IOWA GEOLOGICAL SURVEY W-1960

In Cooperation with U. S. Geological Survey

RECORD OF WELL



Location:

Town: Ruthven (N E / S W): County Pala Alto

NW/4 SE SE sec. 18 T 96 N., R. 31 W. Highland Twp.

Well name and number Ruthven City #4 (1944)

Owner _____ Address _____

Tenant _____ Address _____

MR. GRange, water supt

Contractor A.O. Rasmussen Address _____

Drillers _____

Drilling dates Nov. 13 - Dec. 20 - 1944

Well data:

Elevations: Drilling curb 1396 ± feet; Land surface 1394 feet

from well #1

Determined by _____

Topographic position _____

Total depth: Reported 179 feet, Measured _____ feet

Drilling method _____

Hole and casing data 169' of casing

10' Johnson screen

Original depth to water _____ ft. above/below _____ Date _____

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

Sources of water: Principal _____; Others _____

Production data: Date

Static depth to water 56' Measuring point

Pumping level 75-80 at 100± 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	Feb. 8, 1945			
Sampled by	K. P. Boyles.			
Total solids	449			
Insoluble matter	27.0			
Alkalinity (Meo)	338.0			
Alkalinity (Phn)	0.0			
pH	7.5			
$Fe_2O_3 + Mn_2O_3 + Al_2O_3$	20.5			
Alkali as sodium	18.2			
Calcium	89.3			
Magnesium	28.2			
Iron (unfiltered)	2.8			
Manganese	0.10			
Nitrate	0.04			
Fluoride	0.3			
Chloride	2.5			
Sulfate	12.8			
Bicarbonate	412.4			
Hardness (ppm)	344			
Hardness (gpg)				

Remarks

Laboratory data: Sample storage location

Sample range 5-179 No. spls. 34 No. dupls. & cond. 32 pairs

Spls. prepared by Washed range by

Driller's log and cond. No

Insoluble residues: Prepared by Studied by Strip log

Microscopic study 5-179 strip log 10-2-50

Gen. log Correl. by R. Scrivener

MASTER CARD-A 9-26-69

STATE	COUNTY	LATITUDE DEG.	LATITUDE MIN.	LATITUDE SEC.	N. or S.	LONGITUDE DEG.	LONGITUDE MIN.	LONGITUDE SEC.	SEQ. NO.
1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19
19	74	43	07	47	N	094	53	57	1

WELL SCHEDULE

US GEOLOGICAL SURVEY

IOWA DISTRICT WRD

WELL NO. 096-34W-18DDBB CO. PALO ALTO

OWNER RUTHVEN CITY #4 (1944) ADDRESS RUTHVEN, IOWA

DRILLER A.O. RASMUSSEN DATE DRLD. DEC. 1944

MAP 1:63,360 COUNTY HWY

SOURCE OF DATA FILE

DESCRIPTION M. P. LSD FEET (ABOVE/BELOW) LSD 1394

CONTINUED FROM ABOVE

ACCURACY	LOCAL WELL NUMBER T.	R.	E/W	SEC.	QUARTERS	LOCAL USE W-NUMBER	OPTIONAL	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 DESIG.
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
2	096	34	W	18	DDBB	01960	//44CITY	YRUTHVEN IOWA	MU	Z	1	Ø				C	Ø			G	A

WELL-DESCRIPTION CARD - B

DUPLICATE CARD A CC 1-19	DEPTH OF WELL	ACCURACY	DEPTH CASED OR FIRST PERF.	DIAM. INCHES	WELL FINISH	METH. DRILLED	YEAR DRILLED	PUMP SETTING	METH. LIFT	DEEP SHALLOW	POWER	ALTITUDE OF LSD (FEET)	ACCURACY	WATER LEVEL (FEET)	ACCURACY	DATE MONTH	DATE YEAR	YIELD OF WELL (GPM)	METH. DET.	DRAW-DOWN (FEET)	ACCURACY	PUMPING PERIOD (HOURS)	QUALITY OF WATER IRON	SULF.	CHLOR.	HARD	S.P. COND.	TEMP.	DATE SAMPLED	CARD DESIG.
	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
	1793		169	12	S		9441	10	D			1394	7	56	D	D	44	100		243			5207						245	B

