W-3216

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

RECORD OF WELL

Location:

Town: Osage (NE / SW): County Mitchell

NW¼SW¼NW¼ sec. 25 T 98 N., R. 17 E. W. Twp.

Well name and number Osage City Well No. 3

Owner City of Osage Address

Tenant Address

Contractor Hoeg and Ames Address Lincoln

Drillers Homer Rhodes – Kenneth Kroeger

Drilling dates Started Feb. 11, 1948

Well data:

Elevations: Drilling curb 1168 feet; Land surface 1166 feet

Determined by Averaged from R.R. Sta. – J.B.C.

Topographic position

Total depth: Reported feet, Measured feet

Drilling method

Hole and casing date

Original depth to water ft. above / below Date

Original elevation of water level ft.; Source of data

Sources of water: Principal ; Others

Production data: Date _____

Static depth to water _____ Measuring point _____
Pumping level _____ at _____ g.p.m.

_____ _____
_____ _____
_____ _____

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

Pump data; Type pump _____ Column Dia. _____ Length _____
Cylinder or bowls: Dia. _____ Length _____ Suction pipe _____
Power _____ Airline _____
Estimated rate of production: _____ g.p.m. for _____ hrs. a day
Use of water _____

WATER ALALYSES (in parts per million)

Date samples				
Sampled by				
Total solids				
Insoluble matter				
Alkalinity (Meo)				
Alkalinity (Phm)				
pH				
Fe_2O_3-Mn_2O_3-Al_2O_3				
Alkali as sodium				
Calcium				
Magnesium				
Iron (unfiltered)				
Manganese				
Nitrate				
Fluoride				
Chlordie				
Sulfate				
Bicarbonate				
Hardness (ppm)				
Hardness (gpg)				

Remarks _____

Laboratory data: Sample storage location C06-678

Sample range 0-1230 No. spls. 209 No. dupls. & cond. 209 F
Spls. prepared by Staff Washed range 7-1230 by Staff
Driller's log and cond. ✓

Insoluble residues: Prepared by _____ Studied by _____ Strip log _____
Microscopic study 0-680, -1230 strip log 4-23-48 ; 7-19-48
Gen. log _____ Correl. by K. Wolfner

Utility Rhodes:
Kennet Kroeger

Drilling time
Feb. 11 - April 10

Log:

Drift	0-8	
Rock	8-160	Some Shale from
Shale	160-180	
Rock	180-193 - 12" set	240 to 250 - 260 - 285
Rock	193-240-	335 to 347
Blue - Rock - Some Shale	240-285	
Rock	285 335	12" open hole - from
Rock - Some brown Shale	335-430	193 to 679 TD.
Rock	430-660	
Shale & Rock	660-679	185 ' of 6" Column
		no suction pipe

SWL 60' at 679'
SWL 50' at 193'

April 15 - 245' pump Column

18' of 20" Casing

RESULTS OF PUMPING TEST MADE ON OSAGE CITY WELL NO. 3

Osage, Iowa

April 13 and April 15, 1948

NAME: Osage City Well No. 3.

LOCATION: NW¼ SW¼ NW¼ Sec. 25, T. 9N., R. 17 W.

OWNER: City of Osage.

CONTRACTOR: Hoeg and Ames, Lincoln, Iowa

ELEVATION: Drilling curb, top of 12-inch pipe 1168 feet above sea level and about 2 feet above land-surface.

DRILLERS: Homer Rhodes and Kenneth Kroeger

DRILLING DATES: Started February 11, 1948.

PRESENT DEPTH: 679 feet.

CASING AND HOLE DATA: 18 feet of 20-inch curbing from 0 feet to 18 feet.
193 feet of 12-inch pipe from 0 feet to 193 feet.
Open 12-inch hole from 193 feet to 679 feet.

Principal aquifer Galena

TEST PUMP: Turbine, powered with belt drive from gasoline engine.
April 13 setting: 185 feet with no suction pipe.
April 15 setting: 245 feet with no suction pipe.

DISCHARGE MEASUREMENTS: Discharge rate obtained by timing and measuring amount of water discharged into a metal tank.

TEMPERATURE MEASUREMENTS: Water temperature measurements made at end of 25 feet of 5-inch discharge pipe.

WATER LEVEL MEASUREMENTS: Depth to water measurements were referred to top of 12-inch pipe.

REMARKS: Fewer depth to water measurements were obtained than are usually made during a test of this type. There was apparently too small a space between the pump column and the casing to allow free passage of the electric line electrode.

Results of Production Test Made on Osage City Well No. 3 - April 13, 1948

Date	Depth to Water (Feet)	G.P.M.	Temp. °F.	Depth to Water Measurements 12" & 20" Casing	Remarks
Apr. 13					
8:45 am	62.3				
9:21					Started pumping.
9:23	71.4				Water dirty gray.
9:27	84.6				Electric line not
9:40	74.0				working too good
9:50			46		erratic.
10:00	152.5				Clearing slightly.
10:15		280			
10:25	155.7				Dirty gray.
10:45	157.1				
11:00	157.0			145'5"	
11:05		280			Water dirty brown.
11:09					Speeded up pump.
11:20				166.00	
11:20			48		Belt off pump.
11:24					Pump on.
11:33	165.8				
11:35		336		171	
11:40				173	
11:43	176.2				
11:46	177				
11:55	179.2		49	176	
12:45 pm				182	
12:45		336			Pumping some air.
1:35	185.4				Water much clearer.
1:55		336	49		Light gray - brown.
2:45		336			U.S.G.S. line caught near 170'.
					Pumping some air.
					Water grayish.
Apr. 15					
7:30 am	62	340			Started pumping.
8:10					Belt off. Can not get electric line down hole to water between coupling and casing.
8:30		392			Pump started.
10:30	245	392			Pumping some air bottom of pump.
11:40	245		48		Shut off. Water sample for analysis. Water slightly cloudy.
11:43	142.5				Recovery measurements.
11:45	108				
11:46	100				
11:47½	90				
11:50	80				
12:00 pm	70.4				

