

Ruling  
Page 11

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

<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.

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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.

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

<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.

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

<sup>34</sup> NRS § 533.370(5).



**REVISED**

**RECOMMENDED WATER RESOURCES MONITORING AND  
MANAGEMENT PLAN**

**FOR FUTURE PUMPING IN HONEY LAKE VALLEY,  
DRY VALLEY, AND BEDELL FLAT, NEVADA  
NORTH VALLEYS RIGHTS-OF-WAY PROJECTS**  
(Submitted to the Nevada State Engineer)

The purpose of this Monitoring and Management Plan (**Plan**) is to describe monitoring and management activities of water resources and related potential impacts due to development of groundwater resources in eastern Honey Lake Valley, Dry Valley, and Bedell Flat associated with the proposed North Valleys Rights-of-Way Projects (**Projects**). This Plan applies to proposed groundwater extraction rates of up to 8,000 acre-feet per year (af/yr) in eastern Honey Lake Valley, 2,000 af/yr in Dry Valley, and 500 af/yr in Bedell Flat. The groundwater would be extracted from these valleys by Fish Springs Ranch and Intermountain Water Supply (**Proponents**) and conveyed via pipelines to the North Valleys Planning Area in Washoe County, Nevada, and also be subject to water right appropriations from the Nevada State Engineer and conformance with Nevada State law concerning adverse impacts to public resources. This Plan is prepared to cover both Proponents; site-specific proposed monitoring activities are presented in **Attachment A** (Honey Lake Valley), **Attachment B** (Dry Valley), and **Attachment C** (Bedell Flat).

It should be recognized that this recommended **Plan** was included in the Final EIS (FEIS) due to the lack of concurrence between Cooperating Agencies and the Project Proponents regarding the adequacy of existing data and hydrologic evaluations (contained in the FEIS) to substantiate sustainable annual groundwater extraction levels in the Project areas. This **Plan** is intended to provide the necessary data, provide an early warning capability and provide safeguards for responsible management of the water resources.

Along with the U.S. Bureau of Land Management (BLM) as lead agency, the following groups are cooperating agencies for the North Valleys Rights-of-Way Projects EIS: U.S. Geological Survey (USGS); U.S. Fish and Wildlife Service (USFWS); U.S. Bureau of Indian Affairs (BIA); Pyramid Lake Paiute Tribe; Sierra Army Depot; California Department of Water Resources; California Department of Fish and Game; Washoe County, Nevada; Lassen County, California; Truckee Meadows Water Authority; Truckee Meadows Regional Planning Agency; City of Reno; City of Sparks; Airport Authority of Washoe County; and Susanville Indian Rancheria. This group hereinafter is referred to as the "**Cooperating Agencies**". Because the two project Proponents would eventually be replaced by a local area water purveyor, this potential purveyor should also become a "Cooperating Agency".



The two agencies with primary importance with respect to this Plan are:

- Nevada State Engineer (Nevada Dept. of Conservation and Natural Resources – Division of Water Resources): This state agency has authority to administer the use of water resources in Nevada, including the issuance of water rights.
- U.S. Geological Survey (U.S. Dept. of the Interior): This federal agency is the primary water resources data collection agency in the United States. It is in the process of developing a regional groundwater monitoring program in west-central Nevada and adjoining portions of California.

Because these agencies have the jurisdiction, and over-riding authority and responsibility for the protection of water resources in Nevada and nationwide respectively, they should together provide impartial oversight for development of groundwater for this Project.

This Plan consists of four principal components:

1. Monitoring Requirements, related to production wells, monitoring wells, elevation control, spring flow, water quality, precipitation stations, quality of data, and reporting as proposed in Attachments A, B, and C to this document.

Incorporated in the development of the monitoring plan would be the inclusion of data from *Previous Monitoring*, related to monitoring of surface water and groundwater resources in Honey Lake Valley, Dry Valley, and Bedell Flat, including location of existing supply and monitoring wells, groundwater extraction rates, groundwater level measurements, flow from springs, water quality, precipitation data, and wetland/riparian conditions

2. Management Requirements, related to the creation and role of a Water Advisory Committee (WAC), and a subcommittee of the WAC – the Technical Advisory Committee (TAC), continued use of numerical groundwater flow models, establishment of action criteria, and details of the decision-making process;
3. Mitigation Measures, related to potential mitigation measures that could be implemented if "unreasonable adverse impacts" (to be defined) occur as a result of groundwater extraction associated with the North Valleys Projects; and
4. Modification of Plan, related to procedures that could be followed to modify the Plan if future changing conditions or mitigations warrant modifications.

The common goal of the Proponents, BLM, Cooperating Agencies, and the Nevada State Engineer (all referred to as "**Parties**") in proposing and adopting this plan is to develop water resources data relating to a better understanding and analysis to assist the



Nevada State Engineer in managing development of groundwater resources in Honey Lake Valley, Dry Valley, and Bedell Flat without resulting in unreasonable adverse impacts to public resources and the prior water rights of other appropriators (i.e., receptors). The Parties agree that groundwater extraction and management decisions can be based on data collected and analyzed for these proposed Projects and from the USGS proposed regional monitoring program. The Parties will collaborate via the WAC on technical data collection and analysis provided by the TAC.

The Parties acknowledge that pursuant to NRS 534.110(4) each right to appropriate groundwater in the State of Nevada carries with it the right to make a reasonable lowering of the static groundwater level at the appropriator's point of diversion and that pursuant to NRS 534.110(5) the Nevada State Engineer may allow, at his discretion, the groundwater level to be lowered at the point of diversion of a prior appropriator with the provision that rights of holders of existing appropriations can be satisfied under such express conditions.

The Parties expressly acknowledge that the Nevada State Engineer has, pursuant to both statutory and case law, broad authority to administer groundwater resources in the State of Nevada. The Pyramid Lake Reservation is held in Trust by the United States government. The U.S. and its representative, the BIA hold legal authority and jurisdiction over water resources located on the Reservation. Nothing contained in this Plan shall be construed as waiving or diminishing such authorities.

## MONITORING REQUIREMENTS

The Final EIS for the North Valleys Rights-of-Way Projects contains information about water resources data in Honey Lake Valley, Dry Valley, Bedell Flat, and surrounding areas. This information includes location of existing supply and monitoring wells, groundwater extraction rates, groundwater level measurements, flow from springs, water quality, precipitation data, and wetland/riparian conditions. This information, as well as data available from other local, state, and federal agencies, would be compiled into a central database that would be expanded as new data are collected.

*Where?  
Who compiles*

Generally, project specific monitoring may be the responsibility of the Proponents as recommended or agreed to by the TAC; however, the USGS is in the process of developing a regional groundwater monitoring program in west-central Nevada and adjoining portions of California (i.e., "Regional Study Area"). Objectives are to develop a network of monitoring wells in the Regional Study Area to monitor and document any regional effects of future groundwater development and management on groundwater levels, water quality, and groundwater discharge.

*Who is responsible  
for study*

The USGS regional monitoring network would be designed to supplement rather than replace individual project monitoring programs. For example, Project monitoring would be conducted by the technical agents of the Proponents, while the USGS monitors other wells within Honey Lake Valley, Dry Valley, Bedell Flat, and surrounding basins. The USGS monitoring may include wells in the Project monitoring groups. In addition to



the Proponents, Washoe County, Lassen County, and/or other agencies also may volunteer to participate in some monitoring activities.

The term "as is feasible" as used in this Plan shall relate to mechanical failures or other events/reasons outside the control of the Parties, or agreed by the Parties, that do not permit data collection.

### **Production Wells**

- Discharge rates and groundwater levels may be measured in production wells on a continuous or frequent basis, as is feasible, using permanent recording devices. Water levels could be measured during pumping and non-pumping periods.
- The proposed action includes six production wells at the Fish Springs Ranch property in eastern Honey Lake Valley, five wells in Dry Valley, and two wells in Bedell Flat.
- All monitoring data may be entered into a project database recommended by the TAC.

### **Monitoring Wells**

- A network of monitoring wells has been proposed by the Proponents to measure groundwater levels over time. Monitoring wells are located in Honey Lake Valley (**Attachment A**), Dry Valley (**Attachment B**), Bedell Flat (**Attachment C**). These proposed monitoring networks would be subject to concurrence from the TAC. The USGS likely could establish additional monitoring wells in the Regional Study Area that includes some surrounding valleys that may be affected by groundwater extraction (e.g., Smoke Creek Desert, Pyramid Lake Valley, Warm Springs Valley, Antelope Valley, and/or Long Valley).
- Groundwater levels can be measured, as feasible, using permanent recording devices in selected monitoring wells. For those monitoring wells without continuous monitoring instruments, water levels could be measured initially on a quarterly basis to establish seasonal variations, followed by semi-annual or annual measurements after such seasonal trends have been established.
- The TAC may recommend that new monitoring well(s) be installed in key areas where there are no existing wells available for monitoring. These new wells can be located and constructed in a cost-effective manner, while meeting the objectives of early-warning detection of impacts, if any, from proposed groundwater extraction. Consideration could be given to completing nested wells that monitor individual aquifers at a single location. The Proponent(s) may be responsible for completing new monitoring well(s), unless another member of the Parties or the USGS agrees to complete the well(s).



- Initiation of groundwater level monitoring should commence as soon as possible, recognizing the desire to obtain baseline data prior to groundwater extraction. Groundwater levels should be measured in each aquifer from which ground water is extracted, as is feasible, in basins including and immediately surrounding Honey Lake Valley, Dry Valley, and Bedell Flat.
- Locations and monitoring frequency of the monitoring well network would be reviewed by the TAC on an annual basis, and may be reduced or expanded in scope upon its recommendation to the WAC.
- All groundwater level monitoring data would be entered into the project database on a regular basis, reflecting the monitoring interval chosen.

### **Elevation Control**

- Ground surface and measuring point elevations should be established using survey-grade GPS instrumentation at production and monitoring wells used as part of this Plan. Elevations for surface water and spring monitoring Locations should also be established. The common datum would allow a comparative base for all elevation associated data; including the possibility of the occurrence of subsidence due to groundwater extraction.
- All elevation measurements would be added to the project database that contains project data.

### **Monitoring Springs and Riparian Areas**

- Selected springs and associated riparian areas could be monitored on a quarterly basis located in Honey Lake Valley (**Attachment A**), Dry Valley (**Attachment B**), Bedell Flat (**Attachment C**), and some surrounding valleys that may be affected by groundwater extraction (e.g., Smoke Creek Desert). Monitoring may consist of measuring flow rate and photo-documenting general site conditions (see attachments for proposed site-specific monitoring activities). Flow can be estimated for low flow conditions or where flow is diffuse on the ground surface. Monitoring frequency may be reduced later as recommended by the TAC to semi-annually or annually.
- Initiation of monitoring for springs and riparian areas could commence as soon as possible, recognizing the desire to obtain baseline data prior to groundwater extraction. Monitoring data may be recorded using a standard format to be used for each monitoring event.

### **Water Quality**

- Groundwater quality samples may be collected from selected production and monitoring wells and analyzed by a laboratory for major ions, trace elements, and/or



isotopes. Wells to be sampled, schedule of sample collection, and list of parameters are included in **Attachments A, B, and C**.

- Frequency, sampling location, and water quality parameters may be reviewed by the TAC on an annual basis, and reduced or expanded in scope upon its recommendation to the WAC.

#### **Precipitation Stations**

- Precipitation stations would be established in each of the following locations: eastern Honey Lake Valley, western Dry Valley, and central Bedell Flat. Existing precipitation stations may be used where possible. The purpose of collecting precipitation data is to support conclusions regarding changes in groundwater levels with corresponding changes in precipitation, if it occurs.
- All precipitation data would be entered into the project database.

#### **Quality of Data**

- The TAC would ensure that the entity or entities that collect water resources data follow standard protocols of data collection, recording and analysis (e.g., USGS and EPA), unless otherwise agreed to by the Parties.
- The water quality sampling program would include standard field and laboratory quality control procedures.

#### **Reporting**

- All data collected under or as described in this Plan, would be fully and cooperatively shared among the Parties, and made available to the public after appropriate QA/QC evaluation procedures have confirmed its accuracy.
- All water resources information collected for the North Valleys Projects would be downloaded to the project database and updated periodically on a website that is accessible to all Parties and the public.
- In addition to updating the water resources project database on a regular basis, an annual summary report would be prepared by the TAC that summarizes all information collected during the previous calendar year, including an analysis of any trends. These reports would be provided to the WAC for annual assessment of potential impacts to water resources resulting from groundwater extraction in Honey Lake Valley, Dry Valley, and Bedell Flat.



## **MANAGEMENT REQUIREMENTS**

### **Water Advisory Committee (WAC) and Technical Advisory Committee (TAC)**

These two committees are to establish and carry out policy (WAC), and to provide the technical scientific expertise (TAC) necessary to impartially develop, evaluate and analyze data. Separation of the roles and responsibilities of these two bodies is crucial to the maintenance of scientific impartiality of the data program.

