

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR

GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

MASTER CARD

Record by D. AARONSON Source of data FILE Date 2/9/67 Map 1:62,360 COUNTY HWY

State IOWA County 16 (or town) IOWA 48

Latitude: 41 46 28 N Longitude: 091 58 07 Sequential number: 1

Lat-long accuracy: 2 T. 81 S. R. 10 E Sec 36 SW 5

Local well number: 08110W36CCCC Other number: W-0971

Local use: 00971 39CITY 3 Owner or name: SOUTH AMANA CITY WELL #3

Owner or name: SOUTH AMANA IA Address: SOUTH AMANA, IA.

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

Use of water: (A) Air cond, Bottling, Comm, Dewater, Power, Fire, Dom, Irr, Med, Ind, P S, Rec, (S) Stock, Instit, Unused, Repressure, Recharge, Desal-P S, Desal-other, Other P

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

DATA AVAILABLE: Well data 1 Freq. W/L meas.: INVENTORY Field aquifer char. 0

Hyd. lab. data: 0

Qual. water data; type: COMPLETE

Freq. sampling: INVENTORY Pumpage inventory: 0 yes no period: 0

Aperture cards: 0

Log data: GEOLOGIST LOG 6

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 465 ft 465 Meas. DRILLER'S LOG 3

Depth cased; (first perf.) 318 ft 318 Casing type: STEEL ; Diam. 10 in 10

Finish: (C) porous concrete, (F) gravel w. (H) gravel w. (G) horiz. open (P) perf., screen, sd. pt., shored, open (S) other (T) other (W) other (X) other

Method: (A) air bored, (B) cable, (C) dug, (D) hyd jetted, (E) air reverse trenching, (F) driven, (G) wash, (H) other

Date Drilled: MAY 1939 939 Pump intake setting: 107 ft 107

Driller: C.D. NOLAN CEDAR RAPIDS, IA.

Lift (type): (A) air, (B) bucket, (C) cent, (D) jet, (E) multiple, (F) multiple, (G) none, (H) piston, (I) rot, (J) submerg, (K) turb, (L) other, (M) other, (N) other, (O) other, (P) other, (Q) other, (R) other, (S) other, (T) other, (U) other, (V) other, (W) other, (X) other, (Y) other, (Z) other

Power (type): (A) diesel, (B) elec, (C) gas, (D) gasoline, (E) hand, (F) gas, (G) wind, (H) H.P., (I) LP, (J) Trans. or meter no. 5

Descrip. MP LSD ft above LSD . Alt. MP 797

Alt. LSD: 797 797 Accuracy: ALTIMETER 7

Water Level 57 ft above MP; Ft below LSD 57 Accuracy: DRILLER'S LOG D

Date meas: MAY 1939 539 Yield: 40 gpm 40 Method determined 0

Drawdown: 7 ft 7 Accuracy: 3 Pumping period 0 hrs 0

QUALITY OF WATER DATA: Iron 0.8 ppm Sulfate 1764.5 ppm Chloride 2.0 ppm Hard. 1499.3 ppm

Sp. Conduct 0.8 K x 10⁶ Temp. 56 °F 56 Data sampled JULY 23, 1962 742

Taste, color, etc. 0

Well No. 081-10W-36 CCCC

Latitude-longitude 41, 46, 28 ^N 071, 58, 07.1
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD **Physiographic Province:** CENTRAL LOWLAND **Section:** DISSECTED

TILL PLAIN E **Drainage Basin:** IOWA **Subbasin:** 25D

Topo of well site: (D) depression, stream channel, dunes, flat, hilltop, sink, swamp, (E) offshore, pediment, hillside, terrace, undulating, valley flat UPLAND SLOPE

MAJOR AQUIFER: DEVONIAN, MIDDLE DZ WAPJIPINICON FM MW

Lithology: FINE LS. & DOL 2L **Origin:** MARINE 6 **Aquifer Thickness:** 70 ft

Length of well open to: 70 ft **Depth to top of:** 390 ft

MINOR AQUIFER: DEVONIAN, MIDDLE DZ CEDAR VALLEY MC

Lithology: FINE LS. & DOL 2L **Origin:** MARINE 6 **Aquifer Thickness:** 100 ft

Length of well open to: 82 ft **Depth to top of:** 290 ft

Intervals Screened: NONE

Depth to consolidated rock: 213 ft **Source of data:** WELL CUTTINGS

Depth to basement: ft **Source of data:**

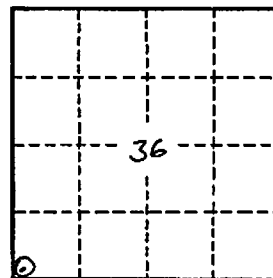
Surficial material: GLACIAL TILL **Infiltration Characteristics:** POOR

Coefficient Trans: gpd/ft **Coefficient Storage:**

Coefficient Perm: gpd/ft²; **Spec cap:** 5.7 gpm/ft; **Number of geologic cards:**

CASING:

218'4" OF 10" CASING 0-218'4"
63'6" OF 8" FROM 210'4"-273'10"
44'1" OF 6" CSG. FROM 273'10"-318'4".



