

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

W-1584

RECORD OF WELL

01	
2	4

Location:

Town: Auburn (N E)
(S W); County Sac
NE 1/4 NW 1/4 NW 1/4 sec. 24 T. 86 N., R. 35 W. Sac Twp.

Well name and number Auburn TOWN #2

Owner Auburn City Address _____

Tenant _____ Address _____

Contractor Thorpe Well Co. Address Des Moines

Drillers Stoner & Jensen

Drilling dates Aug. 1942

Well data:

Elevations: Drilling curb 12 feet; Land surface 1234 feet

Determined by _____

Topographic position Upland

Total depth: Reported 292 feet; Measured _____ feet

Drilling method cable

Hole and casing data 268' of 10" pipe 0-260'

(Give amount, size, kind, and depth of all casing; type and

GRAVEL Pack no side holes
position of seals and packers; cementing; how finished--perforated pipe, screen,
gravel pack, open hole, etc.)

Original depth to water 105' 3" ^{above} ft. below ground Date 1942

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

well from driller

Sources of water: Principal Dakota 265-92; Others _____

Production data: for test well T.D. 274' Date _____

Static depth to water 105'3"; Measuring point _____

Pumping level _____ at 50 g.p.m. for 7 hours

_____ 2/22/52

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)

Test Well T.D. 274'

Date sampled	<u>June 15, 1948</u>	<u>Nov. 28, 1945</u>		
Sampled by	<u>J.A. Sampson</u>	<u>X.P. Boyles</u>		
Total solids	<u>985</u>	<u>917</u>		
Insoluble matter	<u>14.5</u>	<u>7.0</u>		
Alkalinity (Meo)	<u>388.0</u>	<u>226.0</u>		
Alkalinity (Phn)	<u>0.0</u>	<u>0.0</u>		
pH <u>June 17</u>	<u>7.4</u>	<u>7.7</u>		
Fe ₂ O ₃ +Mn ₂ O ₃ +Al ₂ O ₃	<u>25.0</u>	<u>4.0</u>		
Alkali as sodium	<u>43.9</u>	<u>11.8</u>		
Calcium	<u>174.0</u>	<u>168.7</u>		
Magnesium	<u>43.7</u>	<u>45.5</u>		
Iron (unfiltered)	<u>0.0</u>	<u>0.8</u>		
Manganese	<u>0.4</u>	<u>0.3</u>		
Nitrate	<u>0.0</u>	<u>6.2</u>		
Fluoride	<u>0.5</u>	<u>0.5</u>		
Chloride	<u>1.0</u>	<u>3.0</u>		
Sulphate	<u>298.9</u>	<u>271.4</u>		
Bicarbonate	<u>473.4</u>	<u>275.7</u>		
Hardness (ppm)	<u>615.0</u>	<u>610</u>		
Hardness (gpg)	<u>36.0</u>	<u>35.09</u>		

Remarks _____

Laboratory data: _____ Sample storage location _____

Sample range 0-292 No. spls. 50 No. dupls & cond. 50 good

Spls. prepared by Heydon Washed range none by _____

Driller's log and cond. not much dope

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

Microscopic study 0-292 strip log ✓

Gen. log _____ Correl. by SEH/gp.

W-1584

IOWA GEOLOGICAL SURVEY
Water Well Data Sheet

Survey Number **W-1584**

Town Auburn County Sac T. 86 N., R. 35 W.

Name Auburn Test well No. 1 Location NE 1/4 NW 1/4 Sec. 24

Contractor Thorpe Well Co Driller N. L. Stover Use Drilling

Construction drilled Drilling Dates Depth

Topog. Curb Elev. 1234 Ref. Total Depth 294

Final above
Static below Pumping Draw Time
Level curb Level down gpm pumped Date
Depth to Calc. g/ft. Prin.
bot. pump ft. with ft. suction pipe. drawdown 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
0-274'	102'	134'	32'	30				

Additional information

2 Samples 255-74 Laboratory Data
Sample range 0-292 Number samples 52 Number Duplicates 52 Cond. Good
Yes Log No. Boxed Harris Range 255-274 Date 8/24/42
No Heydon 0-292 10-2-42

Remarks 2 Samples Sacked by Harris 8-24-42 GULF CMT 12 229 (19 fath)
Remainder of Well received and Sacked by Heydon 9-18-42 (190-292)

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

Memo--

June 17, 1942

Mr. Kountz called to say that Sampson had collected a water sample from the city test well at Auburn and had requested an analysis for Alkalinity, Soap Hardness, and Fluorine.