- The Parties would establish a Water Advisory Committee (WAC) with membership created from representatives from cooperating agencies listed above, BLM, Project Proponents, and Nevada State Engineer. The WAC may also include representatives from the U.S. Environmental Protection Agency and U.S. Army Corps of Engineers. A representative of the Nevada State Engineer's Office would be invited to participate as the chair of the WAC.
- The WAC would create a Technical Advisory Committee (TAC) as a subcommittee to the WAC. TAC members would be appointed by the WAC.
- The WAC would meet in the first quarter of each year, or at other times as mutually agreed upon.
- The TAC would meet initially to establish and execute the monitoring plan and, thereafter, at intervals deemed appropriate to review and analyze data.
- Roles and responsibilities of the WAC and TAC would be determined by the Parties under advisement of the Nevada State Engineer's Office.

#### **Suggested purposes and functions of the WAC would be to:**

1. Provide a forum for discussion of relevant data and analyses.
2. Share information regarding modeling efforts and model results, if used as part of the monitoring and management program.
3. Discuss needs for additional data collection and scientific investigations as recommended by the TAC.
4. Provide status reports and recommendations to the Parties.
5. Form recommendations for groundwater management actions based on reports from the TAC.
6. Recommend values for monitored variables (water levels, spring discharges, etc.) known as "action criteria", which, if exceeded, could be of concern to the parties. The values would be based on evaluations of historic hydrologic conditions and trends reported by the TAC.
7. Determine what constitutes an "unreasonable adverse impact" on a case-by-case basis.



8. Provide the Nevada State Engineer, Washoe County, and other relevant agencies with results of any analyses or technical evaluations, along with recommendations for specific mitigation.

**Suggested purposes and functions of the TAC would be to:**

1. Review proposed project monitoring plans and recommend implementation as appropriate.
2. Review historic groundwater level trends, spring and creek flows to determine historic hydrologic trends. Where possible identify wet and dry regimes, climate effects on groundwater recharge rates and base flows in surface waters. Where possible identify critical lows for detrimental impacts on habitat and resource sustainability.
3. Develop/refine standards and quality control procedures for data collection, management and analysis.
4. Evaluate monitoring plans and data to determine whether data gaps exist, make appropriate recommendations to the WAC.
5. Evaluate all monitoring data to determine if any action criteria have been exceeded, indicating a possible unreasonable adverse impact, report findings to the WAC.

**Numerical Ground-Water Flow Models**

- The TAC can recommend if numerical groundwater flow models that have previously been prepared for the North Valleys Projects for each of the three basins could be updated for use by the TAC/WAC for predicting future impacts.
- If deemed appropriate by the TAC/WAC, the full TAC or members of the TAC could update each model at the request of the Nevada State Engineer. Model output could be in the form of drawdown maps at appropriate intervals as requested by the State Engineer, plots of simulated water levels for the aquifer systems, and results of model calibration. The TAC would provide scientific review of modeling updates and hydrogeologic assumptions.

**Action Criteria**

- Specific quantitative criteria (action criteria) would be developed by the WAC, based on data developed by the TAC, and recommended to the Nevada State Engineer for possible use to "trigger" management actions.
- Action criteria would be developed by the WAC and recommended to the Nevada State Engineer to provide early warning of unreasonable adverse impacts to public resources and prior water rights of other appropriators. These criteria would be based on changes in groundwater levels, flow of springs, water quality, and/or changes in wetland/riparian habitat that can be attributed to groundwater extraction by the Project(s).



- If and when any action criterion is reached, the following management actions could be triggered:
  1. The WAC would request that the TAC conduct a thorough fact-finding to determine the level and extent of impacts, the TAC would report findings to the WAC;
  2. If WAC members agree that the action criterion exceedance is attributable to groundwater extraction by the Project(s), then the TAC would make recommendations to the WAC for possible mitigation actions to alleviate the impacts;
  3. The WAC members would determine whether or not to implement the recommended mitigation actions. The Nevada State Engineer's Office would determine whether the appropriate actions were implemented to conserve the resource.
- In the event that adverse environmental impacts are found to be unrelated to Project operations, the Nevada State Engineer should consult with the USGS regarding regional hydrologic conditions that may be contributing to the impacts.
- Any member of the WAC may propose a change to any action criterion. Any such change could be presented in writing to other members of the WAC, and accompanied by data and scientific analyses to support the proposed change. If the supporting analyses are found to be technically sound, then the WAC may recommend to the Nevada State Engineer that the action criterion be adjusted, as appropriate.

#### **Decision-Making Process**

- If the WAC determines that an action criterion is exceeded and attributed to groundwater extraction by the Project(s), based on reports from the TAC, the WAC can recommend a course-of-action (i.e., management activity or mitigation measure). If within the WAC, there are: (1) different interpretations regarding relationship of an adverse impact to the Project's groundwater extraction; or (2) different opinions on the course-of-action, the Parties may jointly agree to conduct additional data collection and/or data review and analysis directed at resolving the different interpretations or opinions, if possible. If that is not successful, the Parties could refer the issue to their respective managers and the Nevada State Engineer. Nothing herein limits or changes the Nevada State Engineer's authority, and any Party can petition the State Engineer to consider the issue.
- In the event that any of the Parties disagree as to whether the Proponents' proposed or ongoing groundwater extraction will result in unreasonable adverse impacts, any Party may petition the Nevada State Engineer to request that it determine whether there is or is not adverse impact(s) that require implementation of management or mitigation measures.



## **MITIGATION MEASURES**

- The Project(s) can mitigate unreasonable adverse impacts either as agreed upon by the Parties or after the Nevada State Engineer determines whether there are unreasonable adverse impacts due to Project(s) groundwater extraction. The Parties may take necessary steps to ensure that mitigation actions are feasible and reasonable.
- The mitigation portion of the plan should include a bond or escrow account established by the Project Proponents to fund possible mitigation actions.
- Mitigation measures may include one or more of the following:
  1. Geographic redistribution of groundwater extraction;
  2. Reduction or cessation of groundwater extraction from one or more wells;
  3. Restoration/modification of existing habitat;
  4. Establishment of new habitat;
  5. Augmentation of water resources with groundwater extracted for the Project(s);
  6. Purchase other water rights in the area, if available;
  7. Other measures as agreed to by the Parties and/or required by the Nevada State Engineer.

## **MODIFICATION OF THE PLAN**

- The Parties may modify this Plan by mutual agreement. The Parties also acknowledge that the Nevada State Engineer has authority to modify this Plan. In addition, the Parties may individually or jointly petition the Nevada State Engineer to modify this Plan in the event that mutual agreement cannot be reached. Any such petition shall only be filed after 90 days written notice to the remaining Party members. Any Party member, including the Proponents, may submit written comments to the Nevada State Engineer regarding the merits of any such petition for modification.



# **ATTACHMENT C**

## **PROPOSED MONITORING PLAN FOR BEDELL FLAT**

### **ATTACHMENT C PROPOSED WATER RESOURCES MONITORING PLAN FOR BEDELL FLAT AREA**

This water resources monitoring program is proposed by Intermountain Water Supply for groundwater extraction of up to 500 acre-feet per year (af/yr) from two production wells located in Bedell Flat, Nevada. The monitoring program would document changes that could be caused by the pumping and transfer of water from Bedell Flat to the Stead/Lemmon Valley areas.

#### **GROUNDWATER LEVELS**

Depth to groundwater will be measured in all production wells (BFM-1 and BFM-2) on a daily basis using pressure transducers or sounding probes. Each production well will be equipped with a flow meter to record cumulative water production. Cumulative well production will be recorded at least once per month.

A network of 9 to 12 monitoring well sites will be measured for water levels on a minimum quarterly basis. Locations are shown on **Figure D-3** and listed in **Table D-2**. The existing BLM stock water well in the center of the valley floor will be used for the monitoring program. Three to five domestic wells in Red Rock Estates and two or three wells in the northeast corner of Red Rock Valley would be included for water level monitoring. Permission is still needed from some land owners to gain access to some of the monitoring wells.

Three new monitoring wells are proposed for Bedell Flat, all located on BLM land. One location is to the west of proposed production well BFM-2, upgradient of Campbell Ranch Spring, for purposes of monitoring shallow groundwater in that area. The two other proposed new monitoring wells are located in the central portion of the basin to expand coverage on the valley floor at intermediate locations between the production wells and the domestic wells at Red Rock Estates.

Continuous water level recorders will be installed on two of the new monitoring wells (BFM-3 and BFM-6). This will allow daily tracking of water levels from these wells.



Ground surface and measuring point elevations will be measured at each production and monitoring well using a survey-grade GPS instrument. Groundwater level data will be downloaded at least semiannually into a project database and the accuracy of the measurements checked with manual measurements using an electronic sounder. Future groundwater monitoring will be accomplished by a combination of efforts of the well field operator and USGS.

| <b>TABLE D-2</b>  |                     |                          |                               |                         |
|---|---------------------|--------------------------|-------------------------------|-------------------------|
| <b>Proposed Monitoring and Production Wells for Bedell Flat, Nevada</b> |                     |                          |                               |                         |
| <b>Well Number</b>  | <b>Well Type</b>    | <b>Well Depth (feet)</b> | <b>Well Diameter (inches)</b> | <b>Monitoring</b>       |
| BFM-1   | Production Well     | 950                      | 16                            | Water Level and Quality |
| BFM-2   | Production Well     | 400                      | 12                            | Water Level and Quality |
| BFM-3   | New Monitoring Well | 80                       | 2                             | Water Level and Quality |
| BFM-4   | Stock Water Well    | 180                      | 6                             | Water Level Only        |
| BFM-5   | New Monitoring Well | 150                      | 2                             | Water Level Only        |
| BFM-6   | New Monitoring Well | 200                      | 2                             | Water Level and Quality |
| NE Red Rock Valley Domestic Wells (2 or 3 wells)                        | Domestic Wells      | 160 - 400                | 6                             | Water Level Only        |
| Red Rock Estates Domestic Wells (3 to 5 wells)                          | Domestic Wells      | 140 - 970                | 6                             | Water Level Only        |

See Figure D-3 for well locations.

## GROUNDWATER QUALITY

Groundwater quality samples will be collected from the two production wells and selected monitoring wells and analyzed by a laboratory for major ions, trace elements, and/or isotopes. The wells to be sampled for laboratory analysis include the production wells (BFM-1 and BFM-2) and the following two monitoring wells: BFM-3 and BFM-6 (Figure D-3).

The following parameters will be measured in each water sample:

- Field Parameters: Water temperature, pH, and specific conductance.
- Common Ions: Calcium, sodium, potassium, magnesium, chloride, fluoride, sulfate, bicarbonate, nitrate, total dissolved solids, and total suspended solids.
- Trace Elements: Arsenic, barium, copper, iron, lead, manganese, and zinc.
- Isotopes: Oxygen-18 and deuterium.

More extensive water quality analysis will be performed for samples from the production wells to meet Safe Drinking Water requirements. Samples will be collected and analyzed from the selected wells on a quarterly basis for the first two years of production well pumping to establish seasonal variations. Thereafter, the wells will be



sampled and analyzed semiannually. An exception is that the isotopes will be analyzed only once per year for the first two years.

Frequency, sampling location, and water quality parameters will be reviewed by the WAC on an annual basis, and may be reduced or expanded in scope upon its recommendation.

### **SPRINGS AND RIPARIAN AREAS**

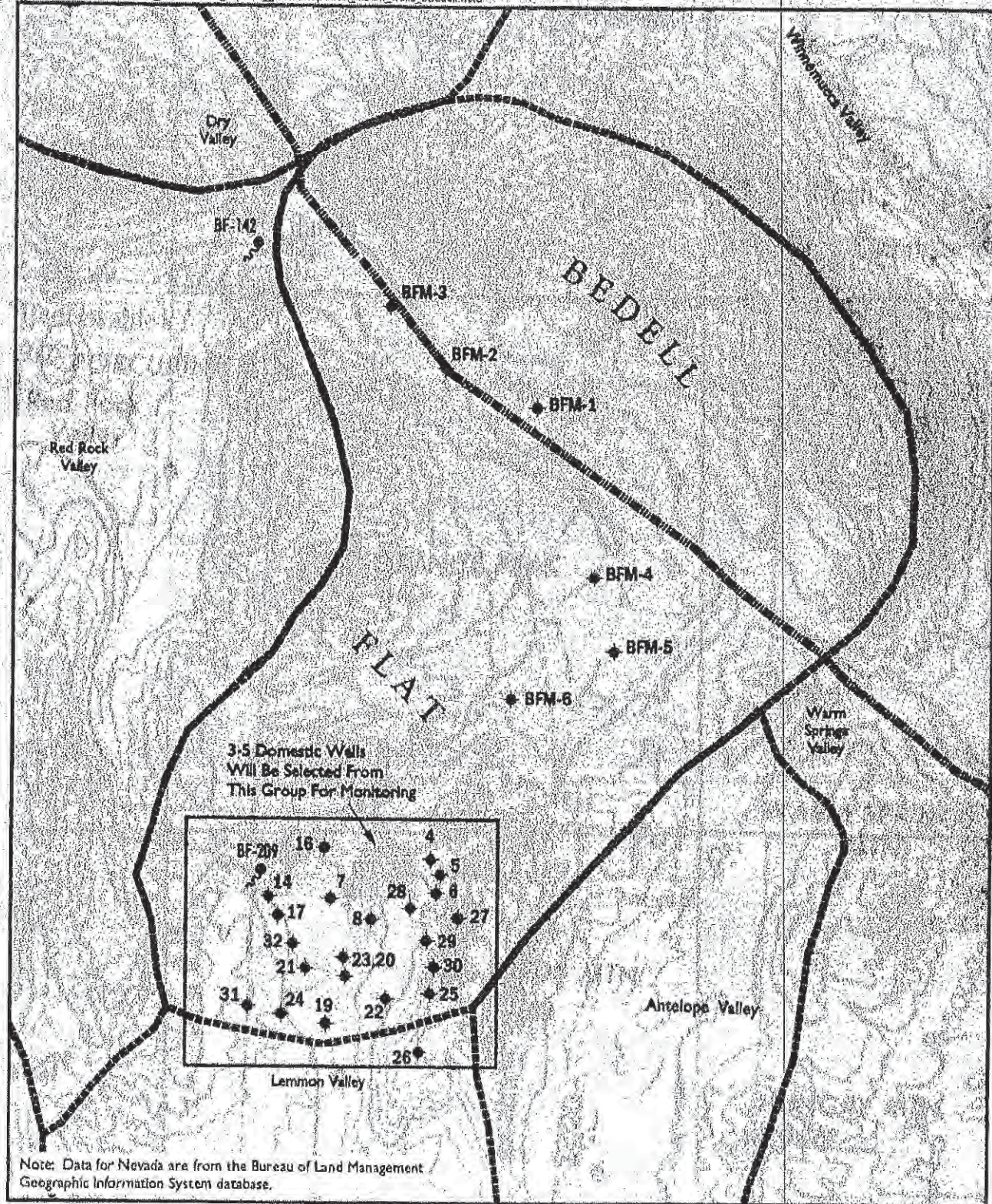
Selected springs and associated riparian areas will be monitored in Bedell Flat to determine if pumping from the production wells would have an adverse effect on flow and/or vegetative conditions. The springs selected for monitoring are: BF-142 (Campbell Ranch Spring); and BF-209 (Bird Spring) (Figure D-3). Monitoring activities will be conducted on a quarterly basis, with information periodically entered into the project database. Monitoring activities will include the following:

