

BEFORE THE STATE ENGINEER OF OREGON

Washington County

IN THE MATTER OF APPLICATION )  
NO. G-637 IN THE NAME OF THE )  
ALOHA-HUBER WATER DISTRICT )

FINDINGS OF FACT,  
CONCLUSIONS AND ORDER

FINDINGS OF FACT

-1-

On May 2, 1957, the Aloha-Huber Water District filed an application with the State Engineer for a permit to construct a well and appropriate 1,000 gallons per minute of water for domestic use within the District. The well is to be located in the NE $\frac{1}{4}$  SE $\frac{1}{4}$ , Section 24, Township 1 South, Range 2 West, W. M., in the County of Washington. The application has been given File No. G-637.

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On the 17th day of June, 1957, Henry L. Burns, et al, filed a protest in the office of the State Engineer against the approval of the application of the Aloha-Huber Water District. The pertinent matters in the protest are summarized as follows:

- a. Each of the protestants depend upon wells for their domestic water supplies, and believe that a reasonably stable ground water level should be maintained at the present existing level so as to prevent the necessity of the deepening of their existing wells in order to obtain adequate water supplies.
- b. That each of the wells owned by the protestants constitutes a prior right to ground water, and that the issuance of a permit to the Aloha-Huber Water District may impair or interfere with these existing rights by causing declining ground water levels, interference with wells of the protestants, and a possible overdrawing of the ground water supplies.
- c. That the existing deep wells of the protestants have been constructed at substantial expense, and any lowering of the present ground water level that may result in depletion and exhaustion of the ground water available to an individual protestant would result in the incurring of substantial expense to deepen the individual wells.
- d. That in consideration of certain proposed facilities recommended to the Water Bureau of the City of Portland for providing Bull Run water to communities in Washington County, the issuance of a permit which may result in the lowering of ground water levels, the impairment of existing rights, and certain financial losses that may be incurred by the protestants, would at this time be inappropriate and improper.

The protest was heard by the State Engineer on July 8, 1957, in the Washington County Court House, Hillsboro, Oregon. At the hearing, the protestants were represented by Mr. Howard Rankin, and the Aloha-Huber Water District by Mr. C. F. Bradley. At the start of the hearing another protest against the application of the Aloha-Huber Water District was filed by Mr. Tom Michos and Mr. Albert T. Kemmer. The pertinent matters in this protest are summarized as follows:

- a. That the State Engineer has no jurisdiction to grant the Aloha-Huber Water District a permit to appropriate ground water for the reason that the water within the area inherently belongs to the people thereof and it is the intent and purpose of the Aloha-Huber Water District to divert the water from the area, thereby depriving the people within the area of the proposed well of their inherent and constitutional right to said water.
- b. That the diversion of water from the area from which these objectors are now drawing water would irreparably damage the homes and property of these objectors.

Messers. Tom Michos and Albert T. Kemmer were represented by Mr. Albert T. Kemmer.

From the testimony presented at the hearing and the records on file in the office of the State Engineer, the following pertinent facts describe the ground water situation on Cooper Mountain and the probable effects of the proposed Aloha-Huber well on the ground water regimen of the Cooper Mountain area.

The proposed well of the Aloha-Huber Water District would be located on the north slope of Cooper Mountain at an elevation of approximately 345 feet. Cooper Mountain is an upland area of about 10 square miles underlain by the Columbia River basalt formation. The Columbia River basalt formation consists of a series of lava flows. Cooper Mountain and the surrounding basins were formed by the folding and faulting of the Columbia River basalt formation.

The ground water reservoir beneath Cooper Mountain consists of the saturated part of the Columbia River basalt. The top of this ground water reservoir is at the approximate elevation of 200 feet above sea level. The chief

water bearing zones in this reservoir are the layers of broken lava that occur at the top of individual flows. These water bearing zones are separated by less permeable zones that, to a certain extent, impede the movement of ground water from one zone to another. The depth of wells on Cooper Mountain is controlled chiefly by the elevation of the land surface at the well site. Wells located at successively higher elevations on the mountain must penetrate greater thickness of rock before encountering the top of the ground water reservoir.

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Each of the existing wells on Cooper Mountain furnishes the domestic water requirements of one or several families. As such requirements are small, most of the wells penetrate only a few tens of feet into the ground water reservoir. The minimum thickness of the ground water reservoir beneath Cooper Mountain is believed to be in the order of 400 feet.