Information he furnished was as follows:

T.D. 274'
S.W.L. 102'
P.W.L. 134'
30 g.p.m. for 20 hours
Well in sandstone

Since there was enough water sent in, it was decided that a report be sent to Sampson on the information he desires and that a complete chemical be run for us.

At an earlier date, Mr. Walter Thorpe said samples had been saved and would be sent us for examination and a report as to where in the Dakota the well was located. It seemed desirable, therefore, to have the complete analysis made for our records.

K.E.A.

AUBURN (SAC CO.) IOWA

At present, the town of Auburn (pop. 359--1930 census) is supplied with water from a well about 500 feet deep. The well was drilled to a depth of about 500 feet, and then either plugged back or cased in some fashion so that the present depth from which the water enters the well is unknown. The water is reported to be quite hard, and may have an unpleasant "gassy" odor at times.

In 1942, the Thorpe Well Co. began a testing program to develop a well in the Dakota sandstone at a depth of less than 300 ft. A test well was first put down just north of the standpipe in town. The final depth of this test was 274' and the driller reports a static level of 103'. A thin sand or sandstone was encountered between 247-250', followed by five feet of gray shale and about 3 feet of dark, almost black, coaly or lignitic shale. The Dakota sandstone was entered at a depth of 258'. From 258' to 265', the sandstone was poorly cemented and would not stand alone, but from 265-272' the sandstone was fairly solid. Samples of the formations were saved and are at the office of the Thorpe Well Co. in Des Moines.

The final well was then drilled 30 ft. south of the test well. The depth is 292' and the driller reports a static level of 105' 3". The Dakota sandstone was encountered at 260', overlain by the same very dark shaly material but the sand lying between 247-250' in the test well was not present in the final well. The sandstone is underlain by shale. The well is finished at 10" with 10" pipe extending to 268'. The sandstone was so poorly cemented that it gave trouble with caving and considerable amounts of the sand was pumped up when a test was attempted to determine the capacity of the final well. Some pieces of what appeared to be a calcareous shale, hard, drab, with cavities which contain crystals of galena or sphalerite were bailed up and the driller reports them to have occurred in the sandstone. More probably, they are concretions in the dark shaly material overlying the sandstone. No samples of the formations were saved from the final well. (samples 10-2-42)

At the completion of the test well, a pumping test was run, and a sample submitted by Mr. Sampson, of the State Health Department, for chemical analysis. The analysis showed the water to be 8 grains per U.S. gallon softer than the supply in use at the present time, and the objectionable odor was not present.

The final testing of the new well has not yet been completed.

