

IOWA GEOLOGICAL SURVEY
In Cooperation with U. S. Geological Survey
RECORD OF WELL

Location:

Town: SOLON (NE) (SW) County JOHNSON
(E)
NE NE NW sec. 25 T. 81 N., R. 6 (W) Twp.

Well name and number

Owner SOLON TOWN WELL (1960) Address SOLON, IOWA

Tenant Address

Contractor HOEG & AMES Address LINCOLN, IOWA

Drillers LEROY AMES

Drilling dates SEPT. 15, 1960 - OCT. 20, 1960

Well data:

Altitudes: Drilling curb feet; Land surface 788 feet

Determined by

Topographic position

Total depth: Reported 482' feet; Measured 482' feet

Drilling method CABLE TOOLS

Hole and casing data 27' OF 20" CSG. SET @ 25"
176' 9" OF 12" CASING SET @ 174' 9"
CEMENTED WITH 476 BAGS CEMENT

Original depth to water 63.11 ^{above} ft. below Date

Source of data

Sources of water: Principal 200-480Others 80-90' (CASA OFF)

PRODUCTION DATA

Date OCT. 19-20, 1960Static water level 63.11Pumping water level 229Yield (g.p.m.) 392

Measuring point _____

Duration of pumping 24 HOURSSpecific capacity 2.37

LABORATORY DATA

Well No. W12477 Sample range 6-482 No. of samples 94No. of dupls. and cond. 92 Good Washed range 25-482Samples prepared by Cahill - Valentine Date 10/5 - 10/19/60Logged by NORTHUP Date 10/21/60Correlations by _____ Date 10/21/60

Solon #2

Loc

Elev. 787' asd

Driller LeRoy

Deep 481' Sept 15-60 to Oct 17-60

Cable

27" & 20" OD; 19" hole to 176' 9" ; 176' 9" & 12" 10" ; 12" hole to 481'

0-5 blk to yel clay

5-20 yel clay

20-30 rk + little sh

30-80 gy to br lime

80-100 yel rk

100-120 gy rk (broken)

120-176' 9" gy lim

176-200 gy lime

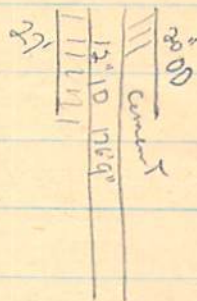
200-300 gy rk + a little sh

300-350 gy rk + mud seams

350-400 lt gy rk

400-479 lt gy rk

479-481 sh



476 bag cement

481' shale

- MP - 2.12' asd

- turbine - direct drive gas engine

- elect line

- tank for discharge - 14 gal/in - alum pipe 100', 4" pipe

- pump @ 250'

**PUMPING TEST
SOLON, IOWA, WELL NO. 2
OCTOBER 19-20, 1960**

A pumping test was conducted on the Solon Town Well No. 2 on October 19-20, 1960, by Hoeg and Ames. The Geological Survey cooperated in taking water-level measurements and obtaining discharge data.

The well was pumped for a total of 24 hours: the first 6 hours and the last 2-1/2 hours at 200 g.p.m. and the remaining 15-1/2 hours at 392 g.p.m. In 6 hours at 200 g.p.m. the drawdown was 70.31' giving a specific capacity of 2.85 g.p.m./ft. At the end of 15-1/2 hours of pumping, 392 g.p.m. the drawdown was 165.70', hence a specific capacity of 2.36 g.p.m./ft. Approximately 24 hours after pumping was stopped, the water level was 72.06' which is 8.95' from the original static level of 63.11'. Negligible drawdown in original, incomplete well indicates that cementing has effectively sealed off the overlying aquifer.

Pumping and water-level records will prove valuable and should be kept.

TABLE I
PUMPING TEST, WELL NO. 2
SOLON, IOWA
OCTOBER 19-20, 1960

Location: SW NE NW sec. 25 T. 81 N., R. 6 W.

