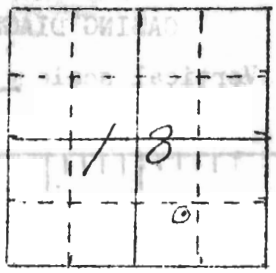
IOWA GEOLOGICAL SURVEY
In Cooperation with U. S. Geological Survey

W-1620

RECORD OF WELL



Location:

Town: Ruthven (N E S W); County Palo Alto

NE/cor-SW SE sec. 18 T. 96 N., R. 34 W. E. Highland Twp.

Well name and number Ruthven Town Well ~~No.~~ #3 (1942)

Abandoned (caved)

Owner Town of Ruthven Address Ruthven Iowa.

Tenant _____ Address _____

Contractor A.O Rasmussen Address Ida Grove

Drillers Grover & Carol Rasmussen

Drilling dates March- April 1942

Well data:

Elevations: Drilling curb 1397 feet; Land surface _____ feet

Determined by _____

Topographic position Upland Slope

Total depth: Reported 179 feet, Measured _____ feet

Drilling method _____

Hole and casing data 170' of 12-inch pipe from 0 - 170
(Give amount, size, kind, and depth of all casing; type and
10' of 10" Johnson No. 30 slot Everdur screen
position of seals and packers; cementing; how finished--perforated pipe, screen,
from 169 - 179', lead seal at top
gravel pack, open hole, etc.)

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

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

Sources of water: Principal Pleistocene 168-179 ; Others _____

Production data: Date _____

Static depth to water 52 Measuring point _____

Pumping level 68 at 100 g.p.m.

Specific capacity 6.2 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	Oct. 1, 1942			
Sampled by	K.E. Anderson			
Total solids	531			
Insoluble matter	1.0			
Alkalinity (Meo)	340.0			
Alkalinity (Phn)	0.0			
pH	7.1			
Fe_2O_3+ Mn_2O_3+Al_2O_3	1.0			
Alkali as sodium	14.1			
Calcium	100.8			
Magnesium	34.5			
Iron (unfiltered)	0.9			
Manganese	0.0			
Nitrate	7.4			
Fluoride	0.8			
Chloride	8.0			
Sulfate	82.7			
Bicarbonate	414.8			
Hardness (ppm)	397			
Hardness (gpg)	23.2			

Remarks _____

Laboratory data: Sample storage location _____

Sample range 163-179 No. spls. 5 No. dupls. & cond. 5 fair

Spls. prepared by Heydon Washed range _____ by _____

Driller's log and cond. Yes

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

Microscopic study 163-179 strip log 9-28-50

Gen. log _____ Correl. by R Screven

MASTER CARD-A 9-26-69

STATE	COUNTY	LATITUDE DEG.	LATITUDE MIN.	LATITUDE SEC.	LATITUDE N. or S.	LONGITUDE DEG.	LONGITUDE MIN.	LONGITUDE SEC.	NO. SEQ.
1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19
19	74	43	07	48	N	094	54	02	1

WELL SCHEDULE

US GEOLOGICAL SURVEY

IOWA DISTRICT WRD

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

OWNER RUTHVEN CITY #3 (1942) ADDRESS RUTHVEN, IOWA

DRILLER A.O. RASMUSSEN DATE DRLD. APRIL 1942

MAP 1:63,360 COUNTY HWY.

SOURCE OF DATA FILE

DESCRIPTION M. P. LSD FEET (ABOVE) (BELOW) LSD 1397

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	DCAA	01620	//42CITY	3RUTHVEN IOWA	MU	Z	3	Ø				C	Ø			GD	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	SP. 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
	179	3	170	12	S		942	100	T	DT		1397	7	52	D	44	2	100		163			4	30	7		48	042		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	LITH-OLOGY	ORIG.	THICK-NESS	LENGTH WELL OPEN TO	DEPTH TO TOP OF	MINOR AQUIFER SYSTEM	SERIES USGS	SERIES IGS	UNIT	LITH-OLOGY	ORIG.	THICK-NESS	LENGTH WELL OPEN TO	DEPTH TO TOP OF	DEPTH TO CONSOLI-DATED ROCK	SOURCE	DEPTH TO BASEMENT	SOURCE	SURF. MAT. LITH-OLOGY	SURF. MAT. INFIL.	COEF. TRAN. SIG. FIG.	COEF. TRAN. XIO	COEF. STOR. SIG. FIG.	COEF. STOR. XIO-	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		RO			9168														P	4							C

CASING AND SCREEN (SIZE, TYPE, INTERVALS):

170' OF 12" CASING 0-170 FT.

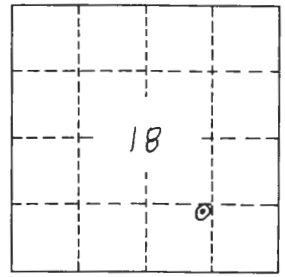
10' OF 10" 30 SLOT JOHNSON SCREEN FROM 169'-179'.

CODED BY D. AARONSON DATE 10 APRIL 1970

PUNCHED BY _____ DATE _____

VERIFIED BY _____ DATE _____

SKETCH ON REVERSE: YES _____ NO ✓



WELL NO 096-34W-18DCAA

IOWA GEOLOGICAL SURVEY
Water Well Data Sheet

Survey Number W-1620

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

Name Ruthven city well Location NE¼ SW¼ SE¼, Sec. 18

Contractor A.O. Rassmussen Driller Grover & Carol Rassmussen Use city well.

Construction drilled Drilling Dates March-Apr. 194- Drilling Depth

Topog. Upland Slope Curb Elev. 1397 Ref. altimeter Total Depth 179.

