IOWA GEOLOGICAL SURVEY
Iowa City, Iowa

DRILLING RECORD

Folder

Contractor: Hoeg and Ames, Lincoln
Driller: Homer Rhodes

Ackley town well

Black dirt	2'	0 - 2'
Yellow clay	3'	2 - 5'
Yellow clay and sand	15'	5 - 20'
Blue clay sandy	20'	20 - 40'
Yellow sand dirty	9'	40 - 49'
Sand some water	11'	49 - 60'
Rock, sand, gravel	3'	60 - 63'
Loose rock	4½'	63 - 67½'
Good rock	7½'	67½ - 75'
Lime: Light buff and white	25'	75 - 100'
Brown	15'	100 - 115'
Light hard	5'	115 - 120'
Soft light blue	10'	120 - 130'
Brown and blue	8'	130 - 138'
Shale, blue	2'	138 - 140'

Pipe: 16" hole drilled 75'
10" pipe 76-10

10 sacks of cement put in with bottom dump bailer.
10" pipe put in with plug and forced cement up 18'.
22 sacks of cement and sand poured back of 10" pipe.

City well No. 3
Hoeg & Ames contractor
Homer Rhodes, driller

NW¼, NW¼

Temporary depth = 140'
Location: ~~NE¼ NW¼~~-2-89-19 (S. edge of City Park)
Elevation: ~~1100'~~ ± 1101'

Before acidizing the well:

S.W.L. = 33' (after pumping, recovery from 37-33' is slow)
Pumped for some time at 123 g.p.m. with 87' drawdown.

Acidizing:

Main water was encountered at 125' according to the driller.
Drop pipe for acid was set at 105' and 200 gallons of HCl were pumped into the well.
The acid was left in for 17 hours and under a pressure of from 32-35 lbs.

After acidizing the well:

S.W.L. = 33'
Water first pumped at 100 g.p. . Was very thick and soupy at first, but cleared up.
When pumping 133-134 g.p.m., the pump sucked air with the bowls at 126'
The following pumping levels were obtained for varying rates:

Production (g.p.m.)	Pumping Level
133	126 ft.
130	120
121	86
100	70
53	52

Recovery was rapid to a point near the static level.

Above information from
S.R. Ames and L.F. Whitney

K.E.A.
7/11/42

IOWA GEOLOGICAL SURVEY
Water Well Data Sheet

Survey Number W-1576

Town Ackley County Hardin T. 89 N., R. 19 W.

Name Town Well No. 3 Location NW ¼ NW ¼, Sec. 2

Contractor Haag and Ames Driller Homer Rhodes Use City supply

Construction drilled Drilling Dates completed 7/11/42 Drilling Depth 140

Topog. upland Curb Elev. 1100 ± Ref. hand level M.St.A. dep. Total Depth 140

Final Static Level 33 ~~above~~ below curb Pumping Level 126 Draw down 93 gpm 134 Time pumped _____ Date _____

Depth to bot. pump _____ ft. with _____ ft. suction pipe. Calc. g/ft. drawdown _____ Prin. Prod. _____

Producing Horizons 125' (Mississippian - Hampton)

Water levels and pumping tests on various horizons during drilling:

Depth Range	Stat. Level	Pump Level	Draw down	gpm.	Temp.	Producing horizons	Producing formations	Formations cased out
	33	120	87	130				
	33	86	53	121				
	33	70	37	100				

Additional information

Laboratory Data

Sample range 0 - 140 Number samples 27 Number Duplicates 27 Cond. mostly good

Log Yes (No), Cond. mostly good Boxed Carries Range 0 - 140 Date 7/13/42

Remarks

Microscopic Study Range		Strip Log	Gen. Log	Blue Print	Samples Washed
Insol. Res. Study Range		Strip Log	Gen. Log	Insol. Res. Prepared	Well Corel.

IOWA GEOLOGICAL SURVEY
Iowa City, Iowa

Well Log Record

Owner of well Town of Ackley County _____

Tenant _____ Town _____

Location South Park well sec. ____ T. ___ N., R. ____ E. W. _____ Twp.

Curb elevation _____ ft. present depth _____ ft. Final depth _____ ft.

Static level: (Depth to water above / below curb) _____ ft. Pumping level _____ ft. at ____ gpm.

Contractor _____ Date drilled _____

Description*	FEET			Description*	FEET		
	Thick	From	To		Thick	From	To

* Abbreviate descriptions, use one line for each formation.