Date	Depth to Water (feet)	G.P.M.	Temp. °F.	Depth to Water Measurements 12" & 20" Casing	Remarks
Apr. 15					
12:50 pm	62.0				
1:45	60.95				
2:50	60.20				
3:05	59.95				
3:30	59.55				
3:45	165.4	336	49		Water sample taken. Later discarded for sample from test of April 15.
4:30		336	49		Water cloudy.
5:28					Pump off.
5:30	136.25				Recovery measurements.
5:32	110				
5:36	87.6				
5:46	73.1				
5:55	70.7				
5:56	70.				
6:00	69.4				
6:06	68.0				
6:13	66.15				

Mitchell Co.

RESULTS OF PRODUCTION TEST OF OSAGE CITY WELL NO. 3

OSAGE, IOWA

June 30, July 1 and 2, 1948

NAME: Osage City Well No. 3.

LOCATION: NW¼ SW¼ NW¼ Sec. 25, T. 98 N., R. 17 W.

OWNER: City of Osage

CONTRACTOR: Hoeg and Ames, Lincoln, Iowa.

ELEVATION: Drilling curb, top of 12-inch pipe 1168 feet above sea level and about 2 feet above land surface.

DRILLERS: Homer Rhodes and Kenneth Kroeger.

DRILLING DATES: February 11, 1948 to June 29, 1948.

TOTAL DEPTH: 1235 feet.

CASING AND HOLE DATA: 193 feet of 12-inch pipe from 0 feet to 193 feet.
182 feet of 8-inch pipe from 618 feet to 800 feet.

TEST PUMP: Turbine, powered with belt drive from gasoline engine. Pump setting: 276 feet including 248 feet of 6-inch pump column, 7 feet of bowls, and 21 feet of 5-inch suction pipe.

DISCHARGE MEASUREMENTS: Discharge rate obtained by timing and measuring amount of water discharged into a metal tank. Tank capacity 14 gallons of water per inch.

TEMPERATURE MEASUREMENTS: Water temperature measurements made at end of 15½ feet of 5-inch discharge pipe.

WATER LEVEL MEASUREMENTS: Depth to water measurements were referred to top of 12-inch pipe and were measured with an electric measuring line.

REMARKS: Production measurements taken on July 2 were observed by the drilling contractor. Measurements of June 30 and July 1 observed by J. B. Cooper, Geological Survey. No depth to water measurements possible below top of bowls at 248 feet.

June 30, July 1 and 2, 1948

RESULTS OF PRODUCTION TEST OF OSAGE CITY WELL NO. 3

TIME	DEPTH TO WATER	INCHES IN TANK 1/2 MIN.	G.P.M.	TEMP.	REMARKS
June 30					
10:30 am	177.0				Steel tape.
12:53 pm	175.0				Electric line.
12:56					Pump on.
12:57½	210.0				Water crystal clear.
1:00	220.0	12	350		
1:05	225.9				
1:08	227.0				Water slightly milky.
1:10	227.5				
1:13	227.8				Water cloudy.
1:16	227.2				
1:18	227.0				
1:20	227.2	12½	350		
1:25	228.2				
1:30	228.5				
1:33	228.6				
1:34					Pump off to change belt.
1:38					Pump on.
1:40	230.0	13	382		
1:42	232.4				
1:45	233.2				
1:50				49	Cloudy-contains fine sand.
1:52					Pump off to change pulleys.
2:14					Pump on.
2:16½	240				
2:20		15	420		Water slightly milky.
2:35		15	420		
4:00		15	420		Water fairly clear-trace sand.
5:00		15	420		" " " " "
5:55		15	420		Water sample for analysis.
5:57					Pump off.
July 1					
12:28 pm		15	420		Pump on.
12:34					Pump off to adjust impellers.
12:37					Pump on.
12:42					Water clear.
12:45		15½	434		Water cloudy.
12:50					Pump off to adjust impellers.
12:53					Pump on.
1:00		14½			
1:03					Off to adjust impellers.
1:05					On
1:15		15½			
1:35					Pump off to change pulleys.
2:10					Pump on.
2:14					Off to adjust impellers.
2:19					Pump on.
2:25					Pump off.

July 2

Mr. Sylvan Ames reports that after the portion of the pumping test observed by the Geological Surveys on June 30 and July 1, a larger pump was placed in the well. The pumping rate was then increased up to 505 g.p.m. and continued at that rate for about 5 hours. The suction pipe was set at 275 feet and the drawdown apparently did not reach that depth at the production of 505 g.p.m.

IOWA GEOLOGICAL SURVEY

TABULATION OF WATER ANALYSES

(parts per million)

COUNTY_____

TOWN Well No. Depth Use & location Ft.	Geol. form.	Diss. Solids	Ins. Mat.	NO_3	Na	Ca	Mg	Fe	Mn	Al	F	Cl	SO_4	HCO_3	PO_4	BO_3	Calc. Hard.	
Mason City well No 10 1243	Jordan	351	11.5	0.0	34.9	80.4	29.2	0.7	TR.		0.0	10.0	67.8	378.2			322	
Charles City well No. 3 1385	Jordan	312	14.4	0.24	18.7	61.6	22.7	0.1	TR		1.0	5.0	41.2	283.0			248	
Osage City well 800t	St. Peter	460	18.2	3.0	13.5	84.6	21.1	0.2	0.0		0.0	19.0	64.9	285.5			290	

NOTES: