



HOEG & AMES, Inc.
 WELL CONTRACTORS • WELL SUPPLIES
 LINCOLN, IOWA 50652
 Phone (515) 473-2707

WATERLOO OFFICE
 HOWARD M. WHITE & SON
 1340 HAMMOND AVENUE
 WATERLOO, IOWA 50702

RECORD OF WELL

Owner Town of Norway

Address Norway, Iowa 52318

Tenant _____

Address _____

Location Benton County, Florence Township, Sec. 17, SW $\frac{1}{4}$ of SW $\frac{1}{4}$, T-82-N, R-9-W. In the park North of town.

Started the Well July 25, 1974

Finished the Well September 17, 1974

Total Depth 585 feet Size of Well 8 x 16

Static Water Level 133 feet

Draw-down 53 feet, pumping 105 Gal. P.M.

252 feet of 16 inch pipe installed

507 feet of 8 inch casing installed

Driller Ervol Fink

Remarks 16" hole from 0' to 270', 12" hole from 270' to 505', and 8" hole from 505' to 585'. 16" pipe is set to 252', and 8" pipe is set to 507'. Cemented (320 bags) between the 8" pipe and the 16" and 12" holes.
 FORMATION

| | | | | | |
|--------------|-------------|-----------------------------------|-------------|-------------|----------------------------------|
| Pleist | 0' - 45' | Yellow Clay | Dav. - S.G. | 370' - 405' | Gray & Brown Lime (Water Smells) |
| | 45' - 195' | Gray Clay | Ken | 405' - 415' | Rock & Shale (mostly shale) |
| | 195' - 210' | Yellow Clay | at's - | 415' - 425' | Gray Lime |
| PENN | 210' - 225' | Black Shale | Coggon | 425' - 455' | Brown Lime |
| | 225' - 250' | Black Shale | Bertram | 455' - 486' | Gray Lime |
| | 250' - 260' | Sandstone | | 486' - 487' | A Little Shale |
| C.V. | 260' - 285' | White Lime | SIL | 487' - 505' | Gray Lime |
| | 285' - 315' | Gray Lime & Shale Streaks | | 505' - 585' | Gray & White Lime |
| | 315' - 330' | Brown Lime with some Shale | | | |
| 349 Wapsi | 330' - 370' | Gray Lime with some Shale Streaks | | | |

Drill cuttings submitted to IGS

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington
District

PUMPTEST

NORWAY TOWN WELL

19 SEPT 74

| TIME (HR) | TIME (MIN) | HOLD | ± Ft | WATER LEVEL | DRAW-down | GPM | | | |
|-----------|------------|------|-------|-------------|-----------|-----|------|--|---------------------------------|
| 8:09 | | 150 | 14.59 | 135.41 | | | | | Static water level - steel tape |
| | | 135 | +0.42 | 135.42 | | | | | SWL - Elec. line |
| 8:20 | | | | | | | | | START |
| | 0.5 | 140 | +1.95 | 141.95 | 6.53 | | | | |
| | 1 | 140 | +2.46 | 142.46 | 7.04 | | | | pump set at 210' |
| | 2 | 150 | +2.56 | 152.56 | 17.14 | ~94 | | | |
| | 3 | 160 | 0.00 | 160.00 | 24.58 | | | | |
| | 4 | 165 | +0.38 | 165.38 | 29.96 | | | | |
| | 5 | 170 | -1.05 | 168.95 | 33.53 | | | | |
| | 6 | 170 | +1.85 | 171.85 | 36.43 | | | | |
| | 7 | 175 | -0.45 | 174.55 | 39.13 | | | | |
| | 8 | 175 | +1.69 | 176.69 | 41.27 | | | | |
| | 9 | 180 | -1.99 | 178.01 | 42.59 | | | | |
| 8:30 | 10 | | -1.18 | 178.82 | 43.40 | | | | |
| | 12 | | 0.00 | 180.00 | 44.58 | | | | |
| | 14 | | +0.68 | 180.68 | 45.26 | | | | |
| | 16 | | +1.20 | 181.20 | 45.78 | | | | |
| | 18 | | +1.61 | 181.61 | 46.19 | | | | |
| 8:40 | 20 | | +2.00 | 182.00 | 47.58 | 105 | | | |
| | 25 | 185 | -2.36 | 182.64 | 47.22 | | | | |
| 8:50 | 30 | | -1.98 | 183.02 | 47.60 | | | | |
| | 35 | | -1.78 | 183.22 | 47.80 | | | | |
| 9:00 | 40 | | -1.57 | 183.43 | 48.01 | 105 | | | |
| | 50 | | -1.07 | 183.93 | 48.51 | | | | |
| 9:20 | 60 | | -0.55 | 184.45 | 49.03 | | | | |
| 9:30 | 70 | | -0.15 | 184.85 | 49.43 | | 56°F | | |
| 9:45 | 85 | | +0.27 | 185.27 | 49.85 | | | | |
| 10:00 | 100 | | +0.49 | 185.49 | 50.07 | 105 | | | |
| 10:20 | 120 | | +1.02 | 186.02 | 50.60 | | | | |
| 10:50 | 150 | | +1.51 | 186.51 | 51.09 | | | | |

