

**IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA**

IN THE MATTER OF APPLICATION 59277)
FILED TO APPROPRIATE THE PUBLIC)
WATERS OF AN UNDERGROUND)
SOURCE WITHIN THE AMARGOSA)
DESERT HYDROGRAPHIC BASIN (230),)
NYE COUNTY, NEVADA.)

RULING
5992

GENERAL

I.

Application 59277 was filed on September 23, 1993, by Roger D. Gehring to appropriate 3.0 cubic feet per second of underground water for irrigation and domestic purposes. The proposed place of use is described as being 160 acres within the SW $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$ and NW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 4, T.17S., R.49E., M.D.B.&M. The proposed point of diversion is described as being located within the NW $\frac{1}{4}$ SW $\frac{1}{4}$ of said Section 4.¹

II.

Application 59277 was timely protested by Amargosa Resources, Inc. and the U.S. Department of the Interior, National Park Service on grounds not to be considered in this ruling.

FINDINGS OF FACT

I.

Nevada Revised Statute (NRS) § 533.365(3) provides that it is within the State Engineer's discretion to determine whether a public administrative hearing is necessary to address the merits of a protest to an application to appropriate the public waters of the State of Nevada. The State Engineer finds that there is sufficient information contained within the records of the Office of the State Engineer to gain a full understanding of the issues and a hearing on this matter is not required.

¹ File No. 59277, official records in the Office of the State Engineer.

II.

State Engineer's Order No. 724, issued May 14, 1979, described and designated the Amargosa Desert Hydrographic Basin as a ground-water basin in need of additional administration under the provisions of NRS § 534.030.² The State Engineer finds that Application 59277 has a proposed point of diversion that is located within the hydrologic boundaries of the designated Amargosa Desert Hydrographic Basin.

III.

An examination of the records of the Office of the State Engineer identified numerous water right applications with proposed points of diversion located within the Amargosa Desert Hydrographic Basin that have been denied, in part, on the basis that existing water rights exceed the annual recharge to the basin.³ The State Engineer finds that previous applications to appropriate additional water in the Amargosa Desert Hydrographic Basin have been denied.

IV.

Nevada Revised Statutes chapters 533 and 534 and the policies developed by the Office of the State Engineer control the appropriation of water within the state of Nevada. Under the provisions found under NRS § 533.370(5), before an application that requests a new appropriation of underground water can be considered for approval it must be determined that there is unappropriated water available at the targeted source. The answer to the question of what amount of underground water is available for additional appropriation from the Amargosa Desert Hydrographic Basin can be found in an analysis of the basin's recharge-discharge relationship. Central to this equation is the concept of the perennial yield of the Amargosa Desert Hydrographic Basin.

The perennial yield of a ground-water reservoir may be defined as the maximum amount of ground water that can be salvaged each year over the long term without depleting the ground-water reservoir. Perennial yield is ultimately limited to the maximum amount of natural discharge that can be salvaged for beneficial use. The perennial yield cannot be more than the natural recharge to a ground-water basin and in

² State Engineer's Order No. 724, May 14, 1979, official records in the Office of the State Engineer.

³ State Engineer's Ruling Nos. 2480, 2793 and 3206, official records in the Office of the State Engineer.

some cases is less. If the perennial yield is exceeded, ground-water levels will decline and steady-state conditions will not be achieved, a situation commonly referred to as ground-water mining. Additionally, withdrawals of ground water in excess of the perennial yield may contribute to adverse conditions such as water quality degradation, storage depletion, diminishing yield of wells, increased economic pumping lifts, and land subsidence.⁴

The United States Geological Survey (USGS) estimates that the perennial yield of the Amargosa Desert Hydrographic Basin is as follows:⁵

The physical conditions in Amargosa Desert suggest that the estimate of discharge is the better basis on which to estimate perennial yield in the light of present information. Thus, the tentative perennial yield may be about 24,000 acre-feet per year. Of this, about 17,000 acre-feet can be obtained by full development of the springs in Ash Meadows. The remaining amount would be available for development by wells largely in the area northwest and northeast of the springs. Unused discharge from the springs that is returned to the ground-water reservoir downgradient from the springs toward Death Valley Junction could be withdrawn for use. However, the chemical quality generally becomes progressively poorer by this recycling and the suitability for the intended use should be evaluated carefully.

The Office of the State Engineer has for many years relied upon the USGS' estimates of perennial yield. These estimates are critical in determining the degree of regulation, which must be placed upon a ground-water basin's limited underground water resources. The State Engineer finds the perennial yield of the Amargosa Desert Hydrographic Basin is currently estimated at 24,000 acre-feet annually (afa) and only 7,000 afa is available for development by wells in the area northwest and northeast of the springs in Ash Meadows.

