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# AQUIFER TEST AT COMORE LOMA WELL #4, IDAHO FALLS, IDAHO

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## DISCLAIMER

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AQUIFER TEST AT COMORE LOMA WELL #4, IDAHO FALLS, IDAHO

## ABSTRACT

An aquifer test was conducted at Comore Loma Well #4 to determine the aquifer hydraulic characteristics at this location on July 11 and 12, 1991. Water was withdrawn from Comore Loma Well #4 at approximately 850 gallons per minute for 8 hours while monitoring the water level in the pumping well and an observation well 930 ft away. The pumped well showed over 12 ft of drawdown with no discernable drawdown in the observation well. The drawdown in the pumped well was nearly instantaneous, showing little additional drawdown after 1 minute. The transmissivity was calculated to be approximately 140,000 $ft^2$/day using the Jacob solution. This gives a hydraulic conductivity of 1300 ft/day for the 110 ft interval tested. The high transmissivity and geologic setting suggest the aquifer may in part produce water from the Snake River Plain aquifer. However, the warm water temperature (71°F) indicates the presence of a geothermal source typical of the foothills aquifer. The storage coefficient could not be calculated since no water level decline was detected in the observation well.

# AQUIFER TEST AT COMORE LOMA WELL #4, IDAHO FALLS, IDAHO

## 1. INTRODUCTION

Comore Loma Well #4 was drilled at the Comore Loma subdivision, approximately 5 miles east of Idaho Falls, in June 1991. The well is intended to serve as a large capacity water supply well for the subdivision. An aquifer test was conducted July 11 and 12, 1991 to estimate the transmissivity and hydraulic conductivity of the aquifer. A short step test with flow rates of 270 to 850 gallons per minute was performed and then the water level was allowed to recover to static conditions. The well was pumped with a submersible pump at a rate of 850 gallons per minute for 8 hours. The pump was turned off and the water level recovery measured. Appendix A contains the test plan for the pumping test.

## 2. LOCAL HYDROGEOLOGY

Comore Loma is located on the eastern edge of the Snake River Plain (SRP) in the foothills east of Idaho Falls (Figure 1). This area is located approximately 160 ft above the SRP. The area is locally covered with surficial sediments composed primarily of loess. Outcrops of volcanic ash flow deposits and rhyolite can be found in the perennial stream channels near this location.

The geology of this area indicates the wells are near the contact of Snake River Plain basalt (covered with sedimentary deposits) and Tertiary age felsic volcanics, primarily ash flow tuffs and rhyolite (Bond and Wood, 1978). The SRP aquifer consists primarily of numerous thin basalt flows interlayered with sedimentary layers and ash flows. The exact location of the contact between the rhyolite and basalt is unclear, but it is probably at the contact of the foothills and the Plain. The geology of the well site is composed of ash flows, rhyolite, and basalt flows, based on information contained in the driller's logs. Proskta and Embree (1978) suggest the area immediately north of this site is a caldera, and if their mapped area was extended south, the Comore Loma site would probably be included in this area.

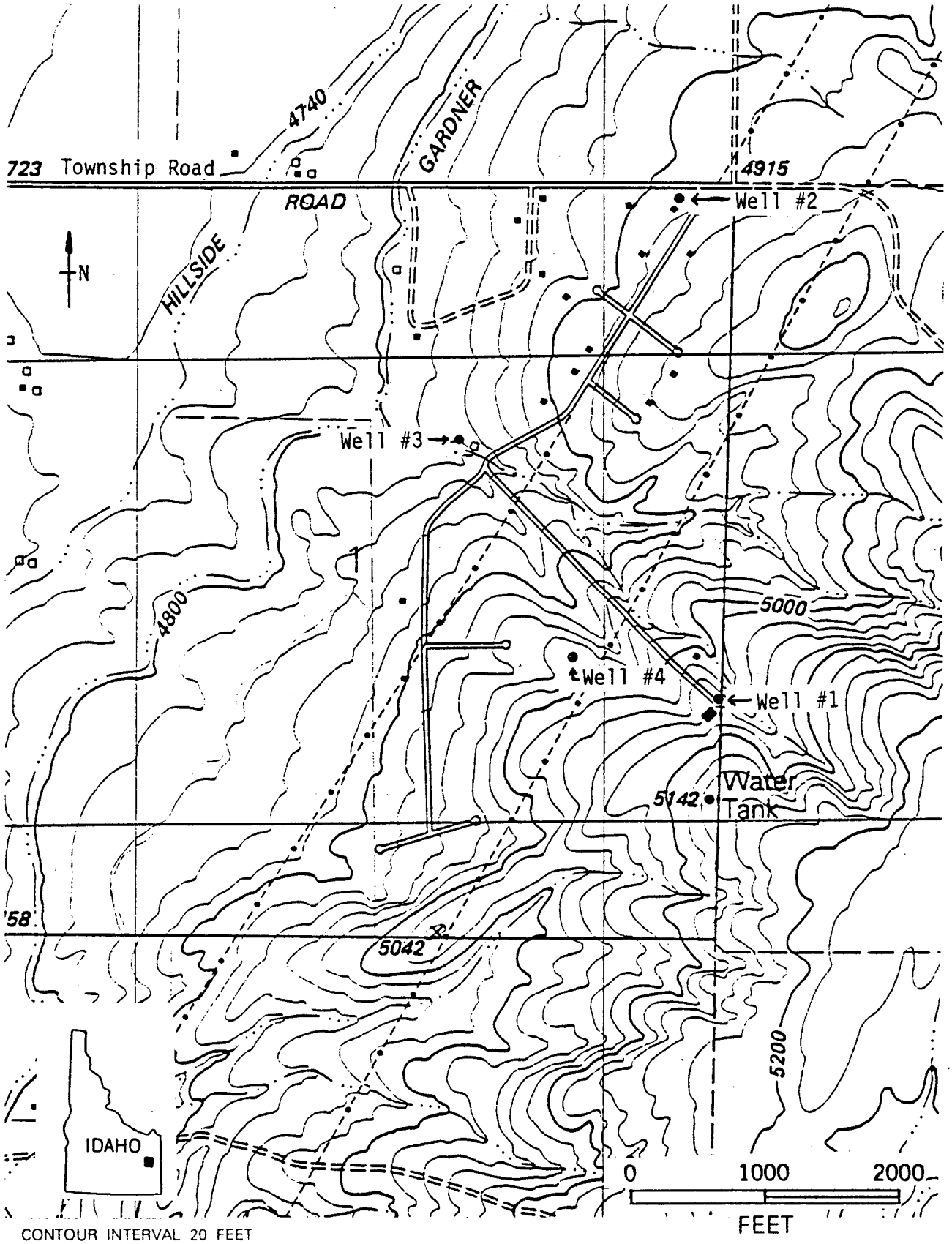



**Figure 1.** Location of wells.

Four wells are located in the vicinity of Comore Loma subdivision (Comore Loma #1 through #4). All of these wells have been installed for water production for the subdivision. Information from the driller's logs was used to generate a geologic cross section (Figure 2). Copies of the existing drillers logs are included in Appendix B. Water was encountered at a depth of 308 ft in well #4. The water levels in the other 3 wells appear to be at the same elevation. Elevations have not been surveyed, so this data is taken from topographic maps.

## 3. WELL INSTALLATION AND COMPLETION

Comore Loma #4 was drilled with an air rotary drill rig using water and polymer to remove cuttings while drilling. The completion diagram is presented in Figure 3. The driller's log indicated that the well made approximately 15 gpm of water at 335 ft, 10 gpm at 351 ft, 50-60 gpm at 415 ft, and then flow increased slowly to 491 ft. The remaining water was made from the 491 to 512 ft interval. The majority of the water came from firm and broken rhyolite at this interval. The well has a total depth of 512 ft with 12 in casing to 280 ft and 10 in casing to 490 ft. Two ten foot lengths of 10 in slotted casing are located from 400 to 410 ft and 480 to 490 ft depth. The 10 inch slotted casing is factory built with four inch long slots, 1/4 inch wide, with 10 slots around the casing, and three lengths of slots per ft. From 410 ft to 480 ft the well has torch cut slots, with 6 slots around the casing, 1/4 inch openings, four inch lengths, and two slots per ft. The well is open at the bottom of the well from 490 to 512 ft. The geology of the saturated zone is described as rhyolite to 311 ft, basalt from 311 to 321 ft, rhyolite to 408 ft, basalt to 421 ft, pumice to 491 ft, and then rhyolite to the bottom of the well to 512 ft.

A 110 horse power Pleuger submersible motor (Model V1080) with a four stage pump was placed in the well at a depth of 437 ft. Six inch casing was used to transport water to land surface. A six inch orifice and manometer were used to measure outflow from the well. Flow measurements were made every 1/2 hour. A 100 psi transducer was placed at approximately 428 ft depth and a 20 psi transducer was placed at approximately 338 ft depth. Both transducers

