IN THE OFFICE OF THE STATE ENGINEER

IN THE MATTER OF APPLICATIONS 51790) FILED TO APPROPRIATE THE PUBLIC) WATERS OF AN UNDERGROUND SOURCE IN) THE LAS VEGAS VALLEY ARTESIAN BASIN,) CLARK COUNTY, NEVADA.)

RULING

GENERAL

I.

Application 51790 was filed on January 22, 1988, by Gordon F. and Gail E. LaPointe to appropriate 0.01 c.f.s. of water from an underground source for Irrigation and Domestic purposes on 2.5 acres of land located in the NW1/4 SW1/4 NE1/4 SW1/4 Section 14, T.22S., R.60E., M.D.B.&M. The Point of Diversion is described as being within the NE1/4 SW1/4 Section 14, T.22S., R.60E., M.D.B.&M.

II.

The State Engineer initially described and designated a portion of Las Vegas Valley on January 10, 1941, under the provisions of NRS Chapter 534, as a basin in need of additional administration.[1]

The State Engineer subsequently extended the designated area of the Las Vegas Valley Ground Water Basin on February 29, 1944,[2] November 22, 1946,[3] April 18, 1961,[4] May 25, 1964,[5] and December 27, 1983.[6]

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[1] State Engineer's Order No. 175 dated January 10, 1941, public record in the office of the State Engineer.

[2] State Engineer's Order No. 182 dated February 29, 1944, public record in the office of the State Engineer.

[3] State Engineer's Order No. 189 dated November 22, 1946, public record in the office of the State Engineer.

[4] State Engineer's Order No. 249 dated April 18, 1961, public record in the office of the State Engineer.

[5] State Engineer's Order No. 275 dated May 25, 1964, public record in the office of the State Engineer.

[6] State Engineer's Order No. 833 dated December 27, 1983, public record in the office of the State Engineer.

The State Engineer issued an order on December 1, 1949, curtailing the appropriation of ground water for irrigation purposes within the following areas of the Las Vegas Valley Ground Water Basin.[7]

T.20S., R.60E. - Sections 13, 24, 25 and 36;

T.20S., R.61E. - Sections 13 - 36, inclusive;

T.20S., R.61E. - Sections 1-10, inclusive, and Sections 15 - 18, inclusive.

The State Engineer issued an order relating to the issuance of permits for quasi-municipal use within the Las Vegas Valley Ground Water Basin on November 20, 1953.[8]

The State Engineer further extended the designated area of the Las Vegas Valley Ground Water Basin on December 27, 1983, and additionally declared irrigation was not a preferred use and that all further applications to appropriate water for irrigation purposes would be denied.[6]

III.

Water Resources - Information Series Report 27, titled "Water-Leval Changes Associated with Ground-Water Development in Las Vegas Valley, Nevada, March 1976 to March 1977" by Terry Katzer, was prepared cooperatively by the Geological Survey, U.S. Department of the Interior, and the Division of Water Resources, State of Nevada.

Geological Survey Water-Supply Paper 1780, titled "Available Water Supply of the Las Vegas Ground Water Basin, Nevada" by Glenn T. Malmberg, was prepared in cooperation with the Nevada Department of Conservation and Natural Resources, 1965.

U.S. Geological Survey Open-File Report 84-130, titled "Ground-Water Conditions in Las Vegas Valley, Clark County, Nevada, Part I, Hydrogeologic Framework, 1984" by Russell R. Plume, was prepared in cooperation with the Clark County Department of Comprehensive Plannin.

Water Resources Bulletin No. 44, titled "pumping and Ground Water Storage Depletion in Las Vegas Valley, Nevada, 1955-1974", was prepared cooperatively by the United States Department of the Interior, Geological Survey, and the State of Nevada, Division of Water Resources.

Ground-Water Resources - Information Series Report 5, titled "Land Subsidence in Las Vegas Valley, Nevada, 1935-63" by G.T. Malmberg, was prepared cooperatively by Geological Survey, U.S. Department of the Interior, and the Department of Conservation and Natural Resources, State of Nevada, May 1964.

