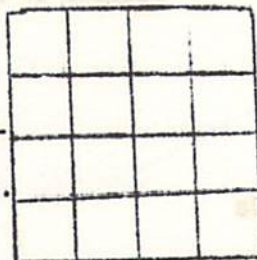


IOWA GEOLOGICAL SURVEY  
In Cooperation with U. S. Geological Survey  
RECORD OF WELL

Location:

Town: Iowa City (NE) (SW) County Johnson (E)



Nw/4 Sec 5e Se sec. 15 T. 80 N., R. 6 (W) Twp.

Well name and number Lakeview KnollsOwner Franz Const Co Address Iowa City

Tenant \_\_\_\_\_ Address \_\_\_\_\_

Contractor DE Edwards Address West Branch

Drillers \_\_\_\_\_

Drilling dates July 1962

Well data:

Altitudes: Drilling curb 787 feet; Land surface 785 feet above  
sea level

Determined by Surveyor's levelTopographic position side hill - just below crestTotal depth: Reported 268 feet; Measured \_\_\_\_\_ feetDrilling method Rotary

Hole and casing data Drilled 5" hole to 268, reamed to 12" to 212'  
and 8" to 238'. Pumped @ 92 gpm, acidized with 559 carboys  
of acid, pumped @ 170 gpm, then back washed. Final pumping  
test 26 July - data in files

Original depth to water 8916 ft. <sup>above</sup> below curb Date 29 July 1962

Source of data obs & driller rept.

Sources of water: Principal 21B

Others \_\_\_\_\_

### PRODUCTION DATA

Date 26 July 1962

Static water level 89.16

Pumping water level 182.30 after 1 hr 56 min

Yield (g.p.m.) 200 gpm

Measuring point top casing

Duration of pumping 1 hr 56 min

Specific capacity \_\_\_\_\_

### LABORATORY DATA

Well No. W 13711 Sample range 67-249 No. of samples 21

No. of dupls. and cond. 21 Good Washed range 67'-249'

Samples prepared by Di Mambro Date 8/1/62

Logged by \_\_\_\_\_ Date \_\_\_\_\_

Correlations by \_\_\_\_\_ Date \_\_\_\_\_



STATE HYGIENIC LABORATORY, DES MOINES BRANCH  
WATER LABORATORY DIVISION  
MINERAL ANALYSIS

LAB. NO. 235  
MINERAL NO. 3698  
2 October 19 62

TOWN Iowa City COUNTY Johnson  
OWNER OF SUPPLY Franz Construction Company  
COLLECTOR'S NAME Iowa Geological Survey - R1  
DATE COLLECTED 26 July 1962 DATE RECEIVED 30 July 1962  
REPORT TO: NAME Iowa Geological Survey  
ADDRESS Geology Annex

FIELD DATA

SOURCE: WELL NAME, NUMBER, POINT OF COLLECTION, DEPTH, CONSTRUCTION DATE, ETC.,  
Lake View Knolls Subdivision (Franz Const. Co.)  
Well #1  
WELL PUMPED 6 1/4 HRS. AT 1-200 GPM. DATE OF PREVIOUS SAMPLE \_\_\_\_\_  
WAS SAMPLE FREE OF TURBIDITY WHEN COLLECTED Yes  
TEMPERATURE °C 53 F ALKALINITY (ppm CaCO<sub>3</sub>) P \_\_\_\_\_ T \_\_\_\_\_ pH \_\_\_\_\_  
IS A POLYPHOSPHATE BEING USED? \_\_\_\_\_

LABORATORY ANALYSIS  
(PARTS PER MILLION)

SPECIFIC CONDUCTANCE K AT 25°C 113 x 10<sup>-5</sup> TURBIDITY \_\_\_\_\_  
DISSOLVED SOLIDS 936 SOLUBLE IRON (Fe) 2.3  
TOTAL SOLIDS 936 SILICA (SiO<sub>2</sub>) 13.6 TOTAL IRON (Fe) 2.3  
ALKALINITY (ppm CaCO<sub>3</sub>) P None T 404 pH 7.0 DATE 30 July 1962

POSITIVE IONS

K<sup>+</sup> 3.4  
Na<sup>+</sup> 23.2  
Ca<sup>++</sup> 154  
Mg<sup>++</sup> 64.4  
Mn<sup>++</sup> 0.12  
Al<sup>+++</sup> \_\_\_\_\_

NEGATIVE IONS

NO<sub>3</sub><sup>-</sup> as N 0.7  
F<sup>-</sup> 0.25  
Cl<sup>-</sup> 150  
SO<sub>4</sub><sup>--</sup> 89.7  
HCO<sub>3</sub><sup>-</sup> 493  
CO<sub>3</sub><sup>--</sup> None

IOWA GEOLOGICAL SURVEY

OCT 3- 1962

HARDNESS AS CaCO<sub>3</sub> 650 ppm 38.0 gpg

Cloudy, yellow on receipt in lab.