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Recharge to the ground water reservoir is believed to come chiefly from precipitation incident to the area. The amount of recharge is not definitely known, but is tentatively estimated to be 6400 acre feet per year. The present withdrawal of ground water through wells is estimated to be 1100 acre feet per year. There appears to be a substantial supply of ground water available for appropriation from the Cooper Mountain ground water reservoir without exceeding the amount of annual recharge.

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The Aloha-Huber Water District has constructed a 416 foot test-well at the proposed site of their production well. The drillers log of this test-well indicates that several water bearing zones in the Columbia River basalt formation were encountered. The chief water bearing zones were encountered below a depth of 270 feet, which is below the bottom of most of the existing wells in the Cooper Mountain area. A 14-hour pumping test on this well, at 300 g.p.m., produced a drawdown of 0.21 foot in the A. Erickson well located 1400 feet east-southeast of the test well, and 0.23 foot in the R. Wirrens well located 3400 feet west-northwest from the test well. The drawdown in the test well after 14 hours was 67 feet. The recovery to near the static level in the

pumped well after the pump was stopped was so fast that it was impossible to detect any drawdown with the air line pressure gage at one minute after the pump was stopped.

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The 1956 water use of the Aloha-Huber Water District varied between 824,300 and 2,040,900 cubic feet per month. The maximum monthly use could, with adequate storage have been supplied by a uniform flow of about 350 gallons per minute. However, there is need for expansion of service to additional customers of the district and to acquire additional water for present customers so that restrictions on use may be removed. A new water supply of 500 gallons per minute, with some storage, will meet the anticipated requirements for the next year and perhaps longer.

#### CONCLUSIONS

(1)

The present withdrawal of ground water from the Cooper Mountain ground water reservoir is believed to be only a small part of the annual recharge to the ground water reservoir. The reservoir is believed capable of withstanding further development without depleting the supply. Depletion will occur when ground water withdrawals have exceeded the recharge to the reservoir.

(2)

Some lowering of the ground water level is to be expected around every pumped well. From the data collected during the pumping test on the Aloha-Huber test well, it is concluded that the chief water bearing zone encountered is very permeable. It follows that the area of water level lowering around the well would be extensive, but the amount of lowering would be relatively small, possibly on the order of 4 to 9 feet at a distance of  $\frac{1}{2}$  mile from the pumped well after 100 days of pump operation at 1,000 g.p.m. The ultimate effect cannot be accurately determined from the available data, and cannot be determined with certainty by any method other than actually operating the new well and observing water levels therein and in neighboring wells.

(3)

The extension of the well casing through the upper water-bearing zones encountered in the test-well will reduce the drawdown that will occur in the upper

water-bearing zones. The drawdown in the chief water-bearing zone will be about as estimated, but the strata of lower permeability separating the chief water-bearing zone from the upper water-bearing zones will impede the drawdown movement of ground water. The amount that the drawdown in the upper zones will be reduced will be dependent upon the vertical permeability of the intervening strata.

ORDER

IT IS ORDERED that Application No. G-637 in the name of the Aloha-Huber Water District for the construction of a well in the NE $\frac{1}{4}$  SE $\frac{1}{4}$ , Section 24, Township 1 South, Range 2 West, N. M., Washington County, Oregon, is approved subject to the following limitations and conditions:

"(1) That the well constructed under this permit will not be pumped in excess of 720,000 gallons in any one day, (the equivalent of a uniform withdrawal of 500 gallons per minute), during its first full year of operation, after which time a new determination of the pumping rate that will be allowed will be made by the State Engineer. In no event shall the pumping rate exceed 1,000 g.p.m. in the final determination.

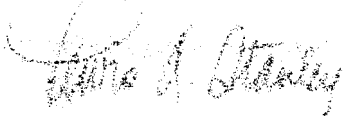
(2) That in the construction of this well, at least 250 feet of unperforated casing shall be installed and properly sealed into the Columbia River basalt formation so as to prevent the ground water encountered above 250 feet from entering the well.

(3) That the well shall be equipped with a totalizing water meter and an accurate daily record of the quantity of ground water pumped shall be obtained and filed with the State Engineer at the end of each month."

Dated at Salem, Oregon, this 18th day of July, 1957.

  
LEWIS A. STANLEY  
State Engineer

Dated at Salem, Oregon, this 18th day of July, 1957.

  
LEWIS A. STANLEY  
State Engineer