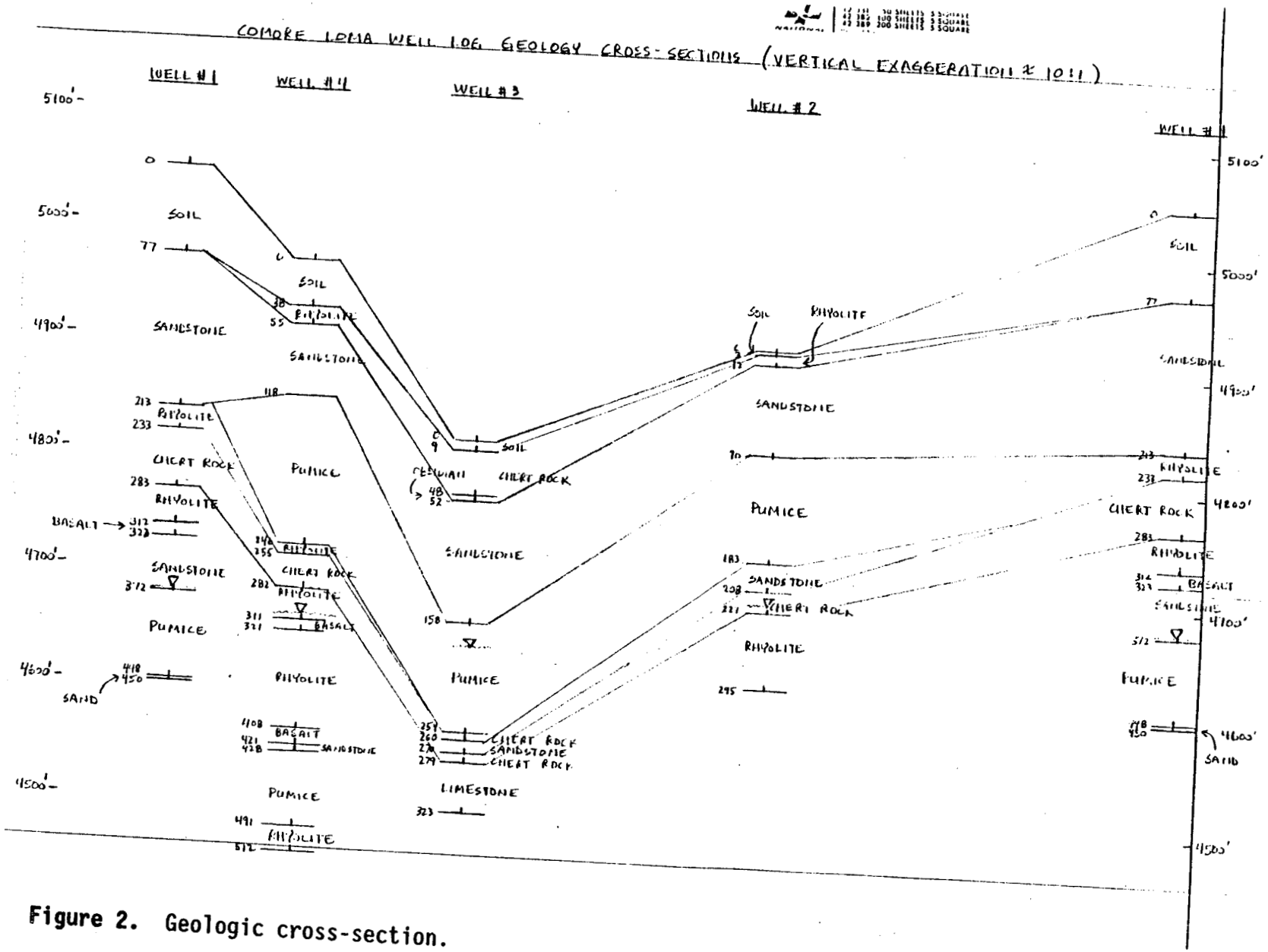



**Figure 2.** Geologic cross-section.

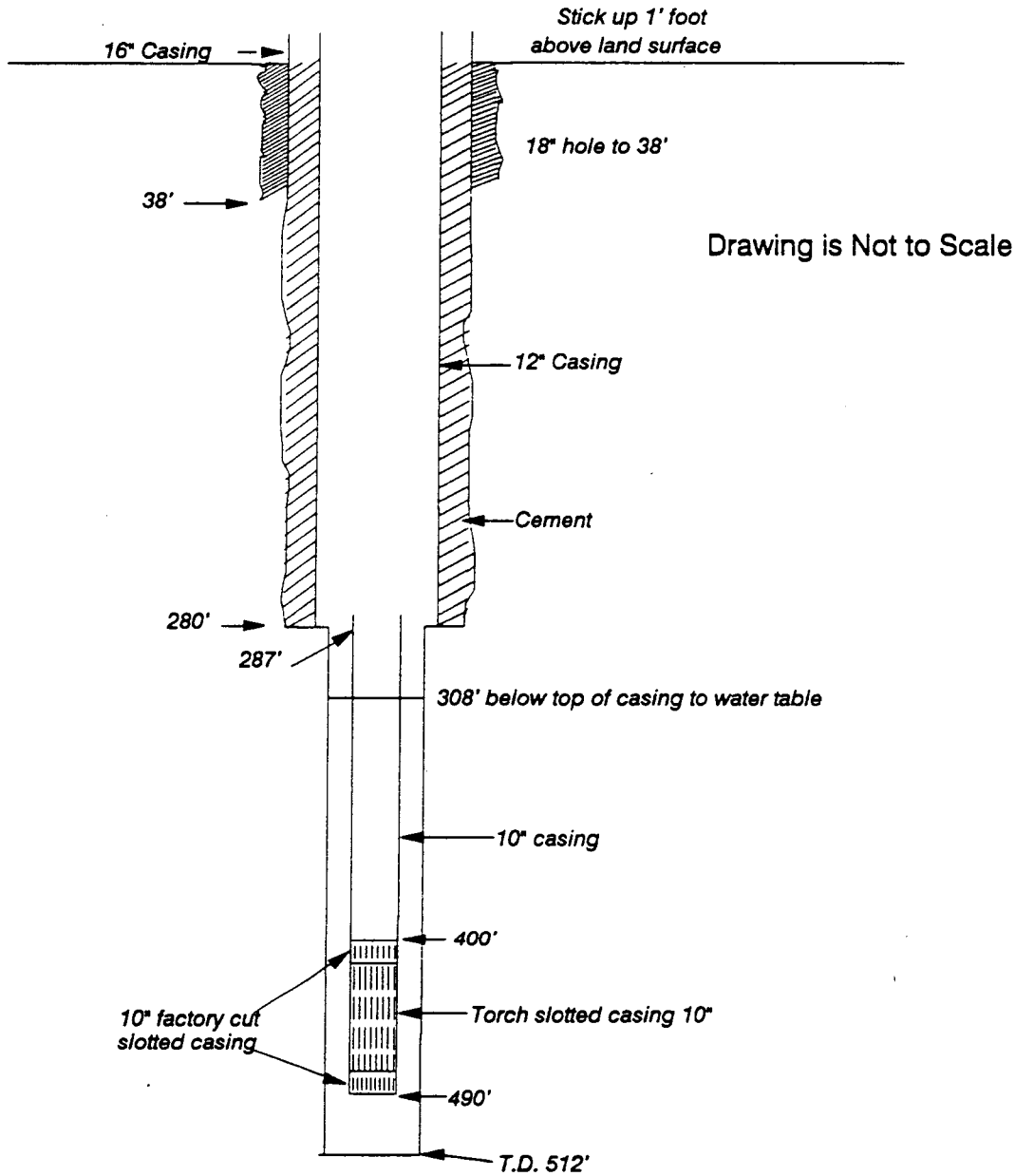



**Figure 3.** Well construction Comore Loma #4.

were used to monitor the water level changes during all the subsequent tests. The static water level was measured at 308.26 ft below the top of the casing at the start of the test.

The well was undisturbed for approximately seven hours following installation of the pump, then pumped for 1/2 hour at various pumping rates to test the equipment and set the pumping rate. Data from the 1/2 hour test are included in Appendix C. The well was allowed to recover for 1/2 hour and then the long term test was run at a constant outflow of 850 gpm for eight hours. The eight hour test data are included in Appendix D. The water level recovery was monitored when pumping was stopped (Appendix E).

Water level measurements were recorded from the two transducers for all portions of the tests. Only data from the 20 psi transducer is presented since this transducer gives more accurate data than the 100 psi transducer. Data from both transducers showed general agreement in the readings. Water level in well #1 was recorded during the pumping portion of the test to detect any water level response at this well. A Power's electric water level sounder was used to measure the water level. No appreciable water level change was detected in well #1. Well #1 is located 65 ft higher and approximately 930 ft to the east of well #4.

## 4. AQUIFER TEST DATA ANALYSIS

Data from the pumping and recovery tests is plotted in Figures 4 and 5. A transmissivity of 140,000 $ft^2$/day was calculated using late data in Jacob's solution for both the pumping and recovery tests. The hydraulic conductivity is 1,300 ft/day based on a screened interval of 110 ft. Theis curve matching techniques did not work for these analyses due to the small amount of additional drawdown after the first few minutes of pumping and recovery. A storage coefficient could not be determined because no drawdown was detected in the observation well.

Early data (first one min pumping and two min for recovery) was not used for either test analysis. Early data for the pumping test is not usable

