WRD Exp. (GW)
Aug. 1964

Verified PMJ
Punched FCH

U. S. DEPARTMENT OF THE INTERIOR — GEOLOGICAL SURVEY

Water Resources Division Well Schedule Form

MASTER CARD

Record by: R.W. COBLE Source of data: FILES Date: 6/28/65 Map: COUNTY HWY 1:63,360

State: IOWA [1 6] County (or town): POCAHONTAS [7 6]

Latitude: [4 2 4 9 0 7 N] N/S Longitude: [0 9 4 3 1 3 0] Sequential number: [1]

Lat-long accuracy: [2] T 92 N/S, R 31 E/W, Sec 5, SW ¼, NE ¼, NE ¼, 5

Local well number: [0 9 2 3 1 W 0 5 a a c] Other number: B & M W-2973

Local use: [0 2 9 7 3 47 ...] Owner or name: CITY OF ROLFE

Owner or name: [R Ø L F E I Ø W A] Address: ROLFE, IOWA

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private, (S) State Agency, (W) Water Dist [M]

Use of water: (A) Air cond, (C) Comm, (D) Dewatering, (F) Fire, (H) Dom, (I) Irr, (N) Ind, (P) P S, (S) Stock, (T) Instit, (U) Unused [P]

Use of well: (A) Anode, (D) Drain, (G) Seismic, (O) Obs, (P) Oil-gas, (R) Recharge, (S) Spring, (T) Test, (U) Unused, (W) Withdraw, (X) Waste, (Z) Destroyed [W]

DATA AVAILABLE: Well data [1] Freq. W/L meas.: ORIGINAL [ ] Field aquifer char. [ ]

Hyd. lab. data: [ ]

Qual. water data; type: COMPLETE [ ]

Freq. sampling: IRREGULAR [I] Pumpage inventory: yes / no, period: [ ]

Aperture cards: yes [ ]

Log data: GEOLOGIC AND DRILLERS [G D]

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 185 ft [1 8 5] Meas. / rept. DRL. LOG accuracy [ ]

Depth cased (first perf.): 98 ft [9 8] Casing type: STEEL; Diam. 12 in [1 2]

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (O) open end, (P) perf., (S) screen, (T) sd. pt., (W) shored, (X) open hole, (Z) other [X]

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (R) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) drive wash, (Z) other [C]

Date Drilled: 8/23/47 [7 4 7] Pump intake setting: ft [ ]

Driller: LAYNE-WESTERN CO. (name), KANSAS CITY, MO. (address)

Lift (type): (A) air, (B) bucket, (C) cent, (J) jet, (L) multiple (cent.), (M) multiple (turb.), (N) none, (P) piston, (R) rot, (S) submerg, (T) turb, (Z) other [ ] Deep / Shallow [ ]

Power (type): diesel, elec, gas (nat), gasoline, hand, gas (LPG), wind; H.P. [ ] Trans. or meter no.

Descrip. MP: LAND SURFACE ft above/below lsd, Alt. MP 1181

Alt. LSD: 1181 [1 1 8 1] Accuracy (source): ALTIMETER [ ]

Water Level: 20.34 ft above/below MP; Ft above/below lsd [2 0 3 4] Accuracy: TAPE [ ]

Date meas.: 9/2/47 [9 4 7] Yield: 255 gpm [2 5 5] Method determined [ ]

Drawdown: 13.21 ft [1 3] Accuracy: TAPE [C] Pumping period: 2½ hrs [ ]

QUALITY OF WATER DATA: Iron 2.0 ppm [ ] Sulfate 227 ppm [ ] Chloride 1.5 ppm [0] Hard. 582 ppm [ ]

Sp. Conduct 980 K x 10^6 [ ] Temp. °F [ ] Date sampled 3/3/1959 [ ]

Taste, color, etc.

92-31W- 5aac

Well Number 49 07 N 094 31 W
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD (1-19) | Physiographic Province: CENT. LOW (20-21) | Section: WEST

LAKE (22) | Drainage Basin: (23-25) | Subbasin: (26)

Topo of well site: (D) local depression, (F) flat surface, (H) hilltop, hillside, terrace, (S) valley flat, (I) (V) (27)

MAJOR AQUIFER: MISSISSIPPIAN (system) LOWER (series) (28-29) UNDERHOOK (aquifer, formation, group) K X (30-31)

Lithology: DOLOM (32-33) | Origin: MARINE (34) | Aquifer Thickness: 80 ft

Length of well open to: 80 ft (35-37) | Depth to top of: 95 ft (38-40) (41-43)

MINOR AQUIFER: (system) (series) (44-45) (aquifer, formation, group) (46-47)

Lithology: (48-49) | Origin: (50) | Aquifer Thickness: ft (51-53)

Length of well open to: ft (54-56) | Depth to top of: ft (57-59)