- Flow: Flow rate of water discharging from the spring will be measured using a flow meter or portable flume. Alternatively, a staff gage can be installed to measure relative changes in water level if the flow is in a well-defined channel. For low flows or dispersed flows on the ground surface, flows can be estimated.
- Photo-Documentation of Vegetation: One or more photographs will be taken of the spring site from the same location each time so that relative changes in vegetation and overall site conditions can be evaluated.

### **PRECIPITATION**

A precipitation gage will be installed in Bedell Flat to measure precipitation amount on a daily basis. This information will be recorded weekly by the well field operator, and periodically entered into the project database.





**Public Ownership**  
 Bureau of Land Management  
 Tuscarora Natural Gas Pipeline  
 Watershed Boundary

37 ♦ Monitoring Well  
 (BFM-1 and BFM-2  
 are adjacent to proposed  
 production wells)  
 BF-209 Spring

Proposed Monitoring Sites  
 Beddell Flat  
 North Valleys Rights-of-Way Projects EIS  
 Washoe County, Nevada

**JA1536**  
 SE ROA 1453



KENNY C. GUINN  
Governor

STATE OF NEVADA



ALLEN BIAGGI  
Director

HUGH RICCI, P.E.  
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCES

901 S. Stewart Street, Suite 2002  
Carson City, Nevada 89701  
(775) 684-2800 • Fax (775) 684-2811  
<http://water.nv.gov>

June 19, 2006

Dorothy A. Timian-Palmer  
Chief Operating Officer  
Fish Springs Ranch, LLC  
3480 GS Richards Blvd., Suite 101  
Carson City, NV 89703

RE: Groundwater Monitoring and Management Plan for Future Pumping in the Fish Springs Ranch Area as Part of the North Valley's Right-of-Way Projects, Washoe County, Nevada.

Dear Ms. Timian-Palmer:

We have received your monitoring and management plan (Plan) for the Fish Spring's Ranch groundwater pumping associated with the North Valley's importation project. By your letter of May 23, 2006, the Plan submitted pursuant to the conditions of Ruling 3787 and 3787A is found as Attachment A of Appendix D, of the North Valleys Right-of-Way Projects Final EIS. Monitor wells and springs are shown on Figure D-1 of Attachment A. A list of the wells with survey coordinates was also attached to your correspondence of May 23, 2006.

There were a few minor differences between your attached list of proposed monitor wells and Figure D-1 of Attachment A. Figure D-1 shows well Headquarters MW-2, however the table lists Headquarters MW-1. Jennifer Morgan of your staff recently clarified that Headquarters MW-2 is the actual well to be monitored. In addition, Ms. Morgan indicated the well shown as BB MWA on Figure D-1 is the same as well BB-2A in your table.

As we discussed at our meeting of May 8, 2006, there must be two additional monitor wells in addition to the monitor wells shown on Figure D-1 of Attachment A. These wells will be Sand Pass MW-2, to be used in conjunction with Sand Pass MW-1 to determine hydraulic gradient in that location. Another new well is to be located near USGS-01 such that the two wells together will provide information on the groundwater gradient and change in gradient between the Fish Springs Ranch and the Sierra Army Depot. Well USGS-04 was shown on your list of May 23 but is not suitably located to identify changes in gradient between the pumping center and the

**JA1537**  
SE ROA 1454



Sierra Army Depot. These new wells shall be measured at least quarterly. Monitor wells LB2, USGS-04 and well 9 are shown on Figure D-1, but are not currently equipped with a recording pressure transducer. Are these wells part of the monitoring program, and if so, are you planning to equip them with recording devices or to measure manually?

You have requested to exclude High Rock Spring, designated as HL V-165 on Figure D-1, from the monitoring network. High Rock Spring is approximately 12 miles northwest of the center of the planned well field, and your request to remove the site from the network is approved.

The following table is believed to accurately list each of the planned monitor wells. Please contact me if you believe this list to be incorrect, incomplete or if you would like to propose changes. The Plan is tentatively approved subject to clarification on the status of USGS-04, LB2 and well 9 and to the addition of one new monitor well near USGS-01, whose location and depth must be pre-approved by this office. The Nevada Division of Water Resources reserves the right to amend this plan any time during the life of the project as conditions warrant.

| Well Name           | Location            |                      | Elevation<br>(feet m.s.l.) | Depth<br>(feet) | Perf'd. interval<br>(feet) |
|---------------------|---------------------|----------------------|----------------------------|-----------------|----------------------------|
|                     | Latitude            | Longitude            |                            |                 |                            |
| 1 Wilson MW-1       | 40° 05' 33.8160717" | 119° 55' 49.3857934" | 4000.36                    | 440             | 146 - 440                  |
| 2 Fertil MW-1       | 40° 05' 32.9996883" | 119° 55' 00.0216541" | 3998.5                     | 252             | 63 - 252                   |
| 3 Fertil Playa MW   | 40° 05' 49.6570620" | 119° 54' 11.5199254" | 3979.01                    | 477             | 123 - 477                  |
| 4 Jarboe MW-1       | 40° 05' 07.4465484" | 119° 53' 08.5930509" | 4031.4                     | 497             | 140 - 497                  |
| 5 Jarboe MW-2       | 40° 05' 07.4416921" | 119° 53' 08.6736875" | 4032.42                    | 185             | 42 - 105                   |
| 6 Headquarters MW-2 | 40° 05' 51.1370577" | 119° 52' 45.5207317" | 4017.88                    | 175             | 49 - 175                   |
| 7 BB-2A (BB-MWA)    | 40° 08' 55.7209986" | 119° 51' 59.7122509" | 3992.26                    | 475             | 465 - 475                  |
| 8 Schaufus          | 40° 07' 42.6"       | 119° 50' 46.3"       | 4076                       | 607             | ?                          |
| 9 Hodges MW-1       | 40° 07' 57.4227436" | 119° 50' 31.5750895" | 4018.75                    | 260             | 50 - 260                   |
| 10 Cottonwood MW-2  | 40° 06' 46.0935517" | 119° 49' 30.1465441" | 4317.62                    | 495             | 180 - 495                  |
| 11 Neversweat MW-2  | 40° 08' 49.1815573" | 119° 48' 56.3318666" | 4179.07                    | 500             | 311 - 500                  |
| 12 Astor Pass MW-1  | 40° 11' 54.9722793" | 119° 48' 28.129191"  | 4001.65                    | 400             | 180 - 390                  |
| 13 Astor Pass MW-2  | 40° 12' 04.6771566" | 119° 48' 58.067799"  | 4002.69                    | 475             | 262 - 472                  |
| 14 Sand Pass MW-1   | 40° 13' 01.6915970" | 119° 49' 30.6319558" | 4076.99                    | 712             | 546 - 712                  |
| 15 Sand Pass MW-2   | 40° 13' 23.8"       | 119° 49' 11.9"       | 4173.9                     | 712             | 546 - 712                  |
| 16 USGS-01          | 40° 07' 39.0094955" | 120° 00' 51.6643144" | 4003.54                    |                 |                            |
| 17 West MW          | To be determined    |                      |                            |                 |                            |

Please contact me if you have any questions or concerns related to this monitor plan.

Sincerely,

*Richard A. Felling*

Richard A. Felling  
Chief, Hydrology Section

**JA1538**  
SE ROA 1455



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.

<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  $((130 \times 2.02) + 25 \text{af} = 287.6 \text{ acre-feet})$ , 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.



Ruling  
Page 4

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.

---

<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

<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

<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>

<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.

<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.

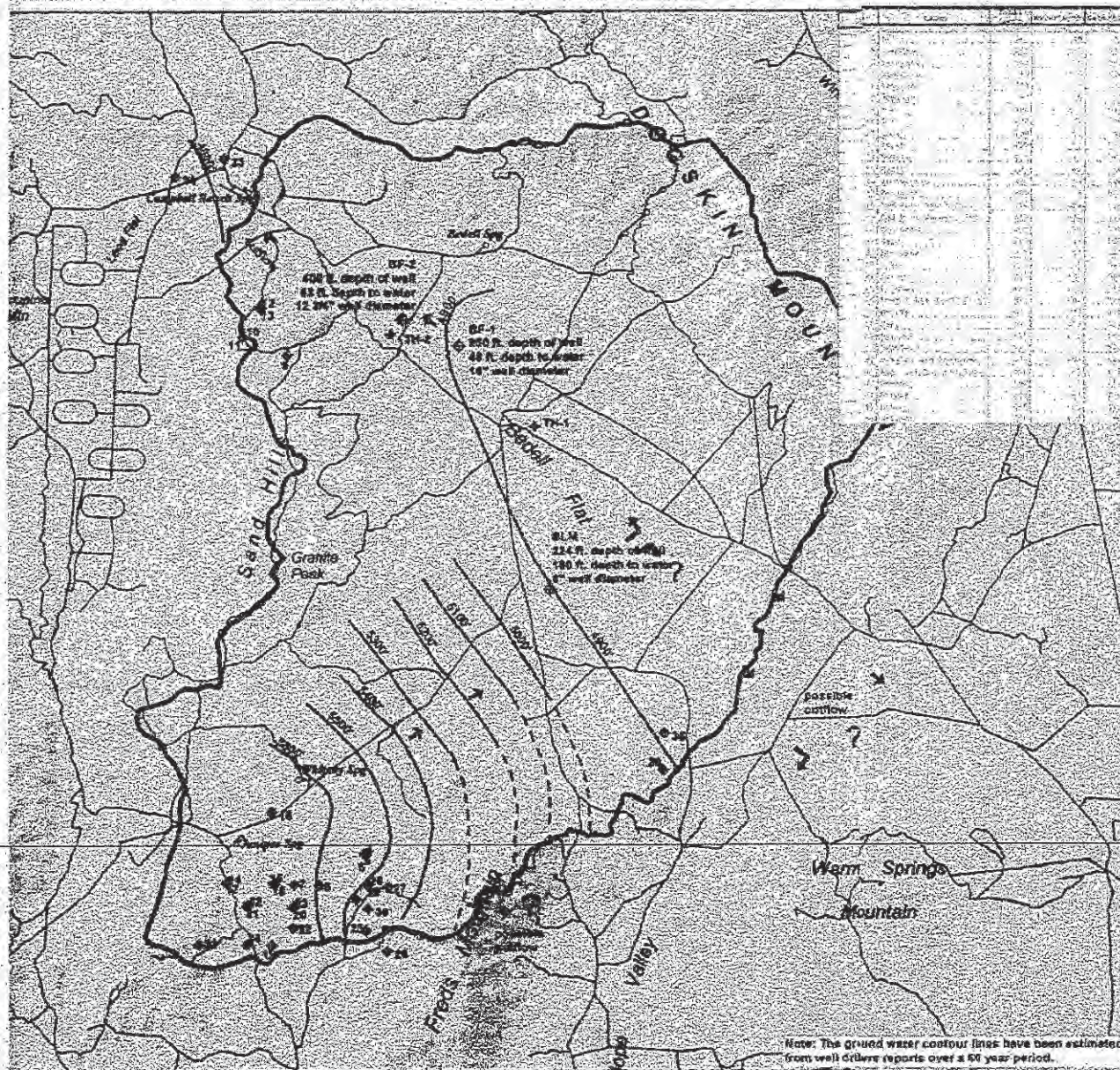


However, chloride concentrations there are anomalously high, which would result in a lower estimate of ground water recharge. It should be noted that the high average chloride concentration in the Dogskin Mountains is controlled by a single source at Willow Spring, whose chloride concentration is 25 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.