Water Resources - Information Series Report 22, titled "Water Level Changes Association with Ground-Water Development in Las Vegas Valley, Nevada, 1971-75" by

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[7] State Engineer's Order No. 196 dated December 1, 1949, public record in the office of the State Engineer.

[8] State Engineer's Order No. 212 dated November 20, 1953, public record in the office of the State Engineer.

James R. Harrill, was prepared cooperatively by the Geological Survey, U.S. Department of the Interior, and Department of Conservation and Natural Resources, State of Nevada, 1976.

Water Resources - Information Series Report 29, titled "Water-Level Changes Associated with Ground-Water Development in Las Vegas Valley, Nevada, March 1977 to March 1978" by David B. Wood, was prepared cooperatively by the Geological Survey, U.S. Department of the Interior, and the Division of Water Resources, State of Nevada, 1979.

Water Resources - Information Series Report 26, titled "Water-Level Changes Associated with Ground-Water Development in Las Vegas Valley, Nevada, March 1975 to March 1976" by James R. Harrill, was prepared cooperatively by the Geological Survey, U.S. Department of the Interior, and the Division of Water Resources, State of Nevada, 1976.

"Nitrates in Las Vegas Valley Water District Wells" was prepared by J.T. Monscvitz, Manager, Southern Nevada Water System, September 20, 1982.

"Nitrates in Las Vegas Valley Water District Wells" was prepared by J.T. Monscvitz, Manager, Southern Nevada Water System, March 8, 1982.

U.S.G.S. Water Supply Paper - 849-D, titled "Underground Leakage from Artesian Wells in the Las Vegas Area, Nevada" by Penn Livingston, 1941, was prepared in cooperation with the State Engineer of Nevada, Clark County, and the City of Las Vegas.

Water Resources Bulletin No. 5 titled "Geology and Water Resources of Las Vegas, Pahrump and Indian Spring Valleys, Clark and Nye Counties, Nevada", by G.B. Maxey and C.H. Jameson was prepared in cooperation with the United States Department of the Interior, Geological Survey, and the State Engineer's Office of Nevada, 1948.

Water Resources Bulletin No. 3, titled "Water Levels and Artesian Pressure in Wells in Las Vegas Valley and in Other Valleys in Nevada, 1913-1945" by T.W. Robinson, G.B. Maxey, J.c. Fredericks and C.H. Jameson, was prepared in cooperation with the United States Department of the Interior, Geological Survey, and the State of Nevada, Office of the State Engineer, 1947.

Water Resources Bulletin No. 18, titled "A Summary of the Hydrology of the Las Vegas Ground-Water Basin, Nevada, with Special Reference to the Available Supply" by Glenn T. Malmberg, was prepared in cooperation with the United States Department of the Interior, Geological Survey, and Department of Conservation and Natural Resources, 1961.

Water Resources Bulletin No. 29, titled "Ground Water in Las Vegas Valley" by P.A. Domenico, D.A. Stephenson and G.B. Maxey, was prepared by the Desert Research Institute in cooperation with the State of Nevada, Department of Conservation and Natural Resources, April 1964.

Nevada Bureau of Mines and Geology Bulletin 95, titled "Subsidence in Las Vegas Valley", was prepared by John W. Bell, 1981.

FINDINGS OF FACT

I.

The average annual natural recharge to the Las Vegas Ground Water Basin has been estimated as 25,000 to 30,000 acre-feet annually which is derived from the precipitation in the mountains within the drainage basin.[9]

II.

The estimated perennial yield of the principal aquifers is augmented by 16,000 acre-feet per year of secondary recharge from irrigation of lawns, golf courses, parks, farms, etc., and waste water from sewage treatment plants.[10] This secondary recharge is substantially influenced by imported water from Lake Mead through the Southern Nevada Water Project.

III.