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington
District 92

NORWAY TOWN

19 Sept 74

| | T _(Hn) | T _(m) | Head | Wat | Wl | Dd | GPM | | | | |
|-----|-------------------|------------------|------|----------|--------|-------|-----|---------------|--|--|--------|
| 3hr | 11:20 | 180 | 185 | +1.91 | 186.91 | 51.49 | 105 | 56°F | | | |
| | 11:50 | 210 | 1 | +1.98 | 186.98 | 51.56 | | | | | |
| 4hr | 12:20 | 240 | 190 | -2.59 | 187.41 | 51.99 | | | | | |
| | 12:50 | 270 | 185 | +2.49 | 187.49 | 52.07 | | | | | 40 min |
| 5hr | 1:20 | 300 | 190 | -2.09 | 187.91 | 52.49 | | | | | |
| | 1:50 | 330 | 190 | -1.89 | 188.11 | 52.69 | 105 | Sample - 56°F | | | |
| 6hr | 2:20 | 360 | 1 | -1.83 | 188.17 | 52.75 | | | | | |
| | | | | RECOVERY | | | | | | | |
| | 2:20 | | | | | | | Pump Off | | | |
| | | 1 | 130 | -2.85 | 127.15 | | | } Surging | | | |
| | | 2 | 130 | + | 130 ± | | | | | | |
| | | 3 | 135 | +1.73 | 136.73 | | | | | | |
| | | 4 | 135 | +3.00 | 138.00 | | | | | | |
| | 2:25 | 5 | 135 | +3.00 | 138.00 | | | | | | |
| | | 6 | 135 | +3.00 | 138.00 | | | | | | |
| | | 7 | 140 | -2.00 | 138.00 | 2.58 | | | | | |
| | | 8 | 140 | -2.05 | 137.95 | 2.53 | | | | | |
| | | 9 | 140 | -2.10 | 137.90 | 2.48 | | | | | |
| 370 | 2:30 | 10 | 140 | -2.13 | 137.87 | 2.45 | | | | | |
| | | 12 | 140 | -2.18 | 137.82 | 2.40 | | | | | |
| | | 15 | 140 | -2.24 | 137.76 | 2.34 | | | | | |
| 380 | 2:40 | 20 | 140 | -2.34 | 137.66 | 2.24 | | | | | |
| | | 25 | 140 | -2.41 | 137.59 | 2.17 | | | | | |
| 390 | 2:50 | 30 | 140 | -2.50 | 137.50 | 2.08 | | | | | |
| 400 | 3:00 | 40 | 140 | -2.60 | 137.40 | 1.98 | | | | | |
| 410 | 3:10 | 50 | 140 | -2.69 | 137.31 | 1.89 | | | | | |
| 420 | 3:20 | 60 | 135 | +2.20 | 137.20 | 1.78 | | | | | |
| 435 | 3:35 | 75 | 135 | +2.09 | 137.09 | 1.67 | | | | | |
| 450 | 3:50 | 90 | 135 | +2.00 | 137.00 | 1.58 | | | | | |



Norway

12

0
10
20
30
40
50
60

10

7

