

STATE ENGINEER
Salem, Oregon

OBSERVATION WELL
Well Record

STATE WELL NO. 26/15-17R...
COUNTY Lake...
APPLICATION NO. GR-1500...

GR- 1450

OWNER: Morehouse Ranch

MAILING
ADDRESS:

LOCATION OF WELL: Owner's No.

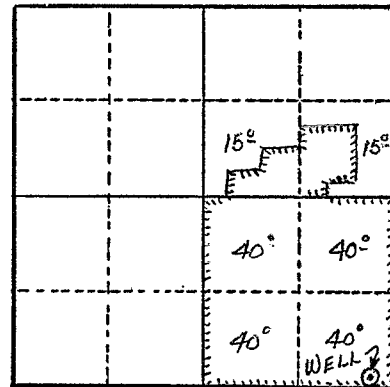
CITY AND
STATE:

Fort Rock, Oregon

SE 1/4 SE 1/4 Sec. 17 T. 26 S., R. 15 E., W.M.

Bearing and distance from section or subdivision

corner 350' W. & 150' N. from SE cor. Sec. 17



Altitude at well 4315

TYPE OF WELL: Drilled Date Constructed 1922

Depth drilled 250' Depth cased 220'

Section 17

CASING RECORD:

18" steel from 0 to 40 ft.

12" steel from 40 to 120 ft.

8" steel from 120 to 220 ft.

FINISH:

AQUIFERS:

CINDERS ?

WATER LEVEL:

26.2'

30' BELOW LAND SURFACE 1940

30.52' ✓ ✓ ✓ SEPT. 27, 1949

PUMPING EQUIPMENT: Type Sterling turbine 10" x 16" H.P. 20
Capacity 1450 G.P.M.

WELL TESTS:

Drawdown 8 ft. after hours Pumping 1450 G.P.M.

Drawdown ft. after hours G.P.M.

USE OF WATER Irrigation Temp. 68 °F., 19

SOURCE OF INFORMATION GR record

DRILLER or DIGGER

ADDITIONAL DATA:

Log X Water Level Measurements Chemical Analysis Aquifer Test

REMARKS:

Irrigation of 190 acres.

ONE OF FOUR TEST WELLS DRILLED FOR STATE

KNOWN AS "ERNST WELL" HARDNESS 20 PPM, CHLORIDE 4 PPM

STATE ENGINEER

Salem, Oregon

State Well No. 26/15-17R

County _____ Lake _____

Application No. GR- 1500

Well Log

Owner: Morehouse Ranch Owner's No. _____

Driller: A. M. JANNSEN Date Drilled 1922

[illegible]

Water Level Record

OWNER: Robert Moorehouse OWNER'S NO. #1

Description of measuring point: Small hole on NE corner of pump base plate
over casing at OOLSD.

Date	Water Level Feet (above) (below) Land Surface	Remarks	Date	Water Level Feet (above) (below) Land Surface	Remarks
<u>1940</u>	<u>30.0</u>				
<u>9/27/49</u>	<u>30.52</u>	<u>USGS.</u>			
<u>5/17/56</u>	<u>26.20</u>	<u>WSB.</u>			
<u>8-28-56</u>	<u>25.30</u>	<u>"</u>			
<u>10-16-56</u>	<u>26.06</u>	<u>"</u>			
<u>4-30-57</u>	<u>25.72</u>	<u>WSB</u>			
<u>8-20-57</u>	<u>25.70</u>	<u>WSB</u>			
<u>10-24-57</u>	<u>25.51</u>	<u>WSB</u>			
<u>4-23-58</u>	<u>25.24</u>	<u>WSB.</u>			
<u>10-14-58</u>	<u>29.14^{PO.}</u>	<u>WSB Draw down</u>			
<u>5-13-59</u>	<u>26.05</u>	<u>JES. WSB</u>			
<u>10-16-59</u>	<u>24.80</u>	<u>WSB</u>			
<u>4-28-60</u>	<u>-</u>	<u>JES-WSB Pump operating</u>			
<u>10-26-60</u>	<u>24.88</u>	<u>WSB</u>			
<u>5-3-61</u>	<u>24.52</u>	<u>WSB</u>			
<u>10-17-61</u>	<u>25.13</u>	<u>WSB & RD</u>			

REMARKS: See hydrograph

March 1, 1957

Mr. Robert Morehouse
Fort Rock Grange No. 758
Fort Rock, Oregon

Dear Mr. Morehouse:

This letter, which summarizes our present knowledge of available ground-water supply in the Fort Rock Basin and sets forth our policy in regard to future ground-water appropriations in that area, has been prepared for your use in response to your recent resolution concerning the ground-water supply of Fort Rock Basin. The Fort Rock Basin as used herein includes the Christmas Lake, Silver Lake, and Fort Rock area.