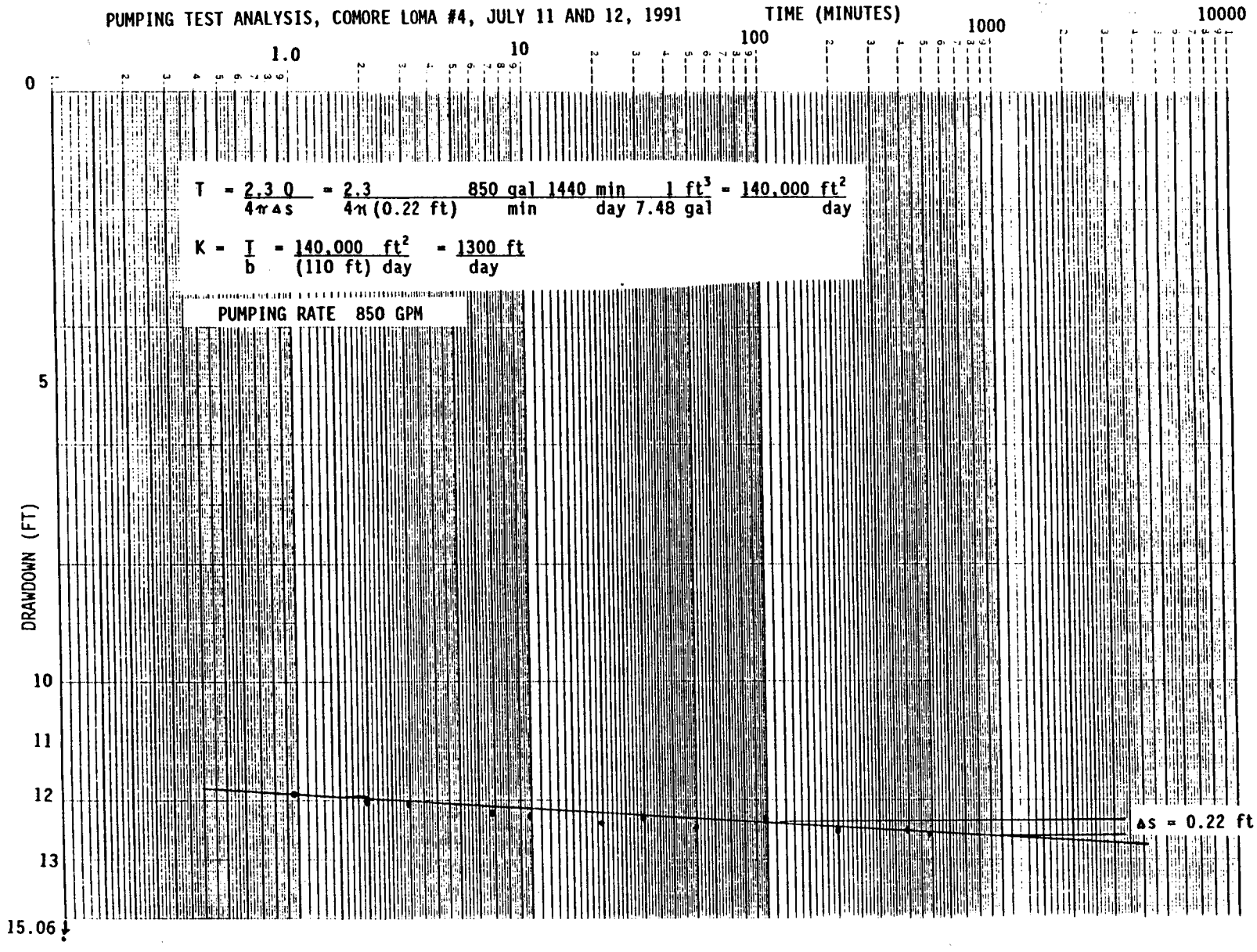



**Figure 4.** Drawdown versus time, pumping test.

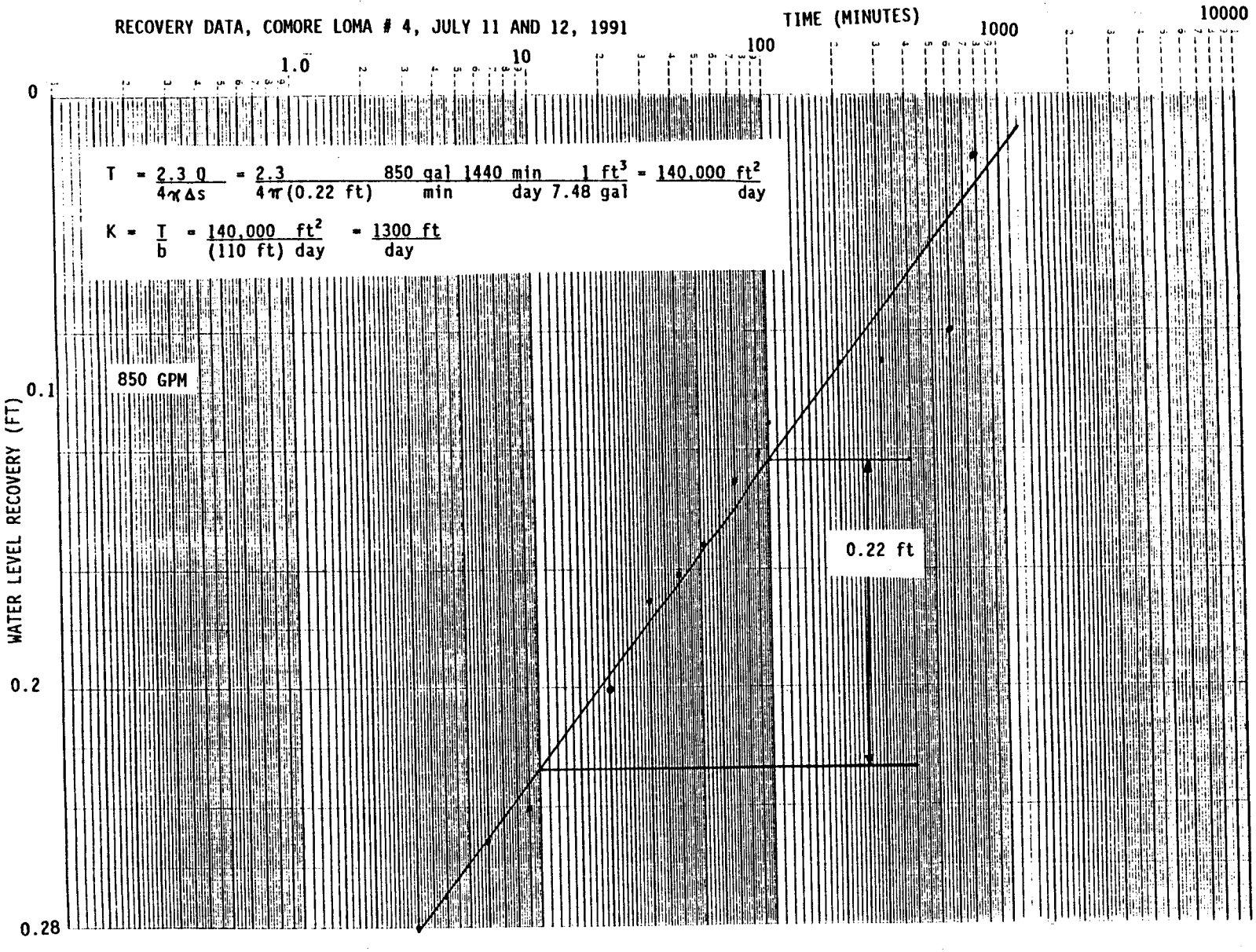



**Figure 5.** Drawdown versus time, recovery test.

because the pump withdraws water at a much higher flow rate at the start of the test because the pump column has not filled with water. Therefore, the higher pumping rate produces more drawdown for the first minutes of the test.

Early data from the recovery test shows the influence of recharge to the aquifer because there were no check valves in the pump column to prevent water from moving from the pump column back into the aquifer. This affects the water level in the well for a few minutes at the start of the recovery test. After a few minutes, the water level represents the true aquifer response, and the data can be used to calculate transmissivity.

The specific capacity was calculated for five pumping rates (Table 1). The specific capacity decreases by a factor of 2.4 as the pumping rate increases. The specific capacity was used to estimate a transmissivity of 15,000 to 36,000 $ft^2$/day (Driscoll, 1986). These estimates are much lower than those determined by the more reliable methods used above.

**Table 1.** Specific capacity for pumping rates between 270 and 850 gpm.

| Pumping Rate (gpm) | Drawdown (ft) | Specific Capacity (gpm/ft) |
|---|---|---|
| 270 | 1.59 | 169 |
| 378 | 2.82 | 134 |
| 530 | 5.33 | 99 |
| 750 | 9.57 | 78 |
| 846 | 12.51 | 67 |

A water sample was collected toward the end of the pumping test. The sample had a conductivity of 800 micromhos/cm @ 25°C. In comparison tap water in Idaho Falls has a conductivity of approximately 500 micromhos/cm. The water from this well is slightly harder than the water available in Idaho Falls. This conductivity is similar to those measured in the Rim Rock area. Water temperature was measured at 71°F during the pumping test. This temperature is higher than normally measured in the Snake Plain Aquifer water.

Measurements at the INEL range from 50 to 66 with an average of 56°F (Nace et al., 1959). The foothills region (Rim Rock Subdivision) east of Idaho Falls is known to have wells with temperatures in the 70 to 80 °F range (Hubbell, 1981). This may be due to hot waters rising along faults or higher subsurface temperatures due to residual heat of volcanism.

## 5. CONCLUSIONS

This test was conducted to measure the hydraulic properties of the aquifer near the Comore Loma site and to determine if this site is located over the Snake River Plain Aquifer. Results from the test are conflicting, in that the aquifer properties measured from the test indicate the transmissivity is comparable to those values measured in the the Snake River Plain Aquifer but the temperature data suggest the water is from the foothills aquifer. Comore Loma well #4 is probably located on the edge of the Snake River Plain aquifer with characteristics of both aquifers.

## 6. REFERENCES


1. Bond, J. G. and C. H. Wood, 1978. Geologic Map of Idaho, Idaho Department of Lands, Bureau of Mines and Geology.

2. Driscoll, F. G., 1989. Groundwater and Wells, Johnson Filtration Systems Inc., St. Paul, Minnesota, Third Printing, 1089 p.

3. Hubbell, J. M., 1981. Description of Geothermal Systems in the Vicinity of the Caribou Range, Southeastern Idaho, M.S. Thesis, University of Idaho, Moscow, Idaho, 105 p.

4. Nace, R. L., J. W. Stewart, W. C. Walton and others, 1959. Geography, Geology and Water Resources of the National Reactor Testing Station, Idaho, Part 3. Hydrology and Water Resources, IDO-22034-USGS-PT3.

5. Prostka, H. J. and G. F. Embree, 1978. Geology and Geothermal Resources for the Rexburg Area, Eastern Idaho, U.S.G.S. Open-file Report 78-1009, 14p.

# APPENDIX A
# AQUIFER TEST PLAN PROCEDURES

# Test Plan Comore Loma Aquifer Test
July 1, 1991

## Introduction

The Comore Loma site is located approximately 5 miles east of Idaho Falls in the foothills. One of the proposed sites for the Bonneville county landfill is located approximately 1/2 mile to the east of the aquifer test site. A pump test will be performed on the new Comore Loma well #4 while monitoring the Comore Loma well #1, located approximately 900 ft to the east of the test well.

## Aquifer Test Design

A submersible pump will be placed in the well with a 100 psi transducer attached to the riser pipe. The transducer will be set 10 ft above the submersible pump at a depth of 70 ft below the water table (the transducer set at 377 ft bls). Another 20 psi transducer will be placed approximately 35 ft below the water table. The anticipated drawdown in the pumping well is approximately 10 to 15 feet. The submersible pump has a rated capacity of approximately 800 gpm. A 10 psi transducer is planned to be placed in the observation well (Comore Loma #1) at a depth of 15 ft below the water table (391 ft bls). Anticipated drawdown is very small because the observation well is located approximately 900 ft from the pumping well. All equipment in contact with water in the well will be sprayed off with a high pressure steam cleaner and rinsed with methanol.

## Initial set up and collection of antecedent trend.

Pumping well - The 0 - 100 psi transducer will be attached to the riser pipe above the submersible pump while the pump is being installed. The transducer will be placed a couple of feet above the pump. The pump will be set at an approximate depth of 387 ft below land surface, 80 ft below the water table. The maximum pressure rating for the transducer is 231 ft of water. The transducer will be placed at a depth of 70 ft below the water table. A second transducer will be placed at a depth of 35 feet below the water table. This transducer will be used to measure the water level if the well shows little drawdown from the pumping. The lead wire should be taped every 10 ft to the riser pipe to prevent problems. The data logger will be set up to collect data on five minute intervals to provide an antecedent water level trend in the well. The depth to water will be measured to reference the depth of water measured by the transducer (if possible).

Observation well - The depth to water will be measured in Comore Loma well #1 and the pump turned off until after the aquifer test is completed. A 1.25 in flush coupled guide pipe will be run in the well and hung to a depth of 30 ft below the water table. The 0 to 10 psi transducer will be lowered to 15 ft below the water table. The data logger will be set up to collect water level measurements on 5 minute intervals.

Data from the pumping well data logger will be down loaded for the

antecedent trend prior to starting the pumping test. The data logger in the observation well will run continuously from when it is installed to following the recovery test.

