W-0 533

210-215' clean sd, vf-f, A-r

217½-221 sd, vf-c, A-r

221-225 NO sample

envelope notes

"4 pieces of chert"

(largest = 1 x 2 x 1")

225-227½ pale wood

w/ abnt iron oxide

spots (oxidized

siderite)

Conclusion--

it all looks

Cretaceous to me

Samples evaluated by Brian Witzke

5/1/2001

IOWA GEOLOGICAL SURVEY
Generalized Log Based on Detailed
Description of Drill Cuttings

Name of Well Fenton City Well, Kossuth County Survey No. W-0533

Location SE¼ SW¼ NE¼ SE¼ sec. 18, T. 97 N., R. 30 W, Fenton Twp.

Drilled by Thorpe Well Co., Des Moines, 1936, 1937

Total Depth 229 ft. Curb Elevation 1243 ft. Static Level _____ ft.

Pumping Test ____Hours____Min; Gal. per min. _____Drawdown_____ft. in___min.

Casing Data

Description of Formations

No.	Rock Unit	Thick.	From (feet)	To
	PLEISTOCENE SYSTEM			
1.	Soil, black, silty, with 15% sand, very coarse-grained to granules, angular, polished quartz	3'6"	0	3'6"
2.	Clay, light yellow, calcareous, soft, silty, with 25% glacial sand consisting of quartz, limestone, and shale in rounded grains, light gray, noncalcareous, silty, massive	11'6"	3'6"	15
3.	Clay, light brown slightly yellowish, calcareous, silty, with 10% glacial sand, as in 3½ to 15 feet	10	15	25
4.	Clay, light medium to medium gray, mottled brown, with 30% heterogeneous glacial sand as in 15 to 25 feet	10	25	35
5.	Sand and gravel, poorly sorted mostly 2 to 1 mm., but ranging upward to pebbles of 10 mm. diameter, angular, polished in part consisting of quartz, igneous, limestone, dolomite and shale grains	3	35	38
6.	Clay, dark gray, calcareous, soft with 10% glacial sand, as in 35 to 38 feet	2	38	40
7.	Gravel, average diameter 3 mm., angular, consisting mostly of light buff and brown limestone with dark igneous and quartz grains	2	40	42

Notes:

Survey No. W-0533

No.	Rock Unit	Description	Thick	From	To
8.		Clay, medium gray slightly brownish, calcareous, silty, with 15% to 25% glacial gravel and pebbles embedded	48	42	90
9.		Gravel, mostly 2 to 4 mm. diameter, rounded in part, composed of granite, dark igneous, limestone, dolomite, and shale granules. Clay 30% as in 42 to 90 feet	10	90	100
10.		Clay, light medium brownish gray, calcareous, silty, with 10% to 20% glacial sand as in 90 to 100 feet, and 15% shale, medium gray, noncalcareous, dense, silty	10	100	110
11.		Clay, with 30% glacial sand, as in 100 to 110 feet	27	110	137
	CRETACEOUS SYSTEM Dakota formation				
12.		Sandstone, mostly coarse, well sorted, angular, slightly polished and frosted, quartz with trace dark igneous, bonded loosely by silt, (2-1 mm. 10%, 1-½ mm. 75%, ½-¼ mm. 15%, ¼-1/8 mm. trace)	44	137	173
13.		Sandstone, clear to yellow orange and pink stained, mostly fine, angular, polished in part, free, clean, quartz, (1-½ mm. 10%, ½-¼ mm. 40%, ¼-1/8 mm. 50%). Siltstone 10% from 200 to 210 feet, very light yellowish buff very soft and friable, nonfissile	37	173	210
14.		Sandstone, clear to trace pale yellow and orange, mostly medium well sorted, angular, slightly polished and frosted	5	210	215
15.		No sample	2'6"	215	217'6"
16.		Sandstone, clear to pink, heavily iron stained brown, mostly medium, angular, well polished, (2-1 mm. 10%, 1-½ mm. 20%, ½-¼ mm. 50%, ¼-1/8 mm. 20%)	3'6"	217'6"	221
17.		Chert, medium gray stained brown, large weathered pebbles	4	221	225
18.		Siderite concretions, very small, embedded in clay, light buff, soft	2'6"	225	227'6"
19.		No sample	1'6"	227'6"	229
	Total depth				229

Notes on Fenton City Well
Kossuth County
Survey No. W-0533

Samples of this well are good. They have been taken in small intervals and apparently at lithologic breaks.

