

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

IN THE MATTER OF APPLICATION 71536)
FILED TO CHANGE THE POINT OF)
DIVERSION, MANNER OF USE, AND)
PLACE OF USE OF A PORTION OF THE)
PUBLIC WATERS OF AN UNDERGROUND)
SOURCE PREVIOUSLY APPROPRIATED)
UNDER PERMIT 23685, CERTIFICATE)
8451, WITHIN THE DAYTON VALLEY)
HYDROGRAPHIC BASIN (103), LYON)
COUNTY, NEVADA.)

RULING

#5498

GENERAL

I.

Application 71536 was filed on August 4, 2004, by Stanton Park Development, Inc., to change the point of diversion, manner of use, and the place of use of 0.062 cubic feet per second, not to exceed 14.72 acre-feet annually (afa), of non-supplemental underground water. The water right that is the subject of the transfer originates from a portion of Permit 23685, Certificate 8451, which the applicant describes as being non-supplemental to land irrigated by the Carson River. The proposed manner of use and place of use are described upon the application as being for municipal purposes within an extensive place of use that is comprised of the following land divisions as described upon the supporting map.

All of Sections 1, 11 and portions of Sections 2, 12, 13, 14, 23, 24, 26, 27, 28, 33 and 34, all within T.16N., R.21E., M.D.B.&M., all of Sections 3, 17 and 19, and portions of Sections 4, 5, 6, 9, 16 and 18 all within T.16N., R.22E., M.D.B.&M., the SE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 36, T.17N., R.21E., M.D.B.&M., all of Sections 31 and 33, and portions of Sections 22, 27, 28, 29, 30, 32, 33 and 34, all within T.17N., R.22E., M.D.B.&M. The proposed point of diversion is identified as being located within the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 32, T.17N., R.22E., M.D.B.&M. The existing manner of use

and place of use is for irrigation purposes within portions of the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 7, T.16N., R.22E., M.D.B.&M. and the NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 12, T.16N., R.21E., M.B.D.&M. The existing point of diversion is located within the SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 12, T. 16N., R.21E., M.D.B.&M.¹

FINDINGS OF FACT

I.

For management and water planning purposes, the United States Geological Survey (USGS) and the Nevada Division of Water Resources have divided the State of Nevada into 256 groundwater basins, each of which is identified by a name and number. Contained within these basins, is a subset of groundwater basins that are classified as designated groundwater basins.² The first groundwater basin to attain designated status was the Las Vegas Artesian Basin, a portion of which was designated by Alfred Merritt Smith by State Engineer's Order No. 175, issued on January 10, 1941. Since this initial order, 118 additional groundwater basins have been designated in part or in their entirety.³ The intent of these designation orders was to provide a mechanism that allowed additional administration of the state's water resources to be emplaced on a basin-by-basin basis. This was accomplished through subsequent orders, rulings and decisions issued by a succession of State Engineers, many of which dealt with the issue of a preferred use of underground water. A preferred use may be declared in a groundwater basin where varied manners of use compete for the same limited groundwater resource. Under the State Engineer's direction, preferred uses of water have been created in several groundwater basins, including the Dayton Valley Hydrographic Basin, where the appropriation of underground water for mining purposes was declared a preferred manner of use through

¹ File No. 71536, official records in the Office of the State Engineer.

² Designated Groundwater Basins of Nevada Map, 1:750,000, September 2003, official records in the Office of the State Engineer.

³ Hydrologic Basin Abstract Summary Book, official records in the Office of the State Engineer.

State Engineer's Ruling No. 3446-A, issued on June 30, 1987.⁴ An even higher level of regulation is found within a limited number of groundwater basins, where all but a well-defined group of water right applications will be considered for approval. The State Engineer finds that he is authorized under the Nevada Revised Statutes to create whatever degree of regulation is necessary to manage and protect the underground water resources of the state, including those present within the Dayton Valley Hydrographic Basin.

II.

Among the primary factors that are considered when assessing the need for additional regulation of a designated groundwater basin is the degree of balance that exists between the groundwater basin's estimated perennial yield and its calculated committed resource. The perennial yield of a groundwater reservoir may be defined as the maximum amount of ground water that can be salvaged each year over the long term without unreasonably depleting the groundwater reservoir. A groundwater basin's perennial yield is ultimately limited to the maximum amount of natural discharge that can be salvaged for beneficial use.⁵ The committed resource is represented by the active permits and certificates approved by the State Engineer to appropriate underground water from the groundwater basin. Once the committed resource has been adjusted to account for water rights that are supplemental in nature, the amount of water that each one is permitted to appropriate on an annual basis (annual duty) is added to obtain the committed resource. Subtracting this number from the basin's estimated perennial yield provides a clear picture as to whether or not the groundwater basin is overcommitted. A positive remainder typically signifies that there is unappropriated water available, which may

⁴ Transcript of Proceedings, Public Hearing in the Matter of Applications 50122, 50123 and 50124, p.94, official records in the Office of the State Engineer.