Ground-water investigations have been made in the Fort Rock Basin by the Ground Water Branch of the U. S. Geological Survey. The Survey has released two reports "Basic Ground Water Data in Lake County, Oregon" by F. D. Trauger in 1950, and "Ground Water Available for Irrigation in the Fort Rock Basin, Northern Lake County, Oregon" by R. C. Newcomb in 1953. A comprehensive report describing the geology and occurrence of ground water in the area is in preparation.

Our knowledge of available ground-water supply in the Fort Rock Basin has not changed appreciably from that set forth by Newcomb in 1953. He estimated the average annual recharge to the ground-water reservoirs underlying the area and the approximate distribution of the supply. Recharge which is derived chiefly from the precipitation that falls on the uplands surrounding the basin is estimated to be equivalent to one inch of water over the $1\frac{1}{2}$ million acres that are tributary to the ground-water reservoirs. This amount is equal to 125,000 acre ft. of water per year. A small part of this recharge is withdrawn for irrigation; an estimated 50,000 acre ft. is transpired by plants back into the atmosphere, and approximately 75,000 acre ft. moves to a subsurface outlet located near Hole-in-the-Ground, a few miles northwest of Fort Rock. The magnitude of this subsurface outflow would have to be in the order of 100 c.f.s. or 45,000 g.p.m. to equal 75,000 acre ft. per year. Whether this outflow moves north to the Dechutes River or south to Ana Springs is not known.

March 1, 1957

✓ The water table in the Fort Rock Basin fluctuates with changes in the amount of precipitation. Available information indicates that there is an 8 to 10-year lag between a fluctuation in precipitation and a corresponding response in the water table. Water level measurements in observation wells show that the water table declined from the early 30's till the mid or late 40's and has been rising since that time. Water levels in wells in the Fort Rock Basin are at record high positions at the present time.

In a ground-water development like that in the Fort Rock Basin, the water pumped for irrigation must be derived either from that going to waste by transpiration or from that leaving the basin as subsurface outflow, or the pumping will result in mining of the ground-water supply. In areas of ground-water mining, the water table lowers a little each year until it is impossible or unprofitable to pump water for irrigation. Since it is improbable that the amount of subsurface outflow will be appreciably changed without a substantial lowering of the water table, it is presumed that most of the water available for irrigation will be diverted from that now going to waste by transpiration. The available data will not permit us to make an estimate of the quantities of water that can be diverted from that now going to waste through natural discharge.

✓ Our policy in regard to issuing permits for irrigation wells in the Fort Rock Basin will have to be based upon the changes that take place in the position of the water table as development proceeds. Last year, only about 5,000 acre ft. of water was pumped. This diversion caused little apparent change in the position of the water table; in fact, the water table in some wells was higher after the close of the irrigation season than it was at the beginning. We have established an observation well net of about 80 wells in the Fort Rock Basin. This net, which will be expanded as development proceeds, will give forewarning of any problem areas that develop. If problems do develop, it will be a matter of determining whether a critical ground-water area exists as set forth in ORS 537.730. If it is found that part of the basin has become a critical ground-water area due to over pumpage, there will have to be a reduction in ground-water withdrawals based upon the priorities of various appropriators in the area concerned.

In regard to your resolution, it would be impossible at this time for us to set any figure as to the number of acres that can be irrigated by ground water in the Fort Rock Basin. Besides the unknown factor of the quantity of water available, such additional factors as location of wells, irrigation practices, and future climatic conditions will all have their effect on the overall development of the basin. At the present time, there is no critical area developing in the Fort Rock Basin, water levels are at record highs, and developments are being distributed over a large part of the basin. Since only time and the continued collection of data will give us the answer as to how much ground water is available, we will continue to issue permits for irrigation wells so long as they do not appear to substantially interfere with existing rights.

Very truly yours,

LEWIS A. STANLEY
State Engineer

JES:lac