Total Depth: 481'

Elevation: 787' above sea level

Contractor: Hoeg & Ames

Date Drilled: September 15 - October 17, 1960

Hole Size: 19" hole to 179'9"; 12" hole to 481'

Casing Data: 27' of 20" OD; 176'9" of 12" ID, *Cemented in with 476 sacks of cement*

Static Water Level: 63.11' (steel tape) below top of casing which is 2.2' above land surface datum.

Test Pump: Turbine powered by gas engine with direct drive: setting at 255'.

Aquifer: Silurian

Measurements: Airline and tape.

Observers: L. L. Steele and R. E. Hansen

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TABLE II
PUMPING TEST, WELL NO. 2
OLON, IOWA
OCTOBER 19-20, 1960

<u>TIME</u> <u>(hr. -min.)</u>	<u>DEPTH TO</u> <u>WATER (ft.)</u>	<u>DRAWDOWN</u> <u>(ft.)</u>	<u>G.P.M.</u>	<u>REMARKS</u>
8:15 a.m.	63.11	Static water level		SWL=63.45 (Elec. line)
8:30 0				pump on
1				
2				
3	107.33	44.22		
4				Drawdown figured from
5	112.20	49.09		SWL 63.11' measured
6				by steel tape
7	114.90	51.79		
8				
9				
10	118.05	54.94	200	
13	119.95	56.84		
15	120.45	57.34		
18	121.55	58.44		
20	122.28	59.17		
22	122.75	59.64		
24	123.25	60.14		
26	123.50	60.39		
28	123.88	60.77		
9:00 30	124.28	61.17		
35	125.20	62.09		
40	125.85	62.74		
45	126.33	63.22		
50	126.90	63.79		
55	127.65	64.54		
60	127.92	64.81	200	
70	128.58	65.47		
80	129.28	66.17		
10:00 90	129.85	66.74		
100	130.20	67.09		
120	130.78	67.67		
135	130.85	67.74		
11:00 150	131.36	68.25		
165	131.21	68.10	196	
180	131.11	68.00		
195	131.30	68.19		
12:00 210-	131.54	68.43		
noon				
225	131.79	68.68		
240	132.03	68.92		
255	132.12	69.01		

TABLE II (CONTINUED)

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<u>TIME</u> <u>(hr. -min.)</u>	<u>DEPTH TO</u> <u>WATER (ft.)</u>	<u>DRAWDOWN</u> <u>(ft.)</u>	<u>G. P. M.</u>	<u>REMARKS</u>
1:00 270	132.49	69.38		
285	132.50	69.39		
300	132.75	69.64	196	
315	133.20	70.09		53°F.
2:00 330	133.32	70.21		
345	133.52	70.41		
2:30 360	133.42	70.31		pumping increased
363	207.45	144.34		
366	218.97	156.86	392	
369	228.25	165.14		
372	233.70	170.59		
375	229.55	166.44		
380	232.27	169.16		
385	228.90	165.79		
3:00 390	226.40	163.29		
405	229.40	166.29		
420	229.25	166.14		
4:00 450	229.15	166.04		
4:30	229.08	165.63		Drawdown figured from
5:00	229.10	165.65		SWL 63.45 measured
5:30	229.09	165.64	392	by electric line
6:00	228.90	165.45		
6:30	229.12	165.67		
7:00	229.15	165.70	392	
7:30	229.10	165.65		
8:00	229.07	165.62		
8:30	229.00	165.55	392	
9:00	229.14	165.69		
9:30	229.00	165.55		
10:00	229.25	165.80		
10:30	229.00	165.55		
11:00	229.10	165.65		
11:30	229.18	165.73		
12:00	229.15	165.70		
midnight				
12:30	229.12	165.67		
1:00	229.04	165.59		
1:30	229.10	165.65		
2:00	229.17	165.72	392	
2:30	229.09	165.64		
3:00	229.06	165.61		
3:30	229.22	165.77		
4:00	229.12	165.67		
4:30	229.16	165.71		
5:00	229.21	165.76		water clear
5:30	229.18	165.73		
6:00	229.15	165.70	392	pumping decreased

TABLE II (CONTINUED)