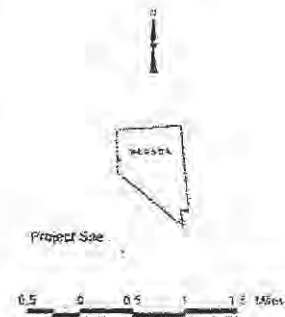
The precipitation values used by the Applicant's expert came from eight precipitation gauges in Bedell Flat. There are six years of data available, 2000, 2001, 2002, 2003, 2004 and 2005. The reading for site BF1 in 2005 appears to be anomalous and was therefore adjusted upward from 3.24 to 11.85 inches. 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

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





InterFlow Hydrology, Inc.

Intermountain Pipeline, LTD  
Reno, Nevada

## Legend

- Springs
- ⊕ Wells
- Bedell Hydrographic Area, Sldy. State
- Roads and Trails
- - - Water Level Contour, inferred
- Water Level Contour
- Flow path

Well Locations and  
Ground Water Contour Map

Figure 2

JA1489



Ground-water recharge in Bedell Flat results primarily from precipitation falling on the mountain blocks surrounding the valley. Annual precipitation falling on Bedell Flat is estimated to be 32,000 acre-feet per year (af/yr) (Interflow, 2003). Only a small percentage of this precipitation becomes ground-water recharge. Two recharge estimating techniques, the Maxey-Eakin method (Maxey and Eakin, 1949; Eakin and others, 1951) as applied by Maxey and others (1966) and Rush and Glancy (1967), along with the chloride-balance method (Dettinger, 1989) as applied by Interflow (2003) yield comparable results, suggesting approximately 1,100 to 1,500 af/yr of average annual ground-water recharge in Bedell Flat.

Evapotranspiration (ET) by phreatophyte plants occurs to a limited extent in the basin, at small areas located around low-flow springs in surrounding mountains, and at the northwestern edge of the valley floor where depth to ground water becomes shallow near Campbell Spring (situated just beyond the basin boundary in Red Rock Valley, see Figure 2). Evapotranspiration of ground water in Bedell Flat was estimated by Rush and Glancy (1967) at 30 acre-feet per year (af/yr). Accounting for additional Campbell Spring discharge and meadow evapotranspiration in the vicinity of the spring in Red Rock Valley, total ET in the Campbell Ranch area is estimated to be approximately 60 af/yr (Interflow, 2003).

Ground-water discharge in the basin is primarily via subsurface outflow, given the lack of other observed sources of ground-water discharge such as phreatophyte evapotranspiration. Some ground-water discharge can be quantified from the northwest side of the basin in unconsolidated basin fill to the Red Rock Valley. Geology of the basin limits the remaining ground-water outflow to flow through fractured granitic and volcanic bedrock. Hypotheses of outflow paths to Warm Springs Valley and Antelope Valley to the east, and additionally in bedrock fractures to the northwest (Red Rock Valley or Dry Valley) were presented in Interflow (2003) and conceptually incorporated into the model.

The basin is interpreted to be in a state of hydrologic equilibrium and the total natural ground-water discharge (subsurface outflow and ET) is therefore equal to the interpreted annual ground-water recharge of approximately 1,300 af/yr.

Aquifer tests at wells BF-1 and BF-2 are the only scientifically conducted aquifer testing in the basin. Tests were conducted at rates up to 450 and 690 gallons per minute (gpm) (SEA, 1978). Transmissivity of the basin fill at these locations is approximately 3,000 to 4,000 gallons per day per foot (Interflow, 2003), with a calculated hydraulic conductivity (K) of the basin-fill sediments of approximately 1.0 ft/day. Lithologic units logged onsite from the test wells suggests unconfined to semi-confined aquifer conditions. Simulated project pumping is from the western well (BF-2) at a constant rate of 310 gpm (equal to 500 af/yr).

Aquifer hydraulic parameters in other parts of the basin can be estimated using lithology reported in drilling logs and hydrogeologic understanding of the general



region. Lithology reported in the BLM well for the upper 224 feet of basin fill (total depth of the basin fill is approximately 2,000 feet at this location; Berger and others, 2001) appears to have considerable clay. This lithology suggests semi-confined to confined aquifer conditions in the center of the basin. Domestic well logs from Red Rock Estates indicate the wells are completed in fractured bedrock. Ground water in fractured bedrock "aquifers" commonly exists under confined conditions.

Aquifer testing sufficient for calculation of storage coefficients do not exist in the basin. A storage coefficient of 0.001 has been assumed in the model for semi-confined to confined conditions, and a specific yield of 0.1 has been assumed for unconfined aquifer conditions. These values are within a typical range used for modeling of basin-fill aquifers (Anderson and Woessner, 1992).

### **Model Construction**

Groundwater Vistas (Version 4) (Rumbaugh and Rumbaugh, 2004) was used to run the MODFLOW2000 modeling code (McDonald and Harbaugh, 1988; Harbaugh and others, 2000), including pre- and post-processing and automated calibration utilities.

The model boundary encompasses most of the hydrographic area of the basin, including the mountain blocks surrounding the valley floor (Figure 3). Model north is rotated 45-degrees from true north (N 45° E). Spatial locations are reference to Nevada State Plane (NAD 27), with the model origin (lower left corner) corresponding to 106698' N, 1855537' E. Model units are in feet and days. The model grid was initially constructed at a 2000-foot spacing, but was refined during calibration to a 1000-foot spacing as shown in Figure 3.

The model contains two layers. The upper layer (Layer 1) represents the active ground-water flow layer, comprised primarily of basin fill, along with some fractured bedrock aquifer in the southern part of the model (to accommodate domestic wells) and at hypothesized basin outflow locations. The top of Layer 1 represents ground surface and is derived from USGS 7.5-minute topography (Digital Elevation Model – DEM data) for the basin (Figure 4). The bottom of Layer 1 corresponds to the top of competent (interpreted as hydraulically tight) granite bedrock (Figure 5). This surface was derived primarily from published thicknesses of basin fill for Bedell Flat (Berger and others, 2001). MODFLOW Layer Type 3, convertible confined-unconfined, was assigned to Layer 1. Layer 2 is a no-flow boundary, and represents non-permeable granitic bedrock underlying the basin fill and incorporated fractured bedrock aquifers.



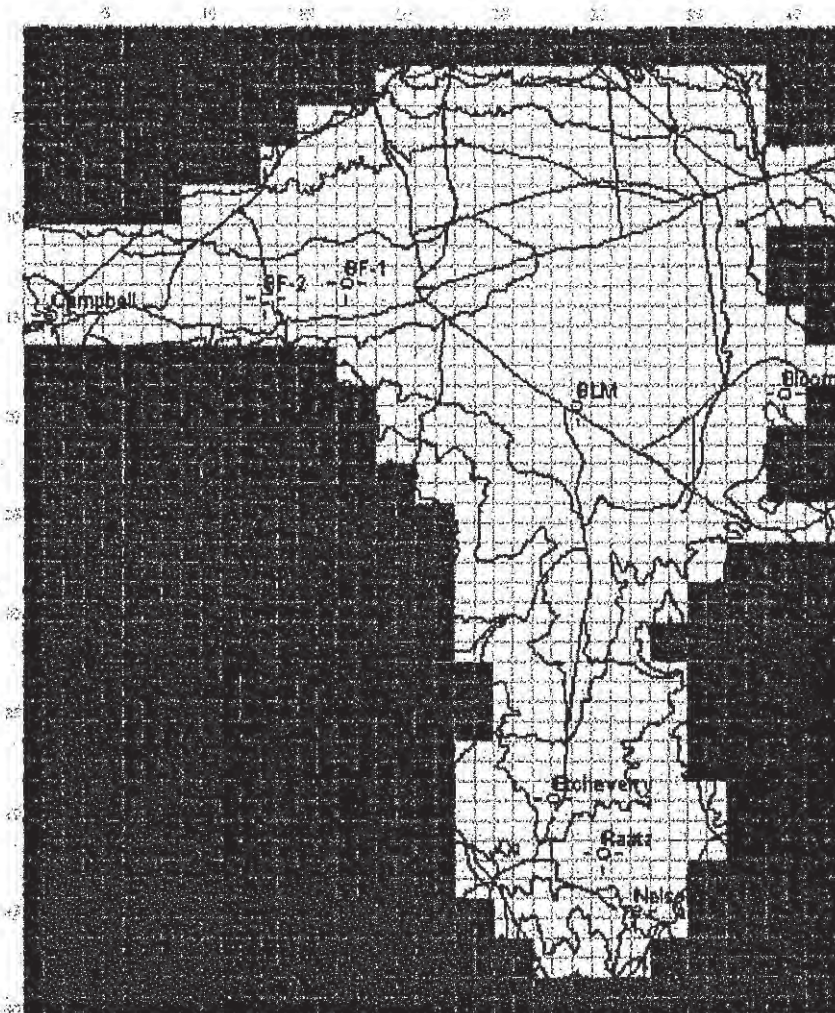


Figure 3 – Bedell Flat Model Area (Layer 1)



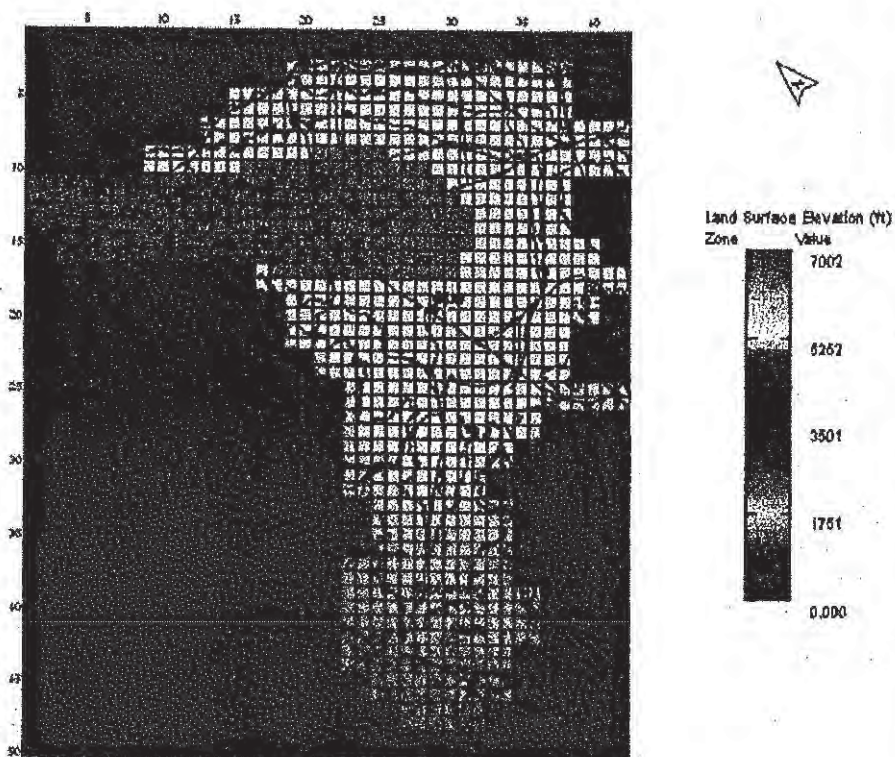


Figure 4 – Top Elevation of Layer 1

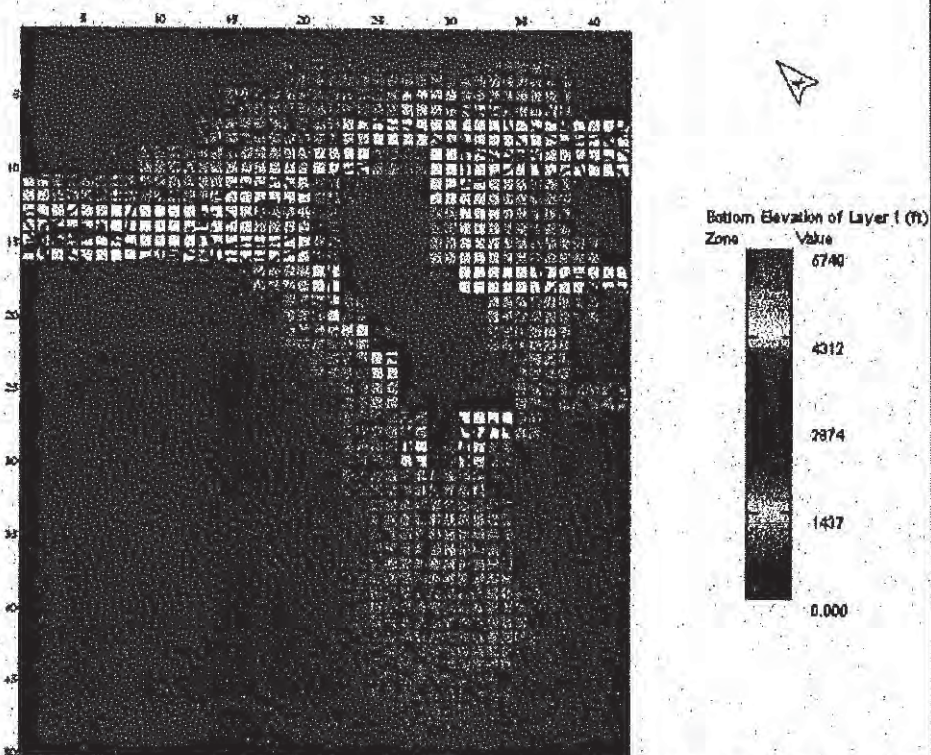


Figure 5 – Bottom Elevation of Layer 1 (Corresponds to Top of Layer 2)



Cross-section profiles through the model are presented in an east-west direction through test well BF-2 (Row 14), and through the BLM stockwater well in a north-south direction (Column 29), as referenced to model north (Figure 6).