Intervals Screened: OPEN HOLE 98 - 185

Depth to consolidated rock: 61 ft (60-63) | Source of data: SAMPLE (64)

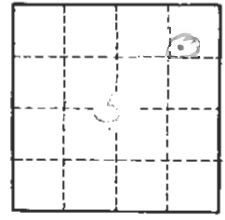
Depth to basement: ft (65-68) | Source of data: (69)

Surficial material: SANDY TILL (70-71) | Infiltration characteristics: POOR (72)

Coefficient Trans: gpd/ft (73-74) | Coefficient Storage: (75-78)

Coefficient Perm: gpd/ft²; Spec cap: 14 gpm/ft; Number of geologic cards: (79)

CASIN -
0 TO 98
98' OPEN HOLE TO 185



WELL RECORD

Well is located ..... N/E/W miles S and ..... N/E/W miles S from

..... in Pocahontas .....
(Nearest Town) (County)

in the ..... ¼ ..... ¼ Sec. ..... T. ..... R. .....

Owner Town of Rolfe Well No. .....

Postoffice address Rolfe .....

Contractor Layne-Western Co .....

Address 1010 W. 39th St K.C. Mo. .....

Driller .....

Well begun 7-26, 19 47;

completed 8-23, 19 47

Rig used—Cable, Rotary, Jet, or .....

Depth of well ..... (Feet)

Size of hole (note total amount of each size) .....

12 in .....

Main water supply at ..... (Feet below surface)

Final water head ..... (Feet above or below surface)

Is well pumped? .....

Yield ..... (Gallons per minute)

Water level when pumping .....

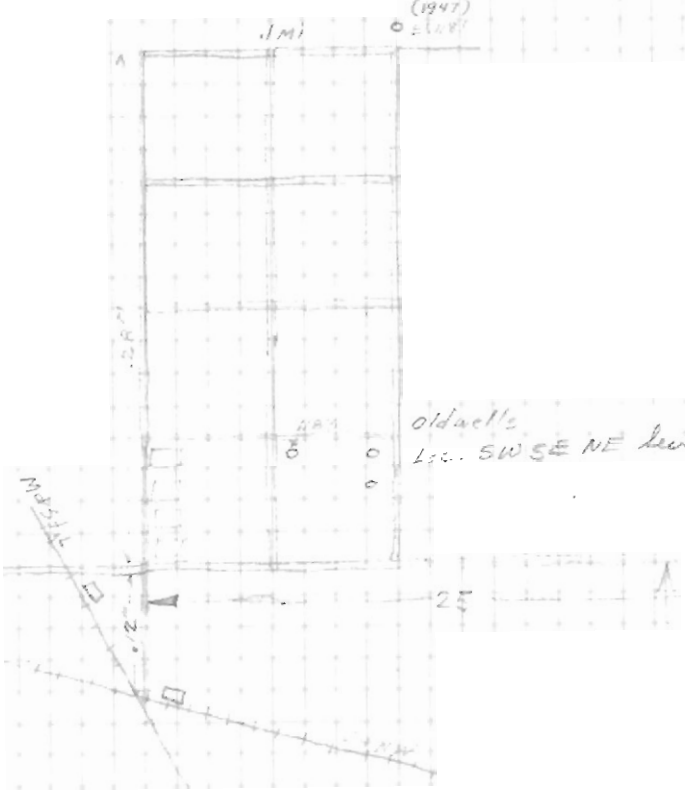
Position of well ..... (Upland, valley, side hill, etc.)

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
	0	5		Surface soil
	5	60		Blue clay
	60	65		Gravel - sand - blue mud
	65	97		" " "
	97	140		lime - Brown
	140	142		opening
	142	160		Brown lime
	160	166		no cuttings 8-21-37-SWL 22'
	166	170		" "
	170	175		Brown lime 8-22-37-SWL 22
	175	180	Brown lime	Made 2 inch Test 20 Inches
	180	185	Lime Shale	in 5 min. No draw down

Part of Town of Ralfe

Loc. SW NE NE Sec 5

(1947)



Sec. 5, T. 32 N., R. 3 W.

Hale

Levels of Town Wells at Rolfe

W.E. Hale Sept. 2, 1947

Sta	Time	Temp	Read	Temp Corr	Bar Cor.	Elev.
Rolfe R.R. Sta	7:52A	74°F	1154	0 1154	+31	1185
Old Town well	7:54A		1157		+31	
New town well (1941)	7:57A		1149		+32	1181
Rolfe RR Sta (C+NW	8:01A		1153		+32	1185
Old town well	8:04A		1150		+33	1183
New Town well	8:06A		1146		+35	1181
do	9:19a		1127			
RR Sta	9:21a		1132			
	9:26a		1127			

New Town well SW¼ NE¼ NE¼ 5-92N-31W El. 1181

Old Town well SW¼ SE¼ NE¼ " " " El. 1183

Pocahontas

IOWA PRESS
CLIPPING BUREAU
Des Moines, Iowa

Arrow
Rolfe, Iowa

GW

AUG 28 1947

Drillers Strike Abundant Supply Of Good Water

Gushing Vein Reached at Depth of 184 Feet

A crew of the Layne Western corporation from Omaha, who started drilling for the new town well July 29, struck a good vein of water last Friday, which tests last Saturday show would deliver 250 gallons of water per minute. Digging was in charge of Dave Laird, manager of the local project.