Remarks on water zones and casings _____

Measuring point - top of breathing pipe. 1.4' above pump house floor and 1.15' above pump base

9:17 a. - 40.03' (well at times pumping
10:55 a 40.07
1:40 p 39.99
2:27 p 39.99
6:13 40.05

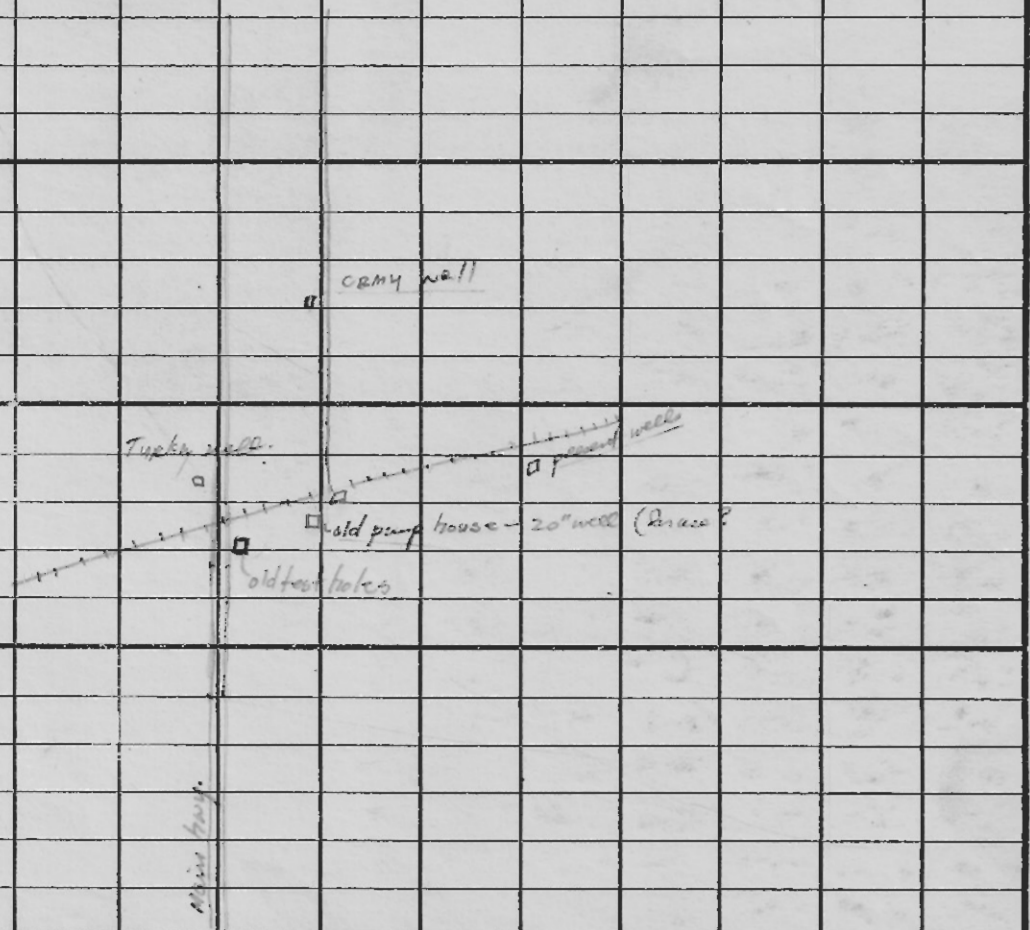
Temperature: Air ____ °F., Water ____ °F. at ____ A.M. P.M. _____ 194_

Record obtained from _____ Recorded by _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington ____ / District ____ }

Feb 21												
12:17p	593	R.R. sta.										
12:20p	595	" "										
12:31p	579	outcrop; contact between [illegible]										
12:37	605	RR sta										



3

IOWA GEOLOGICAL SURVEY
Iowa City, Iowa

Well Log Record

Health Dept has record

Owner of well Town of Ackley County _____

Tenant _____ Town _____

Location _____ sec. ____ T. ___ N., R. ____ E. W. _____ Twp.

Curb elevation _____ ft. present depth _____ ft. Final depth _____ ft.

Static level: (Depth to water ~~above~~ below curb) _____ ft. Pumping level _____ ft. at ____ gpm.

Contractor _____ Date drilled _____

Description*	FEET			Description*	FEET		
	Thick	From	To		Thick	From	To

* Abbreviate descriptions; use one line for each formation.

