

IOWA GEOLOGICAL SURVEY
Iowa City, Iowa

Results of Pumping Tests

OELWEIN CITY WELL

April 17, 18, 20 and 21, 1942

Drilled, 1942, by Thorpe Well Co., Des Moines, Iowa.

Pump: Peerless head, 15 stage, 12" diameter. Bowls set at 381'.

Power: Belt drive, double pulley on pump head. One 100 H.P. Climax gasoline motor. One 80 H.P. Diesel motor.

Data taken from records of Thorpe Well Co.

Water levels measured with Thorpe electric line.

Recovery measurements made by Iowa Geological Survey with electric line.

Measuring point = top of flange of pump head base which is 1.0 feet above ground.

Time	Motor R.P.M.		Pump R.P.M.	Pumping Head	Production G.P.M.	Remarks
	Diesel	Gas				
4-17-42						
3:00 PM	1040	1200	1550	354	900	
3:30	1041	1200	1550	354	900	
4:00	1040	1200	1550	354	900	
4:30	1039	1199	1548	354	900	
5:00	1041	1200	1550	354	900	
6:00						Stopped pump to change pulleys. Start pump.
6:30	1165	1150	1720	362	1038	
7:00	1140	1155	1710	363	1038	
7:30	1165	1180	1725	365	1038	
8:00	1175	1175	1740	366	1038	
8:30	1180	1175	1744	368	1038	
9:00	1180	1160	1720	367'6"	1038	
9:30	1175	1170	1724	368'3"	1038	
10:00	1180	1180	1735	367'9"	1038	
10:30	1179	1180	1737	367'7"		
10:35						Pump stopped. Pulley and belt broken.
4-18-42						
1:00 PM						Started pump. Oil line broken.
1:30						Stopped pump. Repaired oil line.
4:00						Started pump.
4:30	1365	1135	1660	344	1100	
5:00	1376	1160	1665	354	1100	
5:30	1370	1160	1660	356	1100	
6:00	1370	1155	1663	357'9"	1100	

Oelwein City Well

Time	Motor R. P. M.		Pump R.P.M.	Pumping Head	Production G.P.M.	Remarks
	Diesel	Gas				
6:30 PM	1380	1160	1664	350'6"	1100	
7:00	1380	1160	1665	361	1100	
7:05						Stopped pump to repair motor wiring.
7:30						Started pump.
8:00	1390	1180	1665	353	1131	
8:30	1390	1180	1664	359	1131	
9:00	1390	1180	1665	361'6"	1115	
9:30	1390	1180	1665	362'6"	1115	
10:00	1390	1180	1665	362'6"		
10:30	1295	1095	1580	348	1007	
11:00	1295	1095	1580	350	1007	
11:30	1290	1090	1580	350'6"	1007	Stopped pump.
4-20-42						
10:00 AM						Started pump.
10:30	1090	870		298	801	Water slightly turbid.
11:00	1087	880		302	801	/Temp. 50 3/4°.
11:30	1087	867		304'5"	801	
12:00	1089	870		307'2"	801	Pump stopped. Gas motor missing.
12:30 PM						Started pump.
1:00	1005	890	1330	301'1"	700	
1:30	1050	885	1327	301'1"	700	
2:00	1020	850	1325	296'6"	700	
2:05						Pump stopped to repair gas motor.
2:30						Started pump.
3:00	1070	875	1325	305'1"	700	
3:30	1060	880	1325	304'10"	700	
4:00	1060	880	1329	305'	700	
4:30	1060	875	1325	305'1"	700	
4:35					507	Gas motor shut down for repair.
5:00						Gas motor started. Diesel motor pumped 4:35 to 5:00.
5:30	1025	870	1326	305'9"	750	Water slightly turbid. Temperature 50 3/4°F.
5:50				305'9"		
6:00	1030	875	1330	306'6"		
6:06 1/2						Pump stopped.
6:08				270'		
6:10				268.4'		
6:11				265.5'		
6:13				262.5'		
6:15				259.1'		
6:16				258.0'		
6:17				256.8'		
6:18				255.5'		
6:19				254.3'		
6:21				252.7'		
6:22				251.7'		
6:23				250.8'		

