

9-26-69

STATE		COUNTY		LATITUDE							LONGITUDE							NO.
				DEG.	MIN.		SEC.	N or S	DEG.	MIN.		SEC.	SEQ.					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	9	5	5	4	3	0	4	1	9	N	0	9	4	1	4	3	0	1

## US GEOLOGICAL SURVEY

IOWA DISTRICT WRD

OWNER ALGONA CITY WELL #3 ADDRESS ALGONA, IA.

DRILLER THORPE WELL CO. DATE DRLD. 1925

MAP 1:63,360 COUNTY HWY.

SOURCE OF DATA FILE

SOURCE OF DATA \_\_\_\_\_

DESCRIPTION M. P. LSD FEET (ABOVE) LSD 1212 FT.  
(BELOW)

CONTINUED FROM ABOVE	ACCURACY	LOCAL WELL NUMBER														LOCAL USE														OWNER OR NAME														OWNERSHIP	WATER USE	WELL USE	WELL DATA	FREQ. W/L	FIELD CHAR.	HYD. LAB.	QW - DATA	QW - FREQ.	PUMPAGE	APERTURE	LOG DATA	CARD								
		T.		R.	E <sub>W</sub>	SEC.	QUARTERS		W-NUMBER		OPTIONAL																																																					
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61														62	63	64	65	66	67	68	69
		2	0	9	5	2	9	W	0	2	C	B	A	A	A		0	0	1	7	5	/	/	2	5	C	I	T	Y				3	A	L	G	Ø	N	A		I	Ø	W	A					M	P	W	3	Ø				C	I				G	D	A

DUPLICATE CARD A CC 1-19	DEPTH OF WELL			ACCURACY		DEPTH CASED OR FIRST PERF			DIAM INCHES		WELL FINISH		METH. FINISH		YEAR DRILLED		PUMP SETTING			METH. LIFT		DEEP SHALLOW		POWER		ALTITUDE OF LSD (FEET)					ACCURACY		WATER LEVEL (FEET)					ACCURACY		DATE		YIELD OF WELL (GPM)					METH. DET.		DRAW-DOWN (FEET)		ACCURACY		PUMPING PERIOD (HOURS)		QUALITY OF WATER										CARD																													
	MONTH		YEAR		YIELD OF WELL (GPM)					METH. DET.		DRAW-DOWN (FEET)		ACCURACY		PUMPING PERIOD (HOURS)		IRON		SULF.		CHLOR.		HARD		SP. COND.		TEMP.					DATE SAMPLED					CARD																																																								
	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81																																
	1	8	8	5	3				2	5	0		1	2		P	C		9	2	5	2	3	8	S	D	5						1	2	1	2	7					1	0	0		D					2	5				2	0	0							1	0	0		3										6	5	0		7	5				5	2	D	6	0		B

[illegible]

12" PIPE TO 206 FT. 958 FT. OF 10" PIPE  
SET AT A DEPTH OF ABOUT 1150 FT. 741 FT.  
OF 8" PIPE SET AT 1885 FT., PERFORATED  
AT VARIOUS HORIZONS.

PUNCHED BY \_\_\_\_\_ DATE \_\_\_\_\_

VERIFIED BY \_\_\_\_\_ DATE \_\_\_\_\_

SKETCH ON REVERSE: YES \_\_\_\_\_ NO ✓

0	2		

SWL DEC. 7, 1960 100 FT.

38 FT. dd @ 150 GPM

WELL NO. 095-29W-02CBAAH



## UNITED STATES DEPARTMENT OF THE INTERIOR

Geological Survey  
Water Resources DivisionLocal Well No. 095-29W-02CBAAAAquifer Code(s) 01LP C355Owner's Name ALGONA CITY #3 1925W Number 0175Water Quality  
(ppm)