Well No.

081-10W-36 CCCC

D. E. EDWARDS

Well Drilling, Pumping Equipment

Phone 278

WEST BRANCH, IOWA

March 5 1955

SOUTH AMANA, JANUARY 1955.....

On January 21 1955, a well site was chosen which was located about 1,000 feet south of highway No. 6, and about 100' feet east of the north and south gravel road.

TEST HOLE:

A 6" test hole was drilled to 79', through the following formati

0'	-	5'	consisted of sandy soil and clay.
5'	-	54'	" " a hard very plastic dark colored clay
54'	-	60'	" " very fine silty sand
60'	-	68'	" " fine silty sand and layers of clay.
68'	-	73'	" " a dark gray colored sand, averaging from .010 to .020 in size.
73'	-	75'	" " some coarser sand and gravel.
75'	-	76'	" " larger gravel and small boulders
76'	-	79'	" " hard blue clay.

A screen was set in this 6" test hole and it was pumped approx. 25 G.P.M. for several days. The State Geological Survey obtained a mineral analysis which showed the water to have an iron count of 1.4 and a total hardness of 33.6, some local people used the water in different ways and seemed satisfied with the results of same.

A GRAVEL PACK WELL WAS THEN CONSTRUCTED AS FOLLOWS:

WELL SCREEN:

A 10" X 10' Johnson Everdur metal No. 40 slot screen was set with the bottom of same at 75', the top of this screen is provided with a 9 15/16" O.D. receiving coupling.

WELL CASING:

10", 35 lbs. per foot black wrought steel casing was set from 69' below ground level to approx. 3' above ground level.

GRAVEL PACKING:

The sand between 54' and 75' was replaced with 49 tons, of No. 2 dried and graded gravel from the Northern Gravel Co. of Muscatine Iowa.

SURFACE WATER SEAL AROUND THE OUTSIDE OF 12" CASING:

A hole 4 feet square was excavated and cribbed to 12 foot below the ground level, 300 lbs. of cement was mixed with water, making a very thin solution, which was poured around the outside of the 10" casing in the bottom of the 4' excavated hole.

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WEST BRANCH, IOWA

- 2 -

The four foot excavated hole was then filled 3' or to 9' below ground level, with ready mixed cement, six feet of this excavated hole was then filled with the formation previously taken from the well, filling the excavated hole to within three feet of the surface, then three feet more of ready mixed cement was added, filling the excavated hole to the surface.

PUMPING TEST:

A 48 hour continuous pumping test was made, pumping 50 G.P.M.

The static water level was 54' below the top of the 10" casing and the pumping level at the completion of the pumping test was 66', or 12' of draw down. 25 lbs. of H.T.H., 70% available chlorinated lime was used with this gravel.

OBSERVATION HOLE:

A 2" galv. casing was set to 72', and a 3' No. 60 slot sand point was screwed on the bottom of same, making the total depth 75' below the ground level. The location of this observation hole is 11' west of the 10" well.

A 5" hole was drilled to 68', and this 2" pipe and sand point was driven to 75', the space around the outside of the 2" casing and the 5" hole was filled with cement.

The purpose of this observation hole is, that the water level from the water bearing sand above 75' may be checked at any time.

The drilling foreman on this well was John Hofmann of West Branch, assisted by Dale Wilcox of West Branch and Clair Snapp of Amena.

D.E. Edwards.

D.E. Edwards.

DRE/acc.

SOUTH AMANA WELL

Washed Samples

0 - 210	Pleistocene
210 - 295	Shale. Kinderhook
295 - 385	Cedar Valley
385 - 390	Independence
390 - 405	Davenport
405 - 430	Spring Grove
430 - 445	Kenwood
445 - 460	Otis
460 - 465	Coggon

WELL RECORD

Driller: C. D. Nolan

Address: Cedar Rapids, Iowa

Owner: ~~Lower~~ South Amana

Well is located in W ~~Lower~~ South Amana in Iowa County in the SW $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 36, T. 81, R. 10. Owner: Town.

Driller: J. E. Griffiths

Well begun March 18, 1939. Completed May 9, 1939

Rig used - Cable (Bucyrus-Armstrong)

Depth of well 465 feet

(Reference point)

Final water head: 57 feet (20" above concrete pit floor)

Yield of pump: 38-40 g.p.m. dd 5-7'.

