some dark gray shale)
18.	175 - 185	Same with white chert
19.	185 - 195	Same as above
20.	195 - 205	Same
21.	205 - 212	Same
22.	212 - 220	Dolomite, light bluish gray. Total Niagara 161 feet
23.	220 - 230	Richmond or Maquoketa - shale, blue, dolomitic
24.	230 - 240	Same
25.	240 - 250	Same
26.	250 - 260	Same
27.	260 - 270	Same
28.	270 - 280	Same
29.	280 - 290	Same
30.	290 - 300	Same
31.	290 - 300	Same
32.	300 - 310	Same
33.	300 - 310	Same
34.	310 - 320	Same
	320 - 330	Missing
35.	330 - 340	Shale, blue, dolomitic
36.	340 - 350	Same
37.	350 - 360	Same
38.	360 - 370	Same
39.	370 - 380	Same
40.	380 - 390	Same
41.	390 - 400	Same
42.	400 - 410	Same
43.	410 - 420	Same
44.	420 - 430	Dolomite, blue, shaly
45.	430 - 440	Shale, blue, dolomitic. Total Maquoketa 220 feet

City Well, Delmar, Iowa (cont.)

46.	440 - 445	Galena-Black River - dolomite, gray, some blue, pyritic
47.	445 - 450	Dolomite, light gray
48.	450 - 460	Same
49.	460 - 470	Same
50.	470 - 480	Same
51.	480 - 490	Same
52.	490 - 500	Same
53.	500 - 510	Same
54.	510 - 520	Same
55.	520 - 530	Same
56.	530 - 540	Same
57.	540 - 550	Same
58.	550 - 560	Same
59.	560 - 570	Same
60.	570 - 580	Same
61.	580 - 590	Same
62.	590 - 600	Same
63.	600 - 610	Same with white chert
64.	610 - 620	Same as above
65.	620 - 630	Dolomite, light gray
66.	630 - 640	Same
67.	640 - 650	Same
68.	650 - 660	Same
69.	660 - 670	Same
70.	680 - 690	Same
71.	690 - 696	Same
72.	696 - 701	Shale, dark greenish blue, very dolomitic or calcareous
73.	701 - 710	Limestone, bluish gray and light gray; shale, green
74.	710 - 720	Limestone, light gray
75.	720 - 730	Same
76.	730 - 740	Same
77.	740 - 750	Dolomite, light gray
78.	750 - 755	Limestone, light gray
79.	755 - 765	Shale, blue, dolomitic
80.	765 - 775	Sandstone, coarse, light gray, dolomitic; shale, gray Total Galena-Black River 335 feet
81.	775 - 785	St. Peter - sandstone, medium, light gray, dolomitic
82.	785 - 795	Same
83.	795 - 805	Sandstone, medium to coarse, white, slightly dolomitic
84.	805 - 815	Same
85.	815 - 825	Same
86.	825 - 835	Sandstone, medium to fine, gray, dolomitic; shale, greenish gray
87.	835 - 845	Same
88.	845 - 855	Shale, greenish gray, dolomitic - this due to mixture of dolomite powder
89.	855 - 860	Same. Total St. Peter 85 feet
90.	860 - 870	Lower Magnesian - dolomite, very light gray
91.	870 - 880	Same
92.	880 - 890	Same
93.	890 - 900	Same
94.	900 - 910	Same
95.	910 - 920	Same
96.	920 - 930	Same with white chert
97.	930 - 940	Dolomite, light gray

City Well, Delmar, Iowa (cont.)