Remarks on water zones and casings _____

Well at north end of Park 100' deep

" at South end of Park 140' deep

" " south end of Tanks 127' deep

Ed. Kensinger

Temperature: Air _____ °F., Water _____ °F. at _____ A.M. P.M. _____ 194_

Record obtained from _____ Recorded by _____

File-

July 13, 1942

Mr. E. J. Kenninger
Water Works Superintendent
Ackley, Iowa

Dear Sir:

In response to your request for information on the ground-water possibilities of continued drilling at Ackley the following has been prepared from information in our files.

The well being drilled at present for the city is finished in dolomite and silty dolomite of the Sheffield formation which in this and in neighboring areas is water-bearing. The remainder of this formation consists of a thin shale member followed in depth by a thin dolomite member which in turn is underlain by shale.

Beneath the Sheffield lies the Lime Creek formation which is divided into three members. The upper two, the Owen and Cerro Gordo are chiefly limestones and dolomites, the lowermost member, the Juniper Hill, is almost entirely shale. The Shell Rock formation underlies the Lime Creek and is made up of limestone which may be slightly dolomitic. Beneath the Shell Rock occur the Cedar Valley-Wapsipinicon formations which are composed chiefly of dolomites but which carry a variable amount of gypsum at Ackley. The following table shows the thickness and depths of these formations:

Formation	Thickness	From	To
Sheffield formation	102	118	220
Lime Creek formation			
Owen and Cerro Gordo members (mainly limestone and dolomite)	55	220	275
Juniper Hill member (shale)	75	275	350
Shell Rock formation (limestone)	60	350	410
Cedar Valley-Wapsipinicon formations (Dolomite with gypsum in lower part)	300	410	710
Maquoketa formation (shale)		at 710	

The next probable source of water below the present bottom of the hole would be from cracks and crevices in the Owen and Cerro Gordo limestones and dolomites at an estimated depth of 220 to 275 feet. The quality of any water found in this zone would be similar to that already obtained. This horizon, however, does not normally carry large quantities of water and cannot be relied upon to be a good aquifer at Ackley. Additional water may be expected from the limestones and dolomites which begin with the Shell Rock formation at an estimated depth of 350 feet. The water from this source may be somewhat harder than that from the upper horizons.

The gypsum possibly occurring in the lower portion of the Cedar Valley and through the Wapsipinicon formations make water from these beds very highly mineralized and unsatisfactory for a town supply. It may be possible to drill into the Cedar Valley for some distance and utilize the water which is present there provided the drilling is not carried into the gypsum.

Unfortunately we do not have any good information on the water-bearing capacity of the Shell Rock and upper Cedar Valley limestones, but it is doubtful that their yield will be large.

Another possibility which you may wish to consider for increasing the water supply at Ackley is to drill another hole into the same horizon which was tapped in your new well. The additional well should be as far as possible away from the new well or any other producing well within the town.

If you have any questions regarding this report, or if the Iowa Geological Survey can be of further service please do not hesitate to call on us.

Very truly yours,

H. G. Hershey

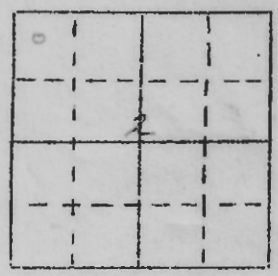
HGH:N

cc to S. R. Ames, Lincoln, Iowa

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

N-1576 X

RECORD OF WELL



Location:

Town: Ashley (N E) (S W); County Hardin

NW-NW sec. 2 T. 89 N., R. 19 W. B. Twp.

Well name and number Town Well #3

Owner City of Ashley Address

Tenant Address

Contractor Doty & Sons Address Lincoln

Drillers Homer R Lake

Drilling dates 1942 ?

Well data:

Elevations: Drilling curb 1101 feet; Land surface feet

Determined by

Topographic position Upland

Total depth: Reported feet, Measured 140' feet

Drilling method Drilled

Hole and casing data 12" hole drilled 75' 10" pipe 74-12

(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 33 ft. below ~~above~~ curb Date

Original elevation of water level ft.; Source of data

Sources of water: Principal Hampton ; Others

Production data: Date _____

Static depth to water 53' Measuring point _____

Pumping level 126' at 134' 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 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 0-140 No. spls. 27 No. dupls. & cond. 27 G

Spls. prepared by _____ Washed range _____ by _____

Driller's log and cond. _____

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

Microscopic study 0-140 strip log 7/14/42 Quinn

Gen. log _____ Correl. by Quinn