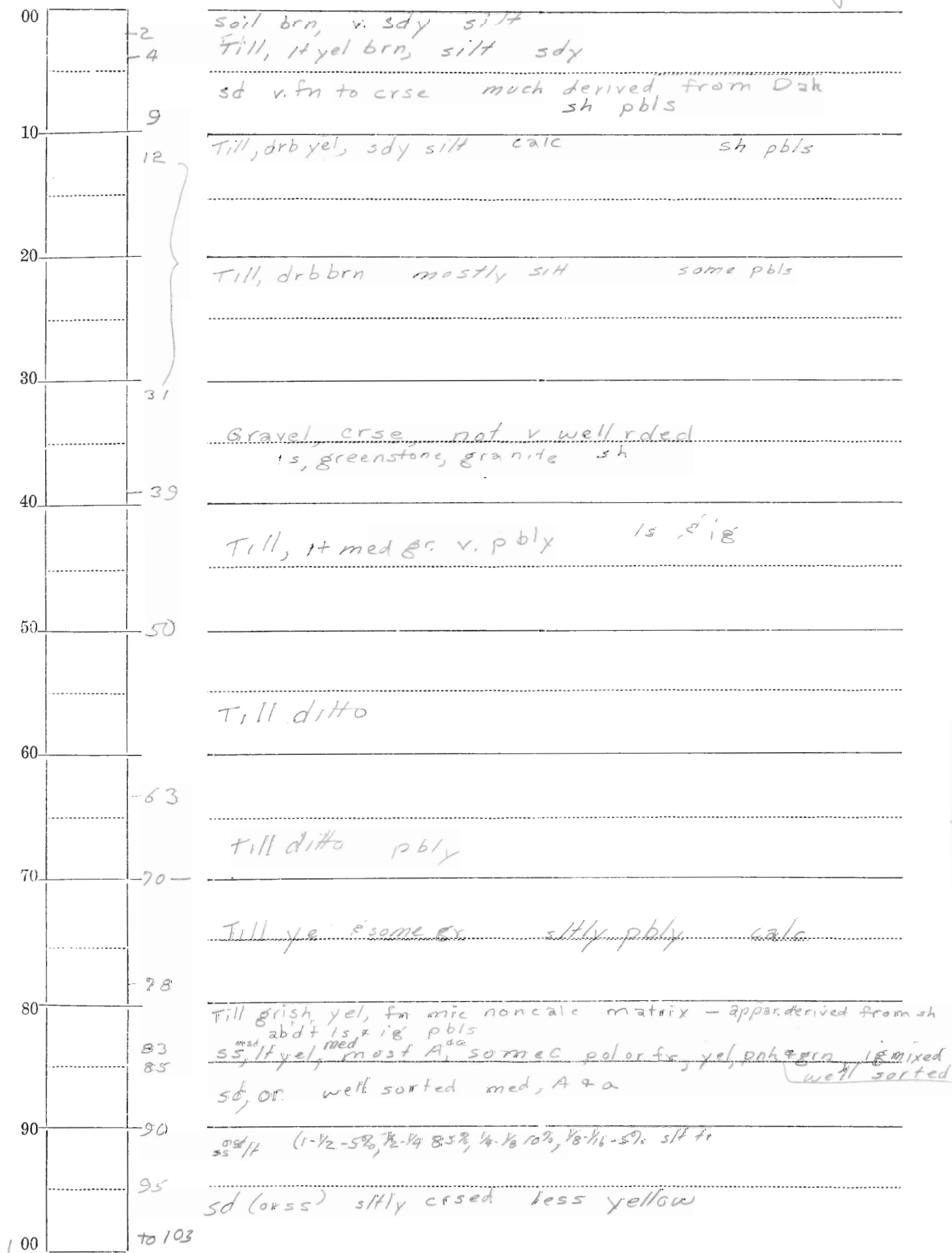
Both the test well and new city well are located in the NE $\frac{1}{4}$ -NW $\frac{1}{4}$ -NW $\frac{1}{4}$ -sec. 24, T. 86 N., R. 35 W., Sac Township, Sac County. The ground elevation at this site is 1234'.

Mr. N. J. Stoner was driller and Mr. George Jensen, helper, for the Thorpe Well Co.

