W-1402

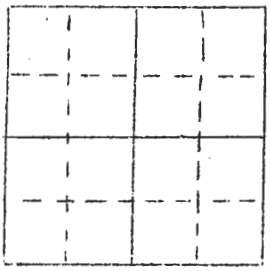
IOWA GEOLOGICAL SURVEY
In Cooperation with U. S. Geological Survey

7/14 field loc. by L. Fischer RECORD OF WELL

Location:

Town: Sac City (N E / S W); County Sac

SW - SE - NE - NE sec. 26 T. 88 N., R. 36 E. W. Jackson Twp.



On Golf course

Well name and number Sac City Well #4 (South)

Owner _____ Address _____

Tenant _____ Address _____

Contractor Thorpe Well Co. Address Des Moines

Drillers Harry West

Drilling dates Oct. 15, 1940 - June 25, 1941

Well data:

Elevations: Drilling curb 1263.43 feet; Land surface _____ feet

Topo Elev. = 1255'

Determined by engineer - taken from city record

Topographic position Upland

Total depth: Reported 240 feet, Measured _____ feet

drilled to 240'+

Drilling method _____

Hole and casing data GRAVEL Pack 290 tons of p
(Give amount, size, kind, and depth of all casing; type and
204' of 16" pipe from 0 to 204'
position of seals and packers; cementing; how finished--perforated pipe, screen,
196' of 10" pipe from 0 to 196'
gravel pack, open hole, etc.)
44' of 10" screen from 196' to 240
2 East side holes 204'; 2 west side holes 164'

Original depth to water 75 ft. ~~above~~ below curb Date _____

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

Sources of water: Principal Pleistocene 160-240'; Others _____

Production data: Date June 20, 1941

Static depth to water 75 Measuring point

Pumping level 86 at 400 g.p.m.

90 600

93 750

Specific capacity g.p.m. per ft. drawdown; Temperature 54 °F.

Pump data; Type pump U-Turbine Column Dia. Length 188

Cylinder or bowls: Dia. Length Suction pipe 10

Power Electricity Airline

Estimated rate of production: g.p.m. for hrs. a day

Use of water City Supply

WATER ANALYSES (in parts per million)

Date sampled				
Sampled by				
Total solids				
Insoluble matter				
Alkalinity (Meo)				
Alkalinity (Phn)				
pH				
Fe_2O_3+ Mn_2O_3+Al_2O_3				
Alkali as sodium				
Calcium				
Magnesium				
Iron (unfiltered)	1.5			
Manganese				
Nitrate				
Fluoride	1.0			
Chloride				
Sulfate				
Bicarbonate				
Hardness (ppm)				
Hardness (gpg)				

Remarks

Laboratory data: Sample storage location

Sample range 0-220 No. spls. 44 No. dupls. & cond. 44 good

Spls. prepared by J.B. Carrier Washed range by

Driller's log and cond.

Insoluble residues: Prepared by Studied by Strip log

Microscopic study 0-220 strip log 11-15-50

Gen. log Correl. by R.W. Scrivener

(W-1402 ?)

Sac City (Sac County)
Sac City city well (golf links ?) #4

Thorpe Well Co., Des Moines
10/15/40 to 6/25/41
Harry West, driller

T.D. 240 ft. (gravel pack with side holes)
S.W.L. 75 ft.
Production: 750 g.p.m. with 18 ft. of drawdown

Casing: 205' of 16" set at 203 ft.
205' of 10" set at 203 ft
40' of 10" Everdur screen with 5' of blank attached

Clay	0	to	55
Sand	55	to	60
Clay	60	to	160
Sand and gravel	160	to	180
Clay	180	to	185
Sand and gravel	185	to	240

MAY 1 5 1944
K. E. ANDERSON

IOWA GEOLOGICAL SURVEY
Water Well Data Sheet

Survey Number W-1402

Town Sac City County Sac T.___ N., R.___ E. W.