Temp. 56° (by driller)

Position of well: Upland slope

Record of permanent casing:

Size of pipe

Type and weight
of pipe
35 lb. steel
25 lb. steel

10"
8"
6"

Sample No.	Description of Beds	Depth	
		From	To
1	Blue clay	1	5
2	" "	5	10
3	" "	10	15
4	" "	15	20
5	" "	20	25
6	" "	25	30
7	" "	30	35
8	" "	35	40
9	" "	40	45
10	" "	45	50

Sample No.	Description of Beds	Depth	
		From	To
11	Blue clay	50	55
12	" "	55	60
13	" "	60	65
14	Gravel	65	70
15	"	70	75
16	"	75	80
17	Brown clay	80	85
18	Blue clay	85	90
19	" "	90	95
20	" "	95	100
21	" "	100	105
22	" "	105	110
23	" "	110	115
24	" "	115	120
25	" "	120	125
26	" "	125	130
27	" "	130	135
28	" "	135	140
29	" "	140	145
30	" "	145	150
31	" "	150	155
32	" "	155	160
33	Sand	160	165
34	"	165	170
35	"	170	175
36	"	175	180
37	"	180	185
38	"	185	190
39	"	190	195
40	"	195	200
41	"	200	205
42	Clay and sand	205	210
43	Shale	210	215
44	"	215	220
45	"	220	225
46	"	225	230
47	"	230	235
48	"	235	240
49	"	240	245
50	"	245	250
51	"	250	255
52	Shale, gray tough	255	260
53	" " "	260	265
54	" " "	265	270
55	" " "	270	275
56	" " "	275	280
57	" " "	280	285

Sample No.	Description of Beds	From	Depth	To
58	Shale, gray tough	285		290
59	" " "	290		295
60	Lime, rock gray hard	295		300
61	" " " "	300		305
62	" " " "	305		310
63	" " " "	310		315
64	" " " "	315		320
65	" , a little more water	320		325
66	" " " " "	325		330
67	" " " " "	330		335
68	" " " " "	335		340
69	" rock, gray, hard	340		345
70	" " " "	345		350
71	" " " "	350		355
72	" " " "	355		360
73	" " " "	360		365
	(well tested)			
74	" " " "	365		370
75	" " " "	370		375
76	" " " "	375		380
	(well tested 27 g.p.m.)			
77	" " " "	380		385
78	" " " "	385		390
79	" " " "	390		395
80	" " " "	395		400
81	" " " "	400		405
82	" " " "	405		410
83	" " " "	410		415
84	" " " "	415		420
85	" " " "	420		425
86	" " " "	425		430
87	" " " "	430		435
88	" " " "	435		440
89	" " " "	440		445
90	" " " "	445		450
91	" " " "	450		455
92	Very fine sandstone	455		460
93	" " " "	460		465

Casing Record

10" casing	21' 11" long	10" casing	20' 2" long
" "	21' 3" "	" "	19' 9" "
" "	21' 4" "	" "	12' " "
" "	21' 9" "	" "	20' 8" "
" "	21' 3" "		
" "	21' 7" "		
" "	17' 6" "		
" "			
		218' 4"	

Casing Record continued

8" casing	21' 5"		
" "	21' 5"	8' lap	8" 7' into rock
" "	20' 8"		
		63' 6"	
6" casing	22' 1"		
" "	22	below 8"	44' 1"
4" droppipe	21' 4"		
" " "	21' 4"		
" " "	21' 4"		
" " "	21' 7"		
" " "	21' 8"	106' 11"	

081-10W-36 CCCC

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

W-0971

RECORD OF WELL

Location:

Town: South Amana (N E)
(S W) : County Iowa

SW/4 SW sec. 36 T 81 N., R. 10 W. Washington Twp.

Well name and number City Well #3Owner South Amana Colony Address _____

Tenant _____ Address _____

Contractor C.D. Nolan Address Cedar RapidsDrillers Dick GriffithDrilling dates Mar. 18, 1939 to May 9, 1939

Well data:

Elevations: Drilling curb 7.97 feet; Land surface _____ feet

Determined by _____

Topographic position Upland slopeTotal depth: Reported _____ feet, Measured 465 feetDrilling method cable

Hole and casing data 218' 4" of 10" casing; 0-218' 4"; 63' 6" of
8" from 210' 4" - 273' 10"; 44' 1" of 6" 273' 10" to 318' 4"

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

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

Sources of water: Principal Washington; Others _____

Production data:

Date _____

Static depth to water _____

Measuring point _____

Pumping level _____

at _____

g.p.m. _____

Specific capacity _____

5.7

g.p.m.

per ft.

drawdown; Temperature _____

56

°F.

Pump data; Type pump _____

Cylinder

Column Dia. _____

4"

Length _____

107

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 _____

July 29, 1942

Sampled by _____

K.E.A.

Total solids _____

2472

Insoluble matter _____

23.0

Alkalinity (Meo) _____

214.0

Alkalinity (Phn) _____

0.0

pH _____

7.4

Fe₂O₃ + Mn₂O₃ + Al₂O₃ _____

7.5

Alkali as sodium _____

237.6

Calcium _____

360.6

Magnesium _____

145.2

Iron (unfiltered) _____

0.8

Manganese _____

0.0

Nitrate _____

Trace

Fluoride _____

Trace

Chloride _____

2.0

Sulfate _____

1764.5

Bicarbonate _____

261.1

Hardness (ppm) _____

1499.3

Hardness (gpg) _____

87.6

Remarks _____

Laboratory data:

Sample storage location _____

Sample range _____

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 _____