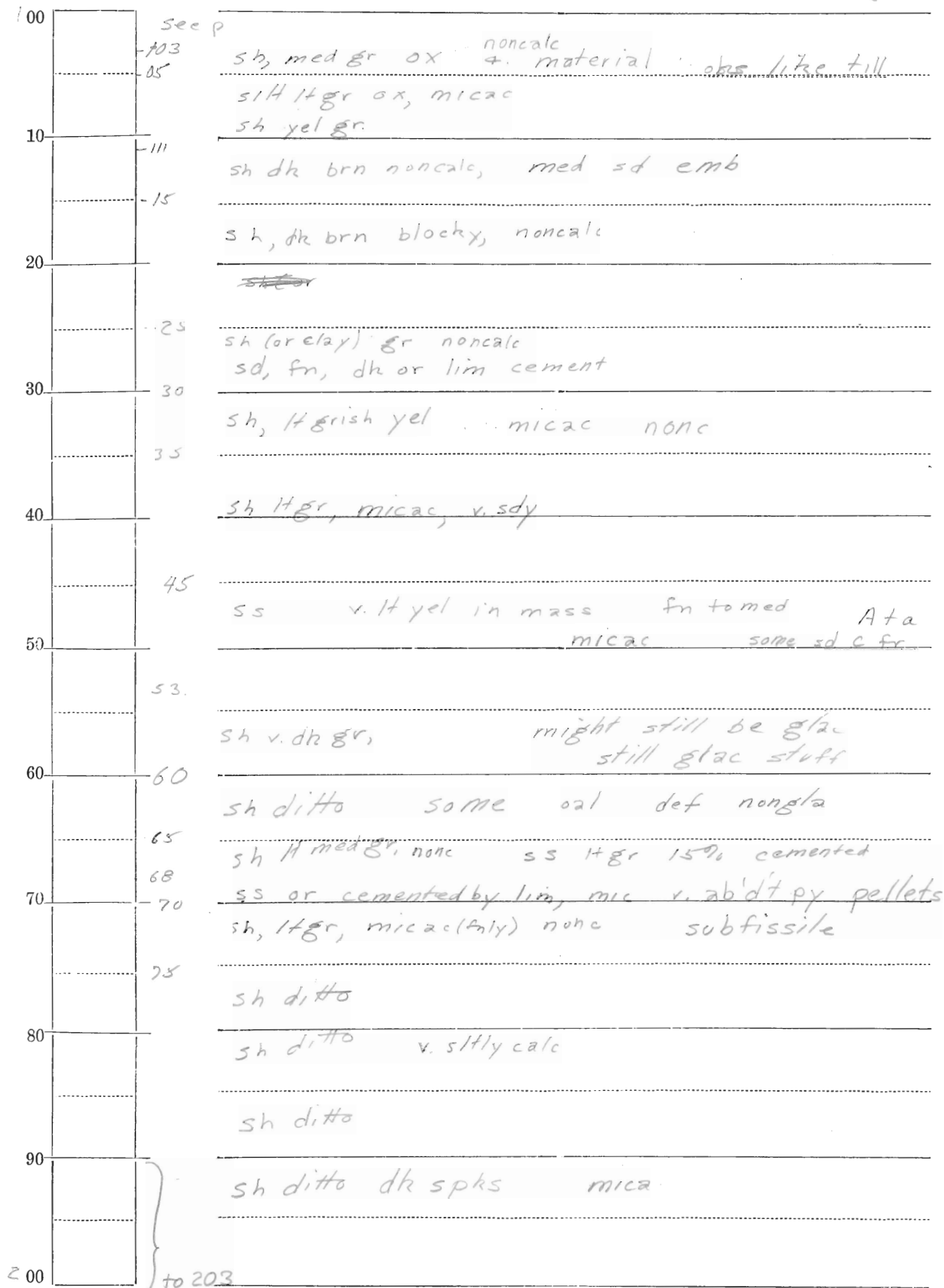
1234
258
+976 = 1492
for Kd in test well