Name Sac City (Golf Links) Location ___ ¼ ___ ¼, Sec. ___

Contractor Thorpe Well Co Driller ___ Use ___

Construction ___ Drilling Dates ___ Drilling Depth ___

Topog. ___ Curb Elev. ___ Ref. ___ Total Depth 220 (240?)

Final Static Level ___ above / below curb Pumping Level ___ Draw down ___ gpm ___ 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 0-220 Number samples 44 Number Duplicates 44 Cond. Good

Log Yes / No, Cond. ___ Boxed Carrier Range 0-220 Date July 21 1941

Remarks ___

Microscopic Study Range ___ Strip Log ___ Gen. Log ___ Blue Print ___ Samples Washed ___

Insol. Res. Study Range ___ Strip Log ___ Gen. Log ___ Insol. Res. Prepared ___ Well Corel. ___

088-36W-26AA
1402

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

PUNCHED BY DBA
6/30/66

Water Quality
(ppm)

Card Q

State: IOWA (16) County: SAC (81) Town: SAC CITY, IA.

Well No. Latitude 42 24 40 N (5–11) Longitude 094 59 40 (12–18) Seq. No. 1 (19) Date M 06 D 20 Y 41 (20–25)

Sampling Depth 240 (26–29) Type 1 (30) $Kx10^6$ (31–35) pH (36–38) Temp. °F (39–41)

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

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

Card R

Duplicate Columns 1-25 from Card Q

F 1.0 (26–28) NO_3 (29–32) PO_4 (33–35) B (36–38) Al (39–41) Fe 1.5 (42–45)

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

Solids Determined (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 $CaCO_3$ 300 (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. HARONSON

Punched by: _____ Date: _____

Published: _____

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 088-36W-26AA
Aquifer Code(s) Q66X
Owner's Name SAC CITY #4 (1941)
W Number 01402

Card Q

State: IOWA [19] (1 2) County: SAC [81] (3 4) Town: SAC CITY, IOWA

Well No. Latitude [4242404N] (5–11) Longitude [09459401] (12–18) Seq. No. [1] (19) Date M D Y [012458] (20–25)

Sampling Depth [240] (26–29) Type [1] (30) Kx10^6 [880] (31–35) pH [74] (36–38) Temp. °F [54] (39–41)

SiO_2 [29.] (42–44) Ca [122.] (45–49) Mg [41.] (50–53) Na [15.] (54–58) K [4.5] (59–61)

HCO_3 [429] (62–65) CO_3 [0] (66 67) SO_4 [135.] (68–72) Cl [60.] (73–78) Source No. [3] [Q] (79 80)

Card R

Duplicate Columns 1-25 from Card Q

F [.4] (26–28) NO_3 [18.] (29–32) PO_4 [.] (33–35) B [.] (36–38) Al [.] (39–41) Fe [31.] (42–45)

Mn [.17] (46–49) Cu [.] (50–52) Pb [ ] (53 54) Zn [ ] (55–57)

Determined Solids [600] (58–63) Calc. [ ] (64–69) Ca,Mg Hardness [474] (70–73) Non-Carb. [122] (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 $CaCO_3$ [352] (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: Feb

Published: _____

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 088-36W-26AA
Aquifer Code(s) QGGX
Owner's Name SAC CITY #4 (1941)
W Number 01402

Card Q

State: IOWA (19) (1 2) County: SAC (81) (3 4) Town: SAC CITY, IOWA

Well No. Latitude 42 44 40 N (5–11) Longitude 094 59 40 (12–18) Seq. No. 1 (19) Date M D Y 11 26 60 (20–25)

Sampling Depth 240 (26–29) Type 1 (30) Kx10⁶ 902 (31–35) pH 7.3 (36–38) Temp. °F 54 (39–41)

SiO_2 39. (42–44) Ca 150. (45–49) Mg 26. (50–53) Na 19. (54–58) K 4.8 (59–61)