Final Static Level 52' above / (below) curb Pumping Level 68' Draw down 16' gpm 100 Time pumped Date

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 163, 168, 179 Number samples 5 Number Duplicates 5 Cond. fair

Log (Yes) No, Cond. Boxed Heydon Range 163-179 Date 10-9-4-

Remarks duplicate samples ocean for 168, & 179.

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

Ruthven City Well
Ruthven (Palo Alto Co.)

A. O. Rasmussen, contractor, Idd Grove
Grover and Carol Rasmussen, drillers

Log:

Yellow clay	0	to	50
Bouldery clay	50	to	52
Black shale	52	to	56
Blue clay	56	to	168
Sand & gravel	168	to	180

Total Depth: 179'

Casing: 170' of 12" pipe from surface to 170' (45 lb. Howell Well Drillers Special)
Screen: 10' of 10" Johnson No. 30 slot Everdur screen from 169-179', lead seal at top.

S.W.L. 52'
P.W.L. 68' at 100 g.p.m.

Location: NE corner SW-SE-18-96-34
Elevation: 1397'

Topographic position: Upland slope

K.E.A.
10-1-42

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 096-34W-18 DCAA
Aquifer Code(s) QGGX
Owner's Name RUTHVEN CITY #3 (1942)
W Number 01620

Card Q

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

Well No. (5–11): 43074 8 N — Latitude
Longitude (12–18): 094540 2
Seq. No. (19): 1
Date (20–25): M 10 D 01 Y 42

Sampling Depth (26–29): 179 Type (30): 1 Kx10^6 (31–35): pH (36–38): 7.1 Temp. °F (39–41): 48

SiO_2 (42–44): Ca (45–49): 101 Mg (50–53): 34 Na +K (54–58): 14 K (59–61): .C

HCO_3 (62–65): 415 CO_3 (66–67): SO_4 (68–72): 83 Cl (73–78): 80 Source No. (79–80): 3 Q

Card R

Duplicate Columns 1-25 from Card Q

F (26–28): .8 NO_3 (29–32): 10 PO_4 (33–35): B (36–38): Al (39–41): Fe (42–45): .9

Mn (46–49): 0 Cu (50–52): Pb (53–54): Zn (55–57):

Solids Determined (58–63): 531 Calc. (64–69): Hardness Ca,Mg (70–73): 397 Non-Carb. (74–77): 57

Color (78–79): No. (80): R

Card S

Duplicate Columns 1-25 from Card Q

Br (26–28): I (29–31): Alk. as $CaCO_3$ (32–35): 340 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. (80): S

Recorded by: D. AARONSON
Punched by: Date:
Published:

November 9, 1942

Mr. Edwin Grange
Water Superintendent
Ruthven, Iowa

Dear Sir:

Inclosed is a report on the mineral analysis of water from the No. 3 Ruthven well drilled earlier this year by A. O. Rasmussen.

This analysis does not indicate the sanitary condition of the well. Mineralogically the water is of good quality. The hardness of 23.2 grains per U. S. gallon is below the average of waters from the Pleistocene glacial drift in northwestern Iowa. The only constituent that may be considered objectionable is the iron in the amount of 0.9 parts per million. However, it is believed that no mineral is present in large enough quantity to be harmful for human consumption.

If you have any questions regarding the analysis or if the Iowa Geological Survey can be of service at any time, please do not hesitate to let me hear from you.

Very truly yours,

H. G. Hershey

HGH:N

Inc.

cc to A. O. Rasmussen, Ida Grove

November 9, 1942

Mr. A. O. Rasmussen
Ida Grove, Iowa

Dear Mr. Rasmussen:

Inclosed is our report on the mineral analysis of water from the new Ruthven well and a copy of the letter which accompanied that analysis to Ruthven. If you have any questions regarding it, please let me hear from you.

I hope things are going well in your territory. I hope to be in northwestern Iowa within the next month and plan to see you at that time.

Very truly yours,

H. G. Hershey

HGH:N

Inc.

IOWA PRESS
CLIPPING BUREAU
Des Moines, Iowa

Free Press
Ruthven, Iowa

APR 22 1942

NEW TOWN WELL COMPLETED NOW

Drillers Go Down 180 Feet and Tap Water Vein; Earnings to Pay for New Well.

Well drillers have completed the new town well on the town property where the pumping plant is located in the southwest part of town.

This new well which is located about 75 feet east of the pump house, was drilled to a depth of 180 feet. The first 50 feet was through yellow clay, then 2 feet of large rocks, 4 feet of black shale, 112 feet of blue clay, and then 12 feet of gravel which is the source of the water supply. The new well is 12 inches in diameter.

When the drillers reached the gravel bed at 168 feet, the water rose 127 feet in the well. In testing the well by pumping 100 gallons a minute, the water level fell 16 feet and then remained at this level through seven hours of pumping.

A 10-foot 10-inch screen of the latest type has been installed in the well to keep out sand.

The new well cost $2,062.73 completed. Town officials plan on paying for this well out of its earnings.

Ruthven (PALO ALTO CO.)

New city well: (1942)

Location: NE/c-SW-SE-18-96-34
Ground elevation: 1397' (hand level to C.M.&St.P. station)
Contractor: A. O. Rasmussen, Ida Grove
Driller: Grover Rasmussen

To use 45 lb. Howell Well Drillers Special casing, 12" I.D., 12 3/4" O.D.

Now drilling at about 50', with expected final depth around 170-175'.

Topographic position of new site--slope.

To use Johnson screen in the new well.

Boulders in the first 50' of the new well--no samples saved yet.

Old city wells:

T.D. are 169 and 170', with perforated pipe.

Wells pumped sand and the roof has possibly collapsed.

3/25/42
KEA