The well is located on the street ending on the bank of Pilot creek just west of the Mrs. Mae Meech property. After drilling down 100 feet, lime rock was struck. The remaining 84 feet until the water vein was struck at a depth of 184 feet was drilled through the limestone. On an 11 hour test the pump delivered a stream of water at the rate of 250 gallons per minute without lowering the level of water in the well.

When the vein was struck water rose to within 22 feet of the top of the well. It sank 12 feet when the pump was started, but was not lowered any further by the pump.

Unofficial tests by Rolfe citizens who took pails of water from the stream coming from the well disclosed that the new water lacks evidence of either iron or sulphur. The water is clear, and according to report, will make good coffee.

The town council plans to build a pump house at the site of the well and develop the street end into a small park.

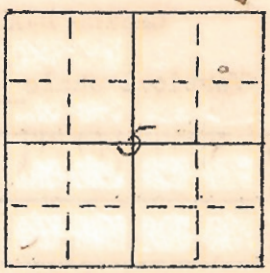
The town well now in use delivers only 43 gallons per minute and the pump was in operation on hot days from 6 o'clock in the morning until night. The cost of pumping is close to $80 per month. The new well will furnish an abundance of water without excessive pumping, and present indications are that the water is far superior to that now used.

The water will be pumped into the pipes at the new location, will clear up dead ends, and fill the town water tank without the necessity of putting in a new water main.

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

wl-2973

RECORD OF WELL



Location:

Town: Rolfe (N E / S W): County Pocahontas E.

SW¼NE¼ NE¼ sec. 5 T 92 N., R. 31 W. Clinton Twp.

Well name and number Town Well (1947)

Owner Town of Rolfe Address

Tenant Address

Contractor Layne Western Inc Address Ames Iowa

Drillers David Laird

Drilling dates Started 7-26-47 Finished 8-23-47

Well data:

Elevations: Drilling curb 1181 feet; Land surface 1180.5 feet

Aneroid from C.&N.W. Station El. Top rail 1185'

Determined by W.E. Hale

Topographic position Upland

Total depth: Reported 185 feet, Measured feet

Drilling method Cable tool

Hole and casing data 98' 2" of 12" pipe from +0.5 to 97'8"

Open 12-inch hole from 97'8" to 185'

Original depth to water 20.34 ft. ~~above~~ below Top 12" casing Date Sept 2, 1947

Original elevation of water level 1160.7 ft.; Source of data Obs.

Sources of water: Principal (140-142) (160-170) Crevices; Others Sand 45-95 (400 gpm)

CASING DIAGRAM	LOG
Vertical scale ________	Drillers Log
	0-5 Surface soil
	5-60 Blue clay
	60-97 Gravel-sand; blue mud
	97-140 Brown lime
	140-42 Opening
	142-160 - Brown lime
	160-170 - No cuttings SWL 22'
	170-180 - Brown lime
	180-185 lime + shale

Production data: Date Sept. 2, 1947

Static depth to water 20.34 Measuring point Top of 12" pipe

Pumping level 33.55 at 255 g.p.m.

Specific capacity 19.4 g.p.m. per ft. drawdown; Temperature 50½ °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	9/2/47			
Sampled by	W.B. Hall			
Total solids	676			
Insoluble matter	31			
Alkalinity (Meo)	416			
Alkalinity (Phn)	None			
pH	7.8			
$Fe_2O_3 + Mn_2O_3 + Al_2O_3$	6.			
Alkali as sodium	46.7			
Calcium	153			
Magnesium	42.9			
Iron (unfiltered)	2.5			
Manganese	.12			
Nitrate	None			
Fluoride	.6			
Chloride	2			
Sulfate	214			
Bicarbonate	508			
Hardness (ppm)	563			
Hardness (gpg)	32.9			

Remarks ____

Laboratory data: Sample storage location ____

Sample range 0-180 No. spls. ____ No. dupls. & cond. ____

Spls. prepared by ____ Washed range ____ by ____

Driller's log and cond. ____

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

Microscopic study ✓ strip log ✓

Gen. log ____ Correl. by SEHJ. 9/4/47

WATER LEVEL DATA

Measuring point _____

Date	Depth to water	Altitude	Remarks

REMARKS

Set screen in sand. SWL about 22 feet. Pumped about 40 gpm. Not sufficient so abandoned this prospect. Drilled deeper