⁵ Office of the State Engineer, Water for Nevada, State of Nevada Planning Report No. 3, October 1971, p.13.

be requested for use through the filing of an application to appropriate.

If the committed resource exceeds the perennial yield, the magnitude of the deficit dictates to a large degree, what types of restrictions must be placed on the manner in which underground water is appropriated for use within the basin.

Previous State Engineer's rulings have addressed the committed resource perennial yield relationship as it applies to the Dayton Valley Hydrographic Basin. The findings and conclusions developed in these rulings resulted in the denial of numerous water right applications that requested additional appropriations of underground water from the groundwater basin. These denials were based upon the grounds that withdrawals of additional appropriations of ground water from a basin in which existing appropriations of ground water substantially exceeded the perennial yield would be detrimental to the public interest.⁶ The State Engineer finds that the refusal to issue permits for additional appropriations of water, as evidenced by past rulings, represents an effort by the State Engineer to halt the increase that has occurred in the committed resource, while safeguarding the recharge side of the Dayton Valley Hydrographic Basin's water budget.

III.

The Dayton Valley Hydrographic Basin has experienced a rapid increase in the development of its groundwater resources since 1975 when the USGS first evaluated the groundwater basin's water resources as part of its Nevada water reconnaissance program. The findings of the hydrologic study that are specific to the Dayton Valley Hydrographic Basin can be found within Water Resources - Reconnaissance Series Report 59, Water-Resources Appraisal of the Carson River Basin, Western Nevada, (Recon 59). This report, which

⁶ Nevada Division of Water Resources Water Rights Database, Rulings Report for Hydrographic Basin 103, April 1, 2005, official records in the Office of the State Engineer.

was authored by Patrick Glancy and Terry Katzer, provides a general understanding of the Dayton Valley Hydrographic Basin's recharge-discharge relationship from which an estimate of the its perennial yield can be derived.

Glancy and Katzer estimated the potential groundwater recharge to the Dayton Valley Hydrographic Basin from precipitation to be 7,900 afa. An additional 1,615 afa was added from subsurface inflow through the alluvial units from the adjacent Eagle Valley and Carson Valley Hydrographic Basins, minus 70 acre-feet of estimated underground flow from Dayton Valley to Churchill Valley. Therefore, the perennial yield of the Dayton Valley Hydrographic Basin was calculated by Glancy and Katzer to be 9,445 acre-feet.⁷

In 1994, the USGS initiated a hydrologic study to re-evaluate the reconnaissance level water budget for the Dayton Valley Hydrographic Basin, which had previously been defined in Recon 59. This new study culminated with the release of Water Resources Investigations Report 97-4123, Hydrology and Ground-Water Budgets of the Dayton Hydrographic Area, West-Central Nevada, in 1997, (Report 97).⁸ By utilizing refined estimates of the water budget components, the groundwater recharge and discharge estimates for the Dayton Valley Hydrographic Basin were revised to reflect a recharge value of 12,252 acre-feet. A recent query of the State Engineer's water right database specific to the permits and certificates that reside within the Dayton Valley Hydrographic Basin produced a committed resource value of 25,800 afa for all manners of use.⁹ At this level, the committed groundwater resource still exceeds the basin's recharge by over 100 percent. The State

⁷ P.A. Glancy and T.L. Katzer, Water Resource Appraisal of the Carson River Basin, Western Nevada: Nevada Division of Water Resources, Reconnaissance Report 59. 1976.

⁸ D.K. Maurer, Hydrology and Ground-Water Budgets of the Dayton Valley Hydrologic Area, West-Central Nevada, Water-Resources Investigations Report 97-4123, U.S. Geological Survey, U.S. Department of Interior, Carson Water Subconservancy District, 1997.

⁹ Nevada Division of Water Resources Water Right Database, Hydrographic Basin 103, July 13, 2005, official records in the Office of the State Engineer.

Engineer finds that both the original Recon 59 and revised Report 97 estimates of the Dayton Valley Hydrographic Basin's perennial yield are significantly exceeded by the basin's committed groundwater resource.

IV.

