

RESULTS OF PUMPING TEST

MADE ON

DOWS TOWN WELL (1948)

DOWS, IOWA

January 13, 1948

NAME: Dows town well (1948)

LOCATION: NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE Sec. 36, T. 91 N., R. 23 W., Wright Co.

ELEVATION: Land Surface - 1151.5 feet above sea level.
Curb Elevation - 1153 feet above sea level.

OWNER: Town of Dows, Iowa.

ENGINEER: E. L. Patera, Des Moines, Iowa.

CONTRACTOR: Hoeg and Ames, Lincoln, Iowa.

DRILLER: Homer Rhodes.

DRILLING DATES: Started, November 11, 1947.
Finished, January 8, 1948

TOTAL DEPTH: 751 feet.

CASING AND HOLE SIZE: 102'4" of 12-inch pipe from 0' to 102'4".
60' of 10-inch casing set in 12-inch hole
at 282'. 160' of 8-inch pipe set in 10-inch
hole at 460'. Open 8-inch hole from 460' to
751'.

TEST PUMP: Turbine setting 195 feet. Powered by gasoline engine with
belt drive.

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

TEMPERATURE MEASUREMENTS: Water temperature measured at end of 10 feet
of 4-inch discharge pipe.

Test observed by W. E. Hale.

DOWS TOWN WELL (1948)

-2-

JANUARY 13, 1948

TIME	DEPTH TO WATER (FEET)	DISCHARGE RATE (GPM)	TEMP. °F.	REMARKS
Jan. 13				
6:06 pm	102.			
6:07	95.			
6:08	90.2			
6:09	86.			
6:10	81.35			
6:15	73.10			
6:20	67.2			
6:25	64.4			
6:30	62.9			
6:35	61.71			
6:40	60.9			
6:57	59.1			
7:06	58.3			
8:35	55.52			
8:40	55.45			

RESULTS OF PRODUCTION TEST MADE ON DOWS TOWN WELL (1948) ON JANUARY 13, 1948

TIME	DEPTH TO WATER (FEET)	DISCHARGE RATE (GPM)	TEMP. °F.	REMARKS
Jan. 13				
9:15 am	48.00			
9:28	48.00			Pumping started.
9:32	93.20			
9:40	104.35	106 $\pm$		Water slightly dirty.
9:47	107.75			
9:51	109.48			
9:55	110.42		50	Water slightly dirty.
10:05	112.8	98 $\pm$		Air temp - 13°F.
10:15	109.5			Water almost clear.
10:22	109.	92		Pump speeded up.
10:25	120.5			
10:35	128.2	106		Water cloudy, air temp.
10:47	130.2		50 $\frac{1}{2}$	Water cloudy
10:52	130.9			
11:00	131.87			Water cloudy.
11:10	133.6	110 $\pm$		Water cloudy.
11:20	133.85			
11:30	134.4		50 $\frac{1}{2}$	Water slightly cloudy.
11:40	135.	110	50 $\frac{1}{2}$	Water slightly cloudy (Air temp 15°F.)
11:50	134.5			
12:27 pm	134.55			
12:45	134.5	110	50 $\frac{1}{2}$	Water almost clear (Air temp. 15°F.)
1:00	134.8			
1:15	135.4			
1:30	136.0			
1:45	136.4	110 $\pm$	50 $\frac{1}{2}$	Water almost clear (Air temp. 17°F.)
2:00	136.6			
2:18	136.77			
2:30	136.6			
2:45	136.8	110 $\pm$		
3:15	136.5			
3:17			50 $\frac{1}{2}$	Water clear.
3:30	136.7			
3:45	136.5	110 $\pm$		Water clear.
3:47				Increase discharge rate.
3:52	170.			
3:55	185.	164 $\pm$		Water dirty.
4:10	195.	157 $\pm$		Breaking suction.
4:30	195.	137.7 $\pm$		Water dirty.
4:40	195.	139. $\pm$		
5:00	195.	140. $\pm$		Water cloudy.
5:30	195.	138 $\pm$		Water almost clear
6:00				Pumping stopped.
6:01	135.			Recovery measurements.
6:02	118.5			
6:03	121.			
6:04	115.			
6:05	107.			Bubbling could be heard in well until water level recovered to bottom of casing at about 102 feet.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington
District
6-9333

Results of Production Test on Dowd Town Well

TIME	Depth to Water (feet)	Discharge (GPH)	Temp.	Remarks
Jan. 13				
9:15a	48.00			[48.72 DW in old well]
9:28	48.00			Pumping started
9:32	93.20			
9:40	104.35	106 $\pm$		Water slightly dirty
9:47	107.75			
9:51	109.48			
9:55	110.42		50°	Water slightly dirty
10:05	112.8	98 $\pm$		Air temp 13°F
10:15	109.5			Water almost clear.
10:22	109.	92		Pump speeded up.
10:25	120.5			
10:35	128.2	106		Water cloudy Air temp.
10:47	130.2		50 $\frac{1}{2}$	Water cloudy
10:52	130.9			
11:00	131.87			Water cloudy
11:10	133.6	110 $\pm$		Water cloudy
11:20	133.85			
11:30	134.4		50 $\frac{1}{2}$	Water slightly cloudy
11:40	135	110	50 $\frac{1}{2}$	Water slightly cloudy (Air temp 15°F)
11:50	134.5			
12:27p	134.55			
12:45	134.5	110	50 $\frac{1}{2}$	Water almost clear (Air temp 15°F)
1:00p	134.8			
1:15	135.4			
1:30	136.0			
1:45	136.4	110 $\pm$	50 $\frac{1}{2}$	Water almost clear (Air temp 17°F)
2:00	136.6			
2:18	136.77			
2:30	136.6			
2:45	136.8	110 $\pm$		
3:15	136.5			

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington
District
GPO 6-9333

Results of Pumping Test at Downs Town Well 1948

Time	Depth to Water (feet)	Discharge Rate (GPM)	Temp ^{°F}	Remarks
Jan 13				
3:17p			50.8°	Water clear
3:30p	136.7			
3:45	136.5	110±		Water clear
3:47				Increase discharge rate
3:52	170			
3:55	185	164±		Water dirty
4:10	195	157±		Breaking suction
4:30	195	137.7±		Water dirty
4:40	195±	139±		
5:00	195±	140±		Water cloudy
5:30	195±	138±		water almost clear
6:00				Pumping stopped
6:01	135'			Recovery measurements
6:02	128.5			
6:03	121			Bubbling could be heard in well until water
6:04	115			level returned to bottom of casing at
6:05	107			about 102 feet.
6:06	102			
6:07	95			
6:08	90.2			
6:09	86			
6:10	81.35			
6:13	73.10			
6:20	67.2			
6:25	64.4			
6:30	62.9			
6:35	61.71			
6:40	60.9			
6:57	59.11			
7:06	58.3			
8:35	55.52			
8:40	55.45			

*Franklin
Wright*

RESULTS OF PRODUCTION TEST
MADE ON
DOWS TOWN WELL (1947-8)
DOWS, IOWA
Dec. 30, 1947

NAME: Dows Town Well (1947-8).

LOCATION: NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 36, T. 91 N., R. 23 W. Wright Co.

ELEVATION: Land surface, 1151.5 feet above sea level.
Curb elevation, 1153 feet above sea level.

OWNER: Town of Dows, Iowa.

ENGINEER: E. L. Patera, Des Moines, Iowa.

CONTRACTOR: Hoeg and Ames, Lincoln, Iowa.

DRILLER: Homer Rhodes.

DRILLING DATES: Started, November 11, 1947.

PRESENT DEPTH: 651 feet.

CASING AND HOLE SIZE: 102 $\frac{1}{4}$ " of 12-inch pipe from 0' to 102 $\frac{1}{4}$ ". 60 feet of 10-inch casing set in 12-inch hole at 282 feet. 160 feet of 8-inch pipe set in 10-inch hole at 460 feet. Open 8-inch hole from 460 to 651 feet.