Oelwein City Well

Time	Motor R. P. M.		Pump R.P.M.	Pumping Head	Production G.P.M.	Remarks
	Diesel	Gas				
6:24				250.2'		
6:25				249.4'		
6:26				248.7'		
6:27				248.3'		
6:28				247.6'		
6:29				247.2'		
6:30				246.9'		
6:35				244.6'		
6:40				242.8'		
6:50				239.3'		
6:55				239.0'		
7:00				238.2'		
7:05				237.5'		
4-21-42						
8:50 AM				231.1'	Measuring point = top of 20" casing which is 0.7' above ground.	

IOWA GEOLOGICAL SURVEY
IOWA CITY, IOWA

Results of Pumping Test
New City Well, Oswein, Iowa
May 25-28, 1942

Location: NE $\frac{1}{4}$ -SW $\frac{1}{4}$ -NE $\frac{1}{4}$ -Sec. 21, T. 91 N., R. 9 W., Jefferson Twp.
Curb Elev: 1052.40
Total Depth: 1328 feet
Static Water Level: 220 feet (from driller)
Pump Head: Peerless - 2 pulley
Power: P.D. 80 Diesel and 140 H.P. Caterpillar
Boyle: 15 stage, 12 inch, top at 390'10"
Measuring Point: Top of pump base, Elev. 1052.77 (0.37 ft. above top of 20" casing)
Production measured with 2-foot weir with full contractions

TIME	INTERNATIONAL	CATERPILLAR	PUMP R.P.M.	PUMPING LEVEL	PRODUCTION IN G.P.M.
	DIESEL R.P.M.	DIESEL R.P.M.			
5/25/42					
6:00p.m.	1360	980	1660	326	1100
6:30	1360	980	1660	331	1100
7:00	1360	980	1660	332	1100
7:30	1380	985	1710	335	1100
8:00	1380	985	1720	339'6"	1100
8:30	1380	985	1720	342	1100
9:00	1380	985	1725	344	1088
9:30	1380	985	1720	346	1088
10:00	1387	986	1728	346'6"	1088
10:30	1385	988	1730	347	1068
11:00	1385	988	1730	348'6"	1068
11:05	Shut down.	Rain.	Check motors		
5/26/42					
1:00a.m.	Start pump				
1:30	1367	988	1715	321'3"	1100
2:00	1367	987	1715	335'11"	1068
2:30	1391	1005	1705	342'2"	1068
3:00	1363	989	1683	345'3"	1068
3:30	1397	987	1685	347'5"	1068
4:00	1375	993	1687	348'10"	1068
4:30	1367	993	1687	350	1053
5:00	1377	996	1689	350'6"	1053
5:30	1374	986	1682	351'6"	1053
6:00	1375	991	1684	352	1053
6:30	1372	993	1689	352'7"	1053
7:00	1386	998	1685	352'11"	1053
7:30	1395	997	1685	353'4"	1053
8:00	1379	998	1685	353'9"	1053
8:30	1380	996	1680	354'1"	1053
9:00	1380	997	1682	354'6"	1038
9:30	1385	990	1690	354'5"	1038
10:00	1377	987	1685	354'8"	1038
10:30	1378	988	1690	355	1038