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 092-31W-05AAC
Aquifer Code(s) MIKX
Owner's Name Rolfe City (1947)
W Number 02973

Card Q

State: Iowa 19 (1-2) County: Pocahontas 76 (3-4) Town: Rolfe Iowa

Field	Value	Columns
Well No. Latitude	424907N	5–11
Longitude	0943130	12–18
Seq. No.	1	19
Date (M D Y)	090247	20–25
Sampling Depth	185	26–29
Type	1	30
$Kx10^6$		31–35
pH	7.8	36–38
Temp. °F	50	39–41
SiO_2		42–44
Ca	153.	45–49
Mg	43.	50–53
Na +K	47.	54–58
K	C	59–61
HCO_3	508	62–65
CO_3	0	66–67
SO_4	264.	68–72
Cl	2.	73–78
Source	3	79
No.	Q	80

Card R

Duplicate Columns 1-25 from Card Q

Field	Value	Columns
F	.6	26–28
NO_3	0.	29–32
PO_4		33–35
B		36–38
Al		39–41
Fe	2.5	42–45
Mn	.12	46–49
Cu		50–52
Pb		53–54
Zn		55–57
Solids Determined	676	58–63
Solids Calc.		64–69
Hardness Ca,Mg	563	70–73
Hardness Non-Carb.	147	74–77
Color		78–79
No.	R	80

Card S

Duplicate Columns 1-25 from Card Q

Field	Value	Columns
Br		26–28
I		29–31
Alk. as $CaCO_3$	416	32–35
Free CO_2		36–38
SAR		39–41
RSC		42–44
ABS		45–47
		48–50
Alpha (pc/l)		55–57
Beta (pc/l)		58–60
Ra (pc/l)		61–63
U (ug/l)		64–66
No.	S	80

Recorded by: D. Aaronson

Punched by: T Date:

Published:

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

092-31W-25ABC

MKX

Water Quality
(ppm)

Card Q

State: IOWA 16 (1 2) County: PAGAHONTAS (3 4) Town: ROLFE

Well No. Latitude 19 07 N (5–11) Longitude 4 (12–18) Seq. No. (19) Date M 03 D 03 Y 59 (20–25)

Sampling Depth 8 (26–29) Type (30) $Kx10^6$ (31–35) pH 7.2 (36–38) Temp. °F (39–41)

SiO_2 (42–44) Ca 19 (45–49) Mg (50–53) Na (54–58) K (59–61)

HCO_3 3 (62–65) CO_3 (66–67) SO_4 (68–72) Cl 15 (73–78) Source No. 3 (79) 0 (80)

Card R

Duplicate Columns 1-25 from Card Q

F .5 (26–28) NO_3 18 (29–32) PO_4 (33–35) B (36–38) Al (39–41) Fe (42–45)

Mn .32 (46–49) Cu (50–52) Pb (53–54) Zn (55–57)

Determined Solids (58–63) Calc. (64–69) Ca,Mg (70–73) Hardness Non-Carb. 46 (74–77)

Color (78–79) No. (80)

Card S

Duplicate Columns 1-25 from Card Q

Br (26–28) I (29–31) Alk. as $CaCO_3$ 36 (32–35) Free CO_2 (36–38) SAR (39–41)

RSC (42–44) ABS (45–47) (48–50)

Alpha (pc/l) (55–57) Beta (pc/l) (58–60) Ra (pc/l) (61–63) U (ug/l) (64–66)

Verified PMJ
Punched FCH

No. (80)

Recorded by: R.W. COBLE

Punched by: _____ Date: _____

Published: _____

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Local Well No. 092-31W-05 AAC
Aquifer Code(s) MIKX
Owner's Name ROLFE CITY (1947)
W Number 02973

Water Quality
(ppm)

Card Q

State: IOWA (19) County: POCAHONTAS (76) Town: ROLFE, IOWA

Well No. Latitude 42 49 07 N (5–11) Longitude 094 31 30 (12–18) Seq. No. 1 (19) Date M 08 D 08 Y 67 (20–25)

Sampling Depth 185 (26–29) Type 1 (30) Kx10^6 1200 (31–35) pH 6.9 (36–38) Temp. °F 50 (39–41)

SiO_2 20. (42–44) Ca 150. (45–49) Mg 50. (50–53) Na 53. (54–58) K 3.9 (59–61)

HCO_3 529 (62–65) CO_3 0 (66–67) SO_4 240. (68–72) Cl 3. (73–78) Source No. 3 (79) Q (80)

Card R

Duplicate Columns 1-25 from Card Q

F .5 (26–28) NO_3 .1 (29–32) PO_4 . (33–35) B . (36–38) Al . (39–41) Fe .14 (42–45)

Mn .44 (46–49) Cu . (50–52) Pb . (53–54) Zn . (55–57)

Solids Determined 793 (58–63) Calc. (64–69) Hardness Ca,Mg 584 (70–73) Non-Carb. 150 (74–77)