*Copy to Franz*

ANALYST Pierson, Ebert, Ryan

R. L. MORRIS  
PRINCIPAL CHEMIST

bw

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## GROUND-WATER CONDITIONS AT LAKEVIEW KNOLLS ON CORALVILLE RESERVOIR

The following statements represent an interpretation of the available data in the files of the investigations of the Iowa and Federal Geological Surveys.

Lakeview Knolls overlooks the Coralville reservoir from the east side of the Iowa River and just upstream from the Coralville dam. Most of the property occurs on high ground in the SE $\frac{1}{4}$  sec. 15, T. 80 N., R. 6 W., Johnson County. The surrounding topography consists of typical Kansan drift terrain with the ridges and divides much dissected. A variable thickness of loess mantles the drift deposit. According to the Iowa City topographic sheet, the contemplated drilling site will have a starting elevation of 790 feet above sea level. The following is a generalized log of the anticipated underlying formations down to the top of the Maquoketa shale:

| <u>Formation</u>                                                                                       | <u>Thickness(ft)</u> | <u>Depth Range(ft)</u> |
|--------------------------------------------------------------------------------------------------------|----------------------|------------------------|
| <b>Quaternary system</b>                                                                               |                      |                        |
| Pleistocene series (loess at top, underlain by glacial drift, might include some sand and gravel beds) | 75 $\pm$             | 0-75 $\pm$             |
| <b>Devonian system</b>                                                                                 |                      |                        |
| Cedar Valley limestone                                                                                 | 100                  | 75 $\pm$ - 175         |
| Wapsipinicon formation (limestone and dolomite, basal 15 feet contains chert, shale and sand)          | 55                   | 175-230                |
| <b>Silurian system</b>                                                                                 |                      |                        |
| Niagaran series (dolomite)                                                                             | 170                  | 230-400                |
| Alexandrian series (cherty dolomite, thin silty zone at base)                                          | 75                   | 400-475                |
| <b>Ordovician system</b>                                                                               |                      |                        |
| Maquoketa shale                                                                                        |                      | 475-                   |

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## **Coralville Reservoir --- 2**

Some adjustments may be necessary on all these depth figures owing to local variations in the structure and thickness of the formations.

Only small water supplies, sufficient for farm or household use, are expected from the glacial deposits. A 200 foot well reportedly was put down on this property in past years, but no record is available on the strata encountered. Very likely this well stopped in the Devonian rocks.

Wells completed in the Devonian strata in the Iowa City area are capable of producing moderate quantities of water depending on the presence of large crevices which will permit the water to move toward the pumped well. Where these openings are absent or too small, the yields will be disappointingly low. There is some possibility that the proximity of the well to the reservoir will result in a larger yield from the Devonian rocks than normally could be obtained because high water levels in the reservoir will recharge the permeable limestone within a limited zone near the river. The presence of such favorable conditions will have to be determined by drilling and pump testing. Acidizing the limestones might also appreciably increase the yield. At some wells excessive iron has been found in the Devonian waters that might be troublesome. At other wells iron has been introduced into the well by poor drilling methods. A competent driller will arrange to thoroughly chlorinate the well during the final drilling stages to assure that the well is free from bacteria.

Many wells in Iowa City and vicinity penetrate the underlying Silurian dolomite and obtain larger yields than found in the Devonian formations. The Riverview housing unit well located southeast of Lakeview Knolls on the west side of the river penetrated 78 feet into the Silurian dolomite and developed 200 to 265 g. p. m. with a drawdown of less than 40 feet. Other wells in Iowa City belonging to the University produce as much as 400 to 500 g. p. m. from the Silurian rocks. The best results usually are obtained in wells that penetrate the full thickness of the Silurian down to the top of the Maquoketa shale. Most of these wells are cased and cemented from the surface into the top of the Silurian to shut out the overlying shaly zone at the base of the Wapsipinicon. This is also considered a precautionary step to close out any iron-bearing waters that might be present locally in the Cedar Valley and Wapsipinicon formations. The yield might be increased considerably by acidizing the water zones. It is difficult to predict whether as much as 700 g. p. m. can be obtained from a single well. More likely two Silurian wells, properly spaced to prevent interference, will be needed to produce this much water. Actual drilling and test pumping will provide the most reliable information on the water potential of the Silurian aquifer.

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**Coraville Reservoir --- 3**

Several water zones should occur in the strata below the Maquoketa shale, but the next promising formation for a large capacity well, probably will be the Jordan sandstone -- St. Lawrence dolomite sequence at a depth beginning about 1450 feet below the surface.

To sum up, this report indicates that the Silurian dolomite aquifer down to the top of the Maquoketa shale at an estimated depth of 475 feet will be the most promising source for a reasonably large production well at the least depth. However, the overlying Devonian limestones might also yield large quantities of water owing to the influx of surface water from the bed of the nearby reservoir. Objectionable concentrations of iron have been found in the Devonian waters at some wells. A well to the Jordan -- St. Lawrence aquifer should yield upwards of several hundred gallons a minute. Mineral analyses indicate that the water from the various formations discussed here will be acceptable for drinking.

**PJH 9/59**