<u>TIME</u> <u>(hr. -min.)</u>	<u>DEPTH TO</u> <u>WATER (ft.)</u>	<u>DRAWDOWN</u> <u>(ft.)</u>	<u>G.P.M.</u>	<u>REMARKS</u>
6:15	169.45	106.00		
6:20	167.70	104.25		
6:25	166.85	103.40		
6:30	166.60	103.15	200	
6:35	166.00	102.55		
6:40	165.80	102.35		
6:45	165.37	101.92		
6:50	165.10	101.65		
6:55	164.90	101.45		
7:00	164.70	101.25		
7:15	164.50	101.05	210	
7:30	164.30	100.85		
7:45	163.90	100.45		
8:00	163.25	99.80		
8:15	163.10	99.65		collected water sample
8:30	162.80	99.35		pump shut off
		Recovery		October 20, 1960
8:32	2	110.00		
	4	107.50		
	6	106.00		
	8	104.80		
	10	103.15		
	12	102.60		
	14	101.70		
	16	100.85		
	18	100.00		
	20	99.40		
	25	98.08		
9:00	30	97.08		
	35	96.30		
	40	95.45		
	45	94.70		
	50	94.12		
	60	93.08		
	70	92.25		
	80	91.46		
10:00	90	90.74		pulled electric line
	105	89.43		(pulling pump-steel
	120	89.70		(tape hung up
	125	90.48		
	135	87.96		steel tape measurements
	150	87.28		"
12:00	210	85.35		"
1:50	320	82.23		"
8:00 a.m.	72.06			"
10/21/60				

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No.

Washington _____

District _____

14 GAL = 1"

SOLON - 10-19-60

MP = 2.2 ALSO ELEC LINE 63.45

TIME	MIN	HELD	WET	W/L	D/D	GPM						
8:15	0			63.11								
8:30	1											
	3			107.33	44.22							
	4											
	5	115-2.80										
	6											
	7	115.00 - .10		114.90	51.79							
	8											
	9											
8:40	10	115.00	3.05	118.05	54.94	200						
	13	120.00	- .05	119.95	56.84							
	15	120.00	+0.45	120.45	57.34							
	18	120.00	+1.55	121.55	58.44							
	20		+2.28	122.28	59.17							
	22	120.00	2.75	122.75	59.64							
	24	125.00	-1.75	123.25	60.14							
	26		-1.50	123.50	60.89							
	28		-1.12	123.88	60.77							
9:00	30	125.00	-0.72	124.28	61.18							
	35		+0.20	125.20	62.09							
	40		+0.85	125.85	62.74							
	45		+1.33	126.33	63.22							
	50		1.90	126.90	63.79							
	55		2.65	127.65	64.54	14 1/2"						
9:30	60		2.92	127.92	64.81	200						
	70	130	-1.42	128.58	65.47							
	80		-0.72	129.28	66.17							
10:00	90	130	-0.15	129.85	66.74							
10:10	100	130	+2.20	130.20	67.09							
10:30	120	130	+78	130.78	67.67							
10:45	135		+85	130.85	67.74							

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GEOLOGICAL SURVEY**

File No. { Washington _____
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SL. 187' 200'
Solon 10-19-60

TIME		HELD	WET	W/L	D-D	GPM							
11:00	150	130.00	+1.36	131.36	68.25	14"							EL. = 787' 200'
11:15	165		1.21	131.21	68.10	14"							
11:30	180		1.11	131.11	68.06								
11:45	195		1.30	131.30	68.19								
12:00	210			131.54	68.43								
12:15	225			131.79	68.68								
12:30	240			132.03	68.92								
12:45	255			132.12	69.01								
1:00	270	130.0	2.49	132.49	69.38								
1:15	285	130.0	2.50	132.50	69.39	13 3/4"							
1:30	300	130.00	2.75	132.75	69.64	196							
1:45	315		3.20	133.20	70.09		53°						
2:00	330	135.0	-1.68	133.3	70.21								
2:15	345		-1.48	133.52	70.41								
2:30	360	135.0	-1.58	133.42	70.31								
	3			207.45									pumping increased
	6	220.0	-1.03	218.97		392							
	9	230.0	-1.75	228.25									
	12	235.0	1.30	233.70									
	15	230.0	-0.45	229.55									
	20	230.0	+2.27	232.27									
	25	230.0	-1.10	228.90									
3:00	30	225.0	+1.40	226.40									
3:15	45			229.40									
3:30	60			229.65									
4:00	90			229.15									

