

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

IN THE MATTER OF APPLICATION )  
66873 FILED TO APPROPRIATE )  
THE PUBLIC WATERS OF AN )  
UNDERGROUND SOURCE WITHIN )  
THE BEDELL FLAT HYDROGRAPHIC )  
BASIN (094), WASHOE COUNTY, )  
NEVADA. )

RULING ON REMAND

**#5429 A**

GENERAL

I.

Application 66873 was filed on October 16, 2000, by Intermountain Pipeline, LTD., to appropriate 1.5 cubic feet per second (cfs), not to exceed 1,000 acre-feet annually (afa), of underground water for municipal and domestic purposes. The proposed place of use to be serviced by this appropriation of water is extensive and is comprised of all of T.21N., R.19E., Section 36, T.21N., R.18E., Sections 1 through 12, inclusive, and 15 through 17, inclusive, T.20N., R.19E., and Sections 1 and 12, T.20N., R.18E., M.D.B.&M. The proposed point of diversion is described as being located within the SE¼ SE¼ of Section 5, T.23N., R.19E., M.D.B.&M.<sup>1</sup>

II.

Title to Application 66873 was assigned into the name of Intermountain Water Supply, Ltd., in the records of the Office of the State Engineer on July 14, 2004.<sup>1</sup>

III.

Application 66873 was timely protested by Washoe County on the following grounds:<sup>1</sup>

There is no unappropriated water in the source of supply, and the proposed appropriation threatens to prove detrimental to the public interest.

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<sup>1</sup> File No. 66873, official records in the Office of the State Engineer.

This application proposes to appropriate 1.5 cfs (1,000 acre-feet) annually of the ground water resources from the Bedell Flat Hydrographic Basin.

The United States Geological Survey, Reconnaissance Report No. 43, estimates the natural yield of this basin to be 300 acre-feet annually. Preliminary data from the Nevada Division of Water Resources indicates the total appropriation in the form of Water Rights Permits and Certificates to be about 25 acre-feet annually. Furthermore, Washoe County has reviewed and approved a number of parcel map applications which has resulted in the creation of approximately 130 parcels of land with the right to drill an individual domestic well, of which 34 have already done so.

Therefore, the total appropriations/allocations from ground water resources in Bedell Flat equals 287.6 acre-feet ((130 x 2.02) + 25af = 287.6 acre-feet), which in theory will leave an unappropriated duty of 12.4 acre-feet remaining for new appropriations.

It should also be noted that a protested application in this basin is still pending a ruling by the Nevada State Engineer.

#### IV.

Application 66873 was also timely protested by the County of Lassen, California, on the following grounds:<sup>1</sup>

1. There is no unappropriated water in the proposed source.
2. Approval of the subject application will, on information and belief, have an impact on flows of Long Valley Creek and, accordingly, will adversely impact existing rights.
3. Approval of the subject application will, on information and belief, adversely impact existing water sources presently utilized by livestock and wildlife in the forms of springs and seeps.
4. Approval of the subject application is not in the public interest as numerous public entities, including Congress with the passage of P.L. 101-618, have determined that more viable sources are available to meet the municipal needs of the area that includes the proposed place of use.

- 5 Approval of the subject application is not in the public interest, because, on information and belief, pumping of this magnitude of groundwater when combined with existing rights will ultimately result in a water mining situation and long-term detrimental impact on the aquifer.

**FINDINGS OF FACT**

I.

State Engineer's Ruling No. 5429 authorized the approval of Application 66873, on October 14, 2004. The protests to the application were overruled and the application was approved but at a duty reduced from that requested. The Applicant appealed this decision to the 2<sup>nd</sup> Judicial District Court, Washoe County. The Court remanded the matter to the State Engineer for an administrative hearing to allow the State Engineer to review and consider the *Numeric Groundwater Flow Modeling of Bedell Flat Hydrographic Basin in Washoe County, Nevada*, prepared by Interflow Hydrology, Inc. of Truckee, California, and all other information that the State Engineer deemed relevant in order to review and reconsider his ruling with respect to Application 66873.

Pursuant to the Court's order, the State Engineer held an administrative hearing to consider the matter of Application 66873 on February 28, 2006.<sup>2</sup>

II.