Pleistocene System. The clays which have included glacial gravel and sand show the same type of shale granules as do most of the wells of this area. The shale is medium gray, noncalcareous, silty, medium hard. It occurs usually as rounded granules in the drift.

Dakota. The Pleistocene - Dakota contact is fairly well defined with clay containing coarse pebbles of limestone, quartz, and igneous material above, and well sorted sand, loose to slightly bonded by silt mostly 1 to $\frac{1}{2}$ mm., angular, with a small amount of polish. The lack of polish may be due to the size of the grains, "Dakota polish" seldom being present on grains below 1 mm. diameter.

The chert from 221 to 225 feet seems to consist of broken weathered chert pebbles and may be the "Cretaceous Basal Conglomerate".

Elev. Confidential G.O.C.

IOWA GEOLOGICAL SURVEY
Generalized Log Based on Detailed Description of Drill Cuttings

Name of Well: Fenton City Well Survey No. W-0533

Drilled by: Thorpe Well Company Date Nov. 4, 1936- Jan. 20, 1937

Total Depth: 229 ft; Curb Elevation: _____ ft; Static Level: _____ ft.

Casing Data: 221 ft. of 10-inch--45 lbs. per ft.

Pump and Screen Data: _____

Pumping Test: ____ Hours ____ Min; Gal. Per Min. _____; Drawdown ____ ft. in ____ min.

Description of Formations

No.	Rock Unit	Thick.	From (Feet)	To
	RECENT			
1.	Top soil; dark brown, 20% pebbles and sand	3½	0	3½
	PLEISTOCENE SYSTEM			
2.	Clay till; buff, oxidized, calcareous, 10% of pebbles and sand	11½	3½	15
3.	Clay till; olive buff, partially oxidized, calcareous, 30% small pebbles and granules	10	15	25
4.	Clay till; gray, calcareous, unleached and unoxidized, pebbly igneous material, limestone and shale	11	25	36
5.	Sand and gravel; upper 2' poorly sorted coarse glacial sand, lower 2' pebble gravel. 2' band pebbly gray clay between.	6	36	42
6.	Clay till; gray, calcareous, occasional pebbles	38	42	80
7.	Clay till; gray, calcareous, numerous pebbles to gravelly and sandy in parts	57	80	137
8.	Sand(?); gray, medium-grained, fair sorting, angular to subangular, less than 2% igneous material (probably cave from clay above). Probably reworked Dakota sandstone.	6	137	143
	CRETACEOUS SYSTEM Dakota sandstone			
9.	Sandstone; buff, silty, medium grained, angular, fair to good sorting. 99% quartz sand, containing brown shale bands.	30	143	173
10.	Sandstone; very pale buff to white, medium grained, well sorted, clear, angular, clean--no silt or clay	17	173	190
11.	Sandstone; pale buff, medium-grained to fine-grained, very well sorted, angular, slightly iron coated but clean	22	190	212
12.	No sample--driller's log reports "Lime shale"	5½	212	217½

Notes:

		Thick.	From (Feet)	To
13.	Sandstone; buff to brown, medium-grained, fairly well sorted, angular, partially coated with iron oxide.	3½	217½	221
14.	Conglomerate; abraded and weathered, chert pebbles with coarse sand, cemented with iron oxide	4	221	225
15.	Hematite concretions cemented in a matrix of buff, highly limonitic shale, non-calcareous	2½	225	227½
16.	No sample--driller's log reports "Solid lime rock"	1½	227½	229 T.D.

Kossuth 1

April 25, 1938

Mr. Bert Sharff
Mason City, Iowa

Dear Mr. Sharff:

Enclosed is our log of the Fenton city well which you requested at the time of my visit to Mason City. The delay in sending it has been caused by the fact that the samples had to be studied before the report could be made. We do not have a curb elevation of the well, so that you will have to take into consideration the difference in elevation between the city well and your proposed location.

You will notice that 221 feet of 10-inch 45 pounds per foot casing was used in the city well and that apparently the sandstone was cased out. However, it seems possible that the casing was slotted through the sandstone. We have no report of how much water was encountered in the sandstone or the true static level of the present well.