R.E.A.
8/14/42

Location _____ Date Drilled _____ Analyst SEH/g



Location _____ Date Drilled _____ Analyst SEAL



Location _____ Date Drilled _____ Analyst SEH

00	from 190 -	
03		
06	ss fn to med a pol to fr	sh ditto 15%
	sh lt gr, fny micac	nonc
10	10	
	sh ditto	some ss masses
	sh ditto	
20	20	sh ditto some sd emb
23		sh ditto 60
26		ss fn to med yel + pnk grains 40
30		sh dk gr to blk
		some wh masses
		sh dk gr & blk streaked w
40	40	ss. v. fn drb gr A, well cemented calc
		sh lt gr, soft
47		s, yel gr, fn to med, A. er somewhat po
50	50	sh, lt db brn nonc v. sltly mic
55		sh gr to v. dk gr nonc ss. fn A. calc cement hrd
57		Drk brn material, conch fract non eff, limonitic ? 40
58		ss, wh w py spec's cat cement 20 marc 40
60		ss, lt gr. A to a, pnk + yel grains Qtz
65		sltly pol + 1-0, 1-1/2 fr, 1/2-1/4 ss, 1/4-1/8 30, 1/8-1/16 10, slt - 5%
		ss, lt gr, fn to med, much pol, a marc 15%
70		ss ditto pnk & yel
		sh dk brn, 15% marc
74		(marked 74-85) prob 274-286
		ss ditto
80		
85		marked 85-92 prob 285-292
		ss, med, a much pol many yel & pnk grains
90		
92		
300		

UNITED STATES DEPARTMENT OF THE INTERIOR

Geological Survey
Water Resources DivisionLocal Well No. 086-35W-24BBAAquifer Code(s) KIDXOwner's Name AUBURN CITY #2 (1942)W Number 01584Water Quality
(ppm)

Card Q

State: IOWA 19 County: SAC 81 Town: AUBURN, IOWA

Well No. 421507N 0945228 Seq. No. 1 Date 022252

Sampling Depth 292 Type 1 Kx10⁶ 1240 pH 7.1 Temp. °F

SiO₂ Ca 180 Mg 53 Na 57 K 5.0

HCO₃ 478 CO₃ 0 SO₄ 394 Cl 4 Source No. 3Q

Card R

Duplicate Columns 1-25 from Card Q

F 5 NO₃ 0 PO₄ B Al Fe 31

Mn 9 Cu Pb Zn

Solids Hardness

Determined 994 Calc. Ca, Mg 668 Non-Carb. 276

Color No. R

Card S

Duplicate Columns 1-25 from Card Q

Br I Alk. as CaCO₃ 392 Free CO₂ SAR

RSC ABS

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

No. S
80Recorded by: D. AARONSONPunched by: T Date: 111Published:

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

086-35W-24 BBA

KDD

W-1584

Water Quality
(ppm)

Card Q

State: IOWA 16 County: SAC 81 Town: AUBURN

Latitude 421507N Longitude 0945228 Seq. No. 1 Date 112845

Well No. 5 11 12 18 19

Sampling Depth 292 Type 1 Kx10⁶ 31 35 pH 7.7 Temp. °F 39 41

SiO₂ 42 44 Ca 45 49 Mg 50 53 Na 54 58 K 59 61

HCO₃ 62 65 CO₃ 66 67 SO₄ 68 72 Cl 73 78 Source No. 3 Q

Card R

Duplicate Columns 1-25 from Card Q

F 26 28 NO₃ 29 32 PO₄ 33 35 B 36 38 Al 39 41 Fe 42 45

Mn 46 49 Cu 50 52 Pb 53 54 Zn 55 57

Solids 58 63 Calc. 64 69 Ca, Mg 70 73 Hardness Non-Carb. 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 CaCO₃ 32 35 Free CO₂ 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

No. 5
80

Recorded by: D. AARONSON

Punched by: Punched FCH Date: _____

Published: _____



~~To be done~~
Thorpe
GW - Auburn (Sae)

THORPE WELL COMPANY

2340 SIXTH AVENUE
TELEPHONE 3-6107

CONTRACTORS
LATEST ROTARY AND CABLE TOOL EQUIPMENT
THORPE PATENT GRAVEL PACKED WELLS

PLEASE ADDRESS ALL REPLIES
DIRECT TO THE COMPANY
LOCK BOX 1376

DES MOINES, IOWA

June 11, 1942

Iowa Geological Survey
Iowa City, Iowa

Attention: H. G. Hershey

Gentlemen:

We are saving samples from the well being drilled at Auburn,
Iowa, and will be glad to let you have a set of them.