HYDROGEOLOGIC CARD - C

DUPLICATE CARD A CC 1-19	PHYS-IOG-RAPHY PROV.	SEC.	DRAINAGE BASIN	SUBBASIN	TOPO SETTING	MAJOR AQUIFER SYSTEM	SERIES USGS	SERIES IGS	UNIT	LITHOLOGY	ORIG.	THICKNESS	LENGTH WELL OPEN TO	DEPTH TO TOP OF	MINOR AQUIFER SYSTEM	SERIES USGS	SERIES IGS	UNIT	LITHOLOGY	ORIG.	THICKNESS	LENGTH WELL OPEN TO	DEPTH TO TOP OF	DEPTH TO CONSOLIDATED ROCK	SOURCE	DEPTH TO BASEMENT	SOURCE	SURF. MAT. LITHOLOGY	SURF. MAT. INFIL.	COEF. TRAN. SIG. FIG.	COEF. TRAN. X10	COEF. STOR. SIG. FIG.	COEF. STOR. X10	GEOL. CARDS	CARD DESIG.
	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
	12	B	36	C	S	Q	G	G	X	R	O		10															T	4						C

CASING AND SCREEN (SIZE, TYPE, INTERVALS):

169' OF 12" CASING.

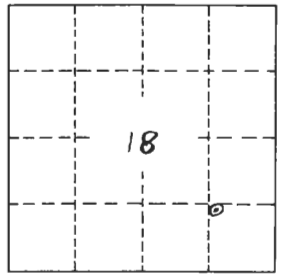
10' SCREEN.

CODED BY D. AARONSON DATE 10 APRIL 1970

PUNCHED BY T DATE

VERIFIED BY DATE

SKETCH ON REVERSE: YES NO ✓



WELL NO. 096-34W-18DDBB

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 096-34W-18 DDBB
Aquifer Code(s) QGGX
Owner's Name RUTHVEN CITY #4 (1944)
W Number 01960

Card Q

State: IOWA (1 2: 19) County: PALO ALTO (3 4: 74) Town: RUTHVEN, IOWA

Well No. (5–11): Latitude 43074 7N — Longitude 094535 7 (12–18) — Seq. No. (19): 1 — Date (20–25): M 02 D 08 Y 45

Sampling Depth (26–29): 179 — Type (30): 1 — Kx10⁶ (31–35): — pH (36–38): 7.5 — Temp. °F (39–41):

SiO₂ (42–44): — Ca (45–49): 89 — Mg (50–53): 28 — Na +K (54–58): 18 — K (59–61): C

HCO₃ (62–65): 412 — CO₃ (66 67): — SO₄ (68–72): 43 — Cl (73–78): 25 — Source No. (79 80): 3 Q

Card R

Duplicate Columns 1-25 from Card Q

F (26–28): 3 — NO₃ (29–32): 1 — PO₄ (33–35): — B (36–38): — Al (39–41): — Fe (42–45): 28

Mn (46–49): 10 — Cu (50–52): — Pb (53 54): — Zn (55–57):

Solids Determined (58–63): 449 — Calc. (64–69): — Hardness Ca,Mg (70–73): 344 — Non-Carb. (74–77): 6

Color (78 79): — No. (80): R

Card S

Duplicate Columns 1-25 from Card Q

Br (26–28): — I (29–31): — Alk. as CaCO₃ (32–35): 338 — Free CO₂ (36–38): — SAR (39–41):

RSC (42–44): — ABS (45–47): — (48–50): — (51–54):

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

No. (80): S

Recorded by: D. AARONSON

Punched by: T Date:

Published:

Ruthven.
Palo Alto Co

Copy from letter of X. P. Boyles, Putlic Health Engineer, District Health Service No. 5, Fort Dodge to H. G. Hershey, September 25, 1944 filed under "Duncombe City Well".

