STATE OF IOWA

IOWA GEOLOGICAL SURVEY

GEOLOGY ANNEX

IOWA CITY

Results of Production Test Made on Boy Scout Camp Well near Waverly, Iowa June 23, 1945

Name: Boy Scout Camp Well No. 2 Near Waverly, Iowa.

Location: NW¼ SE¼ SE¼ Sec. 18, T. 91 N., R. 13 W. Washington Twp. Bremer county.

Elevation: Drilling curb, 1017.5 feet above sea level. Land surface 1017 feet above sea level.

Owner: Boy Scouts of America.

Contractor: Hoeg and Ames, Lincoln, Iowa.

Driller: Ed Martin.

Drilling dates: Started, May 4, 1945. Finished June 21, 1945.

Depth: 804 feet.

Casing record: 433 feet of 8-inch pipe from 0 to 433 feet.
135' of 6-inch pipe from 655 to 790 feet. (Perforated through St. Peter sandstone from 742 to 790 feet.)

Chief Aquifer: St. Peter sandstone.

Test Pump: Turbine, set at 225 feet. Powered by gasoline engine by right angle drive.

Measuring point: Hole in pump base 1.25 feet above land surface.

Discharge Measurements: Discharge rate obtained by measuring into barrel of known capacity.

Results of Production test made on Boy Scout Camp Well near Waverly, Iowa.

Time	Depth to Water (feet)	Discharge (Gallons per minute)	Remarks
June 23			
10:23 am	119.63		Near static water level.
10:30			Pumping started.
10:33	180.70		
10:34	185.00		
10:35	178.60		
10:35½	191.80		
10:36½	195.75		
10:37	198.40		
10:38	189.75		
10:38½	189.16		
10:40		48	
10:44½	204.00		
10:47	205.42		Water temperature 50°F. Water clear.
10:51		45	
10:54½	207.30		
10:56			Pumping stopped.
10:57	157.41		Recovery measurements.
10:59	146.5		
11:01	140.00		
11:02	137.68		
11:03	135.42		
11:04			Pumping started. (300 feet of 3-inch fire hose from pump to swimming pool.)
11:06	203.00		
11:08	216.50		
11:10	219.50		
11:11	220.50		
11:11½	220.00		
11:12	221.00		
11:14	219.50		
11:42		48	
11:46½	223.50		
12:35 pm	225.00		86°Air. Water temperature at hose outlet 52°F.
12:42		48	
12:50	225.00		
1:46		43	
1:52	212.92		
2:10		40.5	
2:16	214.03		Continue pumping water into swimming pool.

Janesville (Brem

LOG OF WELL

BOYS SCOUTS OF AMERICA

Depth of well 804 ft.

Yellow sandy clay	0-40
Yellow clay	40-48
Rock and clay	48-57
Rock and some mud seams	57-100
Brown lime	100-145
Gray shale	145-163
Brownish rock and shale	163-195
Sandy rock	195-205
Shale	205-245
Rock	245-247
Shale	247-322
Rock	322-324
Shale	324-328
Rock	328-433
Set 437 ft. of 8 in. pipe	
Good limestone	433-657
Gray shale	657-662
Limestone	662-675
Gray shale	675-684
Limestone	684-725
Gray shale	725-735
Sandstone	735-780
Rock	780-804

437 ft. of 8 in. pipe
135 ft. of 6 in. pipe
Drilled a 10 in. hole to 433 ft.
Set 110 ft. of 6 in. pipe at 755 ft., perforated 20 ft.,
pulled 6 in. pipe, put back 135 ft. of 6 in., set at 780 ft.

May 10, 1945

Mr. Sylvan S. Ames
Lincoln, Iowa

Dear Mr. Ames:

In response to your request for information on the geology and ground-water conditions at the Boy Scout camp southeast of Waverly we have assembled the data applicable to the area.

The well you are drilling at the camp is located in the NW¼ SE¼ SE¼, sec. 18, T. 91 N., R. 13 W. The drilling platform is approximately 1000 feet above sea level and about 130 feet above the level of the Cedar River at the camp.