Respectfully yours,

THORPE WELL COMPANY

By

L. P. Buckroyd

LPB

JUN 12 1942

**IOWA PRESS
CLIPPING BUREAU**

Des Moines, Iowa

News

Breda, Iowa

**TOWN OF AUBURN IS
DIGGING A NEW WELL**

The Thorpe Well Co., of Des Moines is digging a new well near the tower for the town of Auburn. At present they are down about 100 feet. It is the hope of the town that they strike better water in this new well and it will be piped into more homes. The town council has made a reduction on the rate so everyone can afford it.—Auburn Enterprise.

9-185-July 1935
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

WELL SCHEDULE

Date KEA, 19 Field No.
Record by KEA Office No.
Source of data Driller's obs.

1. Location: State IOWA County Sac
Map Sac Twp.
NE 1/4 NW 1/4 NW 1/4 sec. 24 T 86 N R 35 W
2. Owner: Town of Auburn Address Auburn
Tenant Test No. 1
Driller George Well Co. (W.J. Stoner) Address Des Moines

3. Topography Upland
4. Elevation 1234 ft. above
5. Type: Dug, drilled, driven, bored, jetted Sum 1042
6. Depth: Rept. 224 ft. Meas. ft.
7. Casing: Diam. in. to in., Type ft.
Depth ft., Finish ft.

8. Chief Aquifer Dakota ss. From 258 ft. to 274 ft.
Others Hard ss. 247' 250'

9. Water level 103 ft. reft. when drilled 10 above sub
which is same as ft. below surface
10. Pump: Type G. M. Capacity G. M.
Power: Kind Horsepower

11. Yield: Flow G. M., Pump G. M., Meas., Rept. Est. G. M.
Drawdown ft. after hours pumping

12. Use: Dom., Stock, PS, RR., Ind., Irr., Obs. Test for city supply.
Adequacy, permanence

13. Quality See analysis in 465 files Temp (both by
Taste, odor, color Sample No. 1042)
Unfit for

14. Remarks: (Log, Analyses, etc.)

9-185-July 1935
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

WELL SCHEDULE

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Map Sac Twp.
NE 1/4 NW 1/4 NW 1/4 sec. 24 T 86 N R 35 W
2. Owner: Town of Auburn Address Auburn
Tenant Test No. 1
Driller George Well Co. (W.J. Stoner) Address Des Moines

3. Topography Upland
4. Elevation 1234 ft. above
5. Type: Dug, drilled, driven, bored, jetted Sum 1942
6. Depth: Rept. 292 ft. Meas. ft.
7. Casing: Diam. 10 in. to in., Type ft.
Depth 2268 ft., Finish Gravel pack - side holes
8. Chief Aquifer Dakota ss. From 260 ft. to ft.
Others

9. Water level 105' 3" ft. reft. when drilled 10 above ground
which is ft. below surface
10. Pump: Type G. M. Capacity G. M.
Power: Kind Horsepower

11. Yield: Flow G. M., Pump G. M., Meas., Rept. Est. G. M.
Drawdown ft. after hours pumping

12. Use: Dom., Stock, PS, RR., Ind., Irr., Obs. hours pumping
Adequacy, permanence

13. Quality Temp °F.
Taste, odor, color Sample No.
Unfit for

14. Remarks: (Log, Analyses, etc.)

Well located 30' N. of City Well (new) just W. of
standpipe.

Drift 0-241

Sand (brss) 247-250

Gray sh 250-255

Black sh, coaly 255-258

Dakota ss 258-274

(ss. loose except for interval 265-272' which
stood up)

Sandstone very loose, causes trouble when
pumping attempted.

Log similar to Test Hole, but sand in test from

247'-250' not present.

Gray calcareous sh. concretions, lined with strals of

calcite + galena or sphalerite balled up, said

to come from Dakota ss. but may be from

sh. above or below. (probably is)

Gray sh. underlies Dakota ss. here.