Color (78–79) No. R (80)

Card S

Duplicate Columns 1-25 from Card Q

Br . (26–28) I . (29–31) Alk. as $CaCO_3$ 434 (32–35) Free CO_2 (36–38) SAR . (39–41)

RSC (42–44) ABS . (45–47) . (48–50)

Alpha (pc/l) (55–57) Beta (pc/l) (58–60) Ra (pc/l) . (61–63) U (ug/l) . (64–66)

No. S (80)

Recorded by: D. AARONSON

Punched by: _____ Date: _____

Published: _____

Memorandum

By: W. E. Hale

Subject: Drilling of well for town of Rolfe

Date: March 23, 1945

I met Mr. G. G. Butler, mayor of Rolfe, and he took me on a tour of the town. We visited the old well field and proposed site of the new well. The new well is to be drilled as near as possible to the No. 2 test well drilled by the IERA in 1935. Mr. Bush of Plover will drill the well. Mr. Butler said that they would be glad to cooperate with us in saving samples, and sample bags and drillers log book should be sent to the town in care of Mr. Butler in the very near future.

Bacalaureus

April 28, 1947

Layne-Western Company
P. O. Box 662
304½ Main Street
Ames, Iowa

Attention: Mr. R. W. Brooks

Gentlemen:

Re: Development of water supply of 100 to 200 gallons per minute at Rolfe, Iowa.

In response to your request for a forecast of the formations and ground-water conditions to be encountered at Rolfe, Iowa, we have assembled the following data from the open files of the Geological Survey. These data supplement the discussion on Rolfe in our letter to you of May 23, 1946.

The following forecast of the anticipated geologic section at Rolfe to the St. Peter sandstone is based on a starting elevation of 1173 feet above sea level and at the location of the present well field.

Formation and Description	Thickness (feet)	From (feet)	To (feet)
Pleistocene and Cretaceous System			
(clay with sand in lower part)	110±	0	110±
Mississippian System			
Hampton (limestone, dolomite and			
chert)	190±	110±	300
(siltstone)	10	300	310
Maple Mill (shale)	10	310	320
Devonian System			
(dolomite with thin shale beds)	355	320	675
(shale)	25	675	700
(sandy dolomite)	60	700	760
Ordovician System			
(dolomite and chert)	240	760	1000
(shale and limestone)	115	1000	1115
St. Peter (sandstone)	65	1115	1180

A few test holes have been drilled in Rolfe in an attempt to locate a satisfactory site for a gravel-pack type well developing a water supply from drift and Dakota type sands. Most of the test holes and wells have been drilled at the site of the present well field to a depth of about 105 feet. One test hole was drilled on the west side of town but the yield from this well was not encouraging. If a supply of 100 to 200 gallons per minute is desired, considerable exploration work would have to be done in order to locate a favorable site where the sands might yield the required amount of water. The general depth to the limestone below the sands in this locality is about 110 feet. To the west near Havelock, the sands extend to a greater depth. To the southeast, limestone is present beneath a few feet of drift. The quality of the water in the sands at Rolfe is shown on the attached data sheet. The water is not appreciably better than that from some of the aquifers in the underlying rocks of Paleozoic age.

The Hampton formation and rocks of Devonian age should yield considerable water. As stated in the previous letter of May 23, 1946, the old 640-foot well at Rolfe is reported to have been pumped at the rate of over 100 gallons per minute. The objections to the water was its high iron content. At West Bend, in the process of drilling a well to the St. Peter, the Cedar Valley formation of Devonian age was tested. Only 50 gallons per minute were obtained with a drawdown of 90 feet. The iron content of the water was exceptionally low.

At Humboldt, 170 gallons per minute were developed with a drawdown of 80 feet from a well finished at an equivalent depth of about 800 feet at Rolfe. At West Bend, in a well finished in the St. Peter sandstone, a production of 161 gallons per minute was obtained with a drawdown of 69 feet. At Mallard, with all waters above the St. Peter sandstone cased out, a supply of 76 gallons per minute was reported to have been developed. At Laurens, a supply of 100 gallons per minute is reported to have been developed from a well finished in the St. Peter sandstone. More water can probably be obtained from the Prairie du Chien and Jordan formations at a greater depth but the quality of the water is not known. However, it is likely to be of little better quality than that in the aquifers above.

The Maple Mill shale may not require a liner. At Humboldt, the shale was thin and was left uncased. The shale which may be expected at a depth of about 675 feet was thin at West Bend and Humboldt and was left uncased. However, to the west the shale is much thicker and has been cased in the wells at Mallard and Sac City. The shales immediately overlying the St. Peter sandstone are soft and have required a liner in all of the wells drilled through it in this locality.