Card Q

State: Iowa 19 County: Kossuth 55 Town: ALGONA, Iowa

Well No. 430419N 0941430 Seq. No. 1 Date 070660

Sampling Depth 1885 Type 1 Kx10<sup>6</sup> 1000 pH 7.4 Temp. °F 53

SiO<sub>2</sub> 10 Ca 1111 Mg 48 Na 41 K 12

HCO<sub>3</sub> 459 CO<sub>3</sub> 0 SO<sub>4</sub> 187 Cl 8 Source No. 3 Q

Card R

Duplicate Columns 1-25 from Card Q

F 8 NO<sub>3</sub> 4 PO<sub>4</sub> 3 B 3 Al 3 Fe 20

Mn 05 Cu 1 Pb 1 Zn 1

Solids 656 Hardness 476

Determined 656 Calc. 656 Ca, Mg 476 Non-Carb. 100

Color 1 No. R

Card S

Duplicate Columns 1-25 from Card Q

Br 1 I 1 Alk. as CaCO<sub>3</sub> 376 Free CO<sub>2</sub> 3 SAR 1

RSC 1 ABS 1 1 1

Alpha (pc/l) 1 Beta (pc/l) 1 Ra (pc/l) 1 U (ug/l) 1

No. S  
80Recorded by: D. AARONSONPunched by: T Date:       Published:



Notes on Algona City Well No. 3, W-0175, Kossuth County

Samples for the whole well in general are not good; those above the St. Peter (0-920') are particularly poor with gaps and long intervals, and no correlations can be made with certainty above.

The St. Peter as shown by samples is thicker than usual (80') with much shale in the upper 30'-50'. This varicolored shale is probably out of place.

The Willow River is very sandy, probably due to cave from the St. Peter above. It shows dolomite oolites, and a few chert oolites with sand grain centers.

Assignment of New Richmond or Root Valley is made on the basis of occurrence of sand which is not too reliable in this well due to cave. It may be that the base should be drawn at 1120' rather than 1160'.

The Oneota seems fairly well defined except for the upper boundary as mentioned above. It consists of light drab and buff, fine to medium grained dolomite, from 1160' to 1250'.

Jordan consists mostly of medium sand, well frosted, angular to curvilinear, with a thickness of 50'.

The Lodi top is placed at 1300' because the sandstone there becomes more fine <sup>grained</sup> and slightly dolomitic.

The Franconia is largely dolomitic with some light gray, very fine-grained limestone at the top, and light grayish green slightly maroon, silty shale at the base of the upper and undifferentiated portion above the Ironston.

The Galesville is separated from the Ironston by a change in color (from light gray in Ironston to light buff in Galesville), and by a change in size grades (Galesville is much finer than Ironston).



Survey No. W-0175

The beds called Eau Claire in this well consist of greenish gray (with trace of brown), silty, dolomitic shale, with glauconitic dolomite and sand toward the base. This lithology differs markedly from the coarse clean glauconitic sand which should be typical of the Eau Claire.

The Mt. Simon consists of medium brown, well frosted sand, mostly medium, with hematite and limonite flattened oolites in small percentage.

The top of the pre-Cambrian granite, consisting of pink feldspar and quartz is placed at 1839' (split sample).

There seems to be no folder for this well in the files. The depth, according to Gulf log, is 1885', with no samples from 1860' to 1885'.

John B. Carrier



Note: Robert Cox's thesis on Kossuth County reports that the deep Algona well penetrating the Mt. Simon ss. was abandoned in 1946.

In Dec. 1960 Leon Steele, U.S.G.S. visited Algona and reported the deep well was still being used and capable of pumping 150 g.p.m. This well which the Iowa Survey calls No. 3, is actually Algona's No. 4. Their No. 3 was drilled in 1913 by McCarthy Well Co. and had a T.D. of 1361'. It was recessed in 1924. At present (Dec. 1960) there is no pump in this well although it is not plugged. The Iowa Geological Survey does not have any information on the Algona No. 3 (1913)



Well

Algona - Kossuth Co.

1

Dear Kay:-

Here is a very imperfect log of the  
New Well now drilling at Algona. It  
was brought to me by one of my students  
who lives there.

The driller wants to know why he is  
not getting water. Compared with the Mason  
City and Rockwell City wells (the latter only recently  
completed) he believes he should be in Jordan.  
Surface contour of St. Peter is 400 ft. above  
sea level at Algona; the elevation is about  
1700' making only 800-900 to St. Peter. There  
is only 200-300 between St. Peter & top of  
(over)

Jordan according to our Iowa Columnar  
section, 2

Would you advise further drilling or  
plugging at the 1091' level?