Water imports to the basin from Lake Mead through the Southern Nevada Water Project, were estimated at 139,253 acre-feet for the 1984 calendar year.[11]

IV.

The State Engineer has maintained pumpage inventories and records of water levels in Las Vegas Valley since 1945. Ground water pumpage within the Las Vegas Artesian Basin for the year 1986 was inventoried as 69,017 acre-feet.[11] This amount of pumping represents an overdraft of ground water on the order of approximately 28,000 acre-feet annually.

V.

Land subsidence and water level declines within the Las Vegas Valley Ground Water Basin are active and of a major concern to the State Engineer.

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[9] Geological Survey Water-Supply Paper 1780 titled "Available water supply of the Las Vegas Ground Water Basin, Nevada", by Glenn T. Malmberg, 1965.

[10] Water Resources Bulletin No. 44 titled "Pumping and Ground Water Storage Depletion in Las Vegas Valley, Nevada, 1955-1974", by James R. Harrill, 1976; Michael Dettinger, U.S. Geological Survey, oral communication, 1985.

[11] Data collected by the Division of Water Resources, State of Nevada, Las Vegas Branch. Pumpage inventories are maintained by meter readings and data provided by local water companies. Water levels of selected wells within the Las Vegas Valley Basin are measured periodically. The State Engineer's office and the U.S. Geological Survey have cooperatively maintained ground water level monitoring networks in the Las Vegas Valley since 1945. This record is substantial and conclusive evidence of deteriorating ground water conditions.

VI.

The State Engineer has the authority to deny an application without publication where a previous application for a similar use of water within the same basin has been rejected on the same grounds.[12]

VII.

Applications for irrigation purposes and quasi-municipal purposes have been denied within the Las Vegas Valley Artesian Basin.[13]

CONCLUSIONS

I.

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 that can be salvaged for beneficial use.[14]

II.

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 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.[14]

III.

The amount of ground water withdrawal exceeds the perennial yield within the Las Vegas Artesian Basin. The records of the State Engineer's office are well documented with evidence of declining water tables, water quality deterioration and active land subsidence in the Las Vegas Valley Ground Water Basin.

IV.

The State Engineer has jurisdiction of the parties and the subject matter of this action and determination.[15]

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[12] NRS 533.370(3).

[13] Public record in the office of the State Engineer.

[14] See attached Appendix of References.

[15] NRS 533.325.

V.

The State Engineer is prohibited by law from granting a permit under an application to appropriate the public waters where:[16]

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 interest.

VI.

There is a record of substantial evidence confirming overdraft of the ground water resource, ground water level declines, ground water storage depletion, active land subsidence, ground water quality deterioration and significant change in the recharge-discharge relationship within the Las Vegas Ground Water Basin due to sustained overdraft of the ground water resource.

RULING

Application 51790 is hereby 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/TT/jjk

Dated this 16th day of

March, 1988.

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[16] NRS 533.370, subsection 3.

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.

Hydrologic Response to Irrigation Pumping in Hualapai Flat, Washoe, Pershing and Humboldt Counties, Nevada, 1960-1967, J.R. Harrill, Water Resource Bulletin No. 37, United States Geological Survey and State of Nevada, State Engineer's Office, Division of Water Resources, Department of Conservation and Natural Resources, 1969.

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.

Effects of Ground-Water Development on the Water Regimen of Paradise Valley, Humboldt County, Nevada, 1948-1968, and Hydrologic Reconnaissance of the Tributary Areas, J.R. Harrill and D.O. Moore, Water Resource Bulletin No. 39, United States Geological Survey, 1970.

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.

Development of a Relation for Steady State Pumping Rate for Eagle Valley Ground-Water Basin, Nevada, F.E. Arteaga, T.J. Durbin, United States Geological Survey, 1978, prepared in cooperation with Nevada Division of Water Resources.

Basic Ground-Water Hydrology, Ralph C. Heath, U.S. Geological Survey Water Supply Paper 2220, 1983.

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.