TIME	INTERNATIONAL	CATERPILLAR	PUMP R.P.M.	PUMPING LEVEL	PRODUCTION IN G.P.M.
	DIESEL R.P.M.	DIESEL R.P.M.			
11:00	1375	985	1685	354'10"	1038
11:30	1377	989	1693	355	1038
12:00N	1373	989	1692	355	1038
12:30p.m.	1375	985	1690	354'6"	1038
1:00	1378	985	1690	355'6"	1038
1:30	1378	985	1690	355'6"	1038
2:00	1376	984	1687	356	1038
2:30	1376	985	1688	356	1038
3:00	Shut down to put roof over belts				
3:45	Start pump				
4:00	1375	987	1678	330	1068
4:30	1380	987	1675	342	1068
5:00	1380	988	1684	348	1068
5:30	1375	988	1678	350	1068
6:00	1376	990	1675	351'9"	1068
6:30	1380	988	1680	352'6"	1038
7:00	1378	990	1678	353'6"	1038
7:30	1385	986	1680	353'9"	1038
8:00	1386	985	1683	354'9"	1038
8:30	1385	984	1682	355	1038
9:00	1386	985	1680	355'6"	1038
9:30	1385	990	1683	355	1038
10:00	1388	995	1685	355	1038
10:30	1385	990	1684	355	1038
11:00	1387	995	1685	354	1038
11:30	1385	990	1684	354	1038
12:00Midnite	1382	991	1680	354'6"	1038
5/27/42					
12:05a.m.	Slowed down pump to 750 g.p.m.				
12:30	1183	846	1454	333'7"	750
1:00	1182	849	1460	332'3"	750
1:30	1179	848	1452	331'1"	750
2:00	1178	852	1459	330'2"	750
2:30	1181	847	1456	330	750
3:00	1183	849	1456	329'5"	750
3:30	1177	850	1455	329'3"	750
4:00	1164	837	1453	329'1"	750
4:30	1161	842	1460	329	750
5:00	1158	843	1464	328'10"	750
5:30	1178	840	1476	328'8"	750
6:00	1165	836	1475	328'7"	750
6:30	1172	840	1477	328'7"	750
7:00	1168	842	1472	328'8"	750
7:30	1170	835	1468	328'9"	750
8:00	1168	836	1475	328'9"	750
8:30	1164	834	1470	328'9"	750
9:00	1162	848	1476	328'9"	750
9:30	1160	846	1473	328'9"	750
10:00	1164	848	1470	328'8"	750
10:30	1165	846	1468	328'7"	750
11:00	1161	840	1465	328'8"	750
11:30	1165	840	1463	328'9"	750
12:00Noon	1164	840	1464	328'9"	750
12:30p.m.	1164	838	1462	328'9"	750

<u>TIME</u>	<u>INTERNATIONAL DIESEL R.P.M.</u>	<u>CATERPILLAR DIESEL R.P.M.</u>	<u>PUMP R.P.M.</u>	<u>PUMPING LEVEL</u>	<u>PRODUCTION IN G.P.M.</u>
1:00	1160	836	1460	328'8"	750
1:30	1164	838	1464	328'8"	750
2:00	1165	840	1465	328'10"	750
2:30	1164	840	1465	328'10"	750
3:00	1165	838	1466	328'10"	750
3:30	1164	840	1465	328'9"	750
4:00	1164	842	1464	328'9"	750
4:30	1165	840	1465	328'9"	750
5:00	1165	845	1464	328'9"	750
5:30	1165	844	1463	328'9"	750
6:00	1164	846	1465	328'9"	750
6:30	1165	845	1465	328'9"	750
6:45	1165	846	1464	328'9"	750
6:46	Pump shut down				

* From I.G.S. electric line

All above measurements from records of Thorpe Well Co.

Water Level Recovery Measurements

<u>TIME</u>	<u>DEPTH TO WATER</u>	<u>REMARKS</u>
5/27/42		
1:17p.m.	328.86	Pumping 750 g.p.m.
1:30		Temp. Water = 51°, air = 64°. Measured 113 ft. from pump after passing through 113 ft. of 6 in. pipe. Water sample collected. Bacteriologic sample collected by R. B. McAllister
2:15		Temp. water = 51°
3:24	328.74	Pumping 750 g.p.m.
4:00		Temp. water = 51°
4:10	328.74	Pumping 750 g.p.m.
5:00	328.73	Pumping 750 g.p.m.
5:50	328.74	Pumping 750 g.p.m. Temp. = 51°
6:43	328.70	Pumping 750 g.p.m.
6:45.55		Pump shut down
6:48.30	290.53	
6:49.30	288.45	
6:50	287.37	
6:50.30	286.10	
6:51	284.97	
6:52	283.02	
6:53	281.11	
6:54	279.41	
6:55	277.84	
6:56	276.40	