Application 66873 was filed to appropriate 1,000 afa. The application was protested on various grounds by Washoe County, Nevada and Lassen County, California. Ultimately, the protests were overruled and the application was granted for 144.2 afa under State Engineer's Ruling No. 5429. It is the Applicant that appealed this decision to the Court

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<sup>2</sup> Transcript and Exhibits, public administrative hearing before the State Engineer, February 28, 2006. Hereinafter, the transcript will be referred to by page number and the exhibits by exhibit number.

seeking the approval of more water than the 144.2 afa granted under State Engineer's Ruling No. 5429. The Protestants did not appeal any of the findings, conclusions or ruling, pertaining to the merits of their respective protests. The Order of Remand instructs the State Engineer to review and consider the Applicant's *Numeric Groundwater Flow Modeling of Bedell Flat Hydrographic Basin in Washoe County, Nevada*, and any other relevant information to determine whether the amount of water granted under Application 66873 should remain 144.2 afa or should the duty be increased up to 500 afa.<sup>3</sup>

The State Engineer finds that the protests to Application 66873 were properly overruled in State Engineer's Ruling No. 5429 and the Protestants did not appeal Ruling No. 5429. The State Engineer further finds that the only issue before him in this remand ruling is the quantity of water that will be granted under Application 66873.

### III.

The appropriation of water within the State of Nevada is controlled by the Nevada Revised Statutes (NRS) chapters 533 and 534 and the policies developed by the Office of the State Engineer. 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, among other things, 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 Bedell Flat Hydrographic Basin can be found in an analysis of the basin's recharge-discharge relationship.

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<sup>3</sup> The Applicant has reduced the amount of water requested under Application 66873 from 1,000 afa to 500 afa. Transcript, p. 6.

Central to this equation is the concept of the perennial yield of the Bedell Flat Hydrographic Basin. 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 depleting the groundwater reservoir. Perennial yield is ultimately limited to the maximum amount of natural discharge that can be salvaged for beneficial use. If the perennial yield is continually exceeded, groundwater levels will decline. 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, increase in cost due to increased pumping lifts, land subsidence and possible reversal of groundwater gradients, which could result in significant changes in the recharge-discharge relationship.<sup>4</sup> The United States Geological Survey (USGS) estimates the perennial yield of the Bedell Flat Hydrographic Basin to be approximately 300 afa.<sup>5</sup>

In examining the basis for the perennial yield, the USGS used the Maxey-Eakin recharge coefficients and the Hardman precipitation map to compute estimate recharge at 1,100 afa. Their estimate of natural discharge was 230 afa, 200 afa via subsurface flow to Red Rock Valley and 30 afa through evapotranspiration, resulting in an imbalance of 900 afa (rounded).<sup>6</sup> Because recharge must equal discharge in a steady state system, they then used the average of the initial recharge/discharge estimates to arrive at a water budget (recharge and discharge) of 700 afa. Perennial yield was then determined to be  $\frac{1}{2}$  of the basin subsurface discharge, rounded to 300 afa. In their reconnaissance report, the authors recognized there might also be an undetermined amount of ground water outflow through volcanic

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<sup>4</sup> State Engineer's Office, Water for Nevada, State of Nevada Water Planning Report No. 3, p. 13, Oct. 1971.

<sup>5</sup> Exhibit No. 11, p. 49.

<sup>6</sup> Exhibit No. 11.

rocks northward to Dry Valley or westward to Red Rock Valley.<sup>7</sup> Nevertheless, they chose to use an average of recharge and discharge estimates rather than use the recharge estimate alone.

The perennial yield is commonly set at  $\frac{1}{2}$  of the subsurface discharge for two primary reasons. First, it is often difficult to efficiently capture the full subsurface discharge without also capturing an unacceptable amount of transitional storage. Second, subsurface outflow must flow to an adjacent basin, where it may already be appropriated. By setting the perennial yield at  $\frac{1}{2}$  of the outflow, regional overappropriation can be avoided.

#### IV.

State Engineer's Ruling No. 5429 allowed for the approval of 144.2 afa under Application 66873. It is the Applicant's contention that sufficient underground water is currently available from the Bedell Flat Hydrographic Basin to support the approval of 500 afa, under Application 66873, over and above the needs of existing and future domestic wells and current appropriations within Bedell Flat.<sup>8</sup>

The Order of Remand of the Court instructed the State Engineer to consider an additional report, *Numeric Groundwater Flow Modeling of Bedell Flat Hydrographic Basin in Washoe County, Nevada*, prepared by Interflow Hydrology, Inc. of Truckee, California (Bedell Flat model).<sup>9</sup> It was noted that the report has undergone numerous revisions starting in November of 2004, amended December 2004, and second amended February 2005. The amendments reflect the author's work with the BLM and their consultants for use of the Bedell Flat model in the Environmental Impact Statement (EIS) for the pipeline portion of the Applicant's project.