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TIME	W.L.	D.D.	P.P.M.		TIME	W.L.	D.D.	P.P.M.	
4:30	229.08	165.63	10/14/60		6:30	166.60	103.15	200	
5:00	229.10	165.65			6:35	166.00	102.55		
5:30	229.09	165.64	392		6:40	165.80	102.35		
6:00	228.90	165.45			6:45	165.37	101.92		
6:30	229.12	165.67			6:50	165.10	101.65		
7:00	229.15	165.70	392		6:55	164.90	101.45		
7:30	229.10	165.65			7:00	164.70	101.25		210
8:00	229.07	165.62			7:15	164.50	101.05		
8:30	229.00	165.55	392		7:30	164.30	100.85		
9:00	229.14	165.69			7:45	163.90	100.45		
9:30	229.00	165.55			8:00	163.25	99.80		
10:00	229.25	165.80			8:15	163.10	99.65	Collected water sample	
10:30	229.00	165.55			8:30	162.80	99.35		
11:00	229.10	165.65							
11:30	229.18	165.73	392						
12:00	229.15	165.70	10/24/60						
12:30	229.12	165.67							
1:00	229.04	165.59							
1:30	229.10	165.65							
2:00	229.17	165.72	392						
2:30	229.09	165.64							
3:00	229.06	165.61							
3:30	229.23	165.77							
4:00	229.12	165.67							
4:30	229.16	165.71							
5:00	229.21	165.76	water clean						
5:30	229.18	165.73							
6:00	229.15	165.70	392						
6:15	169.45	106.00							
6:20	169.70	104.25	200						
6:25	166.85	103.40							

210 cc. 2
Hard 15 gr.

10/20/60

Collected water sample

SULPHATES 34 PPM 2: 30 PPM.
F = 1.25 10/19/60

F₂ = 0.9

210 at 60

8:00 AM 80.00

7.64

72.36

.2

72.06 WL

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File No. { Washington _____
District _____

SOLON CITY WELL

202560

TIME	MIN	HOLD	WET	W/L ELECTRIC CABLE	-RECOVERY- d/d	OCT. 20, 1960	STEEL TAPE TIME
8:32				110.50			
4				107.50			
6				106.00			
8				104.80			
8:40				103.15			
2				102.60			
4				101.70			
6				100.85			
8				100.00			
8:50				99.40			
55		100	1.92	98.08			
9:00	30			97.08			
9:05	35		3.70	96.30			
9:10	40			95.45			
9:15	45			94.70			
9:20	50			94.12			
9:30	60	95.	1.92	93.08			
9:40	70			92.25			
9:50	80			91.46			
10:00	90			90.74			
10:15	105			89.72			
10:30	120			89.43	10:20		
10:35	125	91.00	.52	90.48	89.70	10:30	
10:45	135	91.50	3.04	87.96			
11:00	150	90.00	2.72	87.28			
12:00	210	90.00	4.65	85.35			
1:50	320	84.00	1.77	82.23			

Town Clerk
Harry Neal
Solon

A+A

Green

pulling pump

- TAPE PROBABLY HUNG UP

- TAPE PROBABLY HUNG UP - READING PROBABLY NOT CORRECT

Orig. hole

UNITED STATES
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File No. { Washington _____
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TIME min	Hold	Wet	WL'	Dd'	
	20.00	5.32	14.68	STATIC	
11	17.00	2.29	14.71	.03	MP = .45' above
20	16.00	1.29	14.71	.03	170' deep - tools in hole
1 hr	16.00	1.25	14.75	.07	
2 hr	"	1.23	14.77	.09	20.00 5.32 SWL
3 hr	"	1.19	14.81	.13	
4 hr		1.19		.13	
5 hr		1.19		.13	
2 hrs	17.00	2.14	14.86	.18	stopped up pumping
	17.00	2.02	14.98		
This is hole in Dev. $\approx$ 50' from pumping well in which Nolans tools are stuck					