

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

W-3269

RECORD OF WELL

Location:

Town: Ackley (NE)
(SW): County Franklin
SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 35 T 90 N., R. 19 W. Twp.

Well name and number City Well No. (1948)

Owner City of Ackley Address _____

Tenant _____ Address _____

Contractor Hoeg and Ames Address Lincoln, Iowa

Drillers Ed Martin

Drilling dates June 4, 1948 to June 18, 1948

Well data:

Elevations: Drilling curb _____ feet; Land surface _____ feet

Top 10" in casing of city well is 1.75 ft below rail at
M + St. L station

Determined by _____

Topographic position 325.5 ft west of Marshall Canning Co Well

Total depth: Reported 175 ft feet, Measured _____ feet

Drilling method Cable Tool

Hole and casing date 6 1/2" sin. of 10 in. pipe cemented in from
bottom to top in 16 in. hole at 60 ft. 60 ft to 116 ft open
10 in. hole. 59 ft of 8 in pipe from 116 to 175 ft. (Perf. from
145 to 167')

Original depth to water 35.5 ^{above} ft. below top of 10" casing Date June 18, 1948

Original elevation of water level 35.5 ft.; Source of data measurements

Sources of water: Principal Mississippian Limestone; Others _____

Production data:

Date JUNE 18, 1948

Static depth to water 35.50 ft Measuring point top of 10 in casing
Pumping level _____ at _____ g.p.m.

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

Pump data; Type pump 6 in. turbine Column Dia. 6 in Length 165 ft

Cylinder or bowls: Dia. _____ Length _____ Suction pipe _____

Power Belt driven from gasoline engine Airline _____

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

Use of water _____

WATER ANALYSES (in parts per million)

Date samples	_____	_____	_____	_____
Sampled by	_____	_____	_____	_____
Total solids	_____	_____	_____	_____
Insoluble matter	_____	_____	_____	_____
Alkalinity (Meo)	_____	_____	_____	_____
Alkalinity (Phn)	_____	_____	_____	_____
pH	_____	_____	_____	_____
Fe ₂ O ₃ - Mn ₂ O ₃ - Al ₂ O ₃	_____	_____	_____	_____
Alkali as sodium	_____	_____	_____	_____
Calcium	_____	_____	_____	_____
Magnesium	_____	_____	_____	_____
Iron (unfiltered)	_____	_____	_____	_____
Manganese	_____	_____	_____	_____
Nitrate	_____	_____	_____	_____
Fluoride	_____	_____	_____	_____
Chloride	_____	_____	_____	_____
Sulfate	_____	_____	_____	_____
Bicarbonate	_____	_____	_____	_____
Hardness (ppm)	_____	_____	_____	_____
Hardness (gpg)	_____	_____	_____	_____
Remarks	_____	_____	_____	_____

Laboratory data:

Sample storage location CDR-10

Sample range 0-175 No. spls. 32 No. dupls. & cond. 32 - Good

Spls. prepared by RKS Washed range 45-175 by RKS

Driller's log and cond. None

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

Microscopic study 0-175 strip log July 31, 1948

Gen. log _____ Correl. by CWZ

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington
District

Results of Production test Made on
Ackley City Well No. 4

Ackley, Iowa June 18, 25, and 26, 1948											
Ackley											
Name: City well No. 4 (1948)											
Location: SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35 T90N R19W Franklin Co.											
Elevation: Top of 10 inch pipe is 1.75 ft. below top of rail at depot. and 1099.2 ft. above sea level.											
Owner: City of Ackley											
Contractor: Hoeg and Ames, Lincoln, Iowa											
Driller: C. D. Martin											
Drilling Dates: Started June 4, 1948 Finished June 18, 1948											
Total Depth: 175 ft.											
Casing and Hole Sizes: 61 ft 5 in. of 10 in. pipe cemented in from bottom to top in 16 in. hole at 60 ft. 60 ft. to 116 ft. open 10 in. hole. 59 ft. of 8 in. pipe from 116 ft. to 175 ft. (Perf. 145 ft. to 167 ft.)											
Principal Aquifer: Mississippian limestone											
Test Pump: 6 in turbine setting 165 ft. Powered by belt from gasoline engine.											
Water Level Measurements: Water level referred to top of 10 in pipe.											
Discharge Measurements: Discharge rate obtained by discharging water into tank of known capacity.											
Temperature Measurements: Water temperature measured at end of 13 ft 5 in. discharge pipe.											
Remarks: City well No. 4 is 325.5 ft west of Canning Co. well. in front of plant. Top of concrete pump base at Canning Co. is 2.75 ft below rail at M & St. L. station. Top of 10 in. casing at city well is 1.75 ft. below rail at depot. Test of June 25, 26 made after acidizing well 4. Attached is copy of observations made during acidizing of well no 4. Acidizing done by Whitner Pump Co. Cedar Rapids, Iowa											

