IN THE OFFICE OF THE STATE ENGINEER

IN THE MATTER OF APPLICATIONS 33220,) 46297, 46590, 49182, 49642, 49745, 49751 AND) 50371 FILED TO APPROPRIATE THE PUBLIC) WATERS OF AN UNDERGROUND SOURCE) WITHIN THE PAHRUMP VALLEY GROUND) WATER BASIN, NYE AND CLARK COUNTIES,) NEVADA.)

RULING

GENERAL

Application 33220 was filed on August 19, 1977, by Charles Frias to appropriate 2.7 c.f.s. of water from an underground source for irrigation and domestic purposes on 150 acres of land within the NW1/4 of Section 32, T.22S., R.56E., M.D.B.&M. The point of diversion is described as being within the NE1/4 NW1/4 Section 32, T.22S., R.56E., M.D.B.&M.[1]

Application 46297 was filed on November 5, 1982, by Francis J. and Virgie L. Osinski to appropriate 0.04 c.f.s. of water from an underground source for quasi-municipal and domestic (residential/commercial) purposes within the SE1/4 SW1/4 SW1/4 of Section 30, T.19S., R.53E., M.D.B.&M. The point of diversion is described as being within the SW1/4 SW1/4 Section 30, T.19S., R.53E., M.D.B.&M.[1]

Application 46590 was filed on January 31, 1983, by Philip L. and Ellen Richards to appropriate 0.0345 c.f.s. of water from an underground source for commercial and domestic (catfish and nursery farm) purposes on 5.05 acres of land within the NE1/4 SW1/4 of Section 18, T.21S., R.54E., M.D.B.&M. The point of diversion is described as being within the NE1/4 SW1/4 Section 18, T.21S., R.54E., M.D.B.&M.[1]

Application 49182 was filed on July 11, 1985, by Lee and Evelyn J. Town, Mildred Iliff, Viola M. Grinnell, Loyd H. and Mary Jane Town to appropriate 0.149 c.f.s. of water from an underground source for quasi-municipal (residential/commercial) purposes on 4.77 acres of land within the NE1/4 NW1/4 of Section 36, T.19S., R.52E., M.D.B.&M. The point of diversion is described as being within the NE1/4 NW1/4 Section 36, T.19S., R.52E., M.D.B.&M.[1]

Application 49642 was filed on January 21, 1986, by Ronald E. and Joyce L. Piotter to appropriate 0.2 c.f.s. of water from an underground source for quasi-municipal and domestic (duplex) purposes within the NE1/4 NE1/4 of Section 10, T.21S., R.53E., M.D.B.&M. The point of diversion is described as being within the NE1/4 NE1/4 Section 10, T.21S., R.53E., M.D.B.&M.[1]

Application 49745 was filed on March 7, 1986, by Desert Tracks Agrico, Inc. to appropriate 0.09 c.f.s. of water from an underground source for nursery purposes on 10 acres of land within the SW1/4 NW1/4 of Section 32, T.20S., R.54E., M.D.B.&M. The point of diversion is described as being within the SW1/4 NW1/4 Section 32, T.20S., R.54E., M.D.B.&M.[1]

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

Application 49751 was filed on March 10, 1986, by Lee E. and Barbara A. Hargis to appropriate 0.0074 c.f.s. of water from an underground source for quasi-municipal (residential) purposes within the NW1/4 SW1/4 of Section 2, T.21S., R.53E., M.D.B.&M. The point of diversion is described as being within the NW1/4 SW1/4 Section 2, T.21S., R.53E., M.D.B.&M.[1]

Application 50371 was filed on November 18, 1986, by Clarence or Beverly Cosner to appropriate 0.03 c.f.s. of water from an underground source for quasi-municipal and domestic (residential/commercial) purposes within the NW1/4 NW1/4 of Section 1, T.21S., R.53E., M.D.B.&M. The point of diversion is described as being within the NW1/4 NW1/4 Section 1, T.21S., R.53E., M.D.B.&M.[1]

GENERAL

In 1986, U.S. Geological Survey Water Supply Paper 2279, "Ground Water Storage Depletion in Pahrump Valley, Nevada-California, 1962-1975", by James R. Harrill, was prepared cooperatively by the Nevada Department of Conservation and Natural Resources and the U.S.Department of the Interior, Geological Survey. This report is available for review in the office of the State Engineer.

In 1975, Geological Survey Professional Paper 712-C, "Hydrogeologic and Hydrochemical Framework, South-Central Great Basin, Nevada-California, with Special Reference to the Nevada Test Site", was prepared by the United States Department of the Interior, Geological Survey. This report is available for review in the office of the State Engineer.

In 1967, Geological Survey Water-Supply Paper 1832, "Hydrology of the Valley-Fill and Carbonate-Rock Reservoirs, Pahrump Valley, Nevada-California", was prepared cooperatively by the Nevada Department of Conservation and Natural Resources and the U.S. Department of the Interior, Geological Survey. This report is available for review in the office of the State Engineer.

