

IN THE OFFICE OF THE STATE ENGINEER

IN THE MATTER OF APPLICATION 37176)
FILED TO APPROPRIATE THE PUBLIC)
WATERS OF AN UNDERGROUND SOURCE)
WITHIN THE DIXIE CREEK - TENMILE CREEK)
AREA, ELKO COUNTY, NEVADA.)

RULING

GENERAL

I.

Application 37176 was filed on March 26, 1979, by Timothy G. Smith to appropriate 5.4 c.f.s. of water from an underground source for irrigation and domestic purposes on 320 acres of land within the S1/2 Section 21, T.33N., R.56E., M.D.B.&M. The point of diversion is described as being within the SW1/4 SW1/4 Section 21, T.33N., R.56E., M.D.B.&M.¹

II.

Water Resources-Reconnaissance Series Report 35 titled "Water-Resources Appraisal of the Huntington Valley Area, Elko and White Pine Counties, Nevada", was prepared cooperatively by the Geological Survey, U.S. Department of Interior and State of Nevada, Department of Conservation and Natural Resources. For the purposes of that report, the Huntington Valley Area was divided into three hydrologic subareas; the Huntington Creek Drainage Area, the South Fork Humboldt River Drainage Area and the Dixie Creek - Tenmile Creek Drainage Area.

Water Resources Bulletin No. 32 titled "Hydrologic Reconnaissance of the Humboldt River Basin, Nevada", was prepared cooperatively by the Geological Survey, U.S. Department of Interior, and State of Nevada, Department of Conservation and Natural Resources.

FINDINGS OF FACT

I.

The estimated average annual recharge to and discharge from the ground water reservoir in Huntington Valley is computed to be equal to the sum of the estimated discharge by evapotranspiration of 21,000 acre-feet per year and by subsurface outflow of 9,000 acre-feet per year for a total of 30,000 acre-feet per year. Of this total, about 14,000 acre-feet is discharged in the Huntington Creek area, 3,000 acre-feet in the South Fork Humboldt River area and 13,000 acre-feet in the Dixie Creek - Tenmile Creek area.²

¹ Public record in the office of the State Engineer.

² Water Resources-Reconnaissance Series Report 35.

Surface water runoff contributes approximately 18,000 acre-feet to the yearly ground water recharge with the remaining 12,000 acre-feet recharge supplied by underflow from the mountain areas.²

Only a small amount of underflow beneath the flood plain of the South Fork Humboldt River enters the Dixie Creek - Tenmile Creek drainage area from the two upstream drainage areas. The underflow, based on estimates of transmissibility and water table gradients, is estimated to be approximately 1000 acre-feet per year - 400 acre-feet from the Huntington Creek area and 600 acre-feet from the South Fork Humboldt River Area.²

A large increase in flow of the South Fork Humboldt River, on the order of 9,000 acre-feet per year, occurs when it flows out of the Dixie Creek - Tenmile Creek area. This increase is due to ground water contribution.²

The Geological Survey, U.S. Department of Interior, in cooperation with the State of Nevada, Department of Conservation and Natural Resources, is currently conducting an ongoing study of the effects of ground water flow on surface water by use of a modular three-dimensional finite difference ground water flow model. The information developed for the model has assisted in the identification and quantification of the effects of ground water pumpage on surface water flow.³

Based on information available to the State Engineer, any further increase in ground water pumpage would tend to reduce ground water inflow into the south fork of the Humboldt River.³

II.

The perennial yield of a hydrologic system is the maximum amount of water of usable chemical quality that can be consumed economically each year for an indefinite period of time. If the perennial yield is continually exceeded, ground water levels will decline until the ground water reservoir is depleted of water of usable quality or until the pumping lifts become uneconomical to maintain. Perennial yield cannot exceed the natural replenishment to an area indefinitely and ultimately is limited to the maximum amount of natural discharge than can be salvaged from beneficial use.⁴

Withdrawals of ground water in excess of the perennial yield contribute to adverse conditions such as water quality degradation, storage depletion, diminishing yield of wells, increased economic pumping lifts, land subsidence and possible reversal of ground water gradients which could result in significant changes in the recharge-discharge relationship. These conditions have developed in several other ground water basins within the State of Nevada where storage depletion and declining water tables have been recorded and documented.⁴

³ Information available in the office of the State Engineer and the U.S. Geological Survey.