TEST PUMP: Turbine, setting 205 feet. Powered by belt drive with gasoline engine.

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

TEMPERATURE MEASUREMENTS: Water temperature measured at end of 10 feet of 4-inch discharge pipe.

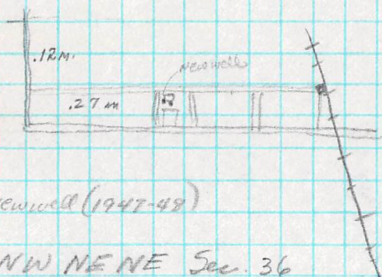
Test observed by W. E. Hale.

RESULTS OF PRODUCTION TEST MADE ON DOWS TOWN WELL (1947-8) ON DEC. 30, 1947.

TIME	DEPTH TO WATER (FEET)	DISCHARGE RATE (GPM)	TEMP. °F.	REMARKS
7:55 am	34.9			Running water through pump to lubricate.
8:18	33.1			Pumping started.
8:20				Water muddy.
8:22	120	150		Water muddy.
8:40	205	148	50	Broke suction, reduce pumping rate.
8:45				Water clearing.
9:00	200-5	139		Water milky.
9:30	200-5	130	50½	Water milky.
10:00	200-5	133		Water cloudy.
10:30	200-5	130	50½	Air temp. 26° F.
12:15 pm	200-5	130	50½	Reduce pumping rate.
12:40		106		
1:00	176.75			Water cloudy.
1:08	176.4	114.8	50½	Water cloudy. Reduce pumping rate.
1:28	143.5			
1:33	141.3	98.4		
1:41	140.6		50½	Water cloudy.
1:54	140.88	98.4	50½	Water slightly cloudy.
3:09	138.25	93.5	50½	Water almost clear. Air temp. 21° F.
3:30	137.72	93.5		
4:00	138.62	98		Water almost clear.
4:15	138.8			
4:25	139.1	97		Water almost clear. Water sample collected.
4:36				Pumping stopped.
4:37	101.9			Recovery measurements.
4:38	97.85			
4:39	93.12			
4:40	87.55			
4:41	82.84			
4:42	78.75			
4:43	75.53			
4:45	71.10			
4:50	64.92			
Dec. 31				
1:00 pm	50.80			



DOWS TOWN Wells



LOC. New well (1947-48)

NW NE NE Sec. 36
T. 91 N. R. 23 W.DW = 50.80' below
top casing at 1:00 p.

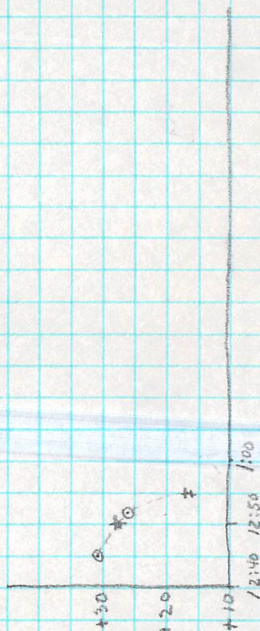
Dec 31, 1947

(not in use)

Old well 450'

DW 52.2' below concrete
pump base

Sta.	Time	Reading	Temp. Casing	Bar. Corr.	Elev.
Dws Sta.	12:45 p	1115		+ 31	1146
New well	12:49 p	1126	-1	+ 28	1153
Dws Sta.	12:50 p	1120		+ 26	1146
New well	12:55 p	1138	-2	+ 17	1153





Dows (Wright)

City well

NW - NE - NE - 36 - 91 - 23 - Wright

Rhodes 11/11/47 - 1/8/48

Drift 0-100

Rock 100-235

Shale 235-255

Rock 255-315

Shale 315-420

Rock 420-751 TD

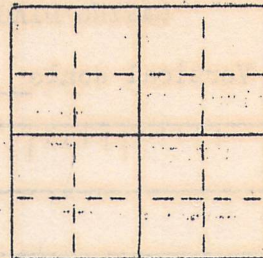
102' 4" of 12"

60' of 10"

160' of 8"

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

RECORD OF WELL



Location:

Town: Dows (N E)
(S W): County Wright

NW 1/4 NE 1/4 sec. 36 T 91 N., R. 23 W. Blaine Twp.