**Pumping Test**

Following installation of the submersible pump the pump will be started and run for approximately an hour to test the system, check the flow rate, and initially measure the response in the well, for adjusting the pumping rate. Water discharge rate will be recorded by an in-line orifice and manometer. A valve will be located near the pump to allow the flow rate to be regulated to approximately 90% of total flow. The valve will be used to restrict the flow rate slightly. As the pumping head increases, the valve can be opened to keep the flow rate constant.

Following down loading of the antecedent trend data from the pumping well, the data logger will be set up to collect data for the pumping test. The data logger will be started a second prior to starting the 8 hour test. The flow rate should not vary more than 10% over the pumping test. Hermit data loggers will collect the water level data from the wells during the pumping test. The discharge rate should be checked, recorded, and adjusted as necessary at 10 minute intervals for the first hour, then on 1 hour intervals to keep the pumping rate with 10% of the starting rate.

**Recovery Test**

The well will be pumped for 8 hours and then the pumping well data logger downloaded and data recorded prior to stopping the test. The data logger will be reset and then the pump turned off and the valve closed to slow water moving down the pump column.

**Equipment supplied by EGG**

Pumping well - Hermit #356, 0 - 100 psi Druck transducer
0 - 20 psi Druck transducer

Observation well - Hermit #646, 0 - 10 psi Druck transducer (rated to 23 ft)
Guide pipe 1.25 in diameter flush coupled, 400 ft

Transit and Surveying rod (stadia), Steel tape 300 ft

Solinst water level tape, 600 ft length.

# APPENDIX B
# DRILLER'S LOGS

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

# WELL DRILLER'S REPORT

RECEIVED
Department of Water Resources
District Office

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

**1. WELL OWNER**

Name Dick Skidmore Well No. 1

Address Route 3 Box 47A Idaho Falls, Idaho

Owner's Permit No.

**2. NATURE OF WORK**

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

**3. PROPOSED USE**

☑ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

**4. METHOD DRILLED**

☐ Cable ☒ Rotory ☐ Dug ☐ Other

**5. WELL CONSTRUCTION**

Diameter of hole 10 inches Total depth 450 feet

Casing schedule: ☒ Steel ☐ Concrete

| Thickness | Diameter | From | To |
|---|---|---|---|
| .250 inches | 8 inches | + 1 feet | 230 feet |
| inches | inches | feet | feet |
| inches | inches | feet | feet |
| inches | inches | feet | feet |
| inches | inches | feet | feet |

Was casing drive shoe used? ☐ Yes ☒ No

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation inches by inches

| Number | From | To |
|---|---|---|
| perforations | feet | feet |
| perforations | feet | feet |
| perforations | feet | feet |

Well screen installed? ☐ Yes ☒ No

Manufacturer's name

Type Model No.

Diameter Slot size Set from feet to feet

Diameter Slot size Set from feet to feet

Gravel packed? ☐ Yes ☒ No Size of gravel

Placed from feet to feet

Surface seal depth 20 Material used in seal ☐ Cement grout

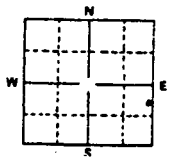
Bentonite ☑ Puddling clay ☐ Well cuttings

Sealing procedure used ☐ Slurry pit ☐ Temporary surface casing

☑ Overbore to seal depth

**6. LOCATION OF WELL**

Sketch map location must agree with written location.




Subdivision Name

Lot No. Block No.

County Bonneville

NE ¼ SE ¼ Sec. 1 T. 1 N. S. R. 38 E. W.

**7. WATER LEVEL**

Static water level 370 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow

Temperature ° F. Quality Good

Artesian closed-in pressure p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

**8. WELL TEST DATA**

☐ Pump ☐ Bailer ☐ Other

| Discharge G.P.M. | Draw Down | Hours Pumped |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**9. LITHOLOGIC LOG**

| Hole Diam. | Depth From | Depth To | Material | Water Yes | Water No |
|---|---|---|---|---|---|
| 10 | 0 | 77 | Brown Soil | | |
| | 77 | 213 | Sandstone and Pumice | | |
| | 213 | 233 | Brown Riolite | | |
| | 233 | 283 | Hard Gray Chert Rock | | |
| | 283 | 310 | Firm Brown Riolite | | |
| | 310 | 312 | Broken Brown Riolite | | |
| | 312 | 323 | Firm Gray Basalt | | |
| | 323 | 338 | Black Sanstone | | |
| | 338 | 372 | Brown Sandstone | | |
| | 372 | 448 | Firm Pumice | x | |
| 10 | 448 | 450 | Black Sand | x | |

**10.**

Work started Oct. 26, 1973 finished Oct. 31, 1973

**IL DRILLERS CERTIFICATION**

Firm Name Andrew Well Drilling Contr. Firm No. 5

Address 1268 East 17th Street Date 1-30-75
Idaho Falls, Idaho 83401

Signed by (Firm Official)

and

(Operator)

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

State of Idaho
Department of Water Resources

# WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

**WELL OWNER**

Name Dick Skidmore Well No. 2

Address Route 3 Box 478 Idaho Falls, Idaho

Owner's Permit No. _____

**NATURE OF WORK**

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

**PROPOSED USE**

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

**METHOD DRILLED**

☐ Cable ☒ Rotary ☐ Dug ☐ Other

**WELL CONSTRUCTION**

Diameter of hole 10 inches Total depth 295 feet

Casing schedule: ☒ Steel ☐ Concrete

| Thickness | Diameter | From | To |
|---|---|---|---|
| .250 inches | 8 inches | + 1 feet | 198 feet |
| _____ inches | _____ inches | _____ feet | _____ feet |
| _____ inches | _____ inches | _____ feet | _____ feet |
| _____ inches | _____ inches | _____ feet | _____ feet |
| _____ inches | _____ inches | _____ feet | _____ feet |

Was casing drive shoe used? ☐ Yes ☐ No

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

| Number | From | To |
|---|---|---|
| _____ perforations | _____ feet | _____ feet |
| _____ perforations | _____ feet | _____ feet |
| _____ perforations | _____ feet | _____ feet |

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

Placed from _____ feet to _____ feet

Surface seal depth 20 Material used in seal ☐ Cement grout

Bentonite ☒ Puddling clay ☐ Well cuttings

Sealing procedure used ☐ Slurry pit ☐ Temporary surface casing

☒ Overbore to seal depth

**7. WATER LEVEL**

Static water level [illegible] feet below land surface

Flowing? ☐ Yes ☐ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

**8. WELL TEST DATA**

☐ Pump ☐ Bailer ☐ Other

| Discharge G.P.M. | Draw Down | Hours Pumped |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**9. LITHOLOGIC LOG**

| Hole Diam. | Depth From | Depth To | Material | Water Yes | Water No |
|---|---|---|---|---|---|
| 10 | 0 | 3 | Topsoil | | |
| | 3 | 12 | Broken Brown Rhyolite | | |
| | 12 | 40 | Brown Sandstone | | |
| | 40 | 90 | Sandstone and Pumice | | |
| | 90 | 183 | Pumice | | |
| | 183 | 190 | Brown Sandstone | | |
| | 190 | 200 | Gray Sandstone | | |
| | 200 | 203 | Brown Sandstone | | |
| | 203 | 210 | Hard Chertrock | | |
| | 210 | 227 | Hard Gray Chertrock | | |
| | 227 | 233 | Broken Brown Rhyolite | X | |
| | 233 | 243 | Firm Brown Rhyolite | | |
| | 243 | 250 | Broken Brown Rhyolite | X | |
| | 250 | 270 | Firm Brown Rhyolite | | |
| | 270 | 273 | Broken Brown Rhyolite | X | |
| | 273 | 285 | Firm Brown Rhyolite | | |
| 10 | 285 | 295 | Broken Brown Rhyolite | X | |

**10.**

Work started Nov. 1, 1965 finished [illegible]

**11. DRILLERS CERTIFICATION**

Firm Name [illegible] Firm No. _____

Address [illegible] Date _____

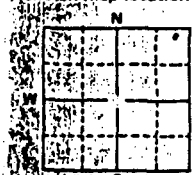
Signed by (Firm Official) [signature]

and

(Operator) [signature]

**LOCATION OF WELL**

Sketch map location must agree with written location.




Subdivision Name Cemora Loma

Lot No. _____ Block No. _____

County Bonneville

NE ¼ NE ¼ Sec. 1 T. 1 N/S, R. 38 E/W

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

# WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

**1. WELL OWNER**

Well # 3

Name Dick Skidmore Comore Loma

Address Rt. 7 Box 33 Idaho Falls, Ida. 83401

Owner's Permit No. _____

**2. NATURE OF WORK**

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning) _____

**3. PROPOSED USE**

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

**4. METHOD DRILLED**

☒ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

**5. WELL CONSTRUCTION**

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

| Thickness | Diameter | From | To |
|---|---|---|---|
| .250 inches | 12 inches | +1 feet | 256 feet |
| _____ inches | _____ inches | _____ feet | _____ feet |
| _____ inches | _____ inches | _____ feet | _____ feet |
| _____ inches | _____ inches | _____ feet | _____ feet |

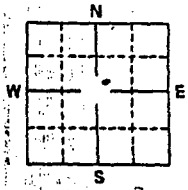
Was casing drive shoe used? ☐ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

| Number | From | To |
|---|---|---|
| _____ perforations | _____ feet | _____ feet |
| _____ perforations | _____ feet | _____ feet |
| _____ perforations | _____ feet | _____ feet |

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☐ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 20+ Material used in seal: ☒ Cement grout
Bentonite ☒ Puddling clay ☐ Well cuttings
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing
☐ Overbore to seal depth
Method of joining casing: ☐ Threaded ☐ Welded ☐ Solvent Weld
☐ Cemented between strata
Describe access port _____

**6. LOCATION OF WELL**

Sketch map location must agree with written location.




Subdivision Name Comore Loma Well # 3
Lot No. 1 Block No. 6
Division # 2
County Bonneville
¼ NE ¼ Sec. 1, T. 1 N/S, R. 38 E/W

**7. WATER LEVEL**

Static water level 176 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature ____ °F. Quality _____

**8. WELL TEST DATA**

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

| Discharge G.P.M. | Pumping Level | Hours Pumped |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**9. LITHOLOGIC LOG**

| Hole Diam. | Depth From | Depth To | Material | Water Yes | Water No |
|---|---|---|---|---|---|
| 16 | 0 | 9 | Topsoil | | |
| 16 | 9 | 48 | Chert Rock Gray | | |
| 16 | 48 | 52 | Obsidion Black | | |
| 16 | 52 | 158 | Brown Sandstone | | |
| 16 | 158 | 254 | White Pumice | | |
| 12 | 254 | 260 | Chert Rock | | |
| 12 | 260 | 270 | Broken Brown Sandstone | | |
| 12 | 270 | 279 | Firm Chertrock | | |
| 12 | 279 | 303 | Broken Limestone | | |
| 12 | 303 | 312 | Hard Limestone | | |
| 12 | 312 | 323 | Broken Limestone | | |

**10.**

Work started 6-29-78 finished 7-2-78

**11. DRILLERS CERTIFICATION**

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Andrew Well Drilling Contractors Firm No. _____
Address 1268 E. 17th St. Idaho Falls, Ida. Date 11-2-78
Signed by (Firm Official) Neal G Andrew
and
(Operator) Neal Andrew

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

HOWARD F. ANDREW
Phone 523-2544

VERL J. ANDREW
Phone 522-2823

# ANDREW WELL DRILLING

*Contractors*

Phone 522-2794

1268 E. 17th St., Idaho Falls, Idaho

Pump and Well Drilling Equipment Installed

PURE DRINKING WATER IS THE ESSENCE OF LIFE, LET US DRILL YOUR WELL, AND YOU WILL BE SATISFIED.