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington
District

Production Test on Ackley City Well

June 18, 1948

Time	Depth Ackley Well	to Water Marshall Canning Co. Well	Temp	GPM	Remarks
June 18					
9:12 AM	35.50				
9:40	35.51	34.90			Measuring point of casing co. well
9:44	35.51				is top of concrete pump base.
9:45		34.92			Pump started at Ackley well
9:46					Pump broke suction. Water cloudy
9:48		36.15			Pumping resumed
9:50					Pump broke suction. Water very dirty
9:51		36.75			
9:54	55.00	36.79			Pump setting 165 ft.
9:55					Pumping resumed. Water dirty
9:57		36.92			
10:00		37.64			
10:02	116 +			85	Water dirty gray
10:03	↑	37.99			
10:06		38.32			
10:10			50		Water clearing
10:12		38.75			
10:15		38.91		81	Water cloudy gray-green
10:18		39.05			
10:21		39.25			
10:24		39.29			
10:27		39.38			
10:30		39.47			
10:33		39.55			
10:35				77.5	Water slightly cloudy
10:36		39.64			
10:38		39.69			
10:42		39.79			
10:45		39.82	50		
10:48		39.86			

UNITED STATES
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File No. { Washington
District

Production Test on Ackley City Well

June 18, 1948

Time	Depth to Water Ackley Well	Water Marshall Co. Well	Inches	GPM	Remarks
June 18					
10:51 AM		39.93		77.5	
10:54		39.89			
10:57		40.09			
11:00		40.11			
11:07		40.45			
11:10		40.21			
11:13		40.24			
11:15		40.27			
11:18		40.29			
11:21		40.33			
11:24		40.37			
11:25	165 ±			74	Water cloudy breaking suction
11:27		40.40			
11:30		40.44			
11:33		40.46			
11:36		40.51			
11:39		40.54			
11:42		40.55			
11:45		40.61		74	Water cloudy
11:50		40.64			Pumping stopped
11:50:30	110.0				Recovery measurements
11:52		40.60			
11:54	62.26	40.27			
11:55	57.85				
11:56		39.91			
11:57	51.35				
11:58	49.20	39.53			
12:00	45.93	39.19			
12:02 PM		38.87			
12:04		38.55			

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington
District

Results of Acidizing and Production Test on Ackley City Well No 4 - June 25, 26, 1948

Time	Depth to water Cakley Well #4	to Marshall Can Co.	Inches in Tank	GPM	Temp.	Remarks
June 25						
1:15 PM	35.61					
1:30		44.40				
2:40		44.40				
2:45						started putting acid into well No 4
3:18		42.0				
3:43		33.24				
4:11		31.56				
4:35		32.2				
9:22		34.35				
9:24		37.28				
9:50	38.70					
9:52						Pump started at well No 4
9:53	45.1					
9:54	47.3					
9:55	31.3					
9:58	49.3					Water very dirty gray, very foamy
9:59	53.3					
10:03	62.1					
10:05	66.2					
10:07	67.6					Water very dirty gray, foamy
10:09	68.2					
10:11	69.1					
10:15			4	55.2		
10:18	69.9					
10:20						Speeded pump
10:21	73.3					
10:23	79.3					Water dirty gray foamy
10:32	86.3	38.66				
10:40			7	96.6		
10:42						Speeded pump

UNITED STATES
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GEOLOGICAL SURVEY

File No. { Washington
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Results of Acidizing and Production Test on Ackley City Well No. 4 - June 25, 26, 1948

