7½' Grundy Center Quad
422149N-0924626-01
87-17W-12 ACAD
1975 field located
elev. 1022'

W13152

IOWA GEOLOGICAL SURVEY
In Cooperation with U. S. Geological Survey
RECORD OF WELL

Location:

Town: GRUNDY CENTER (NE) (SW) County GRUNDY

sec. 12 T. 87 N., R. 17 (E) (W) Twp.

Well name and number

Owner GRUNDY CENTER CITY WELL #4 Address

Tenant Address

Contractor HOEG & AMES, INC. Address LINCOLN, IOWA

Drillers

Drilling dates OCT. 16 - NOV. 20, 1961

Well data:
Altitudes: Drilling curb feet; Land surface 1022 feet

Determined by Topo C.I. 10'

Topographic position

Total depth: Reported 530' feet; Measured feet

Drilling method CABLE TOOLS

Hole and casing data 200' OF 14" OD CASING 0-200'
140' OF 12" ID CASING SET @ 340
12" OPEN HOLE 340'-530'

Original depth to water ft. above / below Date

Source of data

Sources of water: Principal 340'-360' AND @ 500' AWOI

Others

PRODUCTION DATA

Date Nov. 22, 1961

Static water level 144.25'

Pumping water level 152'

Yield (g.p.m.) 900 WATER TEMP. 49°

Measuring point

Duration of pumping 8 HOURS

Specific capacity

LABORATORY DATA TL4-258 TL4-259

Well No. W13152 Sample range 0-530' No. of samples 106

No. of dupls. and cond. 93 Good Washed range 170'-530'

Samples prepared by D. MAMBRO Date 12/8/61

Logged by NORTHUP Date 12/19/61

Correlations by Date 12/19/61

SUMMARY DATA ON GRUNDY CENTER, IOWA MUNICIPAL WELLS

Name: Grundy Center city well No. 1
Location: SW¼ SE¼ NE¼ sec. 12, T. 87 N., R. 17 W., Palermo Twp., Grundy County, Iowa
Elevation: Pumphouse floor 1018.4 feet above sea level
Drilling dates: Unknown, may have been 1897
Depth: 469 feet (uncertain)
Casing: Hole size 8 to 4 inches, 6-inch csg. part way
Production data: Non-pumping water level reported to be 150+ feet (July 27, 1944); drawdown reported to be 6 feet when pumping at 120 g.p.m.
Pump: Turbine, with approximate setting of 165 feet

Name: Grundy Center city well No. 2
Location: SW¼ SE¼ NE¼ sec. 12, T. 87 N., R. 17 W., Palermo Twp., Grundy County, Iowa
Elevation: Pumphouse floor 1018.4 feet above sea level
Drilling dates: Unknown, may have been 1917
Depth: 255 feet (uncertain)
Casing: 10-inch csg. to unknown depth (uncertain)
Production data: Non-pumping water level reported to be 150+ feet (July 27, 1944); drawdown reported 6 feet when pumped at rate of 185 g.p.m.; water temperature 50°F.
Pump: In July, 1944, the well had a turbine pump with 160 feet of pump column, 5 feet of bowels, and 20 feet of suction pipe

Name: Grundy Center city well No. 3
Location: SW¼ SE¼ NE¼ sec. 12, T. 87 N., R. 17 W., Palermo Twp., Grundy County, Iowa
Elevation: Drilling curb, top 16-inch O.D. csg., 1020.0 feet above sea level. Land surface, 1018.9 feet above sea level
Contractor: Hoeg & Ames, Lincoln, Iowa
Drilling dates: June 24-July 26, 1944
Depth: 559 feet
Casing: 25 feet of 16-inch O.D. csg. from +1.1 to 24 feet; 155 feet of 12-inch csg. from 0-155 feet; 331 feet 2 inches of 10-inch csg. from +1.1 to 330 feet. Tentative plan was to remove 12-inch csg. and cement the upper 40 feet of hole outside the 10-inch csg.
Production data: Principal source 485 to 495 feet. Non-pumping water level 138.45 feet below surface (wells No. 1 and No. 2 are pumped intermittently so this level fluctuates). Well No. 3 was capable of yielding 300 g.p.m. with about 9 feet of drawdown during the initial test (July 27, 1944); water temperature 50°F
Remarks: The other two city wells are a short distance northwest of well No. 3