A. O. Thomas,



3

THE NEW ALGONA WELL.

On September 15, 1924, Thorpe Brothers, Water Works Engineers from Des Moines, Iowa, started drilling for water at Algona, Iowa. At every ten foot interval a sample was taken with the following results:

35'	Yellow clay	35'
95'	Black clay	130'
56'	Fine Sandstone	186'
5'	Limestone	191'
10'	Red Shale	201'
22'	Limestone	223'
2'	Shale	225' (incomplete here)
591'	Limestone with shale	816'
17'	Shale	833'
3'	Limestone	836'
20'	Shale	856'
3'	Limestone	859'
56'	Shale	915'
5'	Limestone	920'
8'	Shale	928'
12'	Sandstone	940'
10'	Shale	950'
10'	Sharp Sand	960'
20'	Shale and hard sharp sand	980'
40'	Sandy shale	1020'
18'	Sandy Lime	1038'
25'	Sandstone	1063'

At this point water was struck, but it proved to be unfavorable.

28'	Limestone	1091'
30'	Sandstone	1121'
133'	Limestone	1254'
88'	Sandstone	1342'
18'	Shale	1360'
20'	Shale	1380'
44'	Limestone	1424'
45'	Shale	1469'
11'	Limestone (Very hard)	1480'
3'	Shale	1483'
4'	Limestone	1487'
64'	Shale	1551'
53'	Sandstone	1604'
67'	Shale	1671'



C O P Y

State of Iowa  
Iowa Geological Survey  
Mt. Vernon, Iowa.

January 13, 1925.

Dear Doctor Thomas:--

I am very pleased to learn that at last we are in the way of getting something definite as to Algona. If Thorpe Bros. has saved the cuttings and will send them to us, we shall have some definite knowledge in this area.

I drew my St. Peter line at Algona at 400 A. T. As Algona is about 1200 this would bring the St. Peter at a depth of 800 ft. As the first sandstone struck was at 928--272 A. T--either the trough is deeper at Algona than we reckoned and the lines must be given considerable of a twist, or the shale above say to 859 goes with the St. Peter, or represents it.

This would put the lime and sand from 1063 to 1254 in the Prairie du Chien, so that the regular Jordan horizon has been passed.

Still, while the odds are against it, I would say that there was still a fighting chance of striking a sandstone with water even yet. But if the shales at the bottom are red, the chance is very slim.

If the shales below 1342 are glauconitic (green in color) my assignments are confirmed. If the shales above the first sandstone have the appearance of the Decorah or its fossils it is confirmed still farther.

Faithfully yours,

W. H. Norton.



5

C O P Y

State of Iowa  
Iowa Geological Survey  
Des Moines, Iowa.

January 12, 1925.

My dear Thomas: -

Thank you for the log of the Algona well which you sent in your recent letter. I have pondered over it a good deal and find several peculiarities. In the first place I think the fine sandstone from 130-186 feet must really be glacial sand; in the second place there is no shale in the proper place for the Maquoketa unless the shale from 816-928 is Maquoketa and that would throw the other formations too low down. A possible correlation would be as follows:

Pleistocene, surface to 186 feet  
Kinderhook, Devonian, Silurian, Maquoketa, Galena, 186-816  
Plattville, 816-928  
St. Peter 928-1063  
Prairie du Chien, New Richmond, Oneota, 1063-1254  
Jordan 1254-1342  
St. Lawrence and Dresbach, 1342-1671

If this correlation is anywhere nearly correct I do not see why the drillers did not find an abundance of water in the Jordan. Is it possible that as I suggested before the shale beds from 816-928 are Maquoketa and that the mixed beds from ~~there~~ 1254 are Galena and Plattville and that the sandstone from 1254-1342 is the St. Peter? Considering other wells in northern Iowa the first correlation seems more probable. I do not know anything about the pre-Cambrian surface in north central Iowa as no wells have been known to reach it. I think this well is the deepest by several hundred feet in Iowa and its record will be of great service. The nearest wells which reach the pre-Cambrian are those at Full in Sioux County and the new well at Holstein which I described in the proceedings of the Academy recently. Under the circumstances I think that your suggestion that they continue a little further down is as good as any. They should find water before they reach the quartzite. Perhaps it will be found immediately above that horizon.