In 1948, Water Resources Bulletin No. 5, "Geology and Water Resources of Las Vegas, Pahrump, and Indian Springs Valleys, Clark and Nye Counties, Nevada", was prepared by G.B. Maxey and C.H. Jameson. This report is available for review in the office of the State Engineer.

FINDINGS OF FACT

I.

Applications 33220, 46297, 46590, 49182, 49642, 49745, 49751 and 50371 have their respective points of diversion located within the area described as the Pahrump Valley Artesian Ground Water Basin. Application 33220 was filed in support of a State of Nevada Carey Act.[1]

II.

By order No. 176, dated March 11, 1941, Order No. 193, dated January 15, 1948, and Order No. 205, dated January 23, 1953, the State Engineer designated a portion of the Pahrump Valley Ground Water Basin under the provisions of the underground water law (Chapter 178, Nevada Revised Statutes, 1939). Order No. 206 dated, May 4, 1953, required the installation of a suitable measuring device for eaeh and every permit holder in the Pahrump Valley Artesian Basin. Order No. 381, dated June 1, 1970, excluded irrigation from being a preferred use within the designated portion of the Pahrump

Artesian Basin. The points of diversion for Applications 46297, 46590, 49182, 49642, 49745, 49751 and 50371 are located within the designated portion of the Pahrump Valley Ground Water basin.[1]

III.

The perennial yield of a ground water reservoir may be defined as the maximum amount of water of usable chemical quality that can be withdrawn and consumed economically each year for an indefinite period of time, and can be determined by a comparison analysis of ground water recharge (inflow) and the maximum amount of natural discharge (outflow) available for recapture. In the Pahrump Valley, virtually all inflow consists of recharge by precipitation and the natural recharge to and discharge from the ground water system is estimated by scientific methods.[2] Natural discharge consists of spring discharge, subsurface outflow and natural evapotranspiration by phreatophytes. Spring discharge is either consumed by evapotranspiration or may return to the ground water and be discharged as subsurface outflow. It is estimated that 18,000 acre-feet annually leaves the Pahrump Valley as subsurface outflow through deep carbonate-rock aquifers forming a multi-valley flow system. Pahrump Valley is a part of this intervalley flow system which contributes ground water to low areas adjacent to Death Valley. Based upon the scientific analysis of natural conditions observed, it would be very difficult to capture appreciable amounts of the subsurface outflow from Pahrump Valley. As of 1976, only about 200 acre-feet of the estimated 18,000 acre-feet out flow had been captured and by the year 2040, a capture of only 600 to 700 acre-feet annually is currently projected. Since most of the spring discharge was located near areas where heavy pumping centers have developed, this type of natural discharge was most readily captured by pumping and has ceased to be a significant outflow since 1975. Spring discharge decreased from 9,800 acre-feet annually under natural conditions (non-pumping) to about 1,400 acre-feet annually in 1962 and to about 200 acre-feet annually in 1975 (from Manse Spring during winter months only). Ground water evapotranspiration however, is being captured more slowly by pumping than was spring discharge. As of 1976, about 2,600 acre-feet annually of ground water evapotranspiration remained of the estimated 14,000 acre-feet annually discharged under natural conditions. The capture of all ground water evapotranspiration by pumping will probably not occur in the foreseeable future because some remaining areas of active evapotranspiration are too remote from the concentrated pumping areas. Consequently, the State Engineer finds that the maximum amount of natural discharge available for capture and therefore the perennial yield does not exceed 19,000 acre-feet annually.[3]

IV.

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

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[2] U.S. Geological Survey Water Supply Paper 2279 and 1832.

[3] U.S. Geological Survey, Water Supply Paper 2279. The State Engineer has determined that the perennial yield of the Basin may be more on the order of 12,000 acre-feet annually based on an outflow to the Amargosa-Ash Meadows area of some 7,000 acre-feet.

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 and provide substantial evidence of the adverse effect of these conditions.[4]

Analysis and evaluation indicates that land subsidence is active in at least parts of the Pahrump Valley.[5]

V.

Overdraft may be defined as the amount by which the net pumping draft exceeds the perennial yield. A substantial basin-wide overdraft exists on the ground water reservoir. Overdraft on the system in 1985 was approximately 11,000 acre-feet and, under the present conditions, no new equilibrium is possible. Water levels will continue to decline as long as this high level of pumping is sustained. During the period from February 1962 to February 1975, pumping in Pahrump Valley has resulted in a depletion of approximately 219,000 acre-feet of water from storage and a total depletion of 375,000 acre-feet since 1913. Of this depletion, 155,000 acre-feet was from the draining of unconsolidated material, 46,000 acre-feet from the compaction of fine-grained sediments and 18,000 acre-feet from the elastic response of the aquifer and water. It is estimated that 2.3 million acre-feet of water stored in the upper 200 feet of saturated valley fill is within economic pumping lifts.[5]

VI.

The greatest declines of ground water levels in Pahrump Valley have occurred along the base of the Pahrump and Manse fans located in the east side of the basin. Maximum declines of about 100 feet were observed between predevelopment in the basin and February 1976 levels, with up to 60 feet of decline occurring from 1962 to 1975.

