



# Layne-Western Company, Inc.

WATER SUPPLY CONTRACTORS

705 SO. DUFF AVE.

AMES, IOWA 50010

Phone 515 232-3563

Name of Job City of Edgewood, Iowa Date 4-17-85  
 City Edgewood State Iowa  
 Well No: 3 Drillers: D. Heldt  
 Well Location: \_\_\_\_\_ ft. (\_\_\_\_) and \_\_\_\_\_ ft. (\_\_\_\_) of the \_\_\_\_\_ corner of  
 the NE 1/4 of Section 2, Twp. 90 (N), Range 5 (W), Delaware County.  
 Otherwise located as Behind filter plant (30' south of)

Work Began: 2-19-85 Work Completed: 3/1/85

## Casing Record:

| Amount      | Dia.       | Wt. or Thickness | Material     | P.F.           | joints from | to          |
|-------------|------------|------------------|--------------|----------------|-------------|-------------|
| <u>88'</u>  | <u>14"</u> | <u>STD</u>       | <u>Steel</u> |                | <u>0</u>    | <u>88</u>   |
| <u>941'</u> | <u>8"</u>  | <u>322</u>       | <u>Steel</u> | <u>T&amp;C</u> | <u>+1'</u>  | <u>940'</u> |
| _____       | _____      | _____            | _____        | _____          | _____       | _____       |
| _____       | _____      | _____            | _____        | _____          | _____       | _____       |

## Hole Record:

20 inch from 0 to 19'  
17 1/2 inch from 19' to 88'  
12 3/4 inch from 88' to 940  
 \_\_\_\_\_ inch from \_\_\_\_\_ to \_\_\_\_\_  
7 7/8" inch from 940' to 1217' bottom of hole

Cementing Record: Cemented 14" along outside through 1" nipple

Cemented 8" through shoe with 500 bags of neat cement

Well Test Data: Static Level \_\_\_\_\_; pumping level \_\_\_\_\_ after \_\_\_\_\_ hours pumping at \_\_\_\_\_ g.p.m.

Length of test \_\_\_\_\_ hrs. See Well Test Data Sheet Dated \_\_\_\_\_

Remarks: \_\_\_\_\_

SEE OTHER SIDE

Location not definite  
needs field check

# WELL LOG

| Feet |    | Feet | Description                             |
|------|----|------|-----------------------------------------|
| 0    | to | 2    | Black top soil, sandy.                  |
| 2    | to | 6    | Very clayish brown sand.                |
| 6    | to | 21   | Brown sandy clay, very sandy from 9 ft. |
| 21   | to | 34   | Sandy brown clay.                       |
| 34   | to | 83   | Blue gray till.                         |
| 83   | to | 85   | Brown broken weathered limestone.       |
| 85   | to | 100  | Medium hard white limestone.            |
| 85   | to | 110  | Yellow brown limestone.                 |
| 110  | to | 125  | Gray white limestone, shaley from 122'. |
| 125  | to | 142  | Gray limestone.                         |
| 142  | to | 163  | White limestone.                        |
| 163  | to | 240  | Brown white to gray limestone.          |
| 240  | to | 270  | Light green gray limestone.             |
| 270  | to | 378  | Maquoketa shale and rock.               |
| 378  | to | 400  | Dark brown dolomite.                    |
| 400  | to | 425  | Gray shale.                             |
| 425  | to | 449  | Brown to gray limestone.                |
| 449  | to | 470  | Light brown to off white limestone.     |
| 470  | to | 675  | Light brown to off white limestone.     |
| 675  | to | 700  | Dark gray limestone and shale streaks.  |
| 700  | to | 714  | Light brown to off white limestone.     |
| 714  | to | 723  | Light green shaley limestone.           |
| 723  | to | 770  | Light gray to off white limestone.      |
| 770  | to | 775  | Blue green shale.                       |
| 775  | to | 889  | St. Peter sandstone.                    |
| 889  | to | 956  | Prairie DuChien                         |
| 956  | to | 970  | Light reddish brown sandstone.          |
| 970  | to | 1125 | Off white to light brown dolomite.      |
| 1125 | to | 1207 | Jordan sandstone.                       |
| 1207 | to | 1217 | St. Lawrence limestone.                 |
|      | to |      |                                         |
|      | to |      |                                         |

