NOTES ON LYTTON CITY WELL # 2

Pumping Test

Preliminary to the pumping test conducted by the U. S. Geological Survey on July 14, 1945 a few measurements were made by Homer Rhodes, driller of the well. The static water level was found to be 75.00 feet at 8:00 AM. July 13, 1945. Pumping was started on July 13, 1945 at 8:00 AM. The pumping level was determined to be 160feet, and the production was given as 95 gallons per minute. At noon the well was shut down for one hour. The afternoon was given to pumping directly into the city mains to give the town an urgently needed supply of water for its stand pipe. A few water level measurements were made under this arrangement but as the production could not be measured the gallons per foot of draw down could not be calculated. Pumping levels as measured when pump was pumping directly into mains after passing through 100 feet of $2\frac{1}{2}$ " fire hose is shown below.

July 13, 1945	Depth to water in feet	Remarks
5:28 PM	112.0	
5:30 PM	109.75	
5:32 PM	112.33	
5:33 PM	114.16	
5:35 PM	114.66	
5:40 PM	112.25	
5:42 PM	110.87	
5:48 PM	111.0	
7:19 PM	182.50	Discharge increased

Variations in level when pump was operating evenly is probably due to opening of various hydrants for flushing purposes.

Results of Pumping Test

Lytton No. 2 Well
Lytton, Iowa
July 14, 1945

Name: Lytton town well No. 2
Location: NW SW NW Sec. 19 T.88N. R.34W, Calhoun County
Elevation of drilling curb: 1223 feet above sea level
Owner: Town of Lytton
Contractor: Hoeg and Ames Lincoln, Iowa
Driller: Homer Rhodes
Date Started: April 18, 1945
Date Finished: July 12, 1945
Depth: 971 feet
Casing: 104 feet of 16 inch O.D. casing from 0 to 104 feet (temporary)
205 feet of 12 inch O.D. casing from 0 to 205 feet (temporary)
410 feet of 10 inch O.D. casing from 0 to 410 feet
80 feet of 8 inch O.D. casing from 400 to 480 feet
Open hole from 480 to 971 feet

Producing horizon: Main water bearing bed encountered between a depth of 890 and 971 feet.
Test pump: Turbine with 225 feet setting. Driven with gasoline motor.
Measuring point: Top of hole in pump base 0.16 feet above top of 16 inch casing and 8½ inches above land surface. Altitude of measuring point 1223 feet 8½ inches. Measurements made with electric line apparatus except where noted.
Production: Discharge measured by filling 58 inch diameter galvanized tank computed at 11 gallons to the inch.

Time July 14, 1945	Depth to Water in feet below measuring point	Gallons per minute	Remarks
7:30 am	75.00		
7:40	75.00		
7:48	75.00		
8:03	75.00		
8:04			Pumping started
8:05	100.00		
8:07	124.42		
8:08	130.82		
8:09	136.00		
8:10	139.87		
8:11	144.33		
8:12	146.00		
8:13	147.87		
8:14	148.33		
8:16	149.62		
8:17	150.33		
8:18	151.16		

Time July 14, 1945	Depth to Water in feet below measuring point	Gallons per minute	Remarks
8:19 am	151.87		
8:20	152.54		
8:21	153.11		
8:22	154.00		
8:23	154.50		
8:25	156.85		
8:27	156.66		
8:28	156.83		
8:29	157.16		
8:30	157.41		
8:32	157.50		
8:33	157.87		
8:34	156.33		
8:35	156.33		
8:36	157.00		
8:38		90	
8:39			Water temperature 56°F. Air temp 62°
8:44	157.16		
8:45	157.37		
9:40	161.25		Water temperature 56½
9:45	160.58		
9:48		100½	
9:54	161.44		
10:12	160.83		
10:16	161.25		
10:26	161.87	Water temperature 57½°F.	Air temperature 76°F. Water sample collected (G-30)
10:27			
10:32			
10:34		99gpm	Air temperature 76°F
10:36	161.41		
10:36:30			Pumping stopped Recovery measurements started
10:37	126.00		
10:37:30	119.00		
10:38	110.00		
10:39:10	100.00		
10:40	95.00		
10:41	90.00		
10:42	88.00		
10:43	86.00		
10:43:45	84.00		
10:48	82.33		
10:50	82.00		
10:52	81.66		
10:55	81.25		
10:56	81.16		
10:58	81.00		
10:59	80.83		
11:00	80.71		
11:01			Started pumping into mains
11:10	143.66		
12:04		Pumping stopped	Water entered well until hydrant turned off. ?