Time	Depth to Water Well #4	Depth to Marshall Can. Co.	zn. in Tank	GPM	Temp	Remarks
June 25						
10:50	96.1					
10:57		41.26				
11:04						Water gray cloudy
11:10						Pump off, recovering
11:12	95.3					
11:14	84.3					
11:16	72.8					
11:17	64.2					
11:20	56.0					
11:23	50.4					
11:34	42.0					
11:40	40.4					
11:46	39.5					
11:51	39.1					
June 26						
7:30 AM	38.2					
7:41		37.76				
7:58						Pump on at No 4
8:01						Pump slowed down
8:02		35.97				
8:03	78.2					
8:04		37.12				
8:05	79.4					
8:06		37.7				
8:08	84.8	38.64				
8:10	86.8	38.57				
8:12	88.8	38.86				Water dirty no cuttings
8:14	90.5	39.18				
8:16		39.42				
8:20	96.3	39.9				
8:25			8	110.4		Water clearing

UNITED STATES
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GEOLOGICAL SURVEY

File No. { Washington
District

Results of Acidizing and Production Test on Ackley City Well No. 7 - June 25, 26, 1948

Time	Depth to Water Well 4	Depth to Marshall Casing	In. in Tank	GPM	Temp. °F	Remarks				
June 26										
8:27	97.1				50					
8:30	99.0	40.66								
8:35	99.8									
8:40	100.6	41.23								
8:45	101.2									
8:50	101.7									
8:55	102.2	41.85								
9:00	102.5									
9:03			7.5	103.5						
9:05	102.8									
9:10	42.15									
9:15	103.3									
9:25	103.7					Water fairly clear, salty				
9:35	103.8									
9:45	104.0									
9:49		42.9								
9:55	103.65									
10:05	103.75									
10:09		43.14								
10:15	103.65		7.5	103.5						
10:30	103.7									
11:15	104.7									
11:20			7.5	103.5						
11:38	105.9									
11:40	106.1	40.1								
11:41						Pump started at Marshall Canning Co.				
11:42	106.2									
11:43	106.5	52.7								
11:44	106.7									
11:45	107.0	55.17								

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington
District

Results of Acidizing and Production Test on Arkley City Well No. 4 - June 25, 26, 1940

Time	Depth to Water Well 4	Marshall Can Co.	In in Tank	GPM	Temp of	Remarks
June 26						
11:46	107.2					
11:47	107.6	60.95				
11:48	108.1					
11:49	108.65					
11:50	109.0					
11:51	109.5					
11:55			7.0	96.6		
11:57	110.9					
12:00	111.5					
12:05 PM	112.1					
12:16	113.0					
12:25	116.9					
12:30			7.14	101.1		
12:35	119.2					
12:43	119.3					
12:50	119.1					Water clear, some very fine material
1:10	119.0					
1:27	119.7					
1:30			7.0	96.6	50	Water sample for analysis
1:33	119.5					
1:34						Pump off at No 4 - Recovery measurements
1:37	80.14					
1:39	70.07					
1:41	64.8					
1:43	62.1					
1:45	60.0					
1:47	59.1					
1:49	58.2					
1:51	57.6					
1:53	57.0					

RESULTS OF PRODUCTION TEST MADE ON

ACKLEY CITY WELL NO. 4

Ackley, Iowa

June 18, 25, and 26, 1948

NAME: City Well No. 4 (1948).

LOCATION: SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35, T. 90 N., R. 19 W., Franklin County.

ELEVATION: Top of 10-inch pipe is 1.75 feet below top of rail at depot and 1099.2 feet above sea level.

OWNER: City of Ackley.

CONTRACTOR: Hoeg and Ames, Lincoln, Iowa.

DRILLER: Ed. Martin

DRILLING DATES: Started June 4, 1948. Finished June 18, 1948.

TOTAL DEPTH: 175 feet.

CASING AND HOLE SIZES: 61 feet 5 inches of 10-inch pipe cemented in from bottom to top in 16-inch hole at 60 feet. 60 feet to 116 feet open 10-inch hole. 59 feet of 8-inch pipe from 116 feet to 175 feet. (Perf. 145 feet to 167 feet).

PRINCIPAL AQUIFER: Mississippian limestone

TEST PUMP: 6-inch turbine setting 165 feet. Powered by belt from gasoline engine.

WATER LEVEL MEASUREMENTS: Water level referred to top of 10-inch pipe.

DISCHARGE MEASUREMENTS: Discharge rate obtained by discharging water into tank of known capacity.

TEMPERATURE MEASUREMENTS: Water temperature measured at end of 13 feet 5-inch discharge pipe.

REMARKS: City Well No. 4 is 325.5 feet west of Canning Company well in front of plant. Top of concrete pump base at Canning Company is 2.75 feet below rail at M. & St. L. station. Top of 10-inch casing at city well is 1.75 feet below rail at depot. Test of June 25, 26 made after acidizing Well No. 4. Attached is copy of observations made during acidizing of Well No. 4. Acidizing done by Whitney Pump Company, Cedar Rapids, Iowa. Observations made by C. W. Lane and J. B. Cooper of the Geological Survey.

PRODUCTION TEST ON ACKLEY CITY WELL

JUNE 18, 1948

TIME	DEPTH TO WATER		TEMP.	G.P.M.	REMARKS
	ACKLEY WELL	MARSHALL CANNING COMPANY WELL			
June 18					
9:12 am	35.50				
9:40		34.90			Measuring point of Canning Co. well is top of concrete pump base.
9:44	35.51				Pump started at Ackley well.
9:45		34.92			Pump broke suction. Water cloudy.
9:46					Pumping resumed.
9:48		36.15			Pump broke suction. Water very dirty.
9:50					
9:51		36.75			
9:54	55.00	36.79			Pump setting 165 feet.
9:55					Pumping resumed. Water dirty.
9:57		36.92			
10:00		37.64			
10:02	116+			85	Water dirty gray.
10:03	116+	37.99			
10:06	116+	38.32			
10:10	116+		50		Water clearing.
10:12	116+	38.75			
10:15	116+	38.91		81	Water cloudy gray-green.
10:18	116+	39.05			
10:21	116+	39.25			
10:24	116+	39.29			
10:27	116+	39.38			
10:30	116+	39.47			
10:33	116+	39.55			
10:35	116+			77.5	Water slightly cloudy.
10:36	116+	39.64			
10:38	116+	39.69			
10:42	116+	39.79			
10:45	116+	39.82	50		
10:48	116+	39.86			
10:51	116+	39.93		77.5	
10:54	116+	39.99			
10:57	116+	40.09			
11:00	116+	40.11			
11:07	116+	40.45			
11:10	116+	40.21			
11:13	116+	40.24			
11:15	116+	40.27			
11:18	116+	40.29			
11:21	116+	40.33			
11:24	116+	40.37			
11:25	165±			74	Water cloudy, breaking suction.
11:27		40.40			
11:30		40.44			
11:33		40.46			
11:36		40.51			
11:39		40.54			
11:42		40.55			

PRODUCTION TEST ON ACKLEY CITY WELL

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JUNE 18, 1948

DEPTH TO WATER

TIME	DEPTH TO WATER		TEMP.	G.P.M.	REMARKS
	ACKLEY WELL	MARSHALL CANNING COMPANY WELL			
June 18					
11:45 am		40.61		74	Water cloudy.
11:50		40.64			Pumping stopped.
11:50:30	110.0				Recovery measurements.
11:52		40.60			
11:54	62.26	40.27			
11:55	57.85				
11:56		39.91			
11:57	51.35				
11:58	49.20	39.53			
12:00	45.93	39.19			
12:02 pm		38.87			
12:04		38.55			
12:06	41.84	38.51			
12:08		38.08			
12:10	40.71	37.83			
12:12		37.72			
12:14		37.57			
12:15	39.88				
12:16		37.44			
12:18		37.33			
12:20	39.33	37.23			
12:22		37.14			
1:01	37.75				
1:03		36.33			
1:07		36.29			

RESULTS OF ACIDIZING & PRODUCTION TEST ON ACKLEY CITY WELL NO. 4 - JUNE 25, 26, 1948

TIME	DEPTH TO WATER		INCHES IN TANK	G.P.M.	TEMP.	REMARKS
	ACKLEY WELL 4	MARSHALL GANNING COMPANY WELL				
June 25						
1:15 pm	35.61					
1:30		44.40				
2:40		44.40				
2:45						Started pouring acid into Well No. 4.
3:18		42.0				
3:43		33.24				
4:11		31.56				
4:35		32.2				
9:22		34.35				
9:24		37.28				
9:50	38.70					
9:52						Pump started at Well No. 4.
9:53	45.1					
9:54	47.3					
9:55	31.3					
9:58	49.3					Water very dirty gray, very foamy.
9:59	53.3					
10:03	62.1					
10:05	66.2					
10:07	67.6					Water very dirty gray, foamy.
10:09	68.2					
10:11	69.1					
10:15			4	55.2		
10:18	69.9					
10:20						Speeded pump.
10:21	73.3					
10:23	79.3					Water dirty gray, foamy.
10:32	86.3	38.66				
10:40			7	96.6		
10:42						Speeded pump.
10:50	96.1					
10:57		41.26				
11:04						Water gray, cloudy.
11:10						Pump off, recovering.
11:12	95.3					
11:14	84.3					
11:16	78.8					
11:17	64.2					
11:20	56.0					
11:23	50.4					
11:34	42.0					
11:40	40.4					
11:46	39.5					
11:51	39.1					