⁴ Office of the State Engineer, *Water for Nevada, State of Nevada Water Planning Report No. 3*, p. 13, Oct. 1971.

⁵ G.E. Walker and T.E. Eakin, *Ground-Water Resources - Reconnaissance Series Report 14, Geology and Ground Water of Amargosa Desert, Nevada-California*, (Department of Conservation and Natural Resources and U.S. Geological Survey), p. 29, 1963.

V.

Application 59277 requests a new appropriation of ground water from the Amargosa Desert Hydrographic Basin. The amount of water requested is not shown on the application; only a diversion rate of 3.0 cfs is indicated. Although there is only a diversion rate specified, additional information contained in the application file indicates that the Applicant is requesting sufficient duty to irrigate 160 acres of land. An examination of existing irrigation permits within the Amargosa Desert indicates a typical duty of either 4.0 or 5.0 acre-feet per acre. This equates to 640 or 800 afa of water.

Under NRS § 533.370(5), the first criteria that must be considered in the issuance of any new water appropriation is a determination of whether water is available at the source. A review of records on file in the Office of the State Engineer show that the committed ground-water resources are approximately 25,291 afa, excluding existing domestic wells.⁶ Based on well driller reports (well logs), at least 476 domestic wells have been drilled in the Amargosa Desert Hydrographic Basin⁷ at a maximum duty of 2.0 afa.⁸ The State Engineer finds that the committed ground-water resources in the form of existing ground-water rights (25,291 afa) and domestic wells (~962 afa), exceeds 26,000 afa. In addition, 17,000 afa of water that is discharged by springs in Ash Meadows are committed under the certificated rights of the United States Fish and Wildlife Service.⁹

The perennial yield is 24,000 afa, consisting of 17,000 afa that can be obtained by full development of the springs in Ash Meadows and 7,000 afa that would be available for development by wells largely in the area northwest and northeast of the springs.¹⁰ A review of the location of the proposed point of diversion and place of use shows that it is located to the northwest of Ash Meadows.

⁶ Special Hydrologic Basin Abstract, Water Rights Database, Basin 209, February 10, 2009, official records in the Office of the State Engineer.

⁷ Well Driller's Log - General Report, Well Log Database, Basin 209, February 10, 2009, official records in the Office of the State Engineer.

⁸ NRS § 534.180.

⁹ Special Hydrologic Basin Abstract, Water Rights Database, Basin 209, February 10, 2009, official records in the Office of the State Engineer.

¹⁰ G.E. Walker and T.E. Eakin, *Ground-Water Resources - Reconnaissance Series Report 14, Geology and Ground Water of Amargosa Desert, Nevada-California*. (Department of Conservation and Natural Resources and U.S. Geological Survey), Foreword and p. 29, 1963.

The State Engineer finds that existing water rights in the Amargosa Desert Hydrographic Basin exceed the available perennial yield. The State Engineer further finds that there is no additional water available to satisfy the proposed appropriation requested under Application 59277.

CONCLUSIONS

I.

The State Engineer has jurisdiction over the parties and the subject matter of this action and determination.¹¹

II.

The State Engineer is prohibited by law from granting an application to appropriate the public waters where:¹²

- A. there is no unappropriated water at the proposed source;
- B. the proposed use or change conflicts with existing rights;
- C. the proposed use or change conflicts with protectible interests in existing domestic wells as set forth in NRS § 533.024; or
- D. the proposed use or change threatens to prove detrimental to the public interest.

III.

The State Engineer concludes that previous applications, similar to Application 59277, have been denied for irrigation purposes in the Amargosa Desert Hydrographic Basin; therefore, Application 59277 may be considered for denial.

IV.

The committed ground-water resources of the Amargosa Desert Hydrographic Basin currently exceed the ground-water basin's estimated perennial yield. The State Engineer concludes that the approval of the subject application would result in the withdrawal of ground water in excess of the perennial yield; therefore, approval would adversely affect existing rights and threaten to prove detrimental to the public interest.

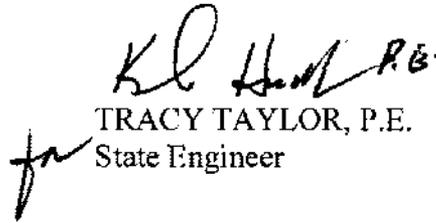
¹¹ NRS chapters 533 and 534.

¹² NRS § 533.370(5).

RULING

Application 59277 is hereby denied on the grounds that there is no unappropriated water at the proposed source, and its approval would conflict with existing rights and threaten to prove detrimental to the public interest. No ruling is made on the merits of the protests.

Respectfully submitted,


TRACY TAYLOR, P.E.
State Engineer

TT/IW/jm

Dated this 4th day of
June, 2009