If you drill in the vicinity of Fenton, I hope that you will save samples of the cuttings. If you need sample bags, we will be glad to send them to you.

According to the division of the state into well drilling districts, you are located in district No. 3, composed of Worth, Mitchell, Howard, Cerro Gordo, Floyd, Chickasaw, Franklin, Butler, Bremer, Hardin, Grundy, and Black Hawk counties. Mr. Glen Smith of Iowa Falls is the temporary chairman and will notify you of the first meeting. A permanent chairman will be elected at that meeting, and a discussion of legislation and well drilling regulations will be held. I hope that you will find it possible to take an active part in your district meetings.

Very truly yours,

HGH:A
Enc.

H. G. Hershey

Reg
Bancroft, Ia.
JAN 21 1937
Kossuth Co.

Fenton's New Well Finished Last Week

Fenton Reporter—Completion of Fenton's new city well this week revealed that residents of this place can look forward to a softer, more pleasant-tasting water in the future. That, at least, was the opinion of a number of people who tasted the water Wednesday.

Harold Elijah of Des Moines, who has been in charge of the work, finished testing the well Wednesday afternoon and reported that between 9:30 a. m. and 3:22 p. m. the special turbine pump brought here for the test produced an average flow of more than 300 gallons per minute from the well. The contract specified that it must test not less than 200 gallons a minute.

At one time during the test period the pump was throwing 700 gallons a minute, although the official maximum has been set at 600. Mr. Elijah estimates that, using a powerful enough pump, the well could easily produce 1200 gallons per minute. At the time the pump was running full speed the water level in the well dropped only 2 feet.

Approximate depth of the well—exact measurements will be taken later—is 229 feet. Elijah said the water flows from a porous limestone. Samples of dirt were taken every five feet during drilling operations and will be sent to the State Geological Survey at Iowa City. Each sample differed slightly from the others. A record of the well is being filed with the town clerk.

The well is lined with a steel casing 10 inches in diameter.

Mayor J. T. Waite announced Wednesday that the new well will not be ready for use until a new pump can be installed. The town will buy a turbine pump powerful enough to make use of the well's capacity and will probably use the old well only for emergencies.

Installation of this pump may later cause a lowering of fire insurance rates.

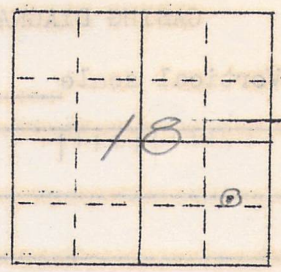
W. H. Nannie of Clear Lake is now installing the new water filter plant which will be used with the new well. Capacity of the filter will be a hundred gallons a minute.

Cost of the well was set at about $1500 when the contract was let and the filter was to cost $2850. The Reporter has been unable to get an estimate of what the new pump will cost. The well, pump and filter will be financed by funding bonds, which will allow the town to pay for the total sum over a long period of years.

IOWA GEOLOGICAL SURVEY W-0533

In Cooperation with U. S. Geological Survey

RECORD OF WELL



Location:

Town: Fenton (N E / S W): County Kossuth

SE-SW-NE-SE sec. 18 T 97 N., R. 30 W. Fenton Twp.

Well name and number Fenton town well

Owner _____ Address _____

Tenant _____ Address _____

Contractor Thorpe well Co Address _____

Drillers _____

Drilling dates Nov. 4, 1936 - Jan. 20, 1937

Well data:

Elevations: Drilling curb 1248 feet; Land surface 1243 feet

Determined by _____

Topographic position _____

Total depth: Reported 229 feet, Measured _____ feet

Drilling method cable tool

Hole and casing data 231' of 10" casing

10" hole

Original depth to water 67 ft. below ~~above~~ curb Date _____

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

Sources of water: Principal Dakota 225-227½; Others 36' Pleist.

Production data: Date _____

Static depth to water 167 Measuring point _____
Pumping level 69 at 700 g.p.m.

Specific capacity 350 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				
$Fe_2O_3 + Mn_2O_3 + Al_2O_3$				
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 3½ - 227½ No. spls. 30 No. dupls. & cond. 60 good

Spls. prepared by _____ Washed range _____ by _____

Driller's log and cond. yes very good

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

Microscopic study JBC strip log 6/42 JBC

Gen. log V Correl. by Carrier