In summary, it appears that a supply of between 100 and 200 gallons per minute may be developed at Rolfe from a well drilled to the St. Peter sandstone. The water is likely to be quite hard and have a high iron content. The Maple Mill shale, the shale in the Devonian system of rocks and the shale above the St. Peter sandstone may all require liners. There is also the possibility of encountering large clay-filled caverns in the Hampton formation here but their occurrence cannot be predicted. There is a

possibility that 100 gallons per minute might be developed from sands in the area but this would require the undertaking of a testing program.

If a deep well is drilled at Rolfe we will be glad to examine samples as drilling progresses in order to place you more accurately in the section. In the meantime if we can be of additional assistance to you in regard to this matter please let us know.

Very truly yours,

H. G. Hershey

HGH:WEH:AEH
ENC:

IOWA GEOLOGICAL SURVEY

TABULATION OF WATER ANALYSES

(parts per million)

COUNTY Wells near Rolfe, Iowa

TOWN Well No. Depth Use & location Ft.	Geol. form.	Diss. Solids	Ins. Mat.	NO_3	Na	Ca	Mg	Fe	Mn	Al	F	Cl	SO_4	HCO_3	PO_4	BO_3	Calc. Hard.	Grms. per Gal.
West Bend Coop Crmy 516'	Devonian	543	6.0	0.3	41.7	98.3	42.4	0.1	0.0		0.9	4.0	131.1	436.7			420	24.6
" " " " 1078'	Devonian Ordovician	661	11.5	0.04	57.3	118.3	49.8	0.8	0.0		1.0	6.5	189.3	494.1			502	28.8
Humboldt Crmy 870'	Devonian Ordovician	378	5	0.4	18.8	76.8	35.4	0.1	0.0		1.1	2.0	57.9	357.5			338	19.29
Havelock 400'	Miss-Dev.	781	12.0	0.4	30.1	141.2	45.8	0.0	.04		0.0	8.0	340.9	273.3	.04	3.0	541.0	31.6
Lauens 1200	Devonian Ordovician	1182	12.2	0.0	108.6	219.5	41.4	3.0	0.0		0.5	12.0	546.5	412.4			722	42.2
Mallard 1,100	Ordovician St. Peter	1,013			69	171	55	10.0		8.0		10.0	386	582			673	39.3
Rolfe 640	Devonian	1024	12.8	0.0	72.2	160	58.4	2.5	TR		0.0	7.0	410.7	449.0			644	37.7
Rolfe IERA Testwell 1 114	Pleistocene Cretaceous	474	37.6	0.0	39.8	89.4	32.8	0.2	0.3		0.5	2.0	45.5	470.9			358	20.9
" " " " 2 104	Pleistocene Cretaceous	1393	37.8	0.0	342	135.7	46.2	1.0	0.2		TR	6.0	165.4	519.7			531	31.1

NOTES:

(Copy)

HENNINGSON ENGINEERING COMPANY

626 Standard Oil Building
Omaha, Nebr.

May 5, 1947

Mr. H. G. Hershey
Associate State Geologist
Iowa Geological Survey
Geology Annex
Iowa City, Iowa

Dear Mr. Hershey:

Re: Development of water supply of 100 to 200 gallons per minute at Rolfe, Iowa

We wish to extend to you our thanks and appreciation for your very thorough and complete report of the formations and ground-water conditions to be encountered at Rolfe, Iowa. The information contained in your report will be very helpful in assisting the town officials and their consulting engineers in determining the best method of procedure to follow in endeavoring to provide an adequate water supply for the town.

We are mailing a copy of your report to Mr. J. H. Brinkman, Mayor.

Again thanking you, we remain

Sincerely yours,

HENNINGSON ENGINEERING CO.

By (Signed) H. Henningson

August 27, 1947.

Layne-Western Co.,
Ames, Iowa.

IN RE: Rolfe Well.

Dear Sirs:

I have had correspondence with the State Geological Survey director(Mr. H. G. Hershey) of Iowa City and he wishes to obtain a sample of the water for analysis and we would like to have this done before the test pump is taken out of the well so that we can have information at once as to our water. He wishes to send a representative here to take their own sample if possible and for that reason I am writing you and asking that you contact him at once as to when a representative can come and obtain this sample before the test pump is taken out of the well.

If you would take care of this matter on receipt of this letter we would appreciate it very much.

Yours very truly,

N. J. BIXLER,
Town Clerk.

NJB:TS

CC- Mr. H. G. Hershey, State Geologist.

N. J. BIXLER
ATTORNEY AT LAW
ROLFE, IOWA

August 27, 1947.

AUG 28 1947

Mr. H. G. Hershey, Director and State Geologist,
Iowa Geological Survey,
Geology Annex,
Iowa City, Iowa.

IN RE: Rolfe Well.

Dear Sir:

I have your letter in regard to sample. Wish to state that Layne-Western Co. at Ames, Iowa are the contractors on the well and at present the test pump is still assembled in the well so that a sample could be taken but as I understand it, in the near future they will pull the test pump and cap the well until a new pump is installed which will take considerable time.