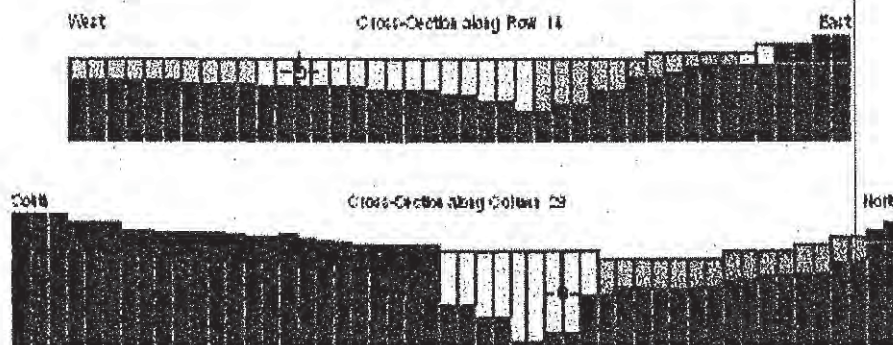


Figure 6 - Cross-Sections through the Model: East-West through Well BF-2, and North-South through the BLM Stockwater Well

Hydraulic conductivities (K) for Layer 1 were distributed and refined during model calibration and range from 0.03 ft/day to 5.3 ft/day (Figure 7). The K value for the BF-1 and BF-2 area is maintained at 1.0 ft/day, consistent with aquifer test data for this part of the basin.

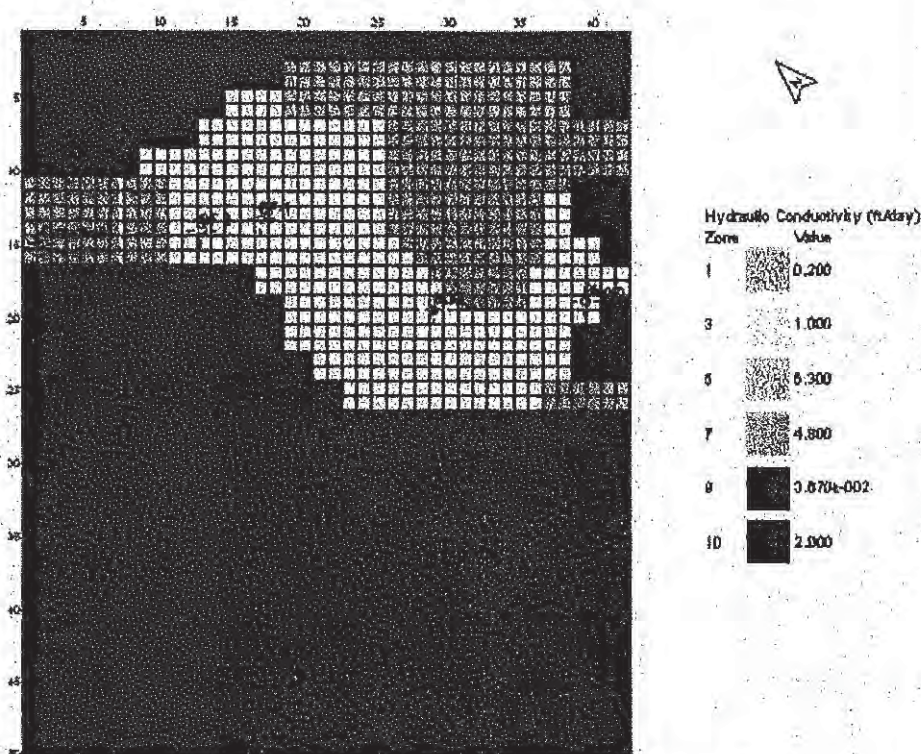


Figure 7 - Hydraulic Conductivity Distribution for Layer 1



Recharge was distributed at the valley floor margins adjacent to the major mountain blocks in the Bedell Flat watershed (Figure 8). The distribution and weighting of recharge from the three primary source areas (Dogskin Mountain, Fred's Mountain and Sand Hills) were refined during model calibration, and conform to the concept of recharge quantity being a function of altitude and area of the mountain blocks. In the model, Dogskin Mountain receives approximately 75 percent of the total recharge, while Fred's Mountain receives 14 percent and Sand Hills receives 11 percent. The combined total recharge in the model is approximately 1,300 af/yr.

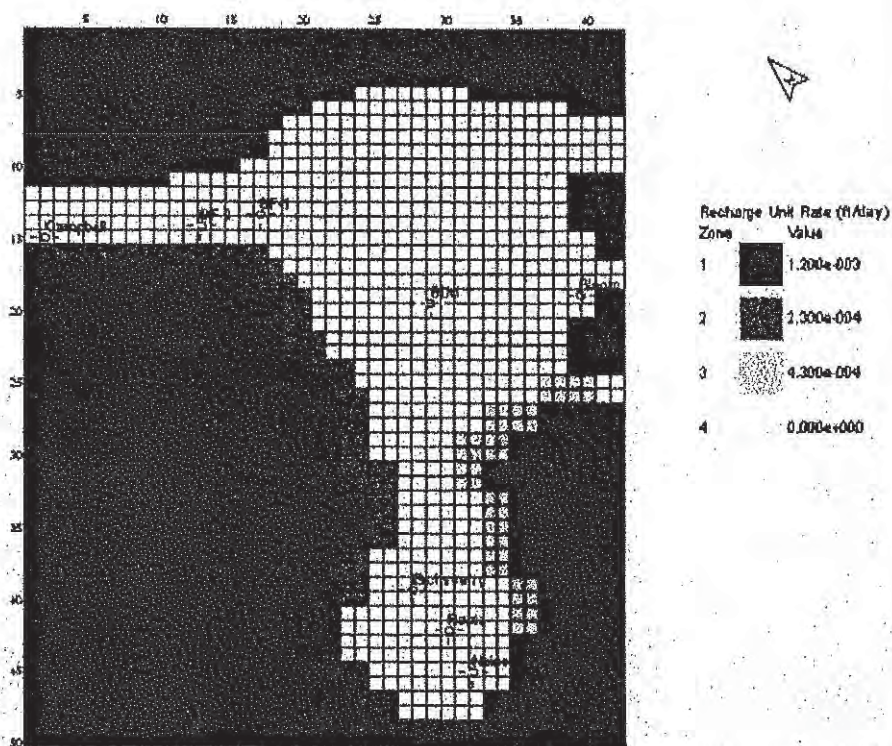


Figure 8 – Recharge Distribution

A small area of ET was also incorporated at the northwestern edge of the model, in the vicinity of the Campbell Ranch (Figure 9). The ET rate and extinction depth (50 feet) in the model produces approximately 70 af/yr in steady-state simulations, and can be viewed as inclusive of spring discharge and ET in the vicinity of Campbell Ranch, both in Bedell Flat and the Red Rock Valley.



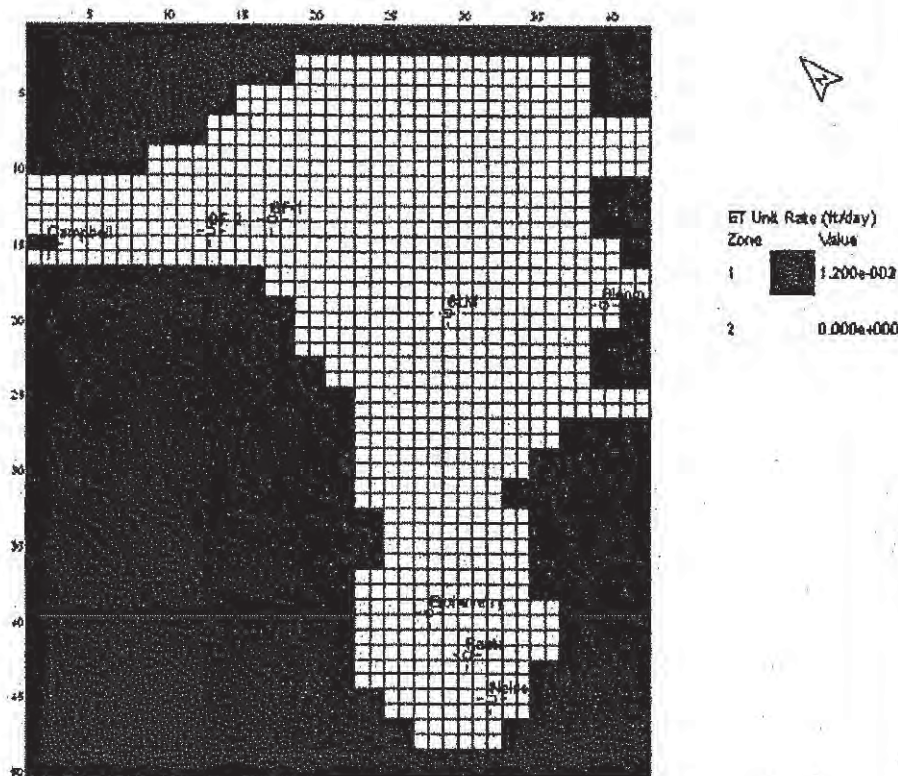


Figure 9 – Evapotranspiration Distribution

General head boundaries (GHBs) are used in the model for locations where subsurface outflow is conceptualized to occur (Figure 10). This subsurface outflow is predominantly through fractured bedrock, with some shallow alluvial outflow in the vicinity of Campbell Ranch. Refinements to the bottom elevation of Layer 1 were made to accommodate the hypothesized bedrock outflow paths. Hydraulic conductivities assigned to the general head boundaries were established during model calibration. Ground-water outflow from the GHBs is also controlled by down-gradient ground-water elevations derived from NDWR well logs in Red Rock Valley and Antelope Valley, at distances of approximately 2,000 to 5,280 feet from the boundaries. In the case of northeast outflow to Warm Springs Valley, the ground-water elevation control was established by projecting a gradient between the boundary and Warm Springs (geothermal springs and an irrigation well located approximately four miles down-gradient). All other boundaries for Layer 1 are no-flow.



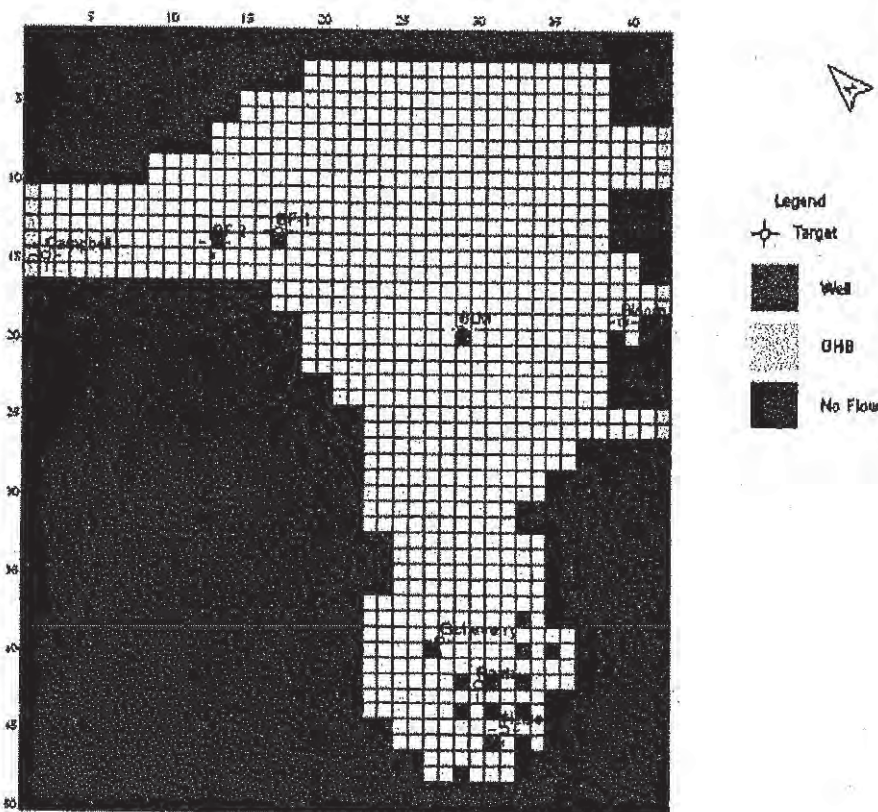


Figure 10 – Distribution of General Head Boundaries

### Model Calibration

A steady-state model was constructed and calibrated to produce reasonable replications of water levels that exist in Bedell Flat, which is assumed to be in equilibrium conditions. The calibration process continued in response to peer review provided by BLM consultants Maxim Technologies, Inc. The model was then converted to a transient (100-year duration) model wherein proposed project pumping was input.