SUMMARY DATA ON GRUNDY CENTER, IOWA MUNICIPAL WELLS

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Elevation: Pumphouse floor 1018.4 feet above sea level
Drilling dates: Unknown, may have been 1897
Depth: 469 feet (uncertain)
Casing: Hole size 8 to 4 inches, 6-inch cag. part way
Production data: Non-pumping water level reported to be 150+ feet (July 27, 1944); drawdown reported to be 6 feet when pumping at 120 g.p.m.
Pump: Turbine, with approximate setting of 155 feet

Name: Grundy Center city well No. 2
Location: SW¼ SE¼ NE¼ sec. 12, T. 87 N., R. 17 W., Palermo Twp., Grundy County, Iowa
Elevation: Pumphouse floor 1018.4 feet above sea level
Drilling dates: Unknown, may have been 1917
Depth: 255 feet (uncertain)
Casing: 10-inch cag. to unknown depth (uncertain)
Production data: Non-pumping water level reported to be 150+ feet (July 27, 1944); drawdown reported 6 feet when pumped at rate of 125 g.p.m.; water temperature 50°F.
Pump: In July, 1944, the well had a turbine pump with 160 feet of pump column, 5 feet of bowels, and 20 feet of suction pipe

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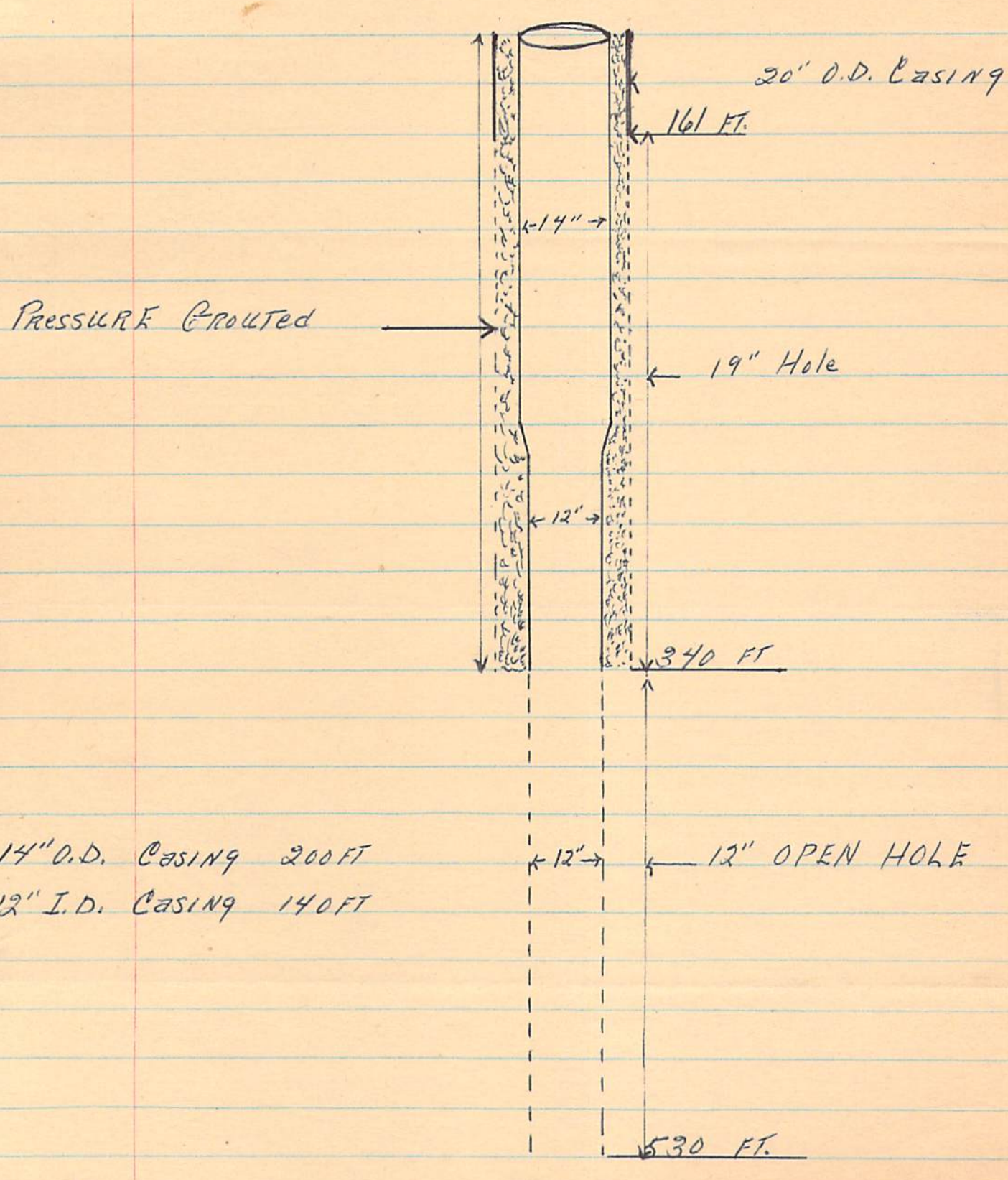