(Signed) James H. Lees.



# THE NEW ALGONA WELL.

On September 16, 1924, Thorpe Brothers, Water Works Engineers from Des Moines, Iowa, started drilling for water at Algona, Iowa. At every ten foot interval a sample was taken with the following results:

35'	Yellow clay	35'
95'	Black clay	130'
56'	Fine Sandstone	186'
5'	Limestone	191'
10'	Red Shale	201'
22'	Limestone	223'
2'	Shale	225' (incomplete here)
591'	Limestone with shale	816'
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3'	Shale	1483'
4'	Limestone	1487'
64'	Shale	1551'
53'	Sandstone	1604'
67'	Shale	1671'



Dresbach at Algona  
Kossuth Co.

1. Dresbach here consists of 30' of white & gray <sup>fine</sup> ss with larger grains rounded. Elev. of top of Cambrian is 6' below sea level or at a depth of 1250' (1211' below curb of Mason City well #11.), and Top of Dresbach is 1550' (1511' below curb of Mason City well #11.). Trempealeau & Franconia formations are 200' thick here.
2. Static level is 100' below curb and with continuous pumping at 200 gpm drawdown is 100' +. 12", 10", & 8" hole. Water is reported as coming from Shakopee & Jordan, & though the entire Cambrian is penetrated no mention is made of water from the Dresbach. Water is of moderately good quality. Typical clean coarse Mt. Simon ss is here apparently replaced by sandy shales.

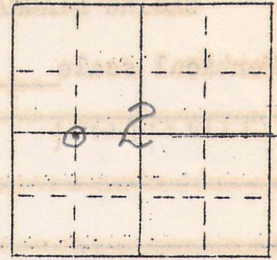


field located  
McCarty. 1978

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

W-0175

RECORD OF WELL



Location:

Town: Algona ( N.E. )  
( S.W. ): County Kossuth  
S.W. NE SE SW sec. 2, T. 95 N. R. 29 W.  
GNL - SW 1/4 sec. 2 T 95 N., R. 29 W. Cresco Twp.

Well name and number Algona City Well No. 3 deep Not in use 1946

Owner City of Algona Address \_\_\_\_\_

Tenant \_\_\_\_\_ Address \_\_\_\_\_

Contractor Thorpe Well Company Address Des Moines, Iowa

Drillers \_\_\_\_\_

Drilling dates 1924-25

Well data: topo. elev. 1209'  
Elevations: Drilling curb \_\_\_\_\_ feet; Land surface 1212 feet

Determined by Gulf

Topographic position \_\_\_\_\_

Total depth: Reported 1885 feet, Measured \_\_\_\_\_ feet

Drilling method Cable tool

Hole and casing data 12" pipe to 206'; 958 feet of 10" pipe set at a depth  
of about 1150'; 741 feet of 8" pipe set at 1885 feet; perforated at various  
water hor. 1201.9 (250-300; 500-650; 1063, 1240-70)

Original depth to water 100 ft. above \_\_\_\_\_  
ft. below Land Surface Date 1925

Original elevation of water level \_\_\_\_\_ ft.; Source of data \_\_\_\_\_

Sources of water: Principal 1063 (Willow R.) 1240-70 (Jordan); Others  
250-300 (Devonian), 500-650 (Mag?)



Production data:

Date 1925Static depth to water 100

Measuring point

Pumping level

200

at

200

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 <sub>2</sub> O <sub>3</sub> + Mn <sub>2</sub> O <sub>3</sub> + Al <sub>2</sub> O <sub>3</sub>	_____	_____	_____	_____
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 205-1885No. spls. 107No. dupls. & cond. 99

Spls. prepared by \_\_\_\_\_

Washed range \_\_\_\_\_

by \_\_\_\_\_

Driller's log and cond. \_\_\_\_\_

Insoluble residues: Prepared by \_\_\_\_\_

Studied by \_\_\_\_\_

Strip log \_\_\_\_\_

Microscopic study VBCstrip log 6-23-42

JBC

Gen. log \_\_\_\_\_

Correl. by JBCCorrel. by JBC