Observed (measured or estimated) ground-water elevations at eight locations were selected as calibration targets, and are geographically distributed over the model area. Three locations (wells BF-1 and BF-2, and the Campbell Spring) are located in the northwest model area. One location (BLM stockwater well) is located in the central valley floor, one location (domestic well) is located at the east side of the model, and three locations (domestic wells) are located at the southern part of the model area (Figure 10, and Table 1).



Table 1 – Summary of Model Calibration Targets

| Target Name                                   | Location           | Model ID   | Well Depth (ft) | Lithology                              | Ground Water Depth (ft) | Ground Water Elevation (ft amsl) | Assigned Accuracy (ft) | Data Source  |
|---|--------------------|------------|-----------------|--|-------------------------|----------------------------------|------------------------|--|
| Campbell Spring                               | Sec. 31 T24N, R10E | Campbell   | NA              | Basin fill, near Volcanic Rock Contact | 0                       | 4804                             | ± 10                   | Interflow Measurement, Surveyed Land Surface             |
| Test Well BF-1                                | Sec. 9 T23N, R19E  | BF-1       | 950             | Basin fill                             | 63                      | 4896.63                          | ± 10                   | Interflow Measurement, SEA (1978), Surveyed Land Surface |
| Test Well BF-2                                | Sec. 5 T23N, R19E  | BF-2       | 400             | Basin fill                             | 49                      | 4878.94                          | ± 10                   | SEA (1978), Surveyed Land Surface                        |
| BLM Stockwater Well                           | Sec. 22 T23N, R19E | BLM        | 224             | Basin fill                             | 180                     | 4900.28                          | ± 10                   | Interflow Measurement, Surveyed Land Surface, NDWR       |
| Domestic Well – Owner Bloom when drilled      | Sec. 35 T23N, R19E | Bloom      | 650             | Basin fill                             | 430                     | 4909                             | ± 50                   | NDWR, Land Surface Estimated from Topo. Quad. (DEM)      |
| Domestic Well – Owner Nelson when drilled     | Sec. 7 T22N, R19E  | Nelson     | 275             | Fractured Bedrock                      | 155                     | 5689                             | ± 50                   | NDWR, Land Surface Estimated from Topo. Quad. (DEM)      |
| Domestic Well – Owner Raatz when drilled      | Sec. 7 T22N, R19E  | Raatz      | 280             | Fractured Bedrock                      | 82                      | 5680                             | ± 50                   | NDWR, Land Surface Estimated from Topo. Quad. (DEM)      |
| Domestic Well – Owner Etcheverry when drilled | Sec. 6 T22N, R19E  | Etcheverry | 225             | Fractured Bedrock                      | 61                      | 5681                             | ± 50                   | NDWR, Land Surface Estimated from Topo. Quad. (DEM)      |

Calibration targets have varying accuracies for reported ground-water elevations. Four target locations (BF-1, BF-2, BLM, and Campbell) have been surveyed for elevation control and are interpreted to have an accuracy within approximately plus-minus 10 feet. Water elevations at domestic wells were derived from driller's reports, and have a ground-water elevation accuracy estimated at 50 to 100 feet. Sources of inaccuracy include imprecision in location and ground surface elevation, unknown accuracy in measurement of depth to ground water reported on driller's logs, and differing dates of measurement (undefined natural ground-water fluctuations).

The criteria for calibration acceptance have been generally based on the described data accuracies. A model calibration criteria of plus-minus 10 feet is used for targets with survey-controlled ground-water elevations, and plus-minus



20 feet for well log derived elevations. In the final calibrated steady-state model, computed ground-water elevations compare well with observed water elevations, being within the calibration criteria established for the model targets. The mean difference between observed (measured or estimated) and computed (model generated) water elevations is termed the "residual". The mean residual in the calibrated steady-state model is 2.29 feet, with a standard deviation of 8.93 feet. The range in residuals is 12.07 feet above observed to 18.82 feet below observed elevations for the eight calibration targets (Table 2).

Table 2 – Comparison of Steady-State Model Calibration Results to Target Water Levels

| Model Target | Observed Ground Water Elevation (ft amsl) | Model Computed Ground-Water Elevation (ft amsl) | Residual Observed – Computed Water Levels (ft) |
|--------------|---|---|--|
| Campbell     | 4804                                      | 4797.43   | 6.57   |
| BF-1         | 4896.63                                   | 4904.52   | -7.89  |
| BF-2         | 4878.94                                   | 4872.49   | 6.45   |
| BLM          | 4909.28                                   | 4907.48   | 1.80   |
| Bloom        | 4909                                      | 4903.58   | 5.42   |
| Nelson       | 5669                                      | 5681.07   | -12.07   |
| Raatz        | 5680                                      | 5680.76   | -0.76  |
| Etcheverry   | 5681                                      | 5662.18   | 18.82  |

### Model Results

Figure 11 presents the model derived steady-state potentiometric contours for Bedell Flat (50-foot contour interval). The contours compare favorably with hand-drawn contours presented in Figure 2 (100-foot contour interval). Figure 12 presents the model simulated steady-state potentiometric contours with proposed pumping at well BF-2 at 500 af/yr (310 gpm continuously). Predicted drawdowns range from 116.5 feet in the vicinity of the pumping well, to 34.8 feet at the BLM stockwater well, and approximately nine feet at domestic wells in Red Rock Estates (Table 3).

Subsurface outflow is reduced from a combined total of 1,230 af/yr to 775 af/yr, and ET in the vicinity of Campbell Ranch is reduced from approximately 70 af/yr to 30 af/yr.



Table 3 – Computed Drawdown at Target Wells in Steady-State Simulation with Pumping 310 gpm (500 af/yr) at Well BF-2

| Model Target | Steady-State Residual (ft) | Steady-State with 500 af/yr pumping Residual (ft) | Computed Drawdown at Target Well (ft) |
|--------------|----------------------------|---|---------------------------------------|
| Campbell     | 6.57                       | 34.37   | 27.8                                  |
| BF-1         | -7.89                      | 55.27   | 63.2                                  |
| BF-2         | 6.45                       | 122.93  | 116.5                                 |
| BLM          | 1.80                       | 36.57   | 34.8                                  |
| Bloom        | 5.42                       | 37.85   | 32.4                                  |
| Nelson       | -12.07                     | -3.37   | 8.7                                   |
| Ratz         | -0.76                      | 7.94  | 8.7                                   |
| Etcheverry   | 18.82                      | 27.72   | 8.9                                   |

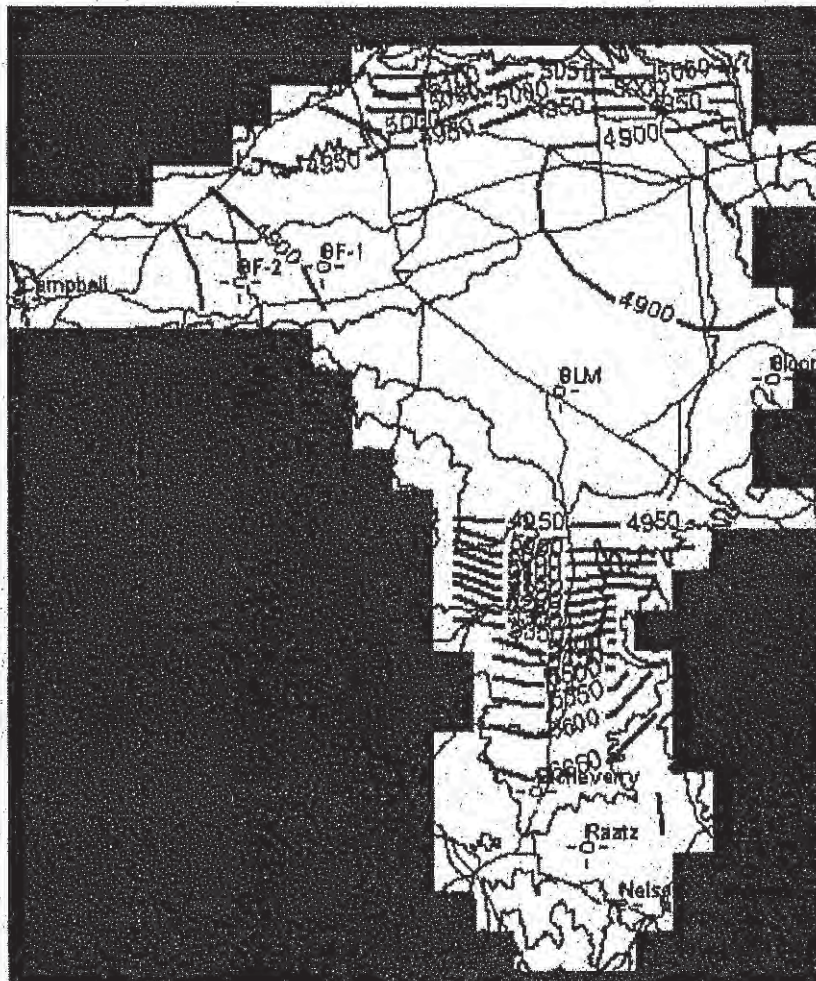


Figure 11 – Potentiometric Contours for Steady-State Model of Existing Conditions



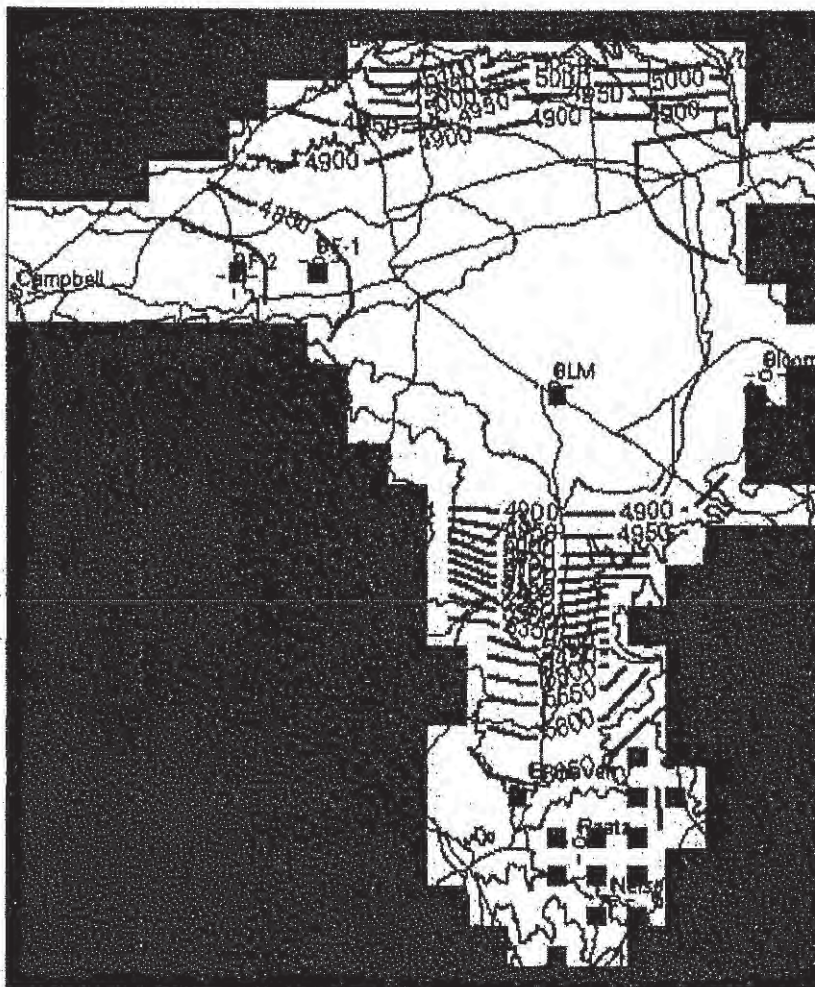


Figure 12 - Potentiometric Contours for Steady-State Simulation with 310 gpm Pumping (500 af/yr) at Well BF-2

The transient (100-year) model simulation produces consistent results, defining drawdown in the intervening time between start of pumping and establishment of a new equilibrium condition with pumping (Table 4). Combined subsurface outflow is reduced from 1,230 af/yr to 940 af/yr after 100 years of pumping at BF-2 at a constant rate of 310 gpm. ET reduction in the vicinity of Campbell Ranch is approximately 30 af/yr after 100 years of pumping.

Plots of predicted drawdown over the 100-year timeframe are presented for the Campbell Spring, the BLM stockwater well, and the Etchevery domestic well (Figures 14 to 16). The observed reductions in water levels, subsurface outflow, and ET after 100 years of pumping represent about two-thirds of the full predicted impact as seen in the steady-state with pumping model simulation. Approximately 35 percent of the pumped ground water is predicted to be derived from aquifer storage at year 100.



Table 4 – Summary of 100-Year Transient Model Simulations with 310 gpm Pumping at Well BF-2

| Observation Point | Predicted Steady-State Ground-Water Elevation (ft amsl) | Predicted Ground-Water Elevation after 1 Year of Pumping (ft amsl) | Predicted Ground-Water Elevation after 10 Years of Pumping (ft amsl) | Predicted Ground-Water Elevation after 100 Years of Pumping (ft amsl) | Predicted Steady-State with Pumping Ground-Water Elevation (ft amsl) |
|-------------------|---|--|--|---|--|
| Campbell          | 4797.43   | 4797.42  | 4792.38  | 4774.98   | 4769.63  |
| BF-1              | 4904.52   | 4903.93  | 4891.48  | 4861.89   | 4841.36  |
| BF-2              | 4872.49   | 4840.46  | 4811.97  | 4773.87   | 4756.01  |
| BLM               | 4907.50   | 4907.50  | 4907.32  | 4895.82   | 4872.73  |
| Bloom             | 4903.58   | 4903.58  | 4903.57  | 4895.58   | 4871.15  |
| Nelson            | 5681.07   | 5681.07  | 5681.07  | 5681.06   | 5672.37  |
| Raatz             | 5680.76   | 5680.76  | 5680.76  | 5680.76   | 5672.06  |
| Etcheverry        | 5662.18   | 5662.18  | 5662.18  | 5662.17   | 5653.28  |

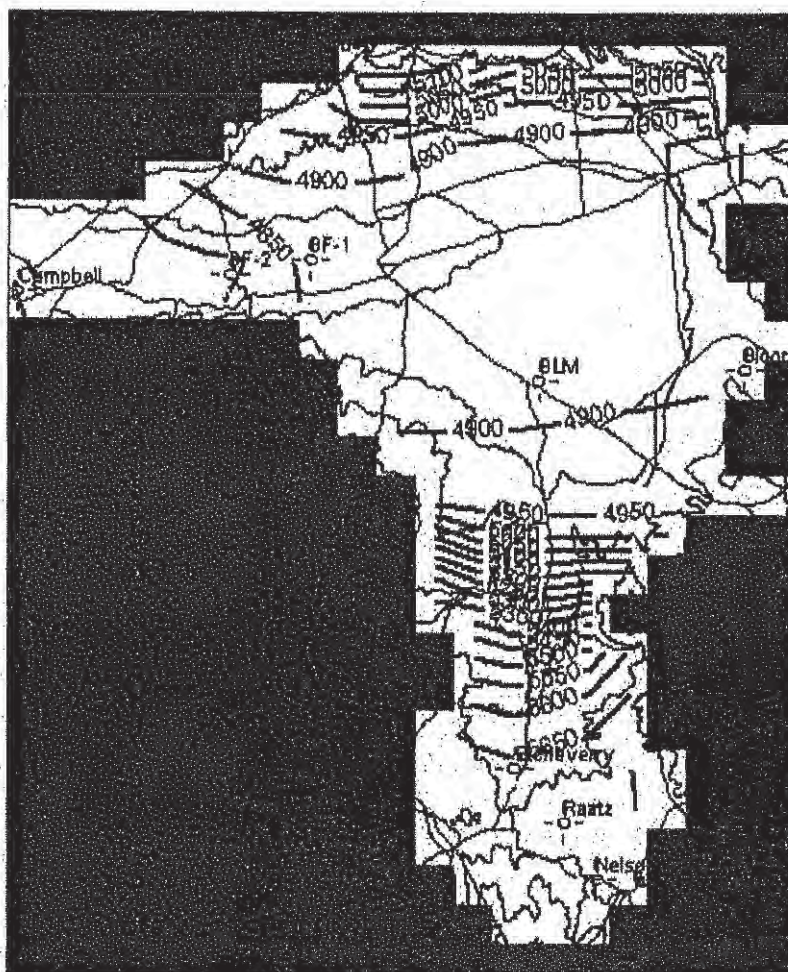


Figure 13 - Potentiometric Contours for 100-Year Transient Simulation with 310 gpm Pumping (500 af/yr) at Well BF-2.



Campbell Ranch Spring (Sec 31, T24N, R19E)

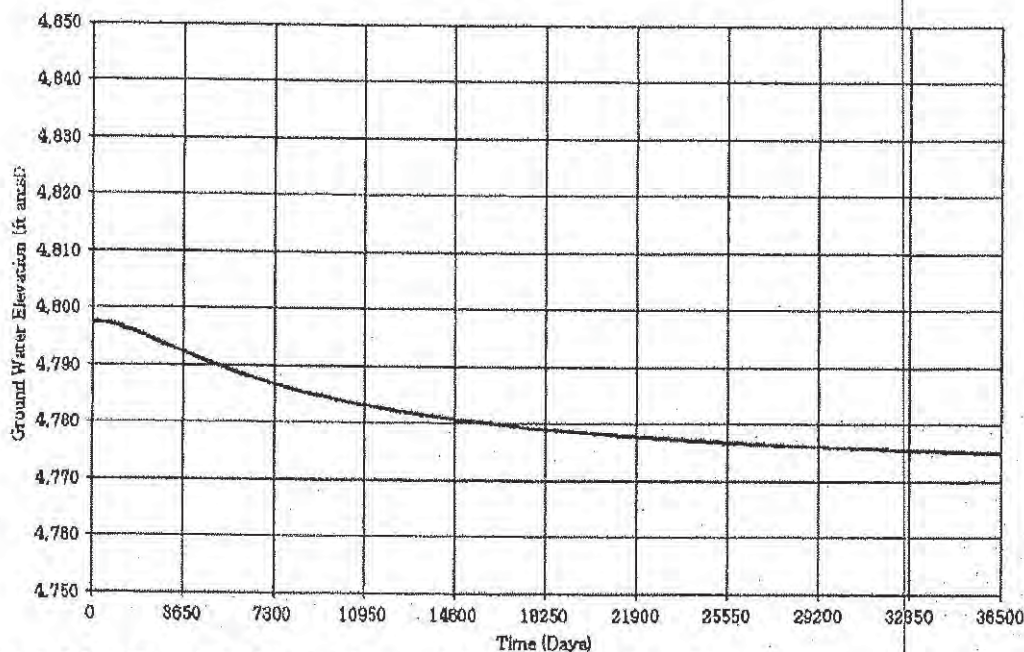


Figure 14 – Simulated Drawdown at the Campbell Spring

BLM Stockwater Well (SE SW Sec 22, T23N, R19E)

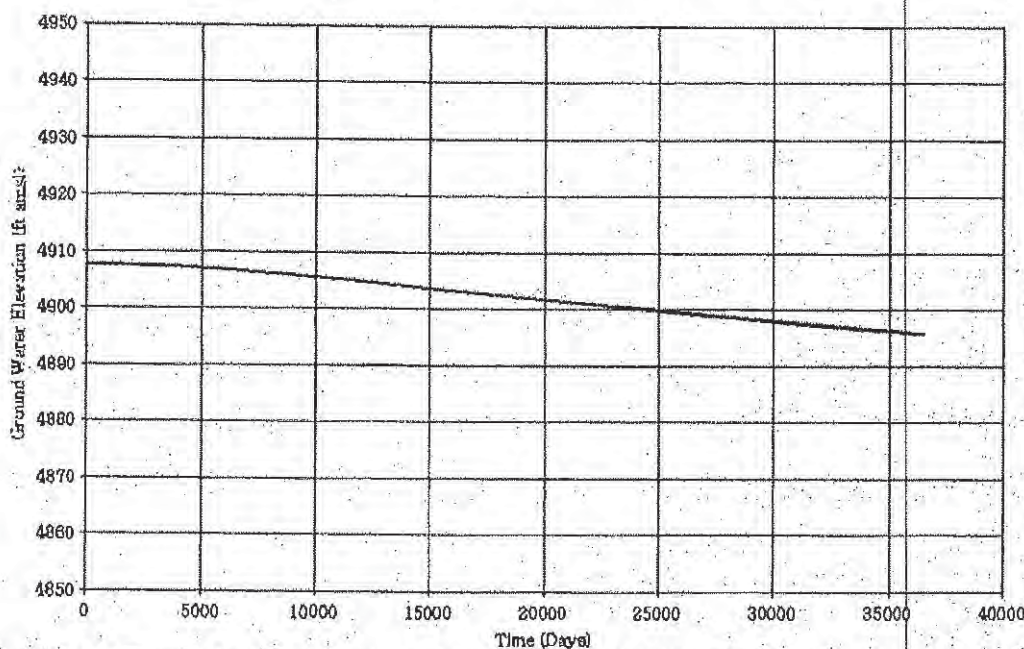


Figure 15 – Simulated Drawdown at the BLM Stockwater Well



Domestic Well Etcheverry (NE SW Sec 6, T22N, R19E)

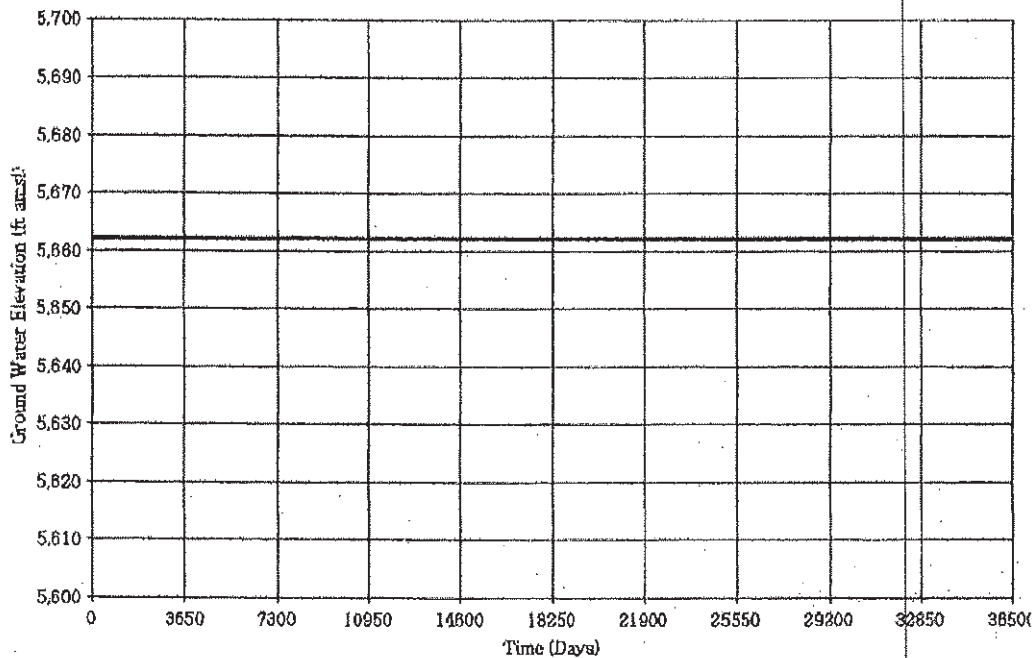


Figure 16 – Simulated Drawdown at the Etcheverry Domestic Well in Red Rock Estates

### Sensitivity Analysis

Many parameters are required to be assumed or estimated in any modeling exercise. Some of the major parameters input in the Bedell Flat model include hydraulic conductivities, general head boundary conditions, recharge rates (quantities), ET rates (quantities), aquifer storage coefficients, and basin geometry. A sensitivity analysis has been undertaken to provide a general understanding of the uncertainty in the calibrated model. In general, low sensitivities to changes in estimated parameters in the model are desirable.

Tables 5 and 6 present an overview of the sensitivity analysis performed using the calibrated steady-state model and transient model. Generally low sensitivities are observed for changes in the ET rate and storage coefficients. Intermediate sensitivities are observed for changes in recharge rates and hydraulic conductivities. These two variables tend to offset, in the sense that increased recharge results in increased water levels, while increased hydraulic conductivity results in decreased water levels. The conductance of the GHBs appears to have a low sensitivity; however, it should be noted that there is a delicate balance between the GHBs as distributed and defined in the model. The model is subject to numeric instability (inability of modeling code to arrive at a



solution) if even moderate changes in the GHBs are imposed. The GHB parameters used in the calibrated steady-state model are not a unique solution, but achieve an acceptable balance in the GHBs conditions for numeric solution.

Table 5 – Summary of Sensitivity Testing of Primary Hydraulic Parameters using the Calibrated Steady-State Model

| Model Parameter   | Sensitivity Adjustment | Mean Residual (ft)<br>Observed minus Computed | Standard Deviation of Residual (ft) | Absolute Mean Residual (ft) | Minimum Residual (ft) | Maximum Residual (ft) |
|---|------------------------|---|-------------------------------------|-----------------------------|-----------------------|-----------------------|
| Calibrated Steady State Model                             | NA                     | 2.29  | 8.93                                | 7.47                        | -12.07                | 18.82                 |
| Hydraulic Conductivity in Layer 1 - All Active Zones      | Plus 20%               | 40.86   | 33.06                               | 40.86                       | 8.04                  | 97.91                 |
| Hydraulic Conductivity in Layer 1 - All Active Zones      | Minus 20%              | -57.85  | 54.52                               | 58.98                       | -141.41               | 4.52                  |
| Recharge to Layer 1 – All Active Zones<br>Recharge Zone 3 | Plus 20%               | -49.89  | 41.03                               | 49.89                       | -115.55               | -2.31                 |
| Recharge to Layer 1 – All Active Zones<br>Recharge Zone 3 | Minus 20%              | 53.69   | 37.35                               | 53.69                       | 15.50                 | 116.22                |
| ET Rate in Layer 1  | Plus 15% <sup>1</sup>  | 2.51  | 8.96                                | 7.60                        | -12.00                | 18.89                 |
| ET Rate in Layer 1  | Minus 20%              | 2.01  | 8.89                                | 7.30                        | -12.11                | 18.77                 |
| GHB Conductance – All Zones                               | Plus 20%               | 5.97  | 9.20                                | 9.41                        | -10.70                | 20.22                 |
| GHB Conductance – All Zones                               | Minus 20% <sup>2</sup> | --  | --                                  | --                          | --                    | --                    |

Notes:

- 1) ET increase of 20% produced numerical instabilities associated with GHB conditions also present at an ET cell.
- 2) Numerical instability under this general head boundary modification (most of model cells became saturated and/or dry).



Table 6 – Summary of Sensitivity Testing of Storage Coefficient and Specific Yield using the Transient Model

| Sensitivity Change         | Observed Drawdown at Campbell Spring after 100 yrs of pumping (ft) | Observed Drawdown at BLM Stockwater Well after 100 yrs of pumping (ft) | Observed Drawdown at Etcheverry Domestic Well after 100 yrs of pumping (ft) |
|----------------------------|--|--|---|
| Unaltered                  | 22.5   | 11.7   | 0.0   |
| S and Sy increased by 200% | 18.4   | 5.0  | 0.0   |
| S and Sy decreased by 50%  | 25.0   | 20.8   | 0.1   |

### Conclusions and Limitations

The numeric flow model presented in this report has been prepared to aid in evaluation of effects and environmental impacts associated with proposed pumping and transport of ground water from Bedell Flat. Pumping has been simulated at well BF-2, an existing 12-inch diameter, 400-foot deep well in the northwest part of the basin. A continuous pumping rate of 310 gpm has been simulated, which would produce 500 af/yr of yield. It should be noted that the State Engineer recently issued Ruling 5429 which granted water rights for only a fraction (144.2 af/yr) of the proposed pumping at well BF-2.

The calibrated steady-state and transient models suggest that approximately 35 feet of drawdown will be experienced over the long term at the BLM stockwater well. This well has only about 45 to 50 feet of penetration into the saturated basin fill and the predicted level of drawdown could necessitate deepening of the well. The model suggests that drawdown will occur in a gradual manner, requiring many decades to realize full effects. Monitoring of responses in water levels in the BLM well is recommended to both verify simulation predictions and determine if deepening is warranted.

Drawdown in the vicinity of the Campbell Ranch is predicted to reduce ET discharge by about 50 percent. Water levels are predicted to decline by about 25 feet at the Campbell Spring, with a majority of the drawdown occurring in the first 30 to 40 years of pumping. This does not necessarily mean that Campbell Spring will cease to flow, as the chemistry of spring discharge appears to reflect mixed sources of water (a portion of the spring source may not be affected by pumping in Bedell Flat; Interflow, 2003). Monitoring of spring discharge is recommended, provided the property owner allows access to the spring.



Predicted drawdown effects at domestic wells in Red Rock Estates is minimal (less than 10 feet over many decades), and not detectable within a 100-year timeframe. Two domestic wells in the vicinity of the "Bloom" well (east side of basin) may experience drawdown over the course of many decades, in the predicted range of 30 feet. Monitoring of water levels at the BLM stockwater well would also provide a mid-way observation point between proposed pumping and domestic wells.

The presented modeling has been prepared based on currently available data, and the conceptual understanding of the hydrogeology of the basin as summarized in this report. Numeric flow models do not represent unique solutions, and many combinations of hydraulic parameters can produce acceptable solutions. The calibrated model conforms to hydraulic data available in the basin, including static water levels, hydraulic conductivity measurements, and basin geometry. While the simulation results appear to be within a reasonable range of expectations, monitoring of water-level responses over time are recommended to confirm ground-water responses of the magnitudes predicted. As new data become available, this model should be reviewed and updated, if it is continued to be relied upon for predictive purposes.



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Thomas, J., and Albright, W., 2003, Estimated Groundwater Recharge to Dry Valley, Northwestern Nevada, using the Chloride Balance Method: Desert Research Institute Pub. No. 41191, 25 p.



1 3370  
2 Ross E. de Lipkau, Esq.  
3 State Bar No. 1628  
4 Marshall Hill Cassas & de Lipkau  
5 Suite 300, 333 Holcomb Avenue  
6 P.O. Box 2790  
7 Reno, Nevada 89505  
8 (775) 323-1601  
9 Attorneys for Petitioner

FILED

SEP 28 2005

RONALD A. LONGTIN, JR., CLERK  
By: S. Schueler  
DEPUTY

10 IN THE SECOND JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA  
11 IN AND FOR THE COUNTY OF WASHOE

12 \* \* \*

13 INTERMOUNTAIN PIPELINE, LTD.

14 Petitioner,

15 v.

Case No. CV04-02717

16 HUGH RICCI, P.E., STATE ENGINEER, IN  
17 THE MATTER OF APPLICATION 66873,  
18 DIVISION OF WATER RESOURCES,  
19 DEPARTMENT OF CONSERVATION &  
20 NATURAL RESOURCES, and  
21 STATE OF NEVADA,

Dept. No. 4

22 Respondents.

23 ORDER OF REMAND

24 Petitioner's Motion to Remand the above-cause back to the Respondent State Engineer having come  
25 on for argument before this Court at the time set, namely September 8, 2005, and the Court having read the  
26 written material presented by the parties in favor of and in opposition to the Motion, and the Court having  
27 heard oral argument presented by the parties and the Court having considered the Motion hereby enters this  
28 Order granting the Motion to Remand.

29 NOW, THEREFORE, IT IS HEREBY ORDERED that Petitioner's Motion for Remand be and the  
30 same is hereby granted. The above cause shall be forthwith remanded to the Respondent State Engineer to  
31 enable him to review and consider the Numeric Groundwater Flow Modeling of Bedell Flat Hydrographic  
32 Basin in Washoe County, Nevada, prepared by Interflow Hydrology, Inc. of Truckee, California, and all other  
33 information which the State Engineer deems relevant in order to review and reconsider his ruling with respect  
34 to Application No. 66873.

MARSHALL HILL CASSAS & de LIPKAU  
333 Holcomb Ave, Ste 300  
P.O. Box 2790  
Reno, NV 89505-2790  
tel (775) 323-1601 fax (775) 348-7250

JA1511 1  
SE ROA 1428



1 IT IS HEREBY FURTHER ORDERED that, with this Order granting the Motion to Remand, the  
2 above cause is hereby dismissed without prejudice.

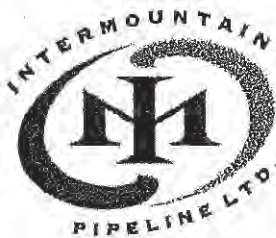
3 Each party shall bear his costs of the above appeal, if any.

4 DATED this 27 day of September, 2005.

5  
6 **Connie J. Steinheimer**

7 Hon. Connie Steinheimer  
8 District Judge  
9 Department 4  
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2440 HOLCOMB LN.  
RENO, NV 89511

(775) 852-1161 PH  
(775) 852-2523 FX  
RWMARSHALL@SOURCE.NET

**RECEIVED**

OCT 05 2005

October 3, 2005

STATE ENGINEER'S OFFICE

Jason King, Deputy State Engineer  
Division of Water Resources  
901 S. Stewart St., Suite 2002  
Carson City, NV 89706

re: Bedell Flat, Application No. 66873; Order of Remand.

Dear Jason:

As you know, Judge Steinheimer granted the motion to remand the appeal from State Engineer's ruling No. 5429 back to the State Engineer to consider the Numeric Groundwater Flow Modeling of Bedell Flat "and all other information which the State Engineer deems relevant in order to review and reconsider his ruling with respect to Application No. 66873." The order of remand is dated September 27, 2005 and is enclosed with this letter.

Since the Numeric Groundwater Flow Model is specifically referenced in the court's order, I am also enclosing a copy of this model. It is based on pumping 500 acre feet per year (AFY). The conclusions of the model are presented on pages 21 and 22 and indicate that the greatest impact of pumping 500 AFY over 100 years is approximately 35 feet drawdown at the nearest well which is a BLM stackwater well, with no predictable drawdown over 100 years at the Red Rock Estates domestic wells on the periphery of the basin.

The State Engineer has a copy of the chloride mass balance analysis of the annual recharge to Bedell Flat prepared in 2003 by Dwight Smith and Terry Katzer entitled "Hydrology of Bedell Flat and Potential for Groundwater Development, Washoe County, Nevada." This analysis shows annual recharge of between 1,100 and 1,500 AFY.

It should be noted that protestant Washoe County previously filed an application to appropriate municipal water from Bedell Flat in connection with its Silver State project in the amount of five (5) cfs or 3,620 AFY. That application was denied many years ago and Washoe County has no water rights in Bedell Flat. The only other protestant, Lassen County, California, has no water rights in Bedell Flat and has no jurisdiction in Nevada.

The applicant hereby requests that, after reviewing the model, the 2003 hydrologic report and any other relevant data, the State Engineer reconsider his prior ruling on application 66873.

**JA1513**  
SE ROA 1430



Page 2  
October 3, 2005

and issue a permit for 500 AFY to the applicant. In such event, we will withdraw the two newly filed applications (73048 and 73049) and confine our withdrawal of municipal water from the Bedell Flat hydrologic basin to 500 AFY.

Many thanks for your consideration of this request.

Sincerely,



Bob Marshall  
Co-manager, Intermountain Pipeline, Ltd.  
Manager, Intermountain Water Supply, Ltd.

Enclosures

cc: Mike Turnipseed

**JA1514**  
SE ROA 1431



KENNY C. GUINN  
Governor

STATE OF NEVADA



ALLEN BIAGGI  
Director

HUGH RICCI, P.E.  
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCES

901 S. Stewart Street, Suite 2002  
Carson City, Nevada 89701  
(775) 684-2800 • Fax (775) 684-2811  
<http://water.nv.gov>

Re: 66873

December 14, 2005

NOTICE OF HEARING

Intermountain Water Supply, Ltd.  
2440 Holcomb Lane  
Reno, Nevada 89511  
Certified Mail  
# 7106 7808 0630 0017 5609

Dwight L. Smith  
Interflow Hydrology, Inc.  
P.O. Box 1482  
Truckee, CA 96160  
Certified Mail  
# 7106 7808 0630 0017 5616

Lassen County  
c/o George Benesch  
9432 Double R Blvd.,  
Suite B  
Reno, Nevada 89521-5977  
Certified Mail  
# 7106 7808 0630 0017 5623

Washoe County  
P.O. Box 11130  
Reno, Nevada 89520-0027  
Certified Mail  
# 7106 7808 0630 0017 5630

Ladies and Gentlemen:

By Order of Remand in the Second Judicial District Court of the State of Nevada please take notice that the State Engineer has scheduled a public administrative hearing to consider Application 66873. The Order states that the matter be remanded 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 which the State Engineer deems relevant in order to review and reconsider his ruling with respect to Application 66873.

The application was filed by Intermountain Pipeline, Ltd. and later assigned to Intermountain Water Supply, Ltd. a Nevada Limited Liability Company to appropriate water from an underground source within the Bedell Flat Hydrographic Basin for municipal purposes within the Lemmon Valley Hydrographic Basin. The application was protested by Lassen County, California and Washoe Valley, Nevada.



Notice of Hearing  
December 14, 2005  
Page 2

Accordingly, the hearing will begin promptly at 8:30 a.m., on Tuesday, February 28, 2006, to be held at the Division of Water Resources' Hearing Room, 901 South Stewart Street, Second Floor, Carson City, Nevada. The Applicant will present its case first and address the above noted report and any related information relevant to the remand issue. The Protestants will then have the opportunity to present their rebuttal cases to the State Engineer. The parties are hereby ordered to serve on each other and the State Engineer no later than Tuesday, February 21, 2006, a list of witnesses, a short summary of the testimony of each witness and copies of any documentary evidence intended to be introduced at the administrative hearing.

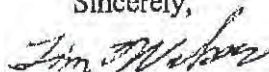
As provided in NAC § 533.220, the hearing will be reported by a certified court reporter. An original and one copy of the transcript of the proceedings must be filed with the State Engineer. The Applicant and Protestants will bear equally the court reporter's appearance fee, travel expenses, reporting and transcribing the portion of the transcript consisting of comments by the State Engineer and the public. The Applicant and Protestants shall bear pro rata the cost of the portion of the transcript taken up by their own case. Nevada Administrative Code § 533.290 requires that exhibits introduced into evidence must be in a readily reproducible form, on paper that is 8½" x 11" or foldable to that size. Larger charts, maps, drawings and other material will not be admitted into evidence, but may be used for demonstrative purposes. Exhibits submitted on computer disks or any other media, other than paper that is 8½" x 11" or foldable to that size, will not be accepted and will not be admitted into evidence. An original and one copy of each exhibit must be submitted to the State Engineer. Facilities are not available for copying documents during the hearing.

You or your designated representative should plan to attend the hearing for the purpose of presenting evidence or testimony in support of your position concerning the protested application. Legal counsel not licensed to practice law in the State of Nevada or licensed, but not maintaining an office in the State of Nevada, is required to comply with Supreme Court Rules 42 and 42.1. The Verified Application to Associate