We are anxious to have a test made as it no doubt will effect our future plans as to our water system. For that reason I am writing Layne-Western today and asking them to contact you at once so that you can obtain a test while the test pump is still in the well, and you should hear from them at once. However, if it is impossible for you to have a representative take a sample, we will obtain a gallon sample and ship it to you.

Thanking you [illegible]

Yours very truly,

N. J. BIXLER,
Town Clerk.

NJB:ES

Charge to the account of Iowa Geological Survey Ext. 2273 $ Pocahontas.

CLASS OF SERVICE DESIRED			
DOMESTIC		CABLE	
TELEGRAM		ORDINARY	
DAY LETTER		URGENT RATE	
SERIAL		DEFERRED	
NIGHT LETTER		NIGHT LETTER	

Patrons should check class of service desired; otherwise the message will be transmitted as a telegram or ordinary cablegram.

WESTERN UNION

1206

A. N. WILLIAMS, PRESIDENT
NEWCOMB CARLTON, CHAIRMAN OF THE BOARD
J. C. WILLEVER, FIRST VICE-PRESIDENT

CHECK
ACCOUNTING INFORMATION
TIME FILED

Send the following message, subject to the terms on back hereof, which are hereby agreed to

WANT A REPLY?
"Answer by WESTERN UNION" or similar phrases may be included without charge.

August 30, 1947

Mr. R. W. Brooks
Layne-Western Company
1106 Harding
Ames, Iowa

HALE LEAVING FOR ROLFE MONDAY. WILL BE AVAILABLE TUESDAY MORNING.

H. G. Hershey

HGH:BH

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

1201

JOSEPH L. EGAN
PRESIDENT

SYMBOLS
DL = Day Letter
NL = Night Letter
LC = Deferred Cable
NLT = Cable Night Letter
Ship Radiogram

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

MR M32 DL PD=AMES IOWA 30 824A

DR H G HERSHEY=

IOWA GEOLOGICAL SURVEY

1947 AUG 30 AM 8 57

WILL PUMP ROLFE WELL TUESDAY MORNING FOR WATER SAMPLE.

ADVISE IF YOU WANT TO HAVE SOMEONE PRESENT=

LAYNE WESTERN CO R W BROOKS.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

RESULTS OF PUMPING TEST

MADE ON

ROLFE TOWN WELL (1947)

ROLFE, IOWA

Sept. 2, 1947

NAME: Rolfe town well (1947).

OWNER: Town of Rolfe.

LOCATION: SW¼ NE¼ NE¼ Sec. 5, T. 92 N., R. 31 W., Clinton Twp.

ELEVATION: Top of 12-inch pipe and drilling curb 1181 feet above sea level. Land surface, 1180.5 feet above sea level.

CONTRACTOR: Layne-Western Inc., Ames, Iowa.

DRILLER: David Laird.

DRILLING DATES: Started July 26, 1947.
Finished August 23, 1947.

TOTAL DEPTH: 185 feet.

CASING RECORD & HOLE SIZE: 98'2" of 12-inch pipe from +.5' to 97'8".
Open 12-inch hole from 97'8" to 185'.

TEST PUMP: Turbine, setting 85 feet. Driven by gasoline engine.

DISCHARGE MEASUREMENTS: Discharge rate measured using 3-inch orifice in 4-inch pipe.

WATER LEVEL MEASUREMENTS: Water level measured with electric line from top of 12-inch casing.

WATER TEMP. MEASUREMENTS: Water temperature measured at end of 7 feet of 4-inch discharge pipe.

REMARKS: Most of water encountered in crevices at 140 to 142 feet and from 160 to 170 feet.

Test conducted by W. E. Hale, Geological Survey.

PUMPING TEST MADE ON ROLFE TOWN WELL (1947) W. E. Hale Sept. 2, 1947

TIME	DEPTH TO WATER FEET	DISCHARGE RATE ORIFICE INCHES	G.P.M.	WATER TEMP. °F.	REMARKS
Sept. 2					
7:40 am	20.34				
8:14	20.28				
8:24	20.21				
8:41					Pumping started
8:42	28.85	36	255±		
8:44	30.15	38	260		
8:45	30.67	39	263		
8:48	30.55	36	253	50	Air temp. 75°F. Water slightly milky.
8:53	31.25	37	255±		
9:00	31.71	37½	257		
9:06	32.02	37½	257		Water slightly milky
9:14	32.26	38	260	50½	
9:28	32.53	37½	257		
9:41	37.75	37½	257		
9:48	32.85	37½	257		Water almost clear.
10:01	33.05	37½	257		
10:11	33.10	37	255	50½	Water almost clear.
10:22	33.24	37	255		
10:36	33.33	37	255		
10:46	33.43	37	255		
10:53 am	33.49	37	255		Water slightly cloudy
11:01	33.55	37	255	50½	Water sample collected.
11:03					Pumping stopped
11:04	24.02				Recovery measurements
11:05	23.60				
11:06	23.36				
11:07	23.20				
11:10	22.92				
11:15	22.66				
11:20	22.47				
11:25	22.33				

RESULTS OF PUMPING TEST

MADE ON

ROLFE TOWN WELL (1947)

ROLFE, IOWA

Sept. 2, 1947

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OWNER: Town of Rolfe.