HCO_3 468 (62–65) CO_3 0 (66 67) SO_4 136. (68–72) Cl .5 (73–78) Source No. 3 (79) Q (80)

Card R

Duplicate Columns 1-25 from Card Q

F .4 (26–28) NO_3 66. (29–32) PO_4 (33–35) B (36–38) Al (39–41) Fe 10. (42–45)

Mn .21 (46–49) Cu (50–52) Pb (53 54) Zn (55–57)

Solids Determined 624 (58–63) Calc. (64–69) Ca,Mg 480 (70–73) Hardness Non-Carb. 96 (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 $CaCO_3$ 384 (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: KW

Published:

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 088-36W-26AA
Aquifer Code(s) QGGX
Owner's Name SAC CITY #4 (1941)
W Number 01402

Card Q

State: IOWA (19) (1 2) County: SAC (81) (3 4) Town: SAC CITY, IOWA

Well No. Latitude 42 24 40 N (5–11) Longitude 094 59 40 (12–18) Seq. No. 1 (19) Date M D Y 01 07 57 (20–25)

Sampling Depth 240 (26–29) Type 1 (30) Kx10⁶ 879 (31–35) pH 7.5 (36–38) Temp. °F 54 (39–41)

SiO_2 37. (42–44) Ca 120 (45–49) Mg 47. (50–53) Na 22. (54–58) K 9.0 (59–61)

HCO_3 449 (62–65) CO_3 0 (66 67) SO_4 144. (68–72) Cl 30 (73–78) Source No. 3 (79) Q (80)

Card R

Duplicate Columns 1-25 from Card Q

F .4 (26–28) NO_3 58. (29–32) PO_4 . (33–35) B . (36–38) Al . (39–41) Fe 13. (42–45)

Mn .68 (46–49) Cu . (50–52) Pb . (53 54) Zn . (55–57)

Determined Solids 655 (58–63) Calc. (64–69) Ca,Mg 493 (70–73) Hardness Non-Carb. 125 (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 $CaCO_3$ 368 (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: 10/1

Published:

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 088-36W-26AA
Aquifer Code(s) QGGX
Owner's Name SAC CITY #4 (1941)
W Number 01402

Card Q

State: IOWA [19] (1-2) County: SAC [81] (3-4) Town: SAC CITY, IOWA

Well No. Latitude [4244040N] (5-11) Longitude [094594 0] (12-18) Seq. No. [1] (19) Date M D Y [092055] (20-25)

Sampling Depth [240] (26-29) Type [1] (30) Kx10^6 [940] (31-35) pH [7.5] (36-38) Temp. °F [ ] (39-41)

SiO_2 [32.] (42-44) Ca [122.] (45-49) Mg [43.] (50-53) Na [20.] (54-58) K [4.2] (59-61)

HCO_3 [422] (62-65) CO_3 [0] (66-67) SO_4 [144.] (68-72) Cl [20.] (73-78) Source No. [3] (79) [Q] (80)

Card R

Duplicate Columns 1-25 from Card Q

F [.4] (26-28) NO_3 [10.] (29-32) PO_4 [ ] (33-35) B [ ] (36-38) Al [ ] (39-41) Fe [2.9] (42-45)

Mn [.17] (46-49) Cu [ ] (50-52) Pb [ ] (53-54) Zn [ ] (55-57)

Solids Determined [627] (58-63) Calc. [ ] (64-69) Hardness Ca,Mg [482] (70-73) Non-Carb. [120] (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 $CaCO_3$ [362] (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: I Date: MAR

Published:

Punched FCH

WRD Exp. (GW)
Aug. 1964

Verified 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 6/30/65 Map 1:63,360 COUNTY HWY

State IOWA (16) County (or town) SAC (81)

Latitude: 42 49 40 N (deg 7 min 9 sec 11 N S) Longitude: 094 59 40 (12 degrees 15 min sec 18) Sequential number: 1 (19)