Time July 14, 1945	Depth to Water in feet below measuring point
12:10	82.83
12:12	82.16
12:14	82.00
12:15	81.83
12:17	81.33
12:19	81.12
12:22	80.79
1:13	78.50
1:16	78.33
1:21	78.16
1:25	78.08
1:30	77.96
1:42	77.75
1:49	77.66
2:15	77.29
2:30	77.12
2:46	76.92

Results of Pumping Test
Lytton Town Well No. 2

Lytton, Iowa
July 18, 1945

N ame: L ytton Town Well No. 2
Location: NW¼ SW¼ NW¼ Sec. 19, T.88N. R.34W., Calhoun County
Elevation of drilling curb: 1223 feet above sea level
Owner: Town of Lytton
Contractor: Hoeg and Ames Lincoln, Iowa
Driller: Homer Rhodes
Date Started: April 1 8, 1945
Date finished: July 12, 1945
Depth: 971 feet
Casing: 104 feet of 16-inch O.D. casing from 0 to 104 feet (temporary)
205 feet of 12-inch O.D. casing from 0 to 205 feet (temporary)
410 feet of 10-inch O.D. casing from 0 to 410 feet.
80 feet of 8-inch casing from 400 to 480 feet
512 feet of 6-inch casing from 459 to 971 feet (6-inch casing is perforated from 535 to 540 feet and from 871 to 971 feet)

Producing horizon: Some water found in Hampton formation at a depth of from 535 to 540 feet. Main supply found in rocks of Devonian age at a depth of from 890 to 971 feet.
Test pump: Turbine. Setting 225 feet. Powered by gasoline engine.
Measuring point: Measuring point is pump base 1.05 feet above land surface and at an altitude of 1224 feet.
Production measurements: The discharge rate was obtained by getting time to fill measured amount of water in tank. The discharge line was composed of 50 feet of 2½ inch fire hose.

Lytton Town Well No. 2
July 18, 1945

Time 7/18/45	Depth to Water in feet	Discharge in Gallons per minute	Remarks
10:31 am	74.40		
10:42			Pumping started
10:44	111.70		
10:45	121.75		
10:46	131.00		
10:47	137.40		
10:47:30			Pumping stopped
10:50	88.0		Pumping resumed
10:53	135.85		
10:54	143.20		Water rusty colored from casing
10:58	158.50		
11:00		111	Water gray colored
11:05	169.25		Water temperature 55 3/4° (after passing through 50' of 2½" fire hose) Air temperature 73°F.
11:11	172.22		
11:13		108	
11:16	175.55		
11:20	177.28		Water cloudy
11:23	177.68		
11:29	177.88		Water clearing
11:35		109.5	
11:40	180.32		
12:00		109.5	Water somewhat cloudy
12:03 pm	184.31		
12:30		110	Water slightly cloudy. Water temperature 57°F. Air temperature 79°F.
12:37	184.0		
12:40	184.30		
12: 45		108	
12:50	184.17		
1:03	185.05		
1:07		107	
1:25	184.45	107	
1:29	185.04		
1:46	186.02		
1:50		107	
1:52	185.40		Water slightly cloudy
2:12		105.5	
2:13	183.30		
2:14			Pumping stopped
2:15:30			Pumping started
2:21	176.21		
2:25		109.5	
2:27	184.50		

Time 7/18/45	Depth to Water in feet	Discharge in gallons per minute	Remarks
2:30 pm			Water sample collected. Water temperature $57\frac{1}{4}^{o}$F. Air tmeperature 79°F.
2:36	186.05		
2:40		107	
2:41	186.25		
2:42			Pumping stopped
2:43	142.62		Recovery measurements
2:44	124.28		
2:46	102.20		
2:47	96.64		
2:48	92.55		
2:49	88.51		
2:50	86.35		
2:51	84.50		
2:52	84.10		
2:53	83.76		
2:54	83.53		
2:57	83.00		
2:59	82.65		
3:03	82.04		
3: 08	81.56		
3:15	80.95		
3:23	80.41		
3:33	79.90		
3:42	79.50		