"The Town of Ruthven is also contemplating a new drilled well to be located approximately 50 feet south of the present well. I believe this work will be handled by Mr. Rasmussen of Ida Grove. Present plans are to tap the same source supplying the present 179 ft. well.

"Information pertinent to these two wells, if not already submitted to the city officials, would be appreciated."

IOWA PRESS
CLIPPING BUREAU
Des Moines, Iowa

Free Press
Ruthven, Iowa

File

E.S.
Bill
Stan
Duane
4GH

DEC 20 1944

DEC 20 1944

NEW TOWN WELL COMPLETED NOW

179 Foot Drilled Well Is Ready to Be Connected With Town Water System.

Ruthven's new well has been completed and a pump installed in the well.

This new well was drilled to a depth of 179 feet and water now stands in the 12-casing to within 56 feet of the top.

Drillers struck a small water vein in a gravel bed less than two feet thick at a depth of about 45 feet. From then on down for more than 120 feet, the well goes through a mixture of blue clay, gravel and sand. Then at a depth of 169 feet a bed of gravel ten feet in thickness was struck, and this is the vein that will supply the town with water. Beneath this 10-foot gravel bed is solid blue clay that water does not penetrate.

A centrifugal pump that was used in one of the old wells under the pump house, has been installed on this new well, and will be connected up with the pressure tank as soon as pipe connection can be obtained. The pump extends down into the well for a distance of 110 feet.

The two old wells under the pump house have been abandoned as their sides have caved in deep underground. For some time the town has been depending entirely upon the well east of the pump house for its water supply, and the needs of the town required another well for use in case of emergencies.

December 14, 1944

Mr. X. P. Boyles
Public Health Engineer
District Health Service No. 5
Fort Dodge, Iowa

Dear Mr. Boyles:

Thank you very much for your letter of December 12, 1944.

We will pick up the samples from the Ruthven well just as soon as possible. I am sure that Mr. Rasmussen will hold them until we call.

I will be glad to learn of any new developments in your district, particularly in regard to the Lakeview project.

Very truly yours,

H. G. Hershey

HGH:KNB

Iowa
State Department of Health
DISTRICT HEALTH SERVICE
NO. 5
Fort Dodge, Iowa

IN REPLYING
ADDRESS

WALTER L. BIERRING, M. D
COMMISSIONER
DES MOINES, IOWA

December 12, 1944

Dr. H.G. Hershey
Associate State Geologist
Geology Building
State University of Iowa
Iowa City, Iowa

Dear Dr. Hershey:

In regard to the new well drilled at Ruthven, I understand the construction work on the well has been completed and that test pumping was probably started December 11. Samples for geological determinations were collected and Mr. Rasmussen informs me they will be available at his office at any time.

Your report on the forecast at Lake View received and greatly appreciated. I have just completed my report to the town officials and do not have any additional information as to when the drilling will commence.

Thank you for your co-operation in regard to these well forecasts.

Very truly yours,

DISTRICT HEALTH SERVICE NO. 5

X. P. Boyles
Public Health Engineer

XPB:DES

November 15, 1944

Mr. X. P. Boyles
Public Health Engineer
District Health Service No. 5
Fort Dodge, Iowa

Dear Mr. Boyles:

Thank you very much for your letter of November 14 concerning the development of the new water supply at Ruthven, Iowa. We will be much interested in the operations of the A. O. Rasmussen Well Company at Ruthven and will appreciate hearing from you if you obtain additional information.

Very truly yours,

H. G. Hershey

HGH:KNB

Iowa
State Department of Health
DISTRICT HEALTH SERVICE
NO. 5
Fort Dodge, Iowa

IN REPLYING
ADDRESS

WALTER L. BIERRING, M. D
COMMISSIONER
DES MOINES, IOWA

November 14, 1944

Mr. H. G. Hershey
Associate State Geologist
Geology Annex
State University of Iowa
Iowa City, Iowa

Dear Mr. Hershey:

Re: Development of the new water supply
at Ruthven, Iowa

The O. A. Rasmussen Well Company of Ida Grove has started operation on the new well for the Ruthven public water supply. On November 9 the well drill had been spotted, and as near as could be determined drilling operations would probably start November 13. It is anticipated that approximately 3 to 4 weeks will be required to complete the drilling to approximately the same depth as the present well.

In talking to Mr. Rasmussen and Mr. Grange it is understood they have a supply of sample bags and will collect samples as the drilling progresses.

Very truly yours,

DISTRICT HEALTH SERVICE NO. 5

X. P. Boyles
Public Health Engineer

XPB:DES

IOWA PRESS
CLIPPING BUREAU
Des Moines, Iowa

Free Press
Ruthven, Iowa

File

OCT 25 1941

CONTRACT IS LET FOR TOWN WELL

Town Officials Complete Plans for New 12-inch Drilled Well Near Pump House.

A contract has been let for the drilling of a new 12-inch well about fifty feet south of the present well that was drilled a few years ago. Drilling this well and furnishing the steel pipe will cost the town $9.88 per foot, and work on the new well will begin as soon as the equipment arrives here.

The new well may be drilled to a depth of 150 feet or more.

A small building will be erected over the new well to house the pump. The town has a pump from one of the two abandoned wells under the main water plant building, so it will not be necessary to buy a new pump.

Palo Alto

September 28, 1944

Mayor, Town of Ruthven
Ruthven, Iowa

Dear Sir:

We understand that the town plans to drill another well tapping the same aquifer as the present 179-foot well.

We would appreciate your having the driller save samples of the well cuttings at five-foot intervals for the survey. If the driller does not have sample sacks we will gladly furnish the necessary number. The samples may be sent in by express collect. As soon as the samples are studied a generalized log of the well will be sent to the town.

If we can be of further service to you, please do not hesitate to write to us.

Very truly yours,

William E. Hale

WEH:KNB

To be filled in from A. O. Rasmussen's copy of well data report when sent.

IOWA GEOLOGICAL SURVEY
Water well Data Sheet

Survey Number W1960

Town Ruthven County Palo Alto T. 96 N., R. 34 W.

Name Ruthven City Well #2 Location NW-SE-SE ¼, sec. 18

Contractor A. O. Rasmussen Driller _____ Use City Well

Construction drilled Drilling Dates _____ Drilling Depth _____

Topog. Upland Slope Curb Elev. 1396 (-5) Ref. Well #1 (+1395) Total Depth _____

Final Static Level _____ above / below curb Pumping Level _____ Draw-down _____ g.p.m. _____ Time Pumped _____ Date _____

To be filled in from A. O. Rasmussen copy of well data when sent

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

Producing Horizons _____

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

Additional information _____

Laboratory Data

Sample range 5' - 179' Number samples 34 Number Duplicates 32 Cond. Fair

log Yes. No Cond. _____ Boxed Rock Bands Range 5' - 179' Date 1/8/45

Remarks G-3 P-5 i 0-5, 5' - 20'

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

Pattison town Well #2 Dec 20 1944

Loc NW-SE-SE. W. of N. & Intersection. MR Grange, Wat. Sup't.

Drilling Curb - 42' above land Surface.

My elevation 28' lower than RR Station

Casing set at 169' Pulled back 10'
10' of Johnson screen.

110' of Pump Column with 16' of 20' Stages. (Not certain)

Pumping Level 72'-80' both Pumps Running.
Static Level 56'
Pumped about 100 gpm

Pump #2 - 40' 5 of Pump #1 Pumona Pumps.

? MR Rasmussen took Samples
Suggest Stopping on return trip to Persia
Few miles S. of Ida Grove