OBSERVATIONS ON ACIDIZING OF ACKLEY CITY WELL NO. 4 - JUNE 25, 1948

TIME	PRESSURE IN LBS./SQ.IN.	REMARKS
June 25		Approximately 880 gal. of Muratic acid pumped into well through 1-inch pipe setting at 125 feet. Started pumping acid into well.
2:45 pm		
3:00	10	
3:07	20	
3:15	40	
3:20	30	
3:30	20	
3:40	10	
3:50	20	
4:00	30	Acid all in well.
4:15	40	
4:45	24	Pressure going down.
5:00		Started setting pump.

TIME	DEPTH TO WATER		INCHES IN TANK	G.P.M.	TEMP.	REMARKS
	ACKLEY WELL 4	MARSHALL CANNING COMPANY WELL				
June 26						
7:30 am	38.2					
7:41		34.76				
7:58						Pump on at No. 4.
8:01						Pump slowed down.
8:02		35.97				
8:03	78.2					
8:04		37.12				
8:05	79.4					
8:06		37.7				
8:08	84.8	38.64				
8:10	86.8	38.57				
8:12	88.8	38.86				Water dirty, no cuttings.
8:14	90.5	39.18				
8:16		39.42				
8:20	96.3	39.9				
8:25			8	110.4		Water clearing.
8:27	97.1				50	
8:30	99.0	40.66				
8:35	99.8					
8:40	100.6	41.23				
8:45	101.2					
8:50	101.7					
8:55	102.2	41.85				
9:00	102.5					
9:03			7.5	103.5		
9:05	102.8					
9:10	42.15					
9:15	103.3					
9:25	103.7					Water fairly clear, salty.
9:35	103.8					
9:45	104.0					
9:49		42.9				
9:55	103.65					
10:05	103.75					
10:09		43.14				
10:15	103.65		7.5	103.5		
10:30	103.7					
11:15	104.7					
11:20			7.5	103.5		
11:38	105.9					
11:40	106.1	40.1				
11:41						Pump started at Marshall Canning Company.
11:42	106.2					
11:43	106.5	52.7				
11:44	106.7					
11:45	107.0	55.17				

TIME	DEPTH TO WATER		INCHES IN TANK	G.P.M.	TEMP.	REMARKS
	ACKLEY WELL 4	MARSHALL CANNING COMPANY WELL				
June 26						
11:46 am	107.2					
11:47	107.6	60.95				
11:48	108.1					
11:49	108.65					
11:50	109.0					
11:51	109.5					
11:55			7.0	96.6		
11:57	110.9					
12:00	111.5					
12:05 pm	112.1					
12:16	113.0					
12:25	116.9					
12:30			7.14	101.1		
12:35	119.2					
12:43	119.3					
12:50	119.1					Water clear, some very fine material.
1:10	119.0					
1:27	119.7					
1:30			7.0	96.6	50	Water sample for analysis.
1:33	119.5					
1:34						Pump off at No. 4. Recovery measurements.
1:37	80.14					
1:39	70.07					
1:41	64.8					
1:43	62.1					
1:45	60.0					
1:47	59.1					
1:49	58.2					
1:51	57.6					
1:53	57.0					
1:55	56.6					
1:57	56.1					
1:59	55.85					
2:01	55.4					Pump off at Marshall Canning Company.
2:03	55.2					
2:05	53.77	51.1				
2:07	52.0					
2:09	50.3					
2:10		47.9				
2:11	49.4					
2:15	47.7	43.8				
2:19	46.6					
2:23	45.8					
2:27	45.2					
2:31	44.8					
2:35	44.2					
2:40	43.9					
2:45		42.3				