⁴ See attached Appendix of References.

III.

Permits and certificates have been issued under existing rights for more than 16,000 acre-feet annually of ground water within the Dixie Creek - Tenmile Creek area.¹

IV.

Should additional water be allowed for appropriation under new applications and subsequent development of ground water pursuant thereto detrimentally affect prior existing rights, the State Engineer is required by law to order withdrawals be restricted to conform to priority rights.⁵

V.

Information available to the State Engineer indicates that Application 37176 was filed in support of a Desert Land Entry application.¹ NRS 533.357 establishes the order of priority the State Engineer must consider in acting on applications for irrigation use within the same basin.

VI.

Applications with a higher priority of filing to appropriate ground water for irrigation purposes have previously been denied.⁶

VII.

The approval of Application 37176 would authorize the additional withdrawal of 1,280 acre-feet of ground water which would exceed the perennial yield of the ground water basin.¹

CONCLUSIONS

I.

The State Engineer has jurisdiction of the parties and the subject matter of this action and determination.⁷

II.

The State Engineer is prohibited by law from granting a permit under an application to appropriate the public waters where:⁸

⁵ NRS 534.100(6).

⁶ See Ruling No. 2964 dated May 21, 1984, public record in the office of the State Engineer.

⁷ NRS 533.325.

⁸ NRS 533.370(3).

- A. There is no unappropriated water at the proposed source, or
- B. The proposed use conflicts with existing rights, or
- C. The proposed use threatens to prove detrimental to the public welfare.

III.

The granting of a permit under Application 37176 would result in the withdrawal of additional ground water in excess of the perennial yield of the ground water basin and would therefore adversely affect existing rights and be detrimental to the public interest and welfare.

RULING

Application 37176 is herewith denied on the grounds that the granting thereof would adversely affect existing rights and would be detrimental to the public interest and welfare.

Respectfully submitted,



PETER G. MORROS
State Engineer

PGM/SW/bl

Dated this 15th day of
May, 1985.

APPENDIX OF REFERENCES

Land Subsidence in Las Vegas Valley, 1935-63, Information Series No. 5 U.S.G.S.

State of Nevada, Department of Highways, Report on Land Subsidence in Las Vegas Valley.

Evaluation of the Water Resources of Lemmon Valley with Emphasis on Effects of Ground-Water Development to 1971, J.R. Harrill, Water Resources Bulletin No. 42, United States Geological Survey and State of Nevada, State Engineer's Office, Division of Water Resources, Department of Conservation and Natural Resources, 1972.

Hydrologic Response to Irrigation Pumping in Diamond Valley, Eureka and Elko Counties, Nevada, 1950-65, J.R. Harrill, Water Resources Bulletin No. 35, United States Geological Survey and State of Nevada, State Engineer's Office, Division of Water Resources, Department of Conservation and Natural Resources, 1968.

Effects of Irrigation Development on the Water Supply Quinn River Valley area, Nevada and Oregon, 1950-1964, C.J. Huxel, Jr., Water Resource Bulletin No. 34, United States Geological Survey and State of Nevada, State Engineer's Office, Division of Water Resources, Department of Conservation and Natural Resources, 1966.

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The Effects of Pumping on the Hydrology of Kings River Valley, Humboldt County, Nevada, 1957-1964, G.T. Malmberg and G.F. Worts, Jr., Water Resource Bulletin No. 31, United States Geological Survey and State of Nevada, State Engineer's Office, Division of Water Resources, Department of Conservation and Natural Resources, 1966.

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Ground-Water Storage Depletion in Pahrump Valley, Nevada-California, 1962-75, J.R. Harrill, Open File Report 81-635, United States Geological Survey, 1982, prepared in cooperation with Nevada Division of Water Resources.

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Methods of Determining Permeability, Transmissibility and Drawdown, U.S. Geological Survey Water Supply Paper 1536-1, R.H. Brown, J.G. Ferris, C.E. Jacob, D.B. Knowles, R.R. Meyer, H.E. Skibitzke and C.F. Theis, 1963.

Subsidence in Las Vegas Valley, John w. Bell, Nevada Bureau of Mines and Geology Bulletin 95.

Subsidence in United States due to Ground-Water Overdraft - A Review, J.F. Poland, Proceedings of the Irrigation and Drainage Division Specialty Conference, April 1973, American Society of Civil Engineers.