GRUNDY CENTER Well # 4

Dec 5

National water well Association

MEMBER

Phone GR 3-2707

HOEG & AMES, Inc.

WELL CONTRACTORS WELL SUPPLIES

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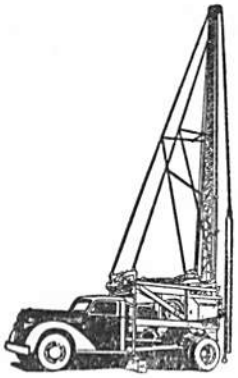
LINCOLN, IOWA



LOG OF WELL

CITY OF GRUNDY CENTER, IOWA - WELL #4

Total depth of well - 535 ft.
Static water level - 144 ft.
20 ft. drawdown, pumping at 1300 gal. per min.
Started the well - October 16, 1961
Finished the well - November 17, 1961
Formation:

Black drift	0-5	Ft.
Yellow clay	5-35	Ft.
Blue sandy clay	35-100	Ft.
Yellow clay	100-125	Ft.
Blue clay	125-150	Ft.
Yellow clay	150-153	Ft.
Rock and clay bands	153-170	Ft.
Rock and shale	170-306	Ft.
Rock-traces of shale	306-430	Ft.
Hard rock produces water	430-445	Ft.
Rock traces of shale	445-500	Ft.
Hard lime and some water	500-505	Ft.
Rock	505-535	Ft.

Shale squeezes at 475 ft.

22 in. hole drilled from 0-161 ft.. Set 161 ft. of 20 in. O.D.
19 in. hole drilled from 161-340 ft.
12 in. hole drilled from 340-535 ft.
200 ft. of 14 in. O.D. - 140 ft. of 12 in. I.D. casing welded together with a welding flange and set from 0-340 ft. Annular space around 14 in. and 12 in. casing pressure grouted from 6-340 ft., using 382 sacks of cement.
20 in. O.D. casing left in hole.

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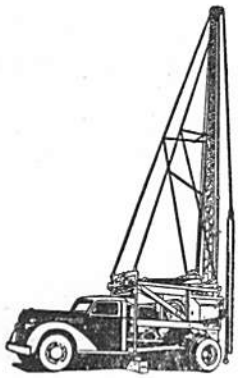

City OF GRUNDY CENTER - PUMPING RECORD - NOVEMBER 21, 1961

TIME	WATER LEVEL	DRAWDOWN	GAL. PER MIN.	REMARKS
8:45 A.M.	144.25			Started pump
8:50	146.70	2.45	300	Water very dirty
8:55	146.65	2.40		
9:00	146.30	2.05	300	Water clearing
9:05	146.30	2.05	300	
9:10	146.20	1.95	300	
9:15	146.20	1.95	300	
9:20	146.15	1.90	300	
9:25	146.00	1.75	300	Water slightly cloudy
9:30	146.00	1.75	300	
9:45	145.90	1.65	300	
10:00	145.95	1.70		Increased speed
10:15	148.50	4.25	550	Water dirty
10:30	148.50	4.25	550	
10:45	148.00	3.75	550	Water clearing
11:00	148.00	3.75	550	
11:15	148.10	3.85	550	
11:45	148.30	4.05	550	
12:15 P.M.	148.35	4.10	550	
12:30	148.10	3.85	550	
12:45	148.00	3.75		Increased speed
1:00	153.70	9.45	915	Water dirty
1:30	152.90	8.65		
2:00	153.20	8.95	915	Water clearing
2:30	152.92	8.67	915	
3:00	152.72	8.47		
3:30	153.45	9.20	915	
4:00	152.70	8.45	915	
4:30	152.70	8.45	915	Water almost clear
5:00	153.40	9.15	915	
5:30	152.80	8.55	915	
6:00	153.50	9.25	915	
6:30	153.60	9.35	915	
7:00	152.97	8.72	915	
7:30	153.60	9.35	915	Pump speed 1500 RPM
8:00	153.15	8.90	915	
8:30	152.95	8.70	915	Water very clear
8:45	153.30	9.05		Stopped pumping