CUSTOMER: Comore Lawn #4 DRILLER: Dale

ADDRESS: RIG NO. 213 Domestic ☒ (16") Industrial ☐ Municipal ☐

DEPTH TO WATER: 307' Irrigation ☐ Test ☐ Other ☐

WELL LOCATION:

LEGAL DESCRIPTION:

| DATE: | RIG TIME: | REMARKS: | FOOTAGE: | FORMATION: |
|---|---|---|---|---|
| 6-5-91 | | Moved RIG To Site | | |
| 6-6 | | Started Drilling | | |
| | | | 0-5 | Soil Brown |
| | | | 5-10 | " " |
| | | | 10-15 | " " |
| | | | 15-20 | " " |
| | | | 20-25 | " " |
| | | | 25-30 | " " |
| | | | 30-35 | " " |
| | | | 35-38 | " " |
| | | Reamed To 16" To get Pipe in | 38-40 | Brown Rhyolite |
| 6-7 | | Set 16" Pipe To 38' | | |
| | | | 40-45 | " " |
| | | | 45-50 | " " |
| | | | 50-55 | " " |
| | | | 55-60 | Dark Gray Sandst |
| | | | 60-70 | Brown Sandstone |
| | | | 70-75 | " " |

USTOMER: Conoco Loma DRILLER: Dale PAGE # 2

| DATE: | RIG TIME: | REMARKS: | FOOTAGE: | FORMATION: |
|---|---|---|---|---|
| -10-91 | | | 75'-80' | |
| | | | 80-85' | |
| | | | 85'-90' | |
| | | | 90-95' | |
| | | | 95-100 | |
| | | | 100-105' | |
| | | | 105-110 | |
| | | | 110-115' | |
| | | | 115-118 | |
| | | | 118-125' | White Pumice |
| | | | 125-130 | |
| | | | 130-135' | |
| | | | 135-140 | |
| | | | 140-145' | |
| | | | 145-155' | |
| | | | 155'-165' | |
| | | | 165'-175' | |
| | | | 175'-185' | |
| | | | 185'-195' | |
| | | | 195'-205' | |
| | | | 205'-210 | |
| | | | 210-220 | |
| | | | 220-230 | |
| | | | 230-240 | |
| | | | 240-246 | |
| | | | 246-250 | Brown Rhyolite |

USTOMER: _____ DRILLER: _____ PAGE # _____

| ATE: | RIG TIME: | REMARKS: | FOOTAGE: | FORMATION: |
|---|---|---|---|---|
| -11 | | | 250-255 | " " " |
| | | | 255-260 | Hard Gray Chert |
| | | | 260-265 | " " " |
| | | | 265-270 | " " " |
| | | | 270-275 | " " " |
| | | | 275-282 | " " " |
| | | Caving Some | 282-290 | Broken Brown Rock |
| | | | 290-295 | Firm " |
| | | | 295-300 | " " |
| | | | 300-305 | " " |
| | | | 305-308 | " " |
| | | | 308-311 | " " |
| | | Got Ready to set 12" Pipe. | ~~311~~ | |
| 6-12 | | Setting 12" Pipe (180') | | |
| 6-13 | | Setting Pipe (260') | | |
| | | Waited for 12" pipe Changed Bit in hammer | | |
| 6-14 | | Finished setting pipe | | |
| | | Cleaned out Cemented pipe in about 6 yrds | | |
| -17. | | Set Drill Stem Started Drilling | 311-315 | Firm Gray Rock |
| | | | 315-321 | " " " |
| | | | 321-325 | Firm Brown Rock |
| | | | 325-330 | Broken " " |
| | | | 330-335 | Firm " |
| | | | 335-340 | Broken " |
| | | Water about 15' from | 340-345 | Firm " |
| | | | 345-351 | Hard " |

JSTOMER: _____ DRILLER: _____ PAGE # _____

| ATE: | RIG TIME: | REMARKS: | FOOTAGE: | FORMATION: |
|---|---|---|---|---|
| | | Water 10 Gpm | 351-360 | Broken " " |
| | | | 360-370 | Firm " " |
| | | | 370-380 | " " " |
| | | | 380-390 | " " " |
| | | | 390-400 | " " " |
| | | | 400-408 | " " " |
| | | | 408-416 | Black Broken Basalt |
| | | Water- 50-60 Gpm | 415-421 | " " " |
| | | | 421-428 | Brown Solid Sanstone |
| | | Water | 428-440 | Pumice " |
| | | " | 440-450 | " " |
| | | " | 450-455 | " " |
| | | " | 455-460 | " " |
| 6-18-91 | | | 460-465 | " " |
| | | | 465-470 | " " |
| | | | 470-475 | " " |
| | | | 475-480 | " " |
| | | | 480-485 | " " |
| | | | 485-491 | " " |
| | | Good Water Broken ~~Sand~~ | 491-495 | Brown Riolite |
| | | ~~[redacted] Drilled~~ | 495-500 | Firm " " |
| 6-19 | | Perforated 10" pipe with torch started setting | | |
| 6-20 | | Set Pipe to Bottom Top of Liner 281 - Bottom 512 | 500-503 | " " " |
| | | | 503-512 | Broken " " |
| | | | | Water |
| | | Air surged 3½ hrs | | |

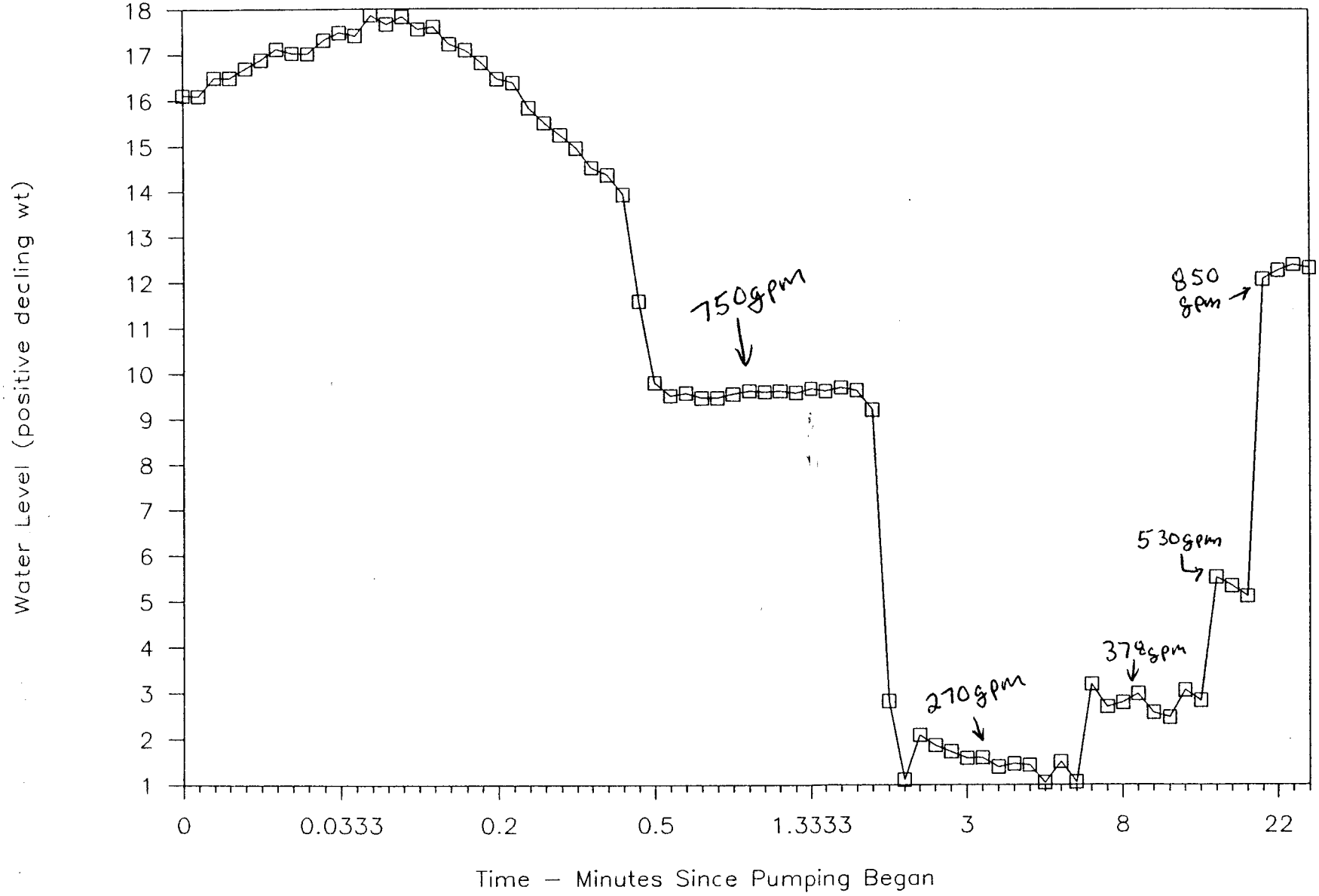
B-8

512'