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Open 12-inch hole from 97'8" to 185'.

TEST PUMP: Turbine, setting 85 feet. Driven by gasoline engine.

DISCHARGE MEASUREMENTS: Discharge rate measured using 3-inch orifice in 4-inch pipe.

WATER LEVEL MEASUREMENTS: Water level measured with electric line from top of 12-inch casing.

WATER TEMP. MEASUREMENTS: Water temperature measured at end of 7 feet of 4-inch discharge pipe.

REMARKS: Most of water encountered in crevices at 140 to 142 feet and from 160 to 170 feet.

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PUMPING TEST MADE ON ROLFE TOWN WELL (1947) W. E. Hale Sept. 2, 1947

TIME	DEPTH TO WATER FEET	DISCHARGE RATE ORIFICE INCHES	G.P.M.	WATER TEMP. °F.	REMARKS
Sept. 2					
7:40 am	20.34				
8:14	20.28				
8:24	20.31				
8:41					Pumping started
8:42	28.85	36	255±		
8:44	30.15	38	260		
8:45	30.67	39	263		
8:48	30.55	36	253	50	Air temp. 75°F. Water slightly milky.
8:53	31.25	37	255±		
9:00	31.71	37½	257		
9:06	32.02	37½	257		Water slightly milky
9:14	32.26	38	260	50½	
9:28	32.53	37½	257		
9:41	37.75	37½	257		
9:48	32.85	37½	257		Water almost clear.
10:01	33.05	37½	257		
10:11	33.10	37	255	50½	Water almost clear.
10:22	33.24	37	255		
10:36	33.33	37	255		
10:46	33.43	37	255		
10:53 am	33.49	37	255		Water slightly cloudy
11:01	33.55	37	255	50½	Water sample collected.
11:03					Pumping stopped
11:04	24.02				Recovery measurements
11:05	23.60				
11:06	23.36				
11:07	23.20				
11:10	22.92				
11:15	22.66				
11:20	22.47				
11:25	22.33				

9-230

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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

W.E. Hale

Pumping test made on Rolfe Town Well (1947). Sept. 2, 1947

Time	Depth to Water, Feet: Meas.	Depth to Water, Feet: Corr.	Discharge Rate [4" x 3"]: Orifice Inches	Discharge Rate: GPM	Water Temp °F	Remarks
Sept. 2 7:40a		20.34				Tape [M.P. is top of casing]
8:14	22.38	20.28				[El. line corr. 2.1']
8:24	22.42					
8:41					~~Pu~~	Pumping started
8:42	30.95	28.85	36	255±		
8:44	32.25	30.15	38	260		
8:45	32.77	30.67	39	263		
8:48	32.65	30.55	36	253	50	Air temp 75°F. Water slightly milky
8:53	33.35	31.25	37	255±		
9:00	33.81	31.71	37½	257		
9:06	34.12	32.02	37½	257		Water slightly milky
9:14	34.36	32.26	38	260	50½	
9:28	34.63	32.53	37½	257		
9:41	34.85	32.75	37½	257		
9:48	34.95	32.85	37½	257		Water almost clear [some dol. grains]
10:01	35.15	33.05	37½	257		
10:11	35.20	33.10	37	255	50½	Water almost clear [dol. cuttings]
10:22	35.34	33.24	37	255		
10:36	35.43	33.33	37	255		
10:46	35.53	33.43	37	255		
10:53a	35.59	33.49	37	255		
11:01	35.65	33.55	37	255	50½	Water sample collected (Water slightly cloudy)
~~11:03~~						
11:03						Pumping stopped
11:04	26.12	24.02				Recovery measurements
11:05	25.70	23.60				
11:06	25.46	23.36				
11:07	25.30	23.20				
11:10	25.02	22.92				
11:15	24.76	22.66				
11:20	24.57	22.47				
11:25	24.43	22.33				

This column cut

GPO 6—9333

September 4, 1947

Mr. N. J. Bixler
Town Clerk
Rolfe, Iowa

Dear Mr. Bixler:

Enclosed is a copy of the results of a pumping test made on the new town well by Mr. W. E. Hale on September 2, 1947. This test was made in conjunction with the collection of a water sample for mineral analysis.

The results of the mineral analysis will be forwarded to you as soon as possible.

If you have any comments or questions in regard to this pumping test, please let us know.

Very truly yours,

H. G. Hershey

HGH:WEH:AEH
ENC: