

IN THE OFFICE OF STATE ENGINEER
OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION 65295)
FILED TO CHANGE THE POINT OF)
DIVERSION, MANNER AND PLACE OF USE)
OF THE UNDERGROUND WATERS)
PREVIOUSLY APPROPRIATED UNDER)
PERMIT 10592, CERTIFICATE 2669,)
WITHIN THE MASON VALLEY GROUNDWATER)
BASIN (108), LYON COUNTY, NEVADA.)

RULING

4906

GENERAL

I.

Application 65295 was filed by the City of Yerington on July 9, 1999, to change the point of diversion, manner and place of use of 1.50 cubic feet per second (cfs), or 673 gallons per minute (gpm), not to exceed 1,085.96 acre-feet annually (afa), of water from an underground source in Lyon County, Nevada. The proposed use is for municipal and domestic purposes within the consolidated City of Yerington and the Mason Water Company water system service area. The proposed point of diversion is described as being located within the SE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 21, T.13N., R.25E, M.D.B.&M.¹ Application 65295 proposes to transfer water from an existing, perfected, municipal water right established under Permit 10592, Certificate 2669.

II.

A protest to the granting of the application was timely filed on September 27, 1999, by James D. Bednark on the grounds that:

Previous use of this well for agricultural irrigation has resulted in an adverse impact on my well at 834 W. Bridge Street. This impact is documented by letters written by my predecessor (Helen Belcher) and the resulting action taken by the State Water Engineer[.] Permitting the municipal use of this well by granting the transfer of waters from other wells is not necessary and will have

¹ File No. 65295, official records in the office of the State Engineer.

further negative impact on my domestic well which has rights superior to this well.

The protestant requests that the application be denied.

FINDINGS OF FACT

I.

The protestant is the owner of a domestic well that serves a single-family dwelling located 150 feet east of the location of the well proposed under the subject application.² The protestant utilizes the well under the Nevada statute that exempts the domestic use of underground water from the requirement of obtaining a permit if the use does not exceed 1,800 gallons per day.³ The State Engineer finds that the protestant has the right under the statute to use a domestic well to serve one single-family dwelling and related domestic purposes.

II.

As in many of the western states, development of ground water in Nevada is provided by law under the prior appropriation doctrine, where the first in time to divert water to beneficial use is the first in right. All underground waters within the boundaries of this state belong to the public, and are subject to the appropriation procedures set forth under the laws of this state and not otherwise. The domestic use exemption is, therefore, an appropriation of underground water provided by statute. The Nevada legislature added the provision in the water law that all appropriators of underground water must allow for a reasonable lowering of the water level, at an appropriator's point of diversion, that may occur due to other groundwater development in the area.⁴ This provision specifically gives the State Engineer the tools to grant permits to appropriators later in time, so long as the rights of the senior appropriators could be

² Data regarding the domestic well are in File No. 18704 and other public records in the office of the State Engineer.

³ NRS § 534.013 and § 534.180. Data regarding the domestic well are in File No. 18704, official records in the office of the State Engineer.

satisfied. The lawmakers further required the State Engineer to include a condition, for each new permit for public supply wells, that pumping may be limited or prohibited to prevent unreasonable adverse effects on existing domestic wells within a 2,500-foot radius.⁵ The State Engineer finds the appropriation of water by the applicant for public supply purposes will likely have an impact on nearby wells and makes the following findings to determine the extent of the impacts.

III.

In response to a complaint in 1987, by the owner of the same domestic well that is now the subject of the instant protest, the State Engineer made findings of violation and issued an administrative order to cease the pumping of the same irrigation well in excess of the permitted amount. The operator of the irrigation well was pumping 1,850 gallons per minute, far more than was allowed under the permit for irrigation. The water-level impact at the domestic well was determined to be such that it was at or below the pump intake and therefore the well owner could not pump water. It was also determined that the domestic well pump intake was set at a very shallow depth of about 25 feet and that static water-levels in this area are about 12 feet below surface.⁶ Accordingly, the State Engineer's findings at the time only extended to the excessive pumpage of the irrigation well as the violation, and made no determination as to whether the drawdown impact was unreasonable. Generally, the more gallons per minute a well produces, the more the water-level drops in the well and near the well. The State Engineer finds the original complainant was satisfied with the action taken to curtail the pumpage of the irrigation well since nothing further was heard in the matter.

⁴ NRS § 534.110(4).

⁵ NRS § 534.110(5).

IV.

The State Engineer reviewed the results of an aquifer flow test conducted when the well was constructed at the same point of diversion proposed under the subject application. The applicant proposes to transfer 673 gallons per minute of water rights to this location, and may use this well after some reconditioning, or may decide to drill a new well. This existing well was used for irrigation purposes on an intermittent basis since it was drilled on April 8, 1961, and the flow test provides some information about the aquifer characteristics. The State Engineer analyzed the data generated from the flow test on the well at the location that is the subject of Application 65295 and this ruling.⁷ The State Engineer estimates the aquifer characteristic transmissivity (T) to be 100,000 gallons per day per foot or 13,368 square feet per day. The aquifer storage coefficient (S) is estimated to be 0.01 based on the test data. The State Engineer prepared estimated water-level drops that can be expected to occur because of pumping a well completed in an aquifer with these characteristics. The projected water-levels were generated using the standard Cooper-Jacob straight-line approximation of the Theis non-equilibrium equation for water-level drawdown that occurs when a well is pumped or flowed. The quantity of water used in the equation to project the water-level drops was the 673 gpm or 1,085.96 afa that is proposed to be produced if the instant application is approved. The method assumes a homogeneous and isotropic aquifer, infinite in areal extent, with no recharge. The projected water-level drop at a distance of 150 feet from the pumping well, the distance to protestant's well, after pumping the

⁶ The matter of the complaint on the pumping of the irrigation well, and the State Engineer's Administrative Order No. 971 are a matter of public record in File No. 18704, official records in the office of the State Engineer.

⁷ The analysis of the well testing data is contained in an Office Memorandum prepared by the staff of the State Engineer, dated March 31, 2000, official records in the Office of the State Engineer.

1,085.96 afa for twenty years is less than eleven feet.⁸ The method of analysis and technique for predicted water-level response is completely adequate for estimating water-level response especially for long periods of pumping.⁹ Based on the information available regarding the instant application, the State Engineer finds the projected drawdown impact at the protestant's well as a result of the pumpage of 673 gallons per minute or 1,085.96 acre-feet of water proposed to be developed from the applicant's well is reasonable.

V.

The State Engineer duly considered the claims of the protestant. The protestant did not provide any analysis or study of the water diversion proposed by the applicant. The protestant is sincerely concerned that the impacts on the protestant's well may be similar to those that occurred in 1987.^{1,2} The State Engineer finds the only issue pending before him at this time, regarding the impact of the applicant's proposed diversion on existing rights, is the projected impact of the proposed diversion of 673 gallons per minute or 1,085.96 acre-feet of water from the location described in Application 65295. Neither the applicant nor the protestant has provided any hydrological studies of his or her own. The State Engineer finds the results of the flow test that were analyzed using industry standard techniques provide sufficient information on the aquifer characteristics to make a reasonable determination of potential impacts on existing rights.

VI.

As provided in NRS § 533.360(3)(a), the applicants mailed notices to the owners of real property containing a domestic well within 2,500 feet of the well proposed under Application 65295. The State Engineer finds the applicant complied with the statutory noticing requirement.

⁸ *Ibid.*

⁹ Freeze, R.A. and J.A. Cherry, *Groundwater*, at 347-349 (1979).

CONCLUSIONS

I.

The State Engineer has jurisdiction over the parties and the subject matter of this action and determination.¹⁰

II.

The State Engineer is prohibited by law from granting an application to change the public waters where:¹¹

- A. the proposed use conflicts with existing rights; or
- B. the proposed use threatens to prove detrimental to the public interest.

III.

The State Engineer analyzed the data generated from the flow test conducted on the well that is at the same point of diversion described in Application 65295. The State Engineer prepared estimated water-level drops that can be expected to occur because of pumping a well completed in an aquifer with these characteristics. The projected water-levels were generated using the standard Cooper-Jacob straight-line approximation of the Theis non-equilibrium equation for water-level drawdown that occurs when a well is pumped or flowed. The method of analysis and technique for predicted water-level response is completely adequate for estimating water-level response especially for long periods of pumping. Based on the information available regarding the instant application, the State Engineer concludes the projected drawdown impact at the protestant's well as a result of the pumpage of the 673 gallons per minute or 1,085.96 acre-feet of water proposed to be developed is reasonable.

IV.

The State Engineer duly considered the claims of the protestant. The protestant did not provide any analysis or study

¹⁰ NRS Chapters 533 and 534.

¹¹ NRS § 533.370(3).

of the water diversion proposed by the applicant. The protestant is sincerely concerned that the impacts on the protestant's well may be similar to those that occurred in 1987 as a result of pumping three times as much water as is proposed in the instant application. The State Engineer disagrees and concludes the only issue pending before him at this time, regarding the impact of the applicant's proposed diversion on existing rights, is the projected impact of the proposed diversion of 673 gallons per minute or 1,085.96 acre-feet of water from the location described in Application 65295.

V.

Neither the applicant nor the protestant provided any hydrological studies of his or her own. The State Engineer concludes the results of the flow test generated that were analyzed using industry standard techniques provide sufficient information on the aquifer characteristics to make a reasonable determination of potential impacts on existing rights.

VI.

As provided in NRS § 533.360(3)(a), the applicant mailed notices to the owners of real property containing a domestic well within 2,500 feet of the well proposed under Application 65295. The State Engineer concludes the applicant complied with the statutory noticing requirement.

VII.

Nevada water law provides that the right of each appropriator of ground water must allow for a reasonable lowering of the static water level at the appropriator's point of diversion.¹² Nevada law does not prevent the granting of permits to appropriate ground water to applicants later in time on the ground that the diversions under the proposed later appropriations may cause the water-level to be lowered at the point of diversion of a prior appropriator, so long as the water rights of holders of existing

¹² NRS § 534.110(4).

appropriations can be satisfied. The State Engineer concludes that the water rights of the protestant can be satisfied under such express conditions.¹³

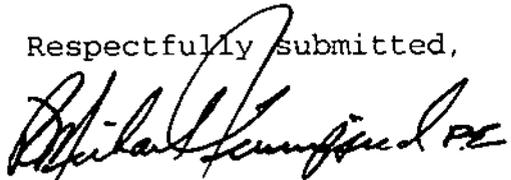
VIII.

Based on the record of evidence available, the State Engineer concludes that approval of Application 65295 to change the point of diversion, manner and place of use of 673 gallons per minute or 1,085.96 acre-feet of water will not conflict with existing rights nor threaten to prove detrimental to the public interest.

RULING

The protest to Application 65295 is hereby overruled and said application is hereby approved subject to existing rights and the payment of statutory permit fees.

Respectfully submitted,



R. MICHAEL TURNIPSEED, P.E.
State Engineer

RMT/TKG/cl

Dated this 14th day of
April, 2000.

¹³ NRS § 534.110(5).