Report 97 also divides the Dayton Valley Hydrographic Basin into five distinct sub-basins, with these being identified as Riverview, Mound House, Bull Canyon, Stagecoach and Carson Plains. Each sub-basin was studied to determine its associated recharge from precipitation, using data acquired from precipitation stations located within the study area. If the proposed point of diversion described by Application 71536 is located upon the State Engineer's Designated Groundwater Basins of Nevada Map, it falls within the boundaries of the Carson Plains sub-basin, which is estimated to receive 6,800 acre-feet of underground recharge on an annual basis.⁸ The value for the committed resource of the Carson Plains sub-basin is found within the Dayton Valley Groundwater Pumpage Inventory Water Year 2003 report, which states that 16,668.22 acre-feet of underground water is currently held under existing permits and certificates.¹⁰ A comparison of this number to the 6,800 acre-feet representing the recharge component of the Carson Plains sub-basin, leaves the sub-basin overcommitted by 145 percent, a percentage that exceeds the ratio for Basin 103 in its entirety. The State Engineer finds that the stress placed upon the underground water resources of the Carson Plains sub-basin has attained a higher level than that found within the Dayton Valley Hydrographic Basin when viewed in its entirety.

¹⁰ Matthew Dillon and Sabrina Strong, Dayton Valley Groundwater Pumpage Inventory Water Year 2003, Nevada Dept. of Conservation and Natural Resources, Division of Water Resources, 2003.

V.

To address this issue in both the Dayton Valley Hydrographic Basin and the Carson Plains sub-basin, the State Engineer is limited to those elements of the recharge-discharge relationship that can be controlled by man, of which, the committed groundwater resource is perhaps the most important. As previously noted, the committed resource of a groundwater basin is comprised of water right permits and certificates under which appropriations of water can occur. These permits can be divided into two classifications, those that seek new appropriations of water and those which request changes in point of diversion, place of use and or manner of use of existing water rights. The number of change applications that are submitted to the Office of the State Engineer on an annual basis has, in recent years, exceeded those that request new appropriations of water. One of the motivating factors for this increase is the transformation of agricultural water rights to municipal water rights to support Nevada's continued urban development. At this time, it can only be expected that this trend will continue, with the existing pool of irrigation permits and certificates being gradually transformed to municipal or quasi-municipal use through the change application process. This places a greater concern as to the effect that these changes may have on the state's water resources, including those found within the Dayton Valley Hydrographic Basin and its sub-basin components. The State Engineer finds that while new appropriations of underground water are tightly controlled through the permitting process, additional regulation must be considered for water right applications that request changes in existing water permits and certificates.

VI.

The records of the Office of the State Engineer contain numerous permits and certificates that changed existing irrigation permits to municipal or quasi-municipal use. Recently, there have

been decisions made by the State Engineer to limit the amount of water that can be changed to the estimated consumptive use portion of the existing irrigation permit.¹¹ In reference to an irrigation right, the consumptive use is represented by that portion of the water that is applied to a parcel of land that is no longer available because it has been evaporated, transpired by plants, or otherwise removed from its initial source. This portion of the original appropriation is lost to any other use and as such does not contribute through secondary recharge to the groundwater basin's underground water resources. To quantify the consumptive use for irrigation within the northern portion of the state, the State Engineer accepts the consumptive use figure of 2.5 acre-feet of water per irrigated acre established by the Alpine Decree.¹² The State Engineer has used the 2.5 acre-feet per acre standard in previous written rulings, which allowed only the consumptive use portion of existing irrigation permits to be changed to a manner of use with a greater consumptive use.¹¹ Based upon the 4.0 acre-feet per acre water duty that the State Engineer has assigned to underground irrigation permits in the northern townships of the state, a consumptive use level of 2.5 acre-feet would represent 62.5 percent of the initial irrigation permit. At this level, the secondary recharge to the groundwater basin generated from the existing irrigation use is significantly greater than the total that would be expected under a proposed municipal or quasi-municipal use. Without the consumptive use discount, a transfer of 4.0 acre-feet per acre of irrigation rights to a highly consumptive use would add stress to the groundwater basin, since the secondary recharge to the groundwater basin would be removed.

¹¹ State Engineer's Ruling Nos. 5167, 5359, 5491 and 5492, official records in the Office of the State Engineer.

¹² Final Decree, U.S. v. Alpine Land and Reservoir Co., Civil No. D-183BRT (D.Nev. 1980).

VII.

In the case of Basin 103, the records of the Office of the State Engineer identify approximately 9,500 acre-feet of underground water under existing irrigation permits and certificates. Of this amount, approximately 4,546 acre feet is considered to be nonsupplemental, in that it irrigates land that does not receive agricultural water from a primary source, such as the Carson River.¹⁰ While it is unlikely that this amount of nonsupplemental water would be pumped for irrigation purposes during any given year, it still represents a secondary annual recharge potential of approximately 1,705 acre-feet. If the transfer proposed by Application 71536 were approved without the consumptive use discount, it would remove a portion of the secondary recharge from the basin, thereby adversely affecting existing water rights. The State Engineer finds that Application 71536, if approved, can transfer only the consumptive use portion of Permit 23685, Certificate 8451, with this amount calculated to be 9.2 afa, which equates to approximately 3.0 mga.