To the west of the well site and in the valley of the Cedar River, limestone outcrops in the valley wall about 15 feet above the level of the river. No higher outcrops were observed in the immediate vicinity of the well. However, in the general area limestone outcrops at a height of 50 to 60 feet above the level of the river.

At the well site bedrock may be encountered a little as 50 feet and as much as 110 feet below the drilling platform. More probably bedrock will occur at a depth of 70 feet.

Bedrock is composed of brecciated limestone of Devonian age. These rocks are quite likely to be cracked and creviced. The limestone section should extend to a depth of about 135 feet.

Beneath the Devonian limestone lies dolomite belonging to the Silurian system of rocks. This dolomite section should be about 65 feet thick.

The underlying Maquoketa formation is about 260 feet thick. The upper 160 feet of this formation will be composed mostly of shale. The lower 100 feet may be mostly dolomite with beds of shale. The old well may be finished in the Maquoketa dolomite.

The top of the Galena formation should be expected at a depth of about 460 feet. This formation is composed of dolomite, non-cherty in the top 100 feet and variably cherty below. This section should continue to a depth of about 700 feet.

Water should be found in the Devonian limestone and the Silurian Maquoketa and Galena dolomites. Fifty gallons of water per minute may be obtained above the Maquoketa shale. However, since the old well is contaminated and as the contamination may occur in the Devonian limestone section there is the problem of how much of this section to case out. I would suggest that casing be temporarily set at an approximate depth of 140 feet or about 10 feet into the Silurian dolomite. The necessary amount of water may be picked up in the section between 140 feet and the top of the Maquoketa shale. It may be that none of the water above the Maquoketa shale can be used.

Fifty gallons of water per minute can probably be obtained by drilling the entire thickness of the Galena formation. Unless much water is found in the Maquoketa dolomite it may be well to case out the entire Maquoketa formation. Water in the Galena formation should stand within 50 feet of the drilling curb.

After completion of the new well, the old well should be filled. Puddled clay should be satisfactory for filling the well. As an added safety factor it would be well to chlorinate the old well before filling with clay.

We will be glad to examine the samples of the well cuttings as the well is being drilled. If we can be of further service in this matter please let us know.

Very truly yours,

H. G. Hershey

HGH'WEH'm

Memorandum:

Subject : Telephone call from Sylvan Ames in regard to Boy Scout Camp well in Bremer County

Date : June 16, 1945

Mr. Ames reports that the 8-inch pipe was set at a depth of 430 feet and that the section below that depth was found to be as follows:

430 - 657	rock
657 - 663	gray shale
663 - 671	rock
671 - 676	blue shale
676 - 690	rock – pouring in water to drill

In response to his inquiry as to the depth of the St. Peter sandstone, Mr. Hale and I checked our records which seemed to indicate that the top of the St. Peter should occur between 750 and 760 feet in depth. Apparently Mr. Ames plans to continue drilling to the top of the St. Peter, set pipe, and then drill the full thickness of the St. Peter.

He indicated that a well southwest of the Boy Scout Camp found St. Peter sandstone at a depth of 870 feet.

HGH

H. G. Hershey

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington .... District ....

GPO 0—9333

Boy Scout Camp

Started 4th May - Finished June 21, 1945

Casing Record   742' - Top of St. Peter

433' of 8" pipe   794' - Bottom of St. Peter

135' of 6" pipe set at 790'   Perforated through St. Peter

{ 58' of 10" to be removed
{ 20 of 12" to be removed

Pulled up water ... and St. Peter ss.   9' ... between ... and T.D.

225' of pump

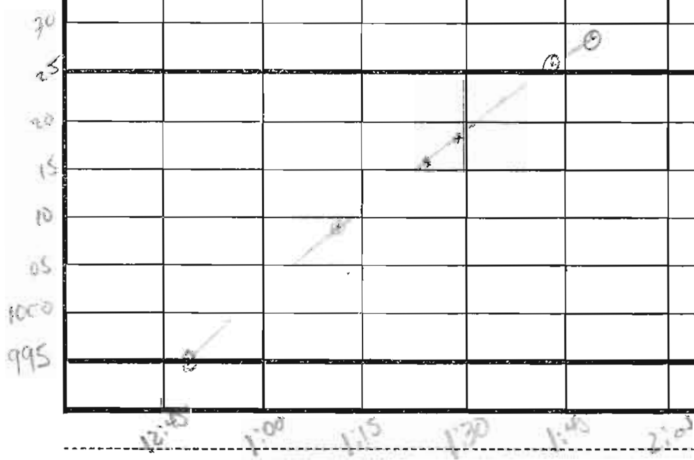
T.D. 904'

M.P. 1.25' above L.S.