98.	940 - 950	Same, some white chert
99.	950 - 960	Same as above
100.	960 - 970	Dolomite, very light gray
101.	970 - 980	Same
102.	980 - 990	Same
103.	990 - 1000	Same
104.	1000-1010	Same
105.	1010-1020	Same
106.	1020-1030	Same
107.	1030-1040	Same
108.	1040-1050	Same with white chert
109.	1050-1060	Same as above
110.	1060-1070	Dolomite, very light gray
111.	1070-1080	Same
112.	1080-1090	Same
113.	1090-1100	Same
114.	1100-1105	Same
115.	1105-1115	Same (cuts in small chips)
116.	1115-1125	Same as above
117.	1125-1135	Same with much green shale
118.	1135-1145	Dolomite, light gray
119.	1145-1155	Same
120.	1155-1165	Jordan(?) - sandstone, fine light gray, dolomitic
121.	1165-1175	Same with layers of gray dolomite and green shale
122.	1175-1185	Sandstone, fine, light gray, very dolomitic
123.	1185-1195	Trempealeau - dolomite, light gray
124.	1195-1205	Same
125.	1025-1215	Same
126.	1215-1225	Same
127.	1225-1235	Dolomite, light gray, sandy
128.	1235-1245	Same
129.	1245-1250	Same
130.	1250-1260	Same
131.	1260-1270	Dolomite, light gray, some very light pink, a little sand
132.	1270-1280	Same
133.	1280-1290	Same
134.	1290-1300	Same
135.	1300-1310	Same
136.	1310-1320	Same
137.	1320-1330	Same (darker pink)
138.	1330-1340	Same as above. Total Trempealeau 155 feet
139.	1340-1350	Mazonian-Franconia - sandstone, very fine, light greenish gray and pink, very dolomitic, hard, glauconitic, pyritic
140.	1350-1360	Same
141.	1360-1370	Same
142.	1370-1380	Sandstone, very fine, light green, very dolomitic, glauconitic
143.	1380-1390	Sandstone, fine, gray, dolomitic, glauconitic
144.	1390-1400	Sandstone, very fine, gray, very dolomitic, glauconitic
145.	1400-1410	Sandstone
146.	1410-1420	Sandstone
147.	1420-1430	Sandstone
148.	1430-1440	Sandstone, coarse to medium, light gray. Total Mazonian-Franconia 100 feet

City Well, Delmar, Iowa (cont.)

149.	1440-1450	Dresbach - sandstone, medium to fine, white
150.	1450-1460	Same
150A.	1450-1460	Same
151.	1460-1470	Same
152.	1470-1480	Same
153.	1480-1490	Same
154.	1490-1500	Sandstone, fine to medium, light gray, dolomitic
155.	1500-1510	Sandstone, medium to fine, white
156.	1510-1520	Sandstone, fine, light gray
157.	1520-1530	Sandstone, medium to fine, white
158.	1530-1540	Same
159.	1540-1550	Same
160.	1540-1550	Sandstone, fine, light gray, dolomitic, probably 1545-1550
161.	1550-1560	Same
162.	1560-1570	Same
163.	1570-1580	Same
164.	1580-1592	Marked "bottom." Same

CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY.

MOTIVE POWER DEPARTMENT

C O P Y.

WATER ANALYSIS NO. 30219.

Station DELMAR, State IA. Div. _____Source of Supply DRILLED WELL.

This is _____ supply for _____ engines per day

SAMPLES TAKEN	4/13/25.	Stage of water when sample was taken
Oxides,	1.00	Turbidity
Calcium Carbonate,	10.88	Color
Calcium Sulphate,	.51	Quantity available
Calcium Nitrate,		Distance to tank
Magnesium Carbonate,	7.01	Power
Magnesium Sulphate,		Pounds Soda Ash advisable
Magnesium Chloride,		per 1000 gallons
INCRUSTING SOLIDS,	<u>19.40</u>	
Alkali Carbonate,		
Alkali Sulphate,	.71	
Alkali Nitrate,		
Alkali Chloride,	.64	
NON-INCRUSTING SOLIDS,	<u>1.35</u>	
TOTAL,	<u>20.75</u>	

NOTE.—Turbid waters are filtered before analysis. "Oxides" include Silica, Alumina, and Oxide of Iron. When a dash appears in the space for Nitrates, they are either low or absent. Results of analysis are expressed in grains per U. S. gallon. Seven grains per gallon are equal to one pound per 1000 gallons.