Well name and number Dows Town Well (1947-8)

Owner Town of Dows

Address

Tenant Mr. A. D. Denger, Mayor (1948)

Address

Mr. E. L. Patern, consulting engineer, Des Moines

Contractor Hoeg & Ames

Address

Lincoln, Iowa

Drillers Homer Rhodes

Drilling dates Started Nov. 11, 1947

Well data:

Elevations: Drilling curb 1153 feet; Land surface 1151.5 feet

Aneroid from R.R. sta. at Dows using ch. top rail as 1146

Determined by W. E. Hale

Topographic position Upland

Total depth: Reported 751 feet, Measured _____ feet

Drilling method Cable tool

Hole and casing data 102' 4" of 12-inch casing from 0' to 102' 4"

60' of 10-inch casing from 222' to 282'

160' of 8-inch casing from 300' to 460'

open from 460' to 751'

Original depth to water _____ ft. above
below _____ Date _____

Original elevation of water level _____ ft.; Source of data _____

Sources of water: Principal _____; Others _____

LOG

Vertical scale

Drift 0-100'

Rock 100-235 (Bailer test 549pm with 30' dd.)
(still lowering at end)

Shale 235-255 (shale stand well.)

Rock 253-320

Shale 320-420 (some thin rock bands) (would cave
6-7 feet overnight.)

Rock 420-651 (little shale in last 10-15 feet)

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 ANALYSES (in parts per million)

Date samples	<u>12/30/47</u>	_____	_____	_____
Sampled by	<u>W E Hall</u>	_____	_____	_____
Total solids	<u>393</u>	_____	_____	_____
Insoluble matter	<u>18.5</u>	_____	_____	_____
Alkalinity (Meo)	<u>330</u>	_____	_____	_____
Alkalinity (Phn)	<u>None</u>	_____	_____	_____
pH	<u>7.7</u>	_____	_____	_____
Fe ₂ O ₃ + Mn ₂ O ₃ + Al ₂ O ₃	<u>5.5</u>	_____	_____	_____
Alkali as sodium	<u>16.2</u>	_____	_____	_____
Calcium	<u>75.5</u>	_____	_____	_____
Magnesium	<u>26.3</u>	_____	_____	_____
Iron (unfiltered)	<u>1.48</u>	_____	_____	_____
Manganese	<u>.21</u>	_____	_____	_____
Nitrate	<u>None</u>	_____	_____	_____
Fluoride	<u>.5</u>	_____	_____	_____
Chloride	<u>8.5</u>	_____	_____	_____
Sulfate	<u>32.9</u>	_____	_____	_____
Bicarbonate	<u>403</u>	_____	_____	_____
Hardness (ppm)	<u>350</u>	_____	_____	_____
Hardness (gpg)	<u>20.5</u>	_____	_____	_____

Remarks _____

Laboratory data:

Sample storage location _____

Sample range 0-751 No. spls. 145 No. dupls. & cond. 145-GoodSpls. prepared by RKS+PJH Washed range 100-751 by RKS-PJH

Driller's log and cond. _____

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

Microscopic study 0-751 strip log 1-27-48Gen. log _____ Correl. by WEH + REW

WATER LEVEL DATA

Measuring point _____

Date	Depth to water	Altitude	Remarks

REMARKS

235' Production test - Drilling depth 235'

WL 45' - bailed 54 gpm with 30' drawdown. Water level lowering at end of short test

651' Production test - Dec 30, 1947 - see copy of results Drilling depth 651'

W.L. 50'± pumping level 139' at 97 gpm.