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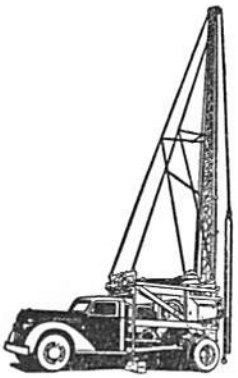

CITY OF GRUNDY CENTER - PUMPING RECORD - NOVEMBER 22, 1961

TIME	WATER LEVEL	DRAWDOWN	GAL. PER MIN.	REMARKS
7:15 A.M.	144.25			Started pump - Water cloudy
7:30	153.20	8.95	960	Stopped pump. Set clutch. Surged.
8:00	154.05	10.80	960	Water clear
8:30	153.60	9.35	960	
9:00	152.80	8.55	960	
9:30	153.70	9.45	960	Stopped pump to surge
9:35	158.80	14.65	1300	Surging well.
9:45	163.30	19.05		Pump speed 1750 RPM
10:00	165.00	20.75		2.5 Drawdown in east well #3
10:30	163.00	18.75		Water cloudy
11:00	158.70	14.45		Water clearing
11:30	162.30	18.05		
12:00 P.M.	162.20	17.95	1300	Water clear
12:30	163.00	15.75	1300	Surging 12:30 to 1:00
1:00				Surging
1:05	151.35	7.10	915	Started pump
1:15	151.45	7.20		PH 7.2 Temperature 49° F.
1:30	151.98	7.73	915	43 Gr. hardness
1:45	152.20	7.95		
2:00	152.23	7.98	915	Stopped pump to start surging
2:15				Surging from 2:00 to 2:15
2:16	151.20	6.95	915	
2:20	147.50	3.25	550	Slowed pump down to 550
2:30	147.40	3.15	550	
3:00	147.60	3.35	550	
3:04				Stopped pump. Off 5 mins.
3:10			550	On for 15 mins.
3:25	147.90	3.65	550	Stopped pump for 5 mins.
3:45	147.32	3.07	550	Pump off.
3:50				Pump on. Water clear
4:05	147.15	2.90	550	
4:30	147.72	3.47	550	Collected water sample
5:00	147.80	3.55	550	Water very clear. Stopped pump

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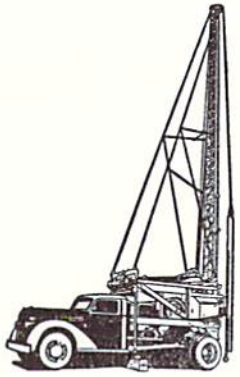

CITY OF GRUNDY CENTER - PUMPING RECORD - NOVEMBER 27, 1961

TIME	WATER LEVEL	DRAWDOWN	GAL. PER MIN.	REMARKS
8:45 A.M.	145.00			Pumped 4 mins. before
8:50	147.58	2.58	550	Water got cloudy
9:00	147.60	2.60		Water clear.
9:30	147.80	2.80	550	
9:30 to 9:40				Surging well.
9:50	148.25	3.25	550	Cloudy
10:00	147.65	2.65		Clearing
10:05				Started to surge well again.
10:10			550	Started pump.
10:15	147.65	2.65	550	Cloudy again
10:30	147.60	2.60	550	Water very clear
10:45	148.24	3.24	550	Water very clear
10:50				Stopped pump

IOWA GEOLOGICAL SURVEY
TABULATION OF WATER ANALYSIS
(Dissolved constituents in parts per million)

Town - Well No Owner	Date of coll.	Depth (ft.)	Geol. source	OT	Diss. solids	Fe	Mn	Ca	Mg	K	Na	CO_3	HCO_3	SO_4	Cl	F	NO_3	Hardness cal. as $CaCO_3$ tot	carb	non carb	pH	Cond
Grundy Center city well No. 1	7/21/60	255* 275	Dev.		988	.18	.05	164	73	4.6	11	0	279	473	3	1.6	0.1	710	229	471	7.4	1200
Grundy Center city well No. 2	"	275* 460 505	"		971	.24	.05	160	73	5.1	14	0	281	472	2.5	1.6	0.1	700	230	470	7.5	1190
Grundy Center city well No. 3 (1944)	"	559	"		1026	.04	.05	172	78	4.8	12	0	278	514	2	1.6	0.1	750	228	522	7.5	1270

NOTES: * Uncertain