Remarks _____

H. W. Ostrom,
Chief CHEMIST.

DELIMAR TET. DRILLED WELL

SURFACE OF GROUND

30' YELLOW CLAY

20' BLUE CLAY

6'-10" GRAVEL
TOP OF LIMESTONE

88' YELLOW LIME

75' WHITE LIME

CONTINUATION

861" BELOW SURFACE

225' HARD SANDY SHALE

145' LIMESTONE

355' OF 6" HOLE NOT CHASED

169' STREAKS OF LIME & SANDSTONE

313' LIMESTONE VERY HARD

35' SANDSTONE
WATER BEARING

6' OF LIMESTONE
BOTTOM OF WELL 1216'

NOTES: DRILLED BY W.H. GRAY & BROS.
FINISHED DEC. 1917
WATER STANDS 80' BELOW SURFACE
WATER GOOD, NO SOUP ASH REQUIRED
WILL FURNISH 200 GALS PER MIN.

Alfappan 4/10/18

8' SHALE

29' SANDY SHALE

7' SHALE

23' HARD SHALE

31' CHANGING SHALE

106' OF 6" PIPE
THROUGH GROUND
CHASED WITH 6" PIPE

391' OF 10" HOLE NOT CHASED

305' OF 8" HOLE UNCHASED

391' - 0'

NOT CHASED

305' -

NOT CHASED

100'

CITY WELL NO.3, DELMAR, IOWA
Gray Well Drilling Co., Contractors
C. S. Markin, Driller, May 15-Aug. 20, 1927
Samples examined by F. T. Thwaites

D R I F T	59	0-30	30		Clay, yellowish brown		12 1/2" 50 lb. drive pipe 58'8"
		30-59	29		Glacial till, blue, calcareous		
	161	59-135	76		Dolomite, light yellowish gray		12" hole 10" 40 lb. pipe 466'4"
		135-175	40		Dolomite, very light gray, some dark gray shale		
		175-212	37		Dolomite, very light gray, some white chert		
N I A G A R A	220	212-220	8		Dolomite, light bluish gray		458
		220-320	100		Shale, blue, dolomitic		
	220	320-330	10		No sample		
		330-420	90		Shale, blue, dolomitic		
		420-430	10		Dolomite, blue, shaly		
	220	430-440	10		Shale, blue, dolomitic		
		440-600	160		Dolomite, light gray		
		600-620	20		Dolomite, light gray; chert, white		
		620-696	76		Dolomite, light gray		
		696-701	5		Shale, dark greenish blue, dolomitic		
		701-740	39		Limestone, blue and light gray; shale, green		
		740-750	10		Dolomite, light gray		
R I C H M O N D	335	750-755	5		Limestone, light gray		8" liner 129'4"
		755-765	10		Shale, blue, dolomitic		
		765-775	10		Sandstone, coarse, gray, dol.; shale, green		
		775-825	50		Sandstone, medium to coarse, white, slightly dolomitic		
	85	825-845	20		Sandstone, medium to fine, gray, dol.; shale, greenish gray		875
		845-860	15		Shale, greenish gray		
	295	860-920	60		Dolomite, very light gray		8" hole
		920-930	10		Dolomite, very light gray; chert, white		
		930-940	10		Dolomite, light gray		
		940-960	20		Dolomite, light gray; chert, white		
	30	960-1040	80		Dolomite, very light gray		
		1040-1060	20		Dolomite, very light gray; chert, white		
		1060-1125	65		Dolomite, very light gray		
		1125-1135	10		Dolomite, very light gray; shale, green		
	155	1135-1155	20		Dolomite, light gray		
		1155-1185	30		Sandstone, fine, light gray, dolomitic		
		1185-1225	40		Dolomite, light gray		
		1225-1260	35		Dolomite, light gray, sandy		
100	1260-1340	80		Dolomite, light gray, slightly sandy			
	1340-1370	30		Sandstone, very fine, greenish gray, pink, dolomitic, hard, glauconitic, pyritic			
	1370-1380	10		Sandstone, very fine, green, very dol., glauc.			
	1380-1390	10		Sandstone, fine, gray, dolomitic, glauconitic			
110	1390-1430	40		Sandstone, very fine, gray, very dolomitic, glauconitic			
	1430-1440	10		Sandstone, coarse to medium, light gray			
	1440-1490	50		Sandstone, medium to fine, white			
	1490-1500	10		Sandstone, fine to medium, light gray, dol.			
42	1500-1510	10		Sandstone, medium to fine, white			
	1510-1520	10		Sandstone, fine, light gray			
	1520-1550	30		Sandstone, medium to fine, white			
	1550-1592	42		Sandstone, fine, light gray, dolomitic			