During the period 1962-1975, water levels along the fans generally declined at rates between one to four and a half feet annually while the central part of the valley declined at less than one foot annually.[5]

Ground water levels of wells measured within the Pahrump Valley have continued to show a decline from 1976 to 1985.[5]

VII.

Permits and certificates have been issued in Pahrump Valley that could be used to withdraw over 80,000 acre-feet of ground water per year when fully developed. Of this amount, 60,000 acre-feet annually is for irrigation purposes and 20,000 acre-feet annually represents municipal/quasi-municipal and commercial usage. Should Applications 33220, 46297, 46590, 49182, 49642, 49745, 49751 and 50371 be granted

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[4] See attached Appendix of References.

[5] U.S. Geological Survey, Water Supply Paper 2279. The State Engineer's office and the U.S. Geological Survey have maintained water level networks and measurements continuously since 1962. Public record in the office of the State Engineer.

permits, an additional 857 acre-feet annually could be withdrawn from the Pahrump Valley Ground Water Basin, 750 acre-feet annually for irrigation and 107 acre-feet annually for municipal/quasi-municipal and commercial purposes.[1]

Several applications to appropriate ground water for irrigation, quasi-municipal and commercial purposes within Pahrump Valley have been previously denied.[6]

VIII.

Based upon records and information available to the Office of the State Engineer, Pahrump Valley is experiencing a large real estate development phase, especially within the Calvada area. There is currently a total of 39,830 approved lots within the Nye County portion of Pahrump Valley, of which 26,063 approved lots are in the Calvada area consisting of the Calvada Meadows, Calvada North and Calvada Valley subdivisions.[1] Ground water is the sole source of water for large scale development in Pahrump Valley, and will remain so in the future. During the period 1962-1985, ground water withdrawals increased from 29,000 acre-feet annually in 1962 to a maximum of 48,000 acre-feet annually in 1968 and then steadily declined from about 44,500 acre-feet annually in 1976 to a minimum of 19,408 acre-feet annually in 1986. The decrease in pumpage is due primarily to the transitional change of agricultural land to real estate development. The pumpage records indicate an initial decline in non-irrigation water usage from 7,355 acre-feet in 1976 to 781 acre-feet in 1979 and then steadily increased to 3,900 acre-feet in 1985. Irrigation water usage, however, declined at a disproportionate rate of change from 37,100 acre-feet in 1976, 33,088 acre-feet in 1979 to 15,424 acre-feet in 1986.[7]

CONCLUSIONS

I.

The State Engineer has jurisdiction of the parties and the subject matter of this action.[8]

II.

The State Engineer is prohibited by law[9] from granting a permit under an application to appropriate the public waters where:

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.

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[6] Public record in the office of the State Engineer. See also State Engineer's Ruling Nos. 1854, 1897, 1918, 1919, 2713, 2787, 2836, 3216, 3248 and 3462.

[7] Public record in the office of the State Engineer and U.S. Geological Survey, Water Supply Paper 2279. The State Engineer's Office has maintained annual pumpage and water use records since 1962.

[8] NRS Chapters 533 and 534.

[9] NRS 533.370(2)(3)

The State Engineer is authorized to deny an application prior to publication when a previous application for a similar use of water within the same basin has been rejected.[9]

III.

A substantial basin-wide overdraft on the ground water reservoir exists in Pahrump Valley as the net pumping draft continues to exceed the perennial yield. The observed rates of static water level decline presently are considered moderate in view of the pumping level and amount of overdraft on the ground water reservoir. The magnitude of the declining static water levels has been largely mitigated by the capture of spring discharge and phreatophyte evapotranspiration. Since most of this available natural discharge has already been captured, future water level declines are not expected to be moderated by any additional capture of natural discharge. Over three-fourths of the total amount of water rights committed within the Pahrump Valley Ground Water Basin remains under irrigation use. As additional land is taken out of agriculture production and becomes fully developed for residential purposes under existing rights, future pumpage rates will again rise causing additional stress on the ground water reservoir and an increase in the rate of static water level declines. The present basin-wide overdraft within Pahrump Valley will create a sustained depletion of stored ground water and continued static water level declines.

IV.

The granting of Applications 33220, 46297, 46590, 49182, 49642, 49745, 49751 and 50371 would allow an additional appropriation of 857 acre-feet annually, creating an additional burden and stress upon the Pahrump Valley Ground Water Basin which would further aggravate the basin-wide overdraft and declining static water levels, and therefore would conflict with existing rights and be detrimental to the public interest.

RULING

Applications 33220, 46297, 46590, 49182, 49642, 49745, 49751 and 50371 are herewith denied on the grounds that the granting thereof would conflict with existing rights and be detrimental to the public interest.

Respectfully submitted,

PETER G. MORROS
State Engineer

PGM/SHF/jjk

Dated this 11th day of

January, 1988.

APPENDIX OF REFERENCES

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