WELL No. 3  
CITY OF EDGEWOOD  
EDGEWOOD, IOWA

#27507

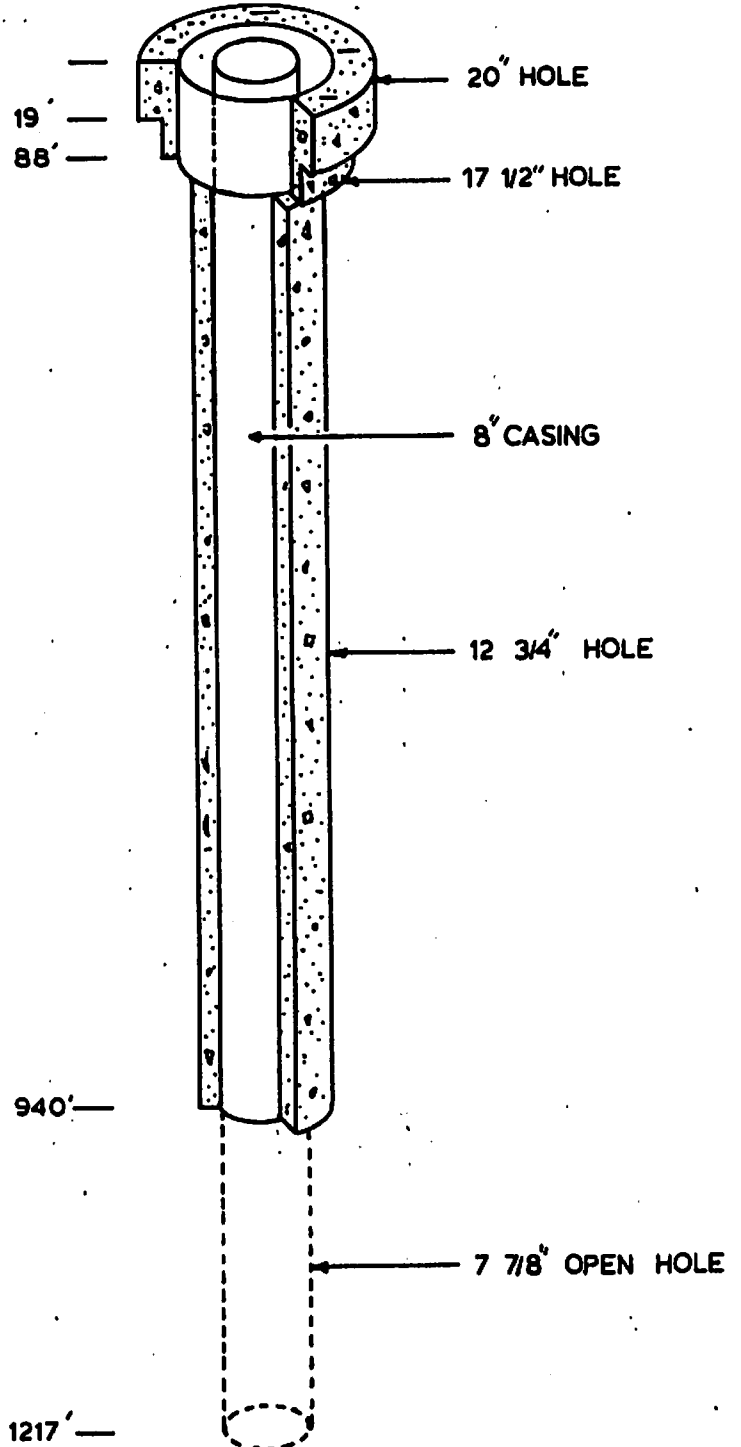
LW CO, INC. AMES, IA

4-85

# GEOLOGICAL LOG

|                                                    |         |
|----------------------------------------------------|---------|
|                                                    | SURFACE |
| OVERBURDEN                                         |         |
|                                                    | 85'     |
| GRAY, WHITE, BROWN<br>LIMESTONE<br>(SHALE 122-125) |         |
|                                                    | 270'    |
| MAQUKETA SHALE & ROCK                              |         |
|                                                    | 378'    |
| DARK BROWN DOLOMITE                                | 400'    |
| GRAY SHALE                                         | 425'    |
| GRAY, WHITE, AND,<br>BROWN LIMESTONE               |         |
|                                                    | 770'    |
| BLUE GRAY SHALE                                    | 775'    |
| St PETER SANDSTONE                                 |         |
|                                                    | 889'    |
| PRAIRIE DUCHIEN<br>(REDDISH BROWN SANDSTONE)       |         |
|                                                    | 1125'   |
| JORDEN SANDSTONE                                   |         |
|                                                    | 1207'   |
| St LAWRENCE LIMESTONE                              | 1217'   |

# CONSTRUCTION DETAIL



## WELL TREATMENT REPORT

#27527

**Layne-Western Company, Inc.**

WATER SUPPLY CONTRACTORS

705 SO. DUFF AVE.

AMES, IOWA 50010

Phone 515 232-3563

1. Customer City of Edgewood Address \_\_\_\_\_

2. Date \_\_\_\_\_ Well No. 3 Pump No. \_\_\_\_\_ Well Depth 1217'

Well Construction 8" casing 0 - 940' - 8" open hole 940' - 1217'

Overall Length of Pump 600' Length Air Line 600'

3. Pumping Test Before Treatment: Static Water Level 462' Size Orifice Used 4x3

| Time  | Orifice Reading (in.) | G. P. M. | Air Line Reading (ft.) | Drawdown (ft.) | Pumping Level (ft.) | Discharge Pressure (lbs.) | REMARKS    |
|-------|-----------------------|----------|------------------------|----------------|---------------------|---------------------------|------------|
| 11:00 | 14                    | 148      | 20                     | 120            | 582                 |                           |            |
| 11:30 | 17                    | 163      | 1                      | 137            | 599                 |                           | s.c. = 1.2 |

4. Describe Complete Treatment: Introduced 1500 gallon of 20% Baume Muriatic acid through tubing set to 1100 ft. Self pressurized to 125 P.S.I. Let set overnight.