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<sup>7</sup> Ibid, p. 42.

<sup>8</sup> Transcript, p. 6.

<sup>9</sup> Exhibit No. 15.

The second amended February 2005 report is the final product and the U.S. Bureau of Land Management (BLM) accepted this report as a document for the EIS.<sup>10</sup>

Interflow Hydrology, Inc., details the history of the evolution of the second amended February 2005 Bedell Flat model via memorandum to the Applicant.<sup>11</sup> In May 2003, Interflow Hydrology and Cordilleran Hydrology issued a report titled *Hydrogeology of Bedell Flat and Potential for Ground Water Development, Washoe County, Nevada*.<sup>12</sup> This report provides the hydrogeologic basis for the Bedell Flat model. Since the issuance of the first report in May 2003 additional precipitation data has been collected at eight gages in Bedell Flat. In addition, new water sampling data was obtained by Interflow in January 2006. The water sampling data collected in January 2006 provided for an updated chloride mass balance, which suggested a slightly lower recharge value of 1,180 afa when compared to the recharge value of 1,300 afa predicted by the 2005 Bedell Flat model. The results of the updated computations and previous estimates are as follows:<sup>13</sup>

	<u>RECHARGE EST. (AFA)</u>
1) Maxey-Eakin (Rush and Glancy, 1967)	1,100*
2) Interflow-Cordilleran 2003	1,510
3) Bedell Flat model 2005	1,300
4) Bedell Flat model 2005 with updated	1,180

Chloride mass-balance

\*Rush and Glancy, 1967, ultimately used 700 afa in estimating a perennial yield of 300 afa (Table 20, p. 43)<sup>14</sup>

Based in part on the Bedell Flat model 2005 with the updated Chloride mass-balance, the Applicant's expert witness opined that 500 afa could be reasonably developed in

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<sup>10</sup> Transcript, p. 17.

<sup>11</sup> Exhibit No. 13.

<sup>12</sup> Exhibit No. 12.

<sup>13</sup> Exhibit No. 13.

<sup>14</sup> Exhibit No. 11, Table 20, p. 43.

the Bedell Flat Hydrographic Basin and suggested there's sufficient data that 600 afa, or half the estimated recharge value of 1,200 afa, is a reasonable perennial yield.<sup>15</sup>

The State Engineer finds that the Applicant has proffered a perennial yield estimate of 600 afa.

V.

State Engineer's Ruling No. 5429 cited a lack of new data in the 2003 report and found that without a significant expansion of the pool of existing data there was no justification for changing the perennial yield.<sup>16</sup> The Applicant has countered this argument by using a chloride mass-balance method using additional sampling collected in January 2006 and three additional years of precipitation data for a total of six years of precipitation data.<sup>17</sup> In examining Table 3 of Exhibit 13, it appears that additional chloride sampling was done at 4 of the 15 sites that were used to estimate average chloride content; Willow Spring, Bedell Spring, BLM stockwater well, and Whitney Spring.

The chloride mass-balance method of estimating recharge requires the estimation of three variables using the following equation:

$$\text{Ground Water Recharge} = \text{Precip. Volume} \times \frac{\text{Average Cl in Precip.}}{\text{Average Cl in Ground Water}}$$

Assumptions made by the Applicant's expert are that the entire basin precipitation is applicable in the chloride mass-balance computation, no ground water evapotranspiration occurs at the valley floor, no sources of chloride are suspected in basin-fill sediments, groundwater samples from all geographic areas within the basin are assumed to be applicable and septic system return flow in the southern basin has not elevated the chloride content.<sup>18</sup>

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<sup>15</sup> Transcript, pp. 49-50.

<sup>16</sup> State Engineer's Ruling No. 5429, Official records in the Office of the State Engineer.

<sup>17</sup> Transcript, p. 24.

<sup>18</sup> Exhibit No. 13, p. 2.

The calculation of an average chloride value in ground water is critical to the chloride mass-balance method of estimating recharge as the lower the average chloride value in ground water that is used, the higher the ground water recharge estimate.<sup>19</sup> The Applicant's expert estimated the average chloride in ground water at 8.83 milligrams per liter by averaging chloride values from five spring sources and ten well sites in the Bedell Flat Hydrographic Basin.<sup>20</sup>

The Protestant's expert witness offered rebuttal testimony and questioned the use of an average chloride value throughout the Bedell Flat Hydrographic Basin when the Bedell Flat model suggests 75 percent of the recharge occurs in the Dogskin Mountains. The average sample of chloride at sites near the Dogskin Mountains is 13.88 milligrams per liter and, using that value, the recharge would be 750 afa, which is in close agreement to the 700 afa value used by Rush and Glancy, 1967.<sup>21</sup> It was also suggested that a weighted average that emphasizes the chloride content of ground water in the recharge areas could also be utilized.<sup>22</sup>

The Applicants expert simply averaged all the data to arrive at an average chloride concentration for the basin. It would have been more appropriate to use an areally weighted average to reduce the influence of tightly spaced samples, such as those in the southern portion of the valley where chloride concentrations are low. The State Engineer examined chloride concentrations in three areas: the western and southern hills, the central valley, and the Dogskin Mountains. The average chloride concentration in the western and southern hills is 6.5 mg/l, the average for the central valley is 8.8 mg/l, and the average for Dogskin Mountain is 15 mg/l. The Dogskin Mountains are thought to be a major source for ground water recharge in the basin.

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<sup>19</sup> Transcript, p. 67.

<sup>20</sup> Exhibit No. 13, p. 6.

<sup>21</sup> Transcript, pp. 99-100.

<sup>22</sup> Transcript, p. 108.

However, chloride concentrations there are anomalously high, which would result in a lower estimate of ground water recharge. It should be noted that the high average chloride concentration in the Dogskin Mountains is controlled by a single source at Willow Spring, whose chloride concentration is 25 mg/l.<sup>23</sup> The Applicant's expert stated that local evapotranspiration may have caused chloride enrichment of the spring waters, and perhaps the sample is not representative of ground water. Considering all the evidence presented, the Applicants chloride mass balance estimate of 1,180 afy of recharge in the basin seems reasonable. The State Engineer finds that the Applicants analysis, taken in addition to the reconnaissance report initial estimate of 1,100 afa of recharge, is sufficient to assure this office that 1,100 afa of average annual recharge is likely to exist in the Bedell Flat Hydrographic Basin.

The precipitation values used by the Applicant's expert came from eight precipitation gauges in Bedell Flat. There are six years of data available, 2000, 2001, 2002, 2003, 2004 and 2005. The reading for site BF1 in 2005 appears to be anomalous and was therefore adjusted upward from 3.24 to 11.85 inches. The precipitation totals for each site were averaged over the six years of readings; however, these averages were not used directly to estimate basin precipitation. Instead the Applicant's expert chose to take the average precipitation in Reno, Nevada over the same six-year time period and compare it to the long-term average in Reno. The Reno six-year average was 6.19 inches and the long-term average is 7.29 inches or the six-year average is about 85% of the long-term average  $((6.19/7.29)*100=85\%)$ . Therefore, the precipitation values for Bedell Flat were adjusted upwards or normalized to the long-term Reno average. The eight normalized precipitation values were then used to prepare isoheytal contour lines in

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<sup>23</sup> Exhibit No. 13.

Bedell Flat, resulting in an estimated precipitation volume of 27,400 afa.<sup>24</sup> The State Engineer finds that the Applicant's estimate of recharge is reasonable based on the data available. It is also found that in Reconnaissance Report 43 the basin's average annual precipitation was estimated to be 28,000 acre-feet<sup>25</sup>, which is similar to the Applicant's estimate of 27,400 afa.

#### VI.

The *Numeric Ground-Water Flow Modeling Bedell Flat Hydrographic Basin Washoe County, Nevada*, second amended February 2005, was prepared to aid in the evaluation of effects and environmental impacts associated with proposed pumping and export of ground water from Bedell Flat. A continuous pumping rate of 310 gallons per minute was simulated, which would produce 500 afa of yield. Recharge was an input to the model and kept constant at about 1,300 afa.<sup>26</sup> The model results indicate that water level drawdown in the general vicinity of the production well would be less than 50 feet after 100 years of continual pumping. The potential effect of pumping 500 afa with varied recharge values was not modeled. The value of the model is limited in regards to estimating recharge or perennial yield.

The Protestant's expert pointed out similar concerns in his testimony.<sup>27</sup>

One other thing I just wanted to stress is the recharge was an input to the model. As he said, it was perhaps the only thing in the model that held constant. Everything else was varied to achieve a calibration, and so it does not provide any new information as to the recharge of the basin, nor does it verify or validate an earlier estimate of recharge.

I think I wanted to say that Dwight [Applicant's expert] did a reasonable job in

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<sup>24</sup> Exhibit No. 13.

<sup>25</sup> Exhibit No. 11

<sup>26</sup> Exhibit No. 15.

<sup>27</sup> Transcript, pp. 102-103.

his work with what he had to work with, but I don't think he had much to work with and it's my opinion, I've been modeling for about 25 years, that you need a lot more information than is currently available in Bedell Flat to accurately parameterize and calibrate a model, especially if you're going to use it as a predictive tool and predict what's going to happen decades or 100 years down the road.

The State Engineer finds that the *Numeric Ground-Water Flow Modeling Bedell Flat Hydrographic Basin Washoe County, Nevada*, second amended February 2005, did not provide verification or validation of estimated recharge or perennial yield in the Bedell Flat Hydrographic Basin. Rather, the model provided a single estimate of possible water level decline at one fixed production rate. The State Engineer agrees with the Protestant's expert opinion that more data is needed to create a model capable of accurately predicting future water-level drawdown.

#### VII.

When expert witnesses offer conflicting testimony, the State Engineer must evaluate the testimony based on the evidence presented and his own expertise and experience. In this case, the Applicant and Protestant both had expert witnesses that disagreed on the perennial yield of the Bedell Flat Hydrographic Basin. The Applicant's expert proffered a perennial yield of 600 afa and the Protestant's expert rebutted that testimony and evidence indicating that there was no justification in changing the perennial yield of Bedell Flat beyond the 300 afa value reported by the U.S. Geological Survey.

It is accepted that the amount of published information regarding the underground water resources of the Bedell Flat Hydrographic Basin is limited and has not advanced far beyond the reconnaissance level. However, the State Engineer finds the Applicant's chloride balance estimate is reasonable given the available data. Their

estimate of 1,180 afa of recharge is quite close to the initial USGS Maxey-Eakin estimate of 1,100 afa. Therefore, the State Engineer finds that the average annual recharge in Bedell Flat is approximately 1,100 afa. Since ground water ET is negligible, ground water must exit the basin via the subsurface. The State Engineer finds the perennial yield of the basin is hereby established at 550 afa, or  $\frac{1}{2}$  of the subsurface discharge.

#### VIII.

The State Engineer determined that 191.4 afa of underground water must remain within the Bedell Flat Hydrographic Basin to meet the needs of existing and future domestic wells and current appropriations.<sup>28</sup> Upon further review, the State Engineer has revised this estimate to 321.18 afa, based on the maximum allowed water usage from a domestic well at 2.02 afa per lot for 159 potential lots. The justification for the decision to use the maximum duty of 2.02 afa is unique to the Bedell Flat Hydrographic Basin as the parcels within this basin are extremely large. The smallest parcel is about 7 acres. The remaining parcels vary in size with seven parcels greater than 80 acres, twenty-eight parcels between 20 and 80 acres, fifty-four parcels between 11 and 20 acres and the remaining seventy parcels between 7 and 11 acres. Each of these parcels are currently entitled to drill and utilize one domestic water well without the benefit of a water right permit up to a maximum duty of 1,800 gallons per day (2.02 afa).<sup>29</sup> Because these existing and potential domestic wells have the right to pump 2.02 afa, the State Engineer finds it is prudent to leave unappropriated water in the basin sufficient to satisfy this potential domestic well demand.

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<sup>28</sup> State Engineer's Ruling No. 5429, official records in the Office of the State Engineer.

<sup>29</sup> NRS § 534.180.

The quantity available for appropriation is calculated, in part, by starting with an estimated perennial yield of 550 afa, subtracting for existing and future domestic wells and current appropriations, and adding in an estimated 200 gpd per lot recharge from septic systems.<sup>30</sup>

The calculations are as follows:

-321.18 afa	For existing and future domestic wells (2.02 afa x 159 lots = 321.18 afa).
<u>- 77.1 afa</u>	For current appropriations.
<b>-398.28 afa</b>	
+ 35.62 afa	For 200 gpd/lot recharge from septic systems. <sup>27</sup>
<u>+550.00 afa</u>	For estimated perennial yield.
<b>=187.34 afa</b>	Available for appropriation in Bedell Flat.