# APPENDIX C
# WATER LEVEL PRETEST DATA

# Comora Loma Well #4

Test Pumping




C-2

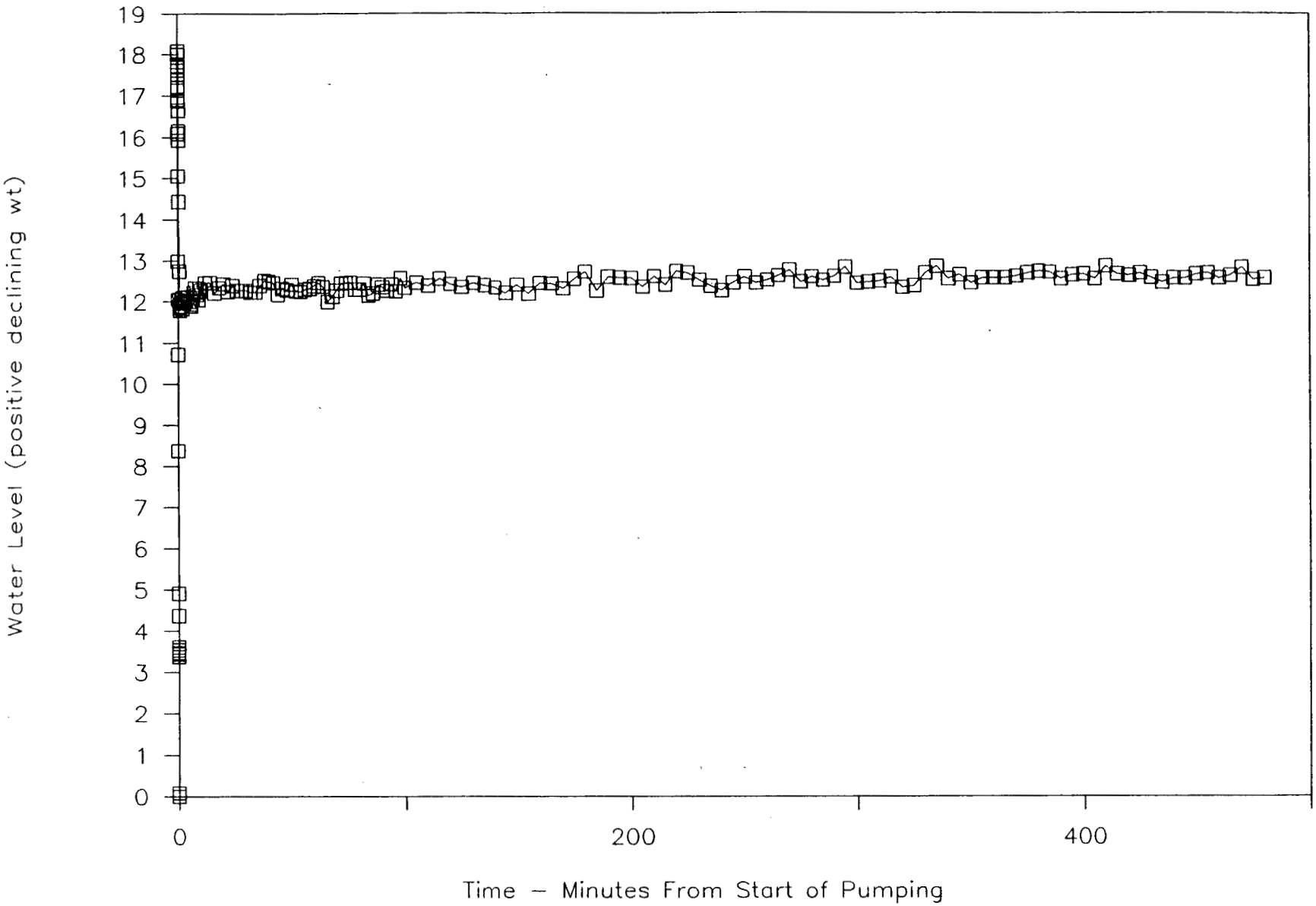
Comora Loma Prepumping test
7/11/91 start 16:24

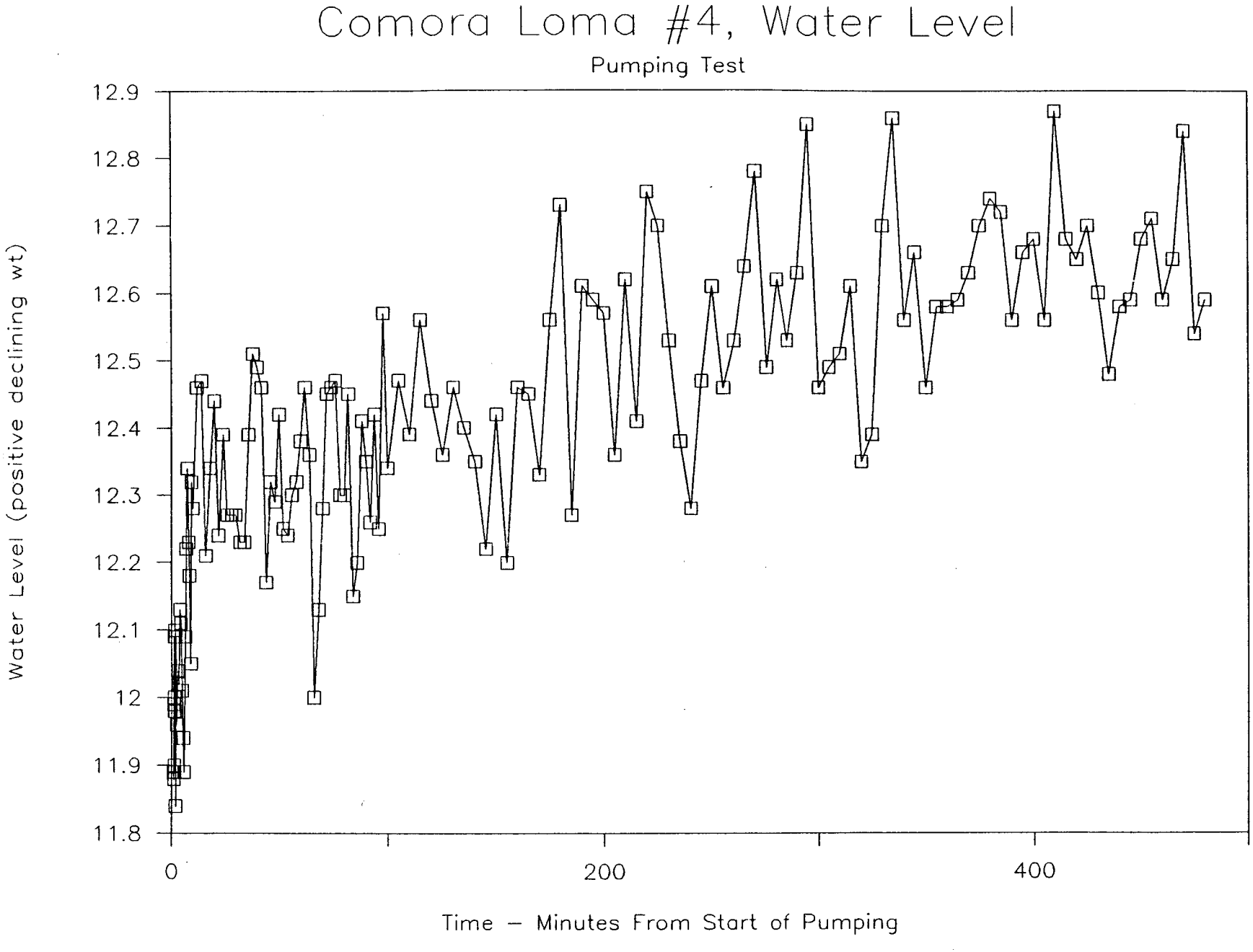
| | | gallons/min |
|---|---|---|
| 0 | 16.11 | 850 |
| 0.0033 | 16.1 | |
| 0.0066 | 16.5 | |
| 0.0099 | 16.49 | |
| 0.0133 | 16.69 | |
| 0.0166 | 16.88 | |
| 0.02 | 17.12 | |
| 0.0233 | 17.03 | |
| 0.0266 | 17.02 | |
| 0.03 | 17.31 | |
| 0.0333 | 17.47 | |
| 0.05 | 17.41 | |
| 0.0666 | 17.86 | |
| 0.0833 | 17.66 | |
| 0.1 | 17.82 | |
| 0.1166 | 17.54 | |
| 0.1333 | 17.6 | |
| 0.15 | 17.22 | |
| 0.1666 | 17.08 | |
| 0.1833 | 16.81 | |
| 0.2 | 16.45 | |
| 0.2166 | 16.37 | |
| 0.2333 | 15.81 | |
| 0.25 | 15.49 | |
| 0.2666 | 15.22 | |
| 0.2833 | 14.93 | |
| 0.3 | 14.5 | |
| 0.3166 | 14.35 | |
| 0.3333 | 13.92 | |
| 0.4167 | 11.58 | |
| 0.5 | 9.8 | 750 |
| 0.5833 | 9.51 | |
| 0.6667 | 9.57 | |
| 0.75 | 9.46 | |
| 0.8333 | 9.46 | |
| 0.9167 | 9.55 | |
| 1 | 9.61 | |
| 1.0833 | 9.6 | |
| 1.1667 | 9.61 | |
| 1.25 | 9.58 | |
| 1.3333 | 9.67 | |
| 1.4166 | 9.62 | |
| 1.5 | 9.7 | |
| 1.5833 | 9.64 | |
| 1.6667 | 9.21 | |
| 1.75 | 2.82 | 270 |
| 1.8333 | 1.11 | |
| 1.9167 | 2.09 | |
| 2 | 1.86 | |
| 2.5 | 1.73 | |
| 3 | 1.58 | |
| 3.5 | 1.59 | |
| 4 | 1.39 | |
| 4.5 | 1.46 | |
| 5 | 1.43 | |
| 5.5 | 1.05 | |
| 6 | 1.51 | |
| 6.5 | 1.06 | |
| 7 | 3.2 | 270 |
| 7.5 | 2.7 | |
| 8 | 2.8 | |
| 8.5 | 2.99 | |
| 9 | 2.58 | |
| 9.5 | 2.47 | |
| 10 | 3.06 | |
| 12 | 2.83 | |
| 14 | 5.53 | 530 |
| 16 | 5.34 | |
| 18 | 5.12 | |
| 20 | 12.08 | 850 |
| 22 | 12.27 | |
| 24 | 12.39 | |
| 26 | 12.33 | |

# APPENDIX D
# WATER LEVEL DATA FOR PUMPING TEST

# Comora Loma #4, Water Level

Pumping Test




Comora Loma #4, Water Level
Pumping Test
Water Level (positive declining wt)
12.9
12.8
12.7
12.6
12.5
12.4
12.3
12.2
12.1
12
11.9
11.8
0
200
400
Time – Minutes From Start of Pumping

3:

