070-04W-16ADA

IOWA GEOLOGICAL SURVEY W-1572

In Cooperation with U. S. Geological Survey

RECORD OF WELL



Location:

Town: Danville (N E / S W): County Des Moines E.

NE-SE-NE sec. 16 T 70 N., R. 4 W. Danville Twp.

Well name and number Danville City Well #1

Owner City of Danville Address

Tenant Address

Contractor Hoeg & Ames Address Lincoln.

Drillers Rhodes & Martin

Drilling dates June 1942

Well data:

Elevations: Drilling curb 726 feet; Land surface 724 feet

Determined by

Topographic position Upland

Total depth: Reported 1189 feet, Measured feet

Drilling method cable

Hole and casing data 838' of 6" from 0-838'

Original depth to water ft. below above Date

Original elevation of water level ft.; Source of data

Sources of water: Principal Ordovician ; Others

Production data: Date _____

Static depth to water 161'1" Measuring point _____
Pumping level 167.5 at 209 g.p.m.

Specific capacity 32.1 g.p.m. per ft. drawdown; Temperature 64 3/4 °F.

Pump data: Type pump Turbine Column Dia. 3½" Length 259½'
Cylinder or bowls: Dia. _____ Length 9½' Suction pipe 0

Power Gas engine Airline _____

Estimated rate of production: _____ g.p.m. for _____ hrs. a day
Use of water City Supply

WATER ANALYSES (in parts per million)

Date samples	June 29, 1942			
Sampled by	K.E. Anderson			
Total solids	1787			
Insoluble matter	85.5			
Alkalinity (Meo)	278.			
Alkalinity (Phn)	0.0			
pH	7.5			
$Fe_2O_3 + Mn_2O_3 + Al_2O_3$	2.5			
Alkali as sodium	296.8			
Calcium	162.6			
Magnesium	57.3			
Iron (unfiltered)	0.3			
Manganese	0.0			
Nitrate	0.0			
Fluoride	2.8			
Chloride	148.0			
Sulfate	773.5			
Bicarbonate	339.2			
Hardness (ppm)	650.2			
Hardness (gpg)	38.0			

Remarks _____

Laboratory data: Sample storage location _____

Sample range a-1189 No. spls. 224 No. dupls. & cond. 224 Cond.
Spls. prepared by dunbar Washed range _____ by _____
Driller's log and cond. _____
Insoluble residues: Prepared by _____ Studied by _____ Strip log _____
Microscopic study a-1189 strip log Nov. 1942
Gen. log _____ Correl. by L.E. Davis, Jr.

Danville City Well No. 1
Hoeg & Ames contractors
Rhodes and Martin drillers
Loc. and Elev. same as City Test No. 1

Drilling at 985', 1 p.m., 5/21/42
Maquoketa was 32 feet thick, and for a considerable distance into the Galena there was a peculiar type of rock that drilled hard and stands up o.k. yet appeared almost shaly when bailed up. Samples from the driller showed white to light gray, quite fine-grained, and in some instances some shaly structure. Check this section against I.O.P. No. 1 which had shale in upper Galena, although in this case it is probably only drilling flour.

Drilling log to date:

Black dirt	0 to 2	
Yellow clay	2 to 50	
Blue clay	50 to 70	
Blue clay and sand	70 to 81' 8"	
Good rock	81' 8" to 85	
Shale	85 to 87	
Soft rock	87 to 95	
Shale	95 to 134	
Rock	134 to 322	
Shale	322 to 592	(Maple Mill shale)
Rock	592 to 769	(Devonian lime)
Shale	769 to 801	(Maquoketa shale)
Galena dolomite	801 to ---	

Method → 838' of pipe cemented from 0 to 838' when drilling had reached that depth.

Some water encountered at 840'. Enough water by 950' so that some of the drillings seem to be washing away.

Plan to drill through St. Peter before testing.

K.E.A.
5/22/42

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IOWA GEOLOGICAL SURVEY
Iowa City, Iowa

Results of Pumping Test
Danville City Well No. 1, Danville, Iowa
June 29, 1942

Location: NE¼ SE¼ NE¼ sec. 16 T. 70 N., R. 4 W., Danville Twp.
Ground Elev: 724 feet
Pump: Fairbanks-Morse turbine, gas engine driven. Top of bowls 250 feet below top of 6 inch casing. Bowls 9½ feet long, no tailpipe. 3½ inch pump column.
Casing: 838 feet of 6 inch from 0-838 feet
Production: Measured with 90° triangular weir until 5:30 p.m., then with 1½ foot rectangular weir with full contractions.

Depths to water measured from edge of clamp block; 0.5' above top of 6" casing.

TIME	DEPTH TO WATER (in ft. below meas. pt.)	PRODUCTION (in G.P.M.)	REMARKS
9:53 a.m.	161'1"		S.W.L.
10:08	161'1"		
10:15			Pump on - water clear
10:18	162'6"		Water turbid. Some H_2S
10:47	162'8¼"		Water clearing
10:52		110	
10:54			Pump off
10:57	161'3 3/8"		
11:10	161'1"		
11:17			Pump on
11:23	163'5½"	158	Water clear - some H_2S
11:30	164'9"	184	Water clear - some H_2S
11:40		193	Temp. water = 64 3/4° F. Air = 85° F. Meas. after passing through 4' of 4" pipe
11:45	165'3"	189	
11:50	165'1 3/4"	189	
12:00 noon	165'6"		
12:43 p.m.	165'11½"	193*	Temp. water = 64 3/4° F.
1:00	165'10½"	193*	Still slight H_2S odor
1:30	166'½"	193*	Still slight H_2S odor
1:50	166'3"		
1:55	166'1¼"	193*	
1:56			Pumping slowed
2:00		156	Sample collected for analysis
2:05			pH = 7.3
3:15	164'9"**	156	
3:20	163'5"**	108	Pump slowed
3:45	163'8½"	108	Still slight H_2S odor
4:10	163'10"	108	Still slight H_2S odor
4:13		75	Pump slowed

* = 5 - 10 g.p.m. should be added for leakage from weir box
** = measurement by air gage

cc to City Clerk, Danville; Louis F. Whitney, Cedar Rapids; Stanley Engineering Co., Muscatine; L. R. Beals, Burlington; July 8, 1942

TIME	DEPTH TO WATER (in ft. below meas. pt.)	PRODUCTION (in G.P.M.)	REMARKS
4:15	162'9"	75	
4:45	163' 3/4"	75	Very slight H_2S odor
4:50	162'10"	75	Temp. water = 54 3/4° F.
4:53		50	Pump slowed
5:00	162'6"	50	
5:15	162'1"	50	
5:20			Pump off
5:30		(new weir)	Pump on
5:35	165'5"	210	
5:44	166'4"	210	Temp. water = 54 3/4° F.
5:52	166'11"	210	
6:12	167'3½"	210	
6:20	167'5¼"	210	
6:25	167'5½"	210	
6:30	167'5⅝"	210	
6:45	167'7"	210	
6:50	167'7"		Pump off
6:53	162'11¼"		
6:57	162'7½"		
7:00	162'6"		
7:50	161'10¼"		Last measurement

K. E. Anderson