

Layne-Western Company, Inc.**Well Information**
Omaha, Nebraska

1. Contract City of Sioux City, Iowa Date September 4, 1990
2. City and State Sioux City, Iowa Driller State/Ilrabik
3. Well No. 21 at test hole No. 90-5 Well location (attach map) Cook Park,
near intersection of 5th and Main, North of 4th Street
4. Work completed 09-05-90 No of man hours as charged to job on time sheet
5. MATERIAL:
- | | LENGTH | DIA. | GAUGE OR WALL THICKNESS | MATERIAL | TYPE | NO. OF OPENINGS |
|-----------------|--------|------|-------------------------|----------|------------|-----------------|
| 6. Screen | 160' | 18" | 7 gauge | 304SST | Johnson | .028 |
| 7. Inner Casing | 207' | 18" | .375 | Steel | ASTM-A53 | Grade B |
| 8. Outer Casing | 141' | 36" | .375 | Steel | Structural | |
9. 50 tons of gravel used in the well. Size Northern Gravel #
10. Test of well. Did you use test or permanent pump? Test 12RMIC 5
Size of Bowl Stages
11. Size of orifice 8 inch by 6 inch. Orifice tube reading 63.5 inches.
12. Pumping test — measurements from ground level:

TIME	G.P.M.	STATIC	DRAWDOWN	PUMPING LEVEL
	SEE ATTACHED SHEETS			

13. Recovery in 5 minutes 77' 0" in 30 minutes 72' 3/4"
14. Did you seal bottom of well? yes Thickness 3/16 inches, material 304 SST
15. Well underreamed? no From feet to feet, feet to feet.
16. If all screen was not placed at bottom, state how it was spaced:
From 200 feet to 360 (feet) from feet to feet; from feet to feet.
17. Depth of well from ground level to top of plug 360' Size of drilled hole 42" x 35"
18. Was cement placed around or between any of the casings? yes
19. If so, state where, how much and method used. 42" x 36" - 0 TO 141', 21 yds'
36" x 18" - 0 to 180; 36 yds; pressure grouted

Layne-Western Company, Inc.

4430 Commercial Avenue

Omaha, Nebraska

TEST WELL REPORT

City and State Sioux City, IA Date 4-11-90

Contract City of Sioux City/Cook Park Driller Duane Trask

Test No. 90-2 Helpers Mark Cooper

Static Water Level 69'

Test Log

0-30 Brown Clay
30-38 Silty Rusty Clay
38-40 Broken Loose Stones
40-52 Silty Brown Clay
52-70 Coarse Brown Sand & Gravel
70-94 Rough Gravel & Boulders
94-115 Coarse Rusty Sandstone
115-120 Dark Gray Shale
120-140 White Sandstone
140-145 Fine White & Tan Sandstone
145-165 Medium & Fine Rusty Colored Sandstone
165-170 Fine White & Tan Sandstone
170-177 Fine Yellow Sandstone
177-178 Hard Layer Lime
178-182 Sandstone
182-195 Sandy Light Gray Shale
195-205 Sandstone w/Layers Shale
205-210 Sandy Light Gray Shale
Size Mud Pit—Length 15 , Width 2' , Depth 6'

WATER BEARING FORMATION DATA

Depth	Wt. Mud Lbs. per Gal.	Inches Mud Taken from Pit	Drilling Time
<u>0</u> to <u>30</u>	<u>29</u>	<u>10</u>	
<u>30</u> to <u>60</u>	<u>32</u>	<u>6</u>	
<u>60</u> to <u>70</u>	<u>32</u>	<u>10</u>	
<u>70</u> to <u>90</u>	<u>38</u>	<u>36</u>	
<u>90</u> to <u>130</u>	<u>26</u>	<u>9</u>	
<u>130</u> to <u>160</u>	<u>26</u>	<u>18</u>	
<u>160</u> to <u>180</u>	<u>26</u>	<u>20</u>	

LOCATION: NW corner of 4th & Main

REMARKS: May make 1500 GPM