5. Pumping Test After Treatment: Static Water Level 465 Size Orifice Used 4x3

When Test Was Made 05/21/85

| Time  | Orifice Reading (in.) | G. P. M. | Air Line Reading (ft.) | Drawdown (ft.) | Pumping Level (ft.) | Discharge Pressure (lbs.) | REMARKS    |
|-------|-----------------------|----------|------------------------|----------------|---------------------|---------------------------|------------|
| 12:00 | 25.5                  | 200      | 18                     | 117            | 582                 |                           | s.c. = 1.7 |
| 3:00  | 14.5                  | 151      | 40                     | 95             | 560                 |                           |            |
| 7:00  | 14.5                  | 151      | 40                     | 95             | 560                 |                           | s.c. = 1.6 |

## UNIVERSITY HYGIENIC LABORATORY

The University of Iowa

## Central Laboratory:

Oakdale Campus  
Iowa City, Iowa 52242  
319/353-5990

## Branch Laboratory:

Henry A. Wallace Bldg.  
E. 9th & Grand  
Des Moines, Ia. 50319  
615/281-5371  
Send Samples Here.

## COMPLETE MINERAL ANALYSIS

| GENERAL INFORMATION               |                                | WELL DATA                   |
|-----------------------------------|--------------------------------|-----------------------------|
| TOWN <u>Edgewood</u>              | COUNTY <u>Clayton/Delaware</u> | Well Number <u>85-1</u>     |
| REPORT TO: <u>Daniel Helle</u>    | DATE <u>9-5-85</u>             | Date of Construction _____  |
| <u>City of Edgewood</u>           | RECEIVED: <u>9-5-85</u>        | Depth <u>1217</u> ft.       |
| <u>Edgewood</u> , IA <u>52042</u> | (Zip)                          | Hours Pumped <u>307</u>     |
| Laboratory Number <u>5-19111</u>  | Mineral Number _____           | Rate Pumped <u>136</u> gpm. |

## FIELD DATA

Collector's Name Daniel Helle Date of Collection 9-3-85 Date of Previous Sample \_\_\_\_\_

Source of Sample New Well - Jordan Sampling Point: at well

Was sample free of Turbidity when collected? ☒ Yes ☐ No Temperature 14 °C

Was Polyphosphate used? ☐ Yes ☒ No Alkalinity mg/liter as CaCO<sub>3</sub> P \_\_\_\_\_ T \_\_\_\_\_

pH 7.7 Specific Conductance @ 25°C (77°F) \_\_\_\_\_ micromhos.

## LABORATORY ANALYSIS

Specific Conductance @ 25°C (77°F) 530 micromhos. pH(s) 7.55 Langelier Index 0.05

Soluble Iron 0.18 mg/L Total Iron 0.18 mg/L Silica (SiO<sub>2</sub>) 7.8 mg/L pH 7.6

Filterable Residue 285 mg/L @103°C. Total Residue 285 mg/L @103°C. Hardness as CaCO<sub>3</sub> 220 mg/L

Alkalinity as CaCO<sub>3</sub> P none mg/L T 229 mg/L Hardness as CaCO<sub>3</sub> 12.9 gpg

## CATIONS: (mg/liter)

Potassium 8.6  
Sodium 20  
Calcium 50  
Magnesium 23  
Manganese <0.01

## TRACE METALS: (mg/liter)

Arsenic <0.01 Silver <0.01  
Barium 0.1 Zinc <0.01  
Cadmium <0.001 Nickel \_\_\_\_\_  
Chromium <0.01 Strontium \_\_\_\_\_  
Copper <0.01 Aluminum \_\_\_\_\_  
Lead <0.01 \_\_\_\_\_  
Mercury <0.001 \_\_\_\_\_  
Selenium <0.01 \_\_\_\_\_

## PESTICIDES: (mg/liter)

Chlorinated Hydrocarbons:

Organophosphates and Carbamates:

## ANIONS: (mg/liter)

Nitrate <0.1  
Fluoride 0.8  
Chloride 1.5  
Sulfate 49  
Bicarbonate 279  
Carbonate 0

## RADIOACTIVITY: (picocuries/liter)

Gross Alpha \_\_\_\_\_  
<sup>226</sup>Radium \_\_\_\_\_  
<sup>228</sup>Radium \_\_\_\_\_  
Gross Beta \_\_\_\_\_  
<sup>90</sup>Strontium \_\_\_\_\_

## HERBICIDES:

COMMENTS:

## ORGANICS:

Date of Preliminary Report \_\_\_\_\_

Date of Final Report OCT 07 1985