READY

| E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|

Regression Output:

| | | |
|---|---|---|
| Constant | | 12.19408 |
| Std Err of Y Est | | 0.151104 |
| R Squared | | 0.593408 |
| No. of Observations | | 150 |
| Degrees of Freedom | | 148 |
| X Coefficient(s) | 0.001192 | |
| Std Err of Coef. | 0.000081 | |

x is time
y is water level

Water Level = 0.001192 × Time (min) + 12.19408

Regression of Water Level Data

-Jul-91 11:53 AM

Comora Loma Pumping Test
7/11/91 Start 17:30
20 psi XD 850 gpm

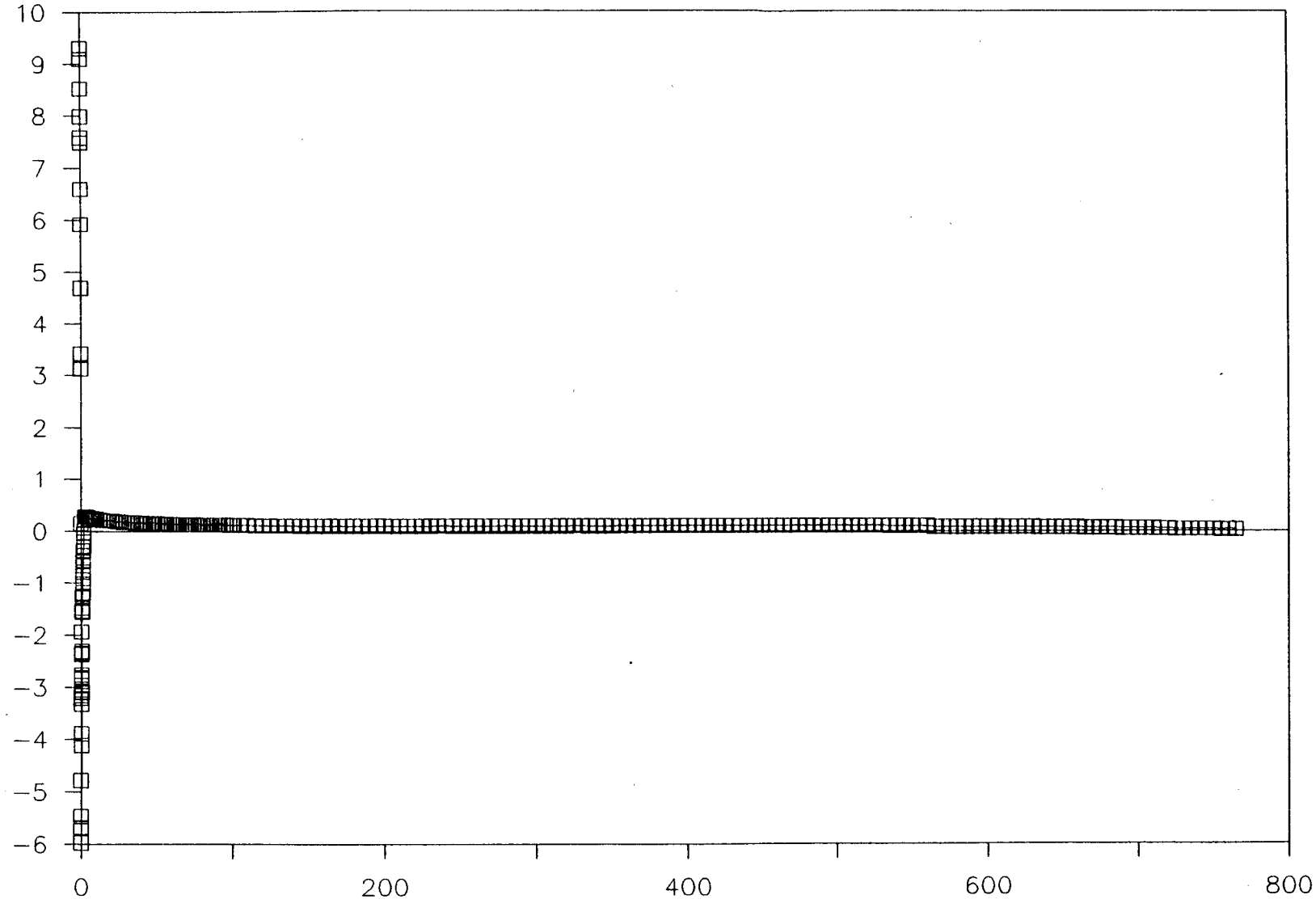
| | | | |
|---|---|---|---|
| 0 | 0 | | |
| 0.0033 | 0.09 | 4 | 12.13 |
| 0.0066 | 8.38 | 4.5 | 12.11 |
| 0.0099 | 12.06 | 5 | 12.01 |
| 0.0133 | 3.62 | 5.5 | 11.94 |
| 0.0166 | 3.48 | 6 | 11.89 |
| 0.02 | 3.45 | 6.5 | 12.09 |
| 0.0233 | 3.38 | 7 | 12.22 |
| 0.0266 | 3.54 | 7.5 | 12.34 |
| 0.03 | 4.38 | 8 | 12.23 |
| 0.0333 | 4.92 | 8.5 | 12.18 |
| 0.05 | 8.38 | 9 | 12.05 |
| 0.0666 | 10.72 | 9.5 | 12.32 |
| 0.0833 | 12.99 | 10 | 12.28 |
| 0.1 | 15.06 | 12 | 12.46 |
| 0.1166 | 16.09 | 14 | 12.47 |
| 0.1333 | 16.92 | 16 | 12.21 |
| 0.15 | 17.62 | 18 | 12.34 |
| 0.1666 | 17.71 | 20 | 12.44 |
| 0.1833 | 18.09 | 22 | 12.24 |
| 0.2 | 18.01 | 24 | 12.39 |
| 0.2166 | 17.74 | 26 | 12.27 |
| 0.2333 | 17.52 | 28 | 12.27 |
| 0.25 | 17.21 | 30 | 12.27 |
| 0.2666 | 17.14 | 32 | 12.23 |
| 0.2833 | 16.88 | 34 | 12.23 |
| 0.3 | 16.65 | 36 | 12.39 |
| 0.3166 | 16.15 | 38 | 12.51 |
| 0.3333 | 15.93 | 40 | 12.49 |
| 0.4167 | 14.44 | 42 | 12.46 |
| 0.5 | 12.75 | 44 | 12.17 |
| 0.5833 | 12.04 | 46 | 12.32 |
| 0.6667 | 11.9 | 48 | 12.29 |
| 0.75 | 11.78 | 50 | 12.42 |
| 0.8333 | 11.86 | 52 | 12.25 |
| 0.9167 | 11.8 | 54 | 12.24 |
| 1 | 11.89 | 56 | 12.3 |
| 1.0833 | 11.88 | 58 | 12.32 |
| 1.1667 | 11.99 | 60 | 12.38 |
| 1.25 | 12.09 | 62 | 12.46 |
| 1.3333 | 11.9 | 64 | 12.36 |
| 1.4166 | 11.98 | 66 | 12 |
| 1.5 | 12 | 68 | 12.13 |
| 1.5833 | 11.89 | 70 | 12.28 |
| 1.6667 | 12.1 | 72 | 12.45 |
| 1.75 | 11.98 | 74 | 12.46 |
| 1.8333 | 12.09 | 76 | 12.47 |
| 1.9167 | 11.84 | 78 | 12.3 |
| 2 | 12.09 | 80 | 12.3 |
| 2.5 | 11.96 | 82 | 12.45 |
| 3 | 12.04 | | |
| 3.5 | 12.02 | | |

| | | | |
|---|---|---|---|
| 84 | 12.15 | 335 | 12.86 |
| 86 | 12.2 | 340 | 12.56 |
| 88 | 12.41 | 345 | 12.66 |
| 90 | 12.35 | 350 | 12.46 |
| 92 | 12.26 | 355 | 12.58 |
| 94 | 12.42 | 360 | 12.58 |
| 96 | 12.25 | 365 | 12.59 |
| 98 | 12.57 | 370 | 12.63 |
| 100 | 12.34 | 375 | 12.7 |
| 105 | 12.47 | 380 | 12.74 |
| 110 | 12.39 | 385 | 12.72 |
| 115 | 12.56 | 390 | 12.56 |
| 120 | 12.44 | 395 | 12.66 |
| 125 | 12.36 | 400 | 12.68 |
| 130 | 12.46 | 405 | 12.56 |
| 135 | 12.4 | 410 | 12.87 |
| 140 | 12.35 | 415 | 12.68 |
| 145 | 12.22 | 420 | 12.65 |
| 150 | 12.42 | 425 | 12.7 |
| 155 | 12.2 | 430 | 12.6 |
| 160 | 12.46 | 435 | 12.48 |
| 165 | 12.45 | 440 | 12.58 |
| 170 | 12.33 | 445 | 12.59 |
| 175 | 12.56 | 450 | 12.68 |
| 180 | 12.73 | 455 | 12.71 |
| 185 | 12.27 | 460 | 12.59 |
| 190 | 12.61 | 465 | 12.65 |
| 195 | 12.59 | 470 | 12.84 |
| 200 | 12.57 | 475 | 12.54 |
| 205 | 12.36 | 480 | 12.59 |
| 210 | 12.62 | | |
| 215 | 12.41 | | |
| 220 | 12.75 | | |
| 225 | 12.7 | | |
| 230 | 12.53 | | |
| 235 | 12.38 | | |
| 240 | 12.28 | | |
| 245 | 12.47 | | |
| 250 | 12.61 | | |
| 255 | 12.46 | | |
| 260 | 12.53 | | |
| 265 | 12.64 | | |
| 270 | 12.78 | | |
| 275 | 12.49 | | |
| 280 | 12.62 | | |
| 285 | 12.53 | | |
| 290 | 12.63 | | |
| 295 | 12.85 | | |
| 300 | 12.46 | | |
| 305 | 12.49 | | |
| 310 | 12.51 | | |
| 315 | 12.61 | | |
| 320 | 12.35 | | |
| 325 | 12.39 | | |
| 330 | 12.7 | | |