The Applicant did indicate that a more appropriate recharge estimate from septic systems is 50% of total usage and that the estimates for current appropriations in Bedell Flat could also be reduced. The Applicant failed to provide any evidence in support of changing the septic recharge estimate to 50% and offered only expert testimony that, ". . . in studies that I've been engaged in we've used 50 percent return flow for effluent going back into septic systems . . ."<sup>31</sup>

There are only three active water rights in the Bedell Flat Hydrographic Basin, a stockwater right, a quasi-municipal right and a wildlife right. The Applicant requested that in estimating the committed water resource for current appropriations, the stockwater certificate (Certificate No. 11969) should not be counted at its certificated duty of 17.14 million gallons annually but at a lesser amount equivalent to the water currently placed to

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<sup>30</sup> Seiler, R.L., *Methods for Identifying Sources of Nitrogen Contamination of Ground Water in Valleys in Washoe County, Nevada*, USGS Open-File Report 96-461, p. 5, 1996.

<sup>31</sup> Transcript, p. 55.

beneficial use on an annual basis. There are several flaws with this argument. First, the owner of the stockwater right could utilize the entire certificated amount of water at some time in the future. Second, the owner of the stockwater right could file a change application, subject to approval of the State Engineer, to use all or a portion of the stockwater right at a new point of diversion, place of use or manner of use. Third, the amount of water currently being utilized is not metered and can only be estimated.

In regards to the existing quasi-municipal right (Permit 53338), the Applicant has argued that the water right is supplemental to several water rights in Antelope Valley and to date the only well drilled and utilized under all of the combined water right permits is in Antelope Valley; therefore, the combined duty of the permits should not be counted against the committed water resource in Bedell Flat.<sup>32</sup> While it is true that a well has not been drilled or utilized in Bedell Flat under Permit 53338, the permittee is authorized to drill a well and pump the full total combined duty of water under existing Permit 53338 from the Bedell Flat Hydrographic Basin. The Applicant is correct in the inference that Permit 53338 could be subject to cancellation in the future if the permittee fails to comply with permit requirements; however, Permit 53338 is currently in good standing and therefore, cannot be ignored in the calculation of committed groundwater resources in the Bedell Flat Hydrographic Basin.

Upon examination of the testimony and evidence and records in the Office of the State Engineer, the State Engineer finds that 398.28 afa is the proper estimate of underground water that must remain within the Bedell Flat Hydrographic Basin to meet the needs of existing and future domestic wells and current appropriations and 187.34 afa of

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<sup>32</sup> Transcript, p. 82.

underground water is available for appropriation under Application 66873.

### CONCLUSIONS

#### I.

The State Engineer has jurisdiction over the parties and the subject matter of this action and determination.<sup>33</sup>

#### II.

The State Engineer is prohibited by law from granting an application to appropriate the public waters where:<sup>34</sup>

- 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 the approval of Application 66873 will not be contrary to the provisions found under NRS § 533.024.

#### IV.

The State Engineer concludes, upon careful review of the record, including all new information submitted by the Applicant at the administrative hearing, that the best current estimate of average annual ground water recharge is 1,100 acre feet. The perennial yield of the Bedell Flat Hydrographic Basin is hereby established at 550 afa.

#### V.

The State Engineer concludes that 398.28 afa of underground water must remain within the Bedell Flat Hydrographic Basin to meet the needs of existing and future domestic wells and current appropriations.

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<sup>33</sup> NRS chapters 533 and 534.

<sup>34</sup> NRS § 533.370(5).

VI.

It has been found that 187.34 afa is available for appropriation under Application 66873. In recognizing that this number is a calculated estimate, the number will be rounded up to 200 afa.

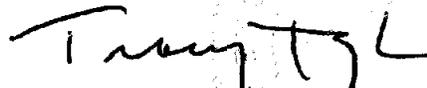
The State Engineer concludes that 200 afa is the maximum amount of underground water available for appropriation under any permit derived from Application 66873.

RULING

The Applicant's request to appropriate 500 afa under Application 66873 is denied and Application 66873 is hereby approved for 200 afa subject to:

1. Existing rights;
2. The payment of the statutory permit fees;
3. A monitoring program approved by the State Engineer prior to the diversion of any water appropriated under this permit.

Respectfully Submitted,



TRACY TAYLOR, P.E.  
State Engineer

TT/TW/jm

Dated this 15th day of  
November, 2006.