<u>TIME</u>	<u>DEPTH TO WATER</u>	<u>REMARKS</u>
6:57	275.13	
6:58	273.83	
6:59	272.70	
7:00	271.62	
7:01	270.61	
7:02	269.68	
7:03	268.82	
7:04	268.01	
7:05	267.20	
7:06	266.44	
7:07	265.73	
7:08	265.01	
7:09	264.46	
7:10	263.85	
7:12	262.72	
7:14	261.66	
7:16	260.76	
7:18	259.84	
7:20	259.04	
7:22	258.27	
7:24	257.54	
7:26	256.89	
7:28	256.25	
7:30	255.67	
7:32	255.09	
7:34	254.60	
7:36	254.10	
7:38	253.62	
7:40	253.16	
7:45	252.12	
7:50	251.16	
7:55	250.32	
8:00	249.55	
8:05	248.87	
8:10	248.21	
8:15	247.55	
8:20	246.99	
8:25	246.45	
8:30	245.98	
8:40	245.12	
8:50	244.32	
9:00	243.60	
9:10	242.93	
9:20	242.35	
9:40	241.27	
10:00	240.33	
10:30	239.15	
11:00	238.10	
12:00midnite	236.34	
5/28/42		
9:15a.m.	229.46	(after pulling one 10 foot pump column section)

K. E. Anderson

Oelwein Iowa Pump test

Feb. 27, 1943

Time	Depth to water level in well, below top of pump base	Time	Depth to water in reservoir, below top mark ring of H. W. manhole at N. end of arcator cupula, at H. W. slot lock
9:30 a.m.	218.31 static (tape meas)		
12:08 p.m.	start pump		13.42 to floor
12:15 "	counter weigh of recorder hung.	1:29 p.m.	12.01 to water surface
12:34 "	stop pump	1:59 "	10.48 "
12:44 "	242.0 ft (recorder)	2:29 "	8.89 "
12:45 "	240.0	2:59 "	7.34 "
12:50 "	235.0	3:29 "	5.79 "
1:00 "	230.0	3:59 "	4.25 "
1:29 "	229.0 - start pump	4:29 "	2.71 "
1:30 "	250.0	4:36 "	2.335 - reservoir spilling
1:30 1/2 "	255.0		
1:31 "	260.0		
1:31 3/4 "	265.0		
1:33 "	270.0		
1:35 1/2 "	275.0		
1:36 1/4 "	280.0		
1:39 "	285.0		
1:42 "	290.0		
1:47 "	295.0		
1:56 "	300.0		
2:09 "	305.0		
2:21 "	308.0		
2:39 "	310.5		
2:55 "	312.0		
3:17 "	314.0		
3:46 "	315.5		
4:06 "	316.5		
4:28 "	317.5		
4:37 "	317.75		
4:38 "	stop pump		

$$13.42 - 2.335 = 11.085 \text{ ft water in reservoir}$$

$$= 199,700 \text{ gallons}$$

Pumping time 215 min

$$\frac{199,700}{215} = 930 \text{ gpm}$$

Recovery

Time	D/W
4:38 pm	stop pump
4:39 "	271.5
4:40 "	268.5
4:43 "	267.5
4:46 "	263.0? (float sluggish)
4:47 "	260.0
4:50 "	257.0
4:54 "	252.0
4:57 "	250.0
5:01 "	248.5
5:04	245.5
5:30	244.4 float hung up since 5:04 pm
5:32	235.0
5:36	234.3
5:42	233.8