Lat-long accuracy: 3 (20) T. 88 N S, R. 36 E W Sec. 26, ¼, NE ¼, NE ¼ 5

Local well number: D 88 36 W 26 a a (21–30) Other number: B & M W-1402

Local use: 01402 41 CITY A (35–51) Owner or name: SAC CITY WELL #4

Owner or name: SAC CITY IOWA (52–66) Address: SAC CITY, IOWA

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private, (S) State Agency, (W) Water Dist — M (67)

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 (68)

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 (69)

DATA AVAILABLE: Well data 1 (70) Freq. W/L meas.: INVENTORY Ø (71) Field aquifer char. (72)

Hyd. lab. data: (73)

Qual. water data; type: C (74)

Freq. sampling: I (75) Pumpage inventory: yes / no, period: (76)

Aperture cards: yes (77)

Log data: GEOLOGIC LOG - DRILLER'S LOG GD (78–79)

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD (19) Depth well: 240 ft 240 (20–23) Meas. rept accuracy 6 (24)

Depth cased (first perf.): 204 ft 204 (25–28) Casing type: STEEL; Diam. 10 in 10 (29–30)

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 — S (31)

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) drive wash, (Z) other — (32)

Date Drilled: JUNE 1941 941 (33–35) Pump intake setting: 188 ft 188 (36–38)

Driller: THORPE WELL CO. (HARRY WEST) DES MOINES, IA (name, 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 — T (39) Deep / Shallow D (40)

Power (type): diesel, (elec), nat gas, gasoline, hand, LPG gas, wind; H.P. — 5 (41) Trans. or meter no.

Descrip. MP CURB ft above / below lsd, Alt. MP 1263.43

Alt. LSD: 1263.43 1263 (42–45) Accuracy (source): INSTRUMENT 0 (47)

Water Level 75 ft above / below MP; Ft above / below lsd 75 (48–51) Accuracy: REPORTED 6 (52)

Date meas: 6/41 641 (53–55) Yield: 750 gpm 750 (56–60) Method determined (61)

Drawdown: 18 ft 18 (62–64) Accuracy: REPT 6 (65) Pumping period hrs (66–68)

QUALITY OF WATER DATA: Iron 7 ppm (69) Sulfate 4 ppm (70) Chloride 0 ppm (71) Hard. 7 ppm (72)

Sp. Conduct K x 10^6 4 (73) Temp. °F 54 (74–76) Date sampled 11/26/60 N60 (77–79)

Taste, color, etc.

Well Number 42 d 24 m 40 s (N) S 034 d 59 m 40 s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD (1–19)

Physiographic Province: CENTRAL LOWLAND (20–21) 12

Section: WESTERN LAKE (22) B

Drainage Basin: RACCOON (23–25) 25A

Subbasin: (26)

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

MAJOR AQUIFER: QUATERNARY system, PLEIST. series (28–29) QG aquifer, formation, group (30–31) GX

Lithology: SAND (32–33) S Origin: GLACIAL (34) O Aquifer Thickness: 80 ft

Length of well open to: 36 ft (35–37) 080 Depth to top of: 160 ft (38–40) 360 (41–43) 160

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

Lithology: (48–49) Origin: (50) Aquifer Thickness: ft

Length of well open to: ft (51–53) Depth to top of: ft (54–56) (57–59)

Intervals Screened: 196'-240'

Depth to consolidated rock: ft (60–63) Source of data: (64)

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

Surficial material: SANDY TILL (70–71) BT Infiltration characteristics: POOR (72) 4

Coefficient Trans: gpd/ft (73–75) Coefficient Storage: (76–78)

Coefficient Perm: gpd/ft^2; Spec cap: 41.6 gpm/ft; Number of geologic cards: (79)

CASING:

0-204' 16" CASING

0-196' 10" CASING

196'-240' 10" SCREEN

26

PUMPING LEVEL

86 AT 400 GPM

90 AT 600 GPM

93 AT 750 GPM

GPO 844-225