# APPENDIX E
# WATER LEVEL DATA FOR RECOVERY TEST

# Comora Loma Well #4

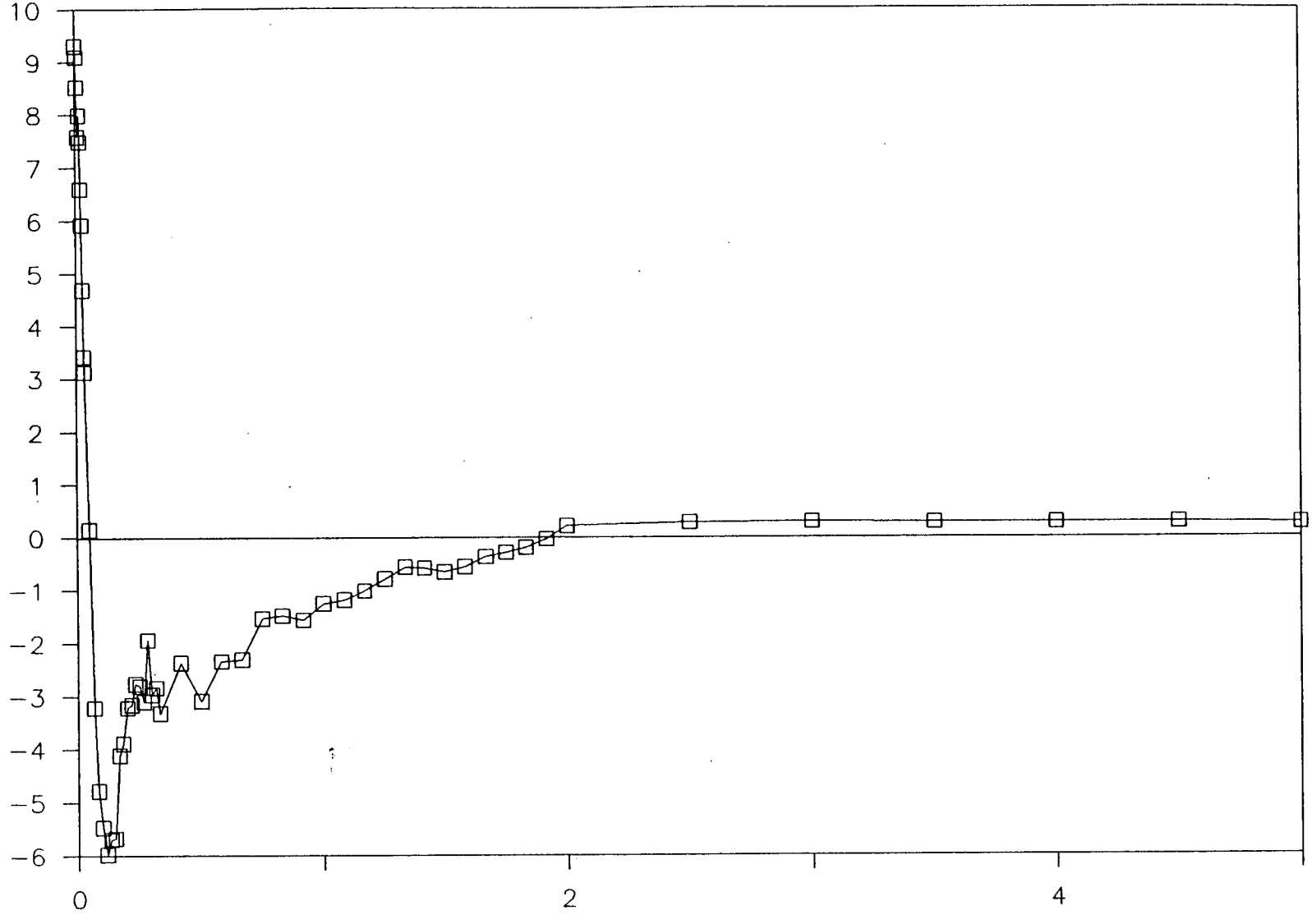
Recovery Test




E-2

# Comora Loma Well #4

Recovery Test



Comora Loma Pumping Test (R
7/12/91 Start 1:30 a.m.
20 psi XD Pumped at 850 gp

| | |
|---|---|
| 0 | 9.3 |
| 0.0033 | 9.09 |
| 0.0066 | 8.53 |
| 0.0099 | 7.59 |
| 0.0133 | 8 |
| 0.0166 | 7.49 |
| 0.02 | 6.6 |
| 0.0233 | 5.92 |
| 0.0266 | 4.69 |
| 0.03 | 3.43 |
| 0.0333 | 3.13 |
| 0.05 | 0.15 |
| 0.0666 | -3.21 |
| 0.0833 | -4.78 |
| 0.1 | -5.47 |
| 0.1166 | -5.97 |
| 0.1333 | -5.69 |
| 0.15 | -5.68 |
| 0.1666 | -4.11 |
| 0.1833 | -3.89 |
| 0.2 | -3.21 |
| 0.2166 | -3.16 |
| 0.2333 | -2.76 |
| 0.25 | -2.81 |
| 0.2666 | -3.1 |
| 0.2833 | -1.94 |
| 0.3 | -2.96 |
| 0.3166 | -2.84 |
| 0.3333 | -3.32 |
| 0.4167 | -2.37 |
| 0.5 | -3.09 |
| 0.5833 | -2.34 |
| 0.6667 | -2.31 |
| 0.75 | -1.53 |
| 0.8333 | -1.48 |
| 0.9167 | -1.56 |
| 1 | -1.25 |
| 1.0833 | -1.18 |
| 1.1667 | -1.01 |
| 1.25 | -0.79 |
| 1.3333 | -0.56 |
| 1.4166 | -0.59 |
| 1.5 | -0.66 |
| 1.5833 | -0.56 |
| 1.6667 | -0.37 |
| 1.75 | -0.29 |
| 1.8333 | -0.2 |
| 1.9167 | -0.04 |
| 2 | 0.21 |
| 2.5 | 0.27 |
| 3 | 0.28 |
| 3.5 | 0.27 |
| 4 | 0.27 |
| 4.5 | 0.27 |
| 5 | 0.26 |
| 5.5 | 0.26 |
| 6 | 0.25 |
| 6.5 | 0.25 |
| 7 | 0.25 |
| 7.5 | 0.25 |
| 8 | 0.24 |
| 8.5 | 0.24 |
| 9 | 0.24 |
| 9.5 | 0.24 |
| 10 | 0.24 |
| 12 | 0.22 |
| 14 | 0.21 |
| 16 | 0.2 |
| 18 | 0.2 |
| 20 | 0.2 |
| 22 | 0.19 |
| 24 | 0.18 |
| 26 | 0.18 |
| 28 | 0.17 |
| 30 | 0.17 |
| 32 | 0.17 |
| 34 | 0.17 |
| 36 | 0.16 |
| 38 | 0.16 |
| 40 | 0.16 |
| 42 | 0.15 |
| 44 | 0.15 |
| 46 | 0.15 |
| 48 | 0.15 |
| 50 | 0.15 |
| 52 | 0.14 |
| 54 | 0.14 |
| 56 | 0.14 |
| 58 | 0.13 |
| 60 | 0.13 |
| 62 | 0.13 |
| 64 | 0.13 |
| 66 | 0.13 |
| 68 | 0.13 |
| 70 | 0.13 |
| 72 | 0.13 |
| 74 | 0.13 |
| 76 | 0.12 |
| 78 | 0.12 |
| 80 | 0.12 |
| 82 | 0.12 |
| 84 | 0.12 |
| 86 | 0.12 |
| 88 | 0.12 |
| 90 | 0.12 |
| 92 | 0.12 |
| 94 | 0.12 |
| 96 | 0.12 |
| 98 | 0.11 |
| 100 | 0.11 |
| 105 | 0.11 |
| 110 | 0.11 |
| 115 | 0.1 |
| 120 | 0.1 |
| 125 | 0.1 |
| 130 | 0.1 |
| 135 | 0.1 |
| 140 | 0.1 |
| 145 | 0.09 |
| 150 | 0.09 |
| 155 | 0.09 |
| 160 | 0.09 |
| 165 | 0.09 |
| 170 | 0.09 |
| 175 | 0.09 |
| 180 | 0.09 |
| 185 | 0.09 |
| 190 | 0.09 |
| 195 | 0.09 |
| 200 | 0.09 |
| 205 | 0.09 |
| 210 | 0.09 |
| 215 | 0.09 |
| 220 | 0.09 |
| 225 | 0.09 |
| 230 | 0.09 |
| 235 | 0.1 |
| 240 | 0.1 |
| 245 | 0.09 |
| 250 | 0.09 |
| 255 | 0.09 |
| 260 | 0.09 |
| 265 | 0.09 |
| 270 | 0.09 |
| 275 | 0.09 |
| 280 | 0.1 |
| 285 | 0.09 |

| | |
|---|---|
| 290 | 0.09 |
| 295 | 0.09 |
| 300 | 0.09 |
| 305 | 0.09 |
| 310 | 0.09 |
| 315 | 0.09 |
| 320 | 0.09 |
| 325 | 0.1 |
| 330 | 0.1 |
| 335 | 0.09 |
| 340 | 0.09 |
| 345 | 0.09 |
| 350 | 0.09 |
| 355 | 0.1 |
| 360 | 0.1 |
| 365 | 0.1 |
| 370 | 0.1 |
| 375 | 0.1 |
| 380 | 0.1 |
| 385 | 0.1 |
| 390 | 0.1 |
| 395 | 0.1 |
| 400 | 0.1 |
| 405 | 0.1 |
| 410 | 0.1 |
| 415 | 0.1 |
| 420 | 0.1 |
| 425 | 0.1 |
| 430 | 0.1 |
| 435 | 0.1 |
| 440 | 0.1 |
| 445 | 0.1 |
| 450 | 0.1 |
| 455 | 0.1 |
| 460 | 0.1 |
| 465 | 0.1 |
| 470 | 0.1 |
| 475 | 0.1 |
| 480 | 0.1 |
| 485 | 0.1 |
| 490 | 0.1 |
| 495 | 0.1 |
| 500 | 0.1 |
| 505 | 0.1 |
| 510 | 0.1 |
| 515 | 0.1 |
| 520 | 0.1 |
| 525 | 0.1 |
| 530 | 0.1 |
| 535 | 0.09 |
| 540 | 0.09 |
| 545 | 0.09 |
| 550 | 0.09 |
| 555 | 0.09 |
| 560 | 0.09 |
| 565 | 0.08 |
| 570 | 0.08 |
| 575 | 0.08 |
| 580 | 0.08 |
| 585 | 0.08 |
| 590 | 0.08 |
| 595 | 0.08 |
| 600 | 0.08 |
| 605 | 0.08 |
| 610 | 0.08 |
| 615 | 0.08 |
| 620 | 0.08 |
| 625 | 0.08 |
| 630 | 0.08 |
| 635 | 0.07 |
| 640 | 0.07 |
| 645 | 0.07 |
| 650 | 0.07 |
| 655 | 0.07 |
| 660 | 0.07 |
| 665 | 0.06 |
| 670 | 0.06 |
| 675 | 0.06 |
| 680 | 0.06 |
| 685 | 0.06 |
| 690 | 0.05 |
| 695 | 0.05 |
| 700 | 0.05 |
| 705 | 0.05 |
| 710 | 0.05 |
| 715 | 0.04 |
| 720 | 0.04 |
| 725 | 0.03 |
| 730 | 0.03 |
| 735 | 0.03 |
| 740 | 0.03 |
| 745 | 0.03 |
| 750 | 0.03 |
| 755 | 0.02 |
| 760 | 0.03 |
| 765 | 0.02 |