VIII.

Secondary recharge to the groundwater basin is not exclusively derived from the irrigation of land under existing irrigation permits and certificates and it can originate from other uses. Combined municipal and domestic water use within the Dayton Plains sub-basin has the potential to exceed irrigation, at 8,572 afa and 868 afa, respectfully. The Carson Plains sub-basin is gradually developing the necessary infrastructure to treat wastewater produced by its business and residential areas at centralized locations. Those water treatment facilities that are in current operation, dispose of the processed wastewater primarily through evaporation or infiltration ponds, with only 224 afa of effluent permitted for grey water irrigation.¹³ Those areas

¹³ File No. 52860, official records in the office of the State Engineer.

that are located beyond the municipal sewer lines rely upon individual septic systems to treat the liquid waste produced by each home. Whether it originates from a municipal pipeline or a domestic well, the State Engineer has accepted in a past decision, that approximately 40 percent of the water that services a residence is returned to the groundwater system through its septic system, if it is properly constructed and maintained.¹⁴ This level of secondary recharge compares favorably to the contributions that would be expected from the disposal techniques employed at the municipal wastewater treatment plants. The 40 percent return flow, if applied to all current municipal use within the Carson Plains sub-basin, would represent a conservative approach given the mixture of water treatment and disposal methods. At this return rate and at maximum utilization, the municipal portion of the committed resource combined with the domestic well component would account for 9,440 acre-feet, of which approximately 60 percent or 5,664 afa would be irretrievably lost to the groundwater basin. If the 3,783 acre feet of underground water totally consumed by irrigation on an annual basis is considered, the consumptive use is approximately 9,447 afa. Returning to the primary recharge estimate of 6,800 afa determined for the Dayton Plains sub-basin, the State Engineer finds that the committed resource of the sub-basin still exceeds the annual recharge to the sub-basin, even after it has been adjusted to take the major secondary recharge components into consideration.

IX.

The policy of identifying and transferring only the estimated consumptive use portion of an existing irrigation permit through the permitting process is not intended to be applied to every request to change an existing irrigation right. It is used on a case-by-case basis, which allows flexibility when considering the various levels of groundwater development found within the state.

¹⁴ State Engineer's Ruling No. 5485, official records in the office of the State Engineer.

The most likely candidates for this type of action would be those designated basins that are considered areas of active management. Areas of active management are defined as regions in which the State Engineer is conducting particularly close monitoring and regulation of the water supply due to a heavy demand placed upon this resource. Dayton Valley can be considered such an area; therefore, the State Engineer finds that to allow the full duty to be changed is tantamount to the issuance of a new water right in a groundwater basin that is over appropriated and where new appropriations of underground water are limited.

VIII.

By allowing only the transfer of the consumptive use portion of the existing base right permit, the State Engineer finds that the approval of the subject water right application will not conflict with existing water rights within the Dayton Valley Hydrographic Basin.

CONCLUSIONS

I.

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

II.

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

- 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.

¹⁵ NRS chapters 533 and 534.

¹⁶ NRS § 533.370(4).

III.

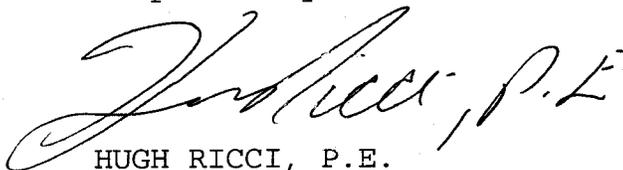
Application 71536 was filed to change an existing groundwater right from within the Dayton Valley Hydrographic Basin. The State Engineer concludes that its approval will not conflict with existing water rights nor threaten to prove detrimental to the public interest. These conclusions are based upon the premise that only the consumptive use portion of the base right permit will be approved for change.

RULING

Application 71536 is hereby approved subject to:

1. Existing water rights;
2. Payment of the statutory permit fee;
3. Permit terms and conditions that limit its annual duty of water to its consumptive use portion, being 9.20 acre-feet, of the 14.72 acre-feet portion of the base right. The remainder, 5.52 acre-feet, remains in the groundwater source.

Respectfully Submitted,



HUGH RICCI, P.E.
State Engineer

HR/MB/jm

Dated this 13th day
of July, 2005.