Drilling platform at well 86°F	12:51	995	0	995	+5	1000
"	1:11	1009	+1	1010	-10	1000
Chicago & G.W. at Waverly	1:24	938	-5	933	-16	917
	1:29	943	-5	938	-19	919
Drilling platform at well	1:42	1026	+1	1027	-27	1000
	1:51	1028	+1	1028	-28	1000

82' higher

... 935.5 + 82   1017.5



Dr. M. A. Stainbrook's Notes

W-2036
Janesville (Bremer)
Boy Scout Camp

Fourteen samples had illegible labels and sample bags were simply labeled 1 to 14. The following is Stainbrook's correlations of each of the fourteen samples.

1 Pleistocene drift

2 Spring Grove, as at Waverly. limestone, pink

3 Pleistocene, yellow, loess?

4 Waucoma dolomite, white, waxy

5 Cedar Valley limestone, yellow, fossiliferous, pink

6 Davenport, limestone, lithographic

7 Cedar Valley, limestone, yellow, fossiliferous, pink

8 Davenport, lithographic limestone Spring Grove, pink

9 limestone, lithographic white. Davenport-Spring Grove or Silurian-Waucoma

10 Pleistocene, loess?

11 Silurian dolomite, white, coarsely crystalline, some buff, finer

12 Cedar Valley limestone, yellow, fossiliferous

13 Pleistocene loess?

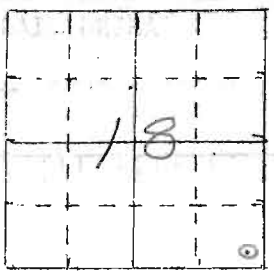
14 Pleistocene drift

50-75 Cedar Valley, limestone, yellow, fossiliferous

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

W-2036

RECORD OF WELL



Location:

Town: Janesville (N E / S W); County Bremer

NW - SE - SE sec. 18 T. 91 N., R. 13 W. Washington Twp.

Well name and number Boy Scout Camp Well #2

Owner Boy Scouts of America Address _____

Tenant _____ Address _____

Contractor Hoeg & Ames Address Lincoln, Iowa

Drillers Ed Martin

Drilling dates 1945

Well data:

Elevations: Drilling curb 1017.5 feet; Land surface _____ feet

Determined by _____

Topographic position _____

Total depth: Reported 804 feet, Measured _____ feet

Drilling method cable tool

Hole and casing data 433' of 8" pipe 0-433'; 135' of 6" pipe 655' to 790' lower 48' perforated
(Give amount, size, kind, and depth of all casing; type and position of seals and packers; cementing; how finished--perforated pipe, screen, gravel pack, open hole, etc.)

Original depth to water 119.63 ft. ~~above~~ below curb Date _____

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

Sources of water: Principal St. Peter ; Others _____

Production data: Date _____

Static depth to water 119.63 Measuring point _____

Pumping level 225.13 at 48 g.p.m.

_____ _____

_____ _____

_____ _____

Specific capacity .4 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 sampled				
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 10 - 795 No. spls. 131 No. dupls. & cond. 129 fair topoil

Spls. prepared by D. Rush Washed range 50-125, 420-795 by Rush

Driller's log and cond. yes partial from 430 to 690

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

Microscopic study 150 - 795 SEH strip log SE Harris May 29, 1945

Gen. log _____ Correl. by S.E. Harris

WATER LEVEL DATA

Measuring point _____

Date	Depth to water	Altitude	Remarks

REMARKS

quite a bit of water was obtained above the Mag Int it was shut out because of danger of contamination