N.J. Stoner, driller

George Jensen, helper

WRD Exp. (GW)
Aug. 1964

Variation PMJ

U. S. DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Water Resources Division Well Schedule Form

MASTER CARD

Record by D. AARONSON Source of data FILE Date 6/28/65 Map 1:63,360 COUNTY HWY.

State IOWA 16 County (or town) SAC 81

Latitude: 42° 15' 07" N Longitude: 094° 52' 28" W Sequential number: 1

Lat-long accuracy: 2 T. 86 S. R. 35 Sec 29 NE 1 NW 5

Local well number: 08635W24BBA Other number: W-1584

Local use: 01584 42CITY Owner or name: CITY OF AUBURN

Owner or name: AUBURN IOWA Address: AUBURN, IOWA

Ownership: County, Fed Gov't, City, Corp or Co, Private, State Agency, Water Dist M

Use of water: (A) Air cond, Comm, Dewatering, Fire, Dom, Irr, Ind, P, S, Stock, Instit, Unused P

Use of well: (A) Anode, Drain, Seismic, Obs, Oil-gas, Recharge, Spring, Test, Unused, Withdraw, Waste, Destroyed W

DATA AVAILABLE: Well data 4 Freq. W/L meas.: INVENTORY 8 Field aquifer char. 72

Hyd. lab. data: 73

Qual. water data: type: COMPLETE 74

Freq. sampling: INTERMITTENT I Pumpage inventory: yes 76 no 77 period: 78

Aperture cards: 79

Log data: GEOLOGIST LOG 6

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 292 ft 292 Meas. 6

Depth cased: 268 ft 268 Casing type: STEEL 10 in 10

Finish: porous gravel w. gravel w. horiz. open perf., screen, sd. pt., shored, open concrete, (perf.), (screen), gallery, end, other X

Method: (A) air bored, cable, dug, hyd jetted, air reverse trenching, driven, drive (B) rot., (C) percussive, rotary, wash, other C

Date Drilled: 1942 542 Pump intake setting: 35 ft 38

Driller: THORPE WELL CO. (STONER & JENSEN)

Lift (type): (A) air, bucket, cent, jet, multiple, multiple, none, piston, (B) (C) (J) (M) (N) (P) (R) (S) (T) (Z) (U) (V) (W) (X) (Y) (Z) D

Power (type): diesel, elec, gas, gasoline, hand, gas, wind; H.P. 41 Trans. or meter no. 40

Descript. MP LSD 0 ft above below lsd, Alt. MP 1234

Alt. LSD: 1234 1234 Accuracy: 47

Water Level 105' 3" ft above below MP; ft below lsd 105 Accuracy: REPORTED 6

Date meas: 2/22/52 252 Yield: 50 gpm 50 Method determined 61

Drawdown: ft 42 Accuracy: REPT 6 Pumping period 7 hrs 68

QUALITY OF WATER DATA: Iron 0.8 4 Sulfate 371.4 7 Chloride 3.0 0 Hard 610 8

Sp. Conduct 1280 K x 10⁶ 5 Temp. 74 76 Date sampled 11/28/45 N45

Taste, color, etc. 77 79

Well Number 42-15-07 3 0094.52 28 s
HYDROLOGIC CARD

[illegible]

CASING!

0-268' - 10" PIPE

GRAVEL PACK. NO SIDE HOLES.

24

HGH S - NOV - 1951
The Town of Auburn
in Carroll Co, is
planning to test pump
their new 275' well
Wed Nov 5 -
Pump will be in-
suring the test &
will start pumping
about noon -
Sincerely,
W. W. Taylor
Bridge

N.B. Since seeing Tom Thorpe, I talked with Walter Thorpe at Grinnell and learned of the Auburn test. The test has been completed and is producing from the Dakota. He (Walter) wanted us to study the samples and let them know where in the Dakota they were, etc. and I told him we would study them immediately if he would send them to Iowa City. Since that time we have heard nothing on the subject. Sampson, of the health office, collected a sample of water at the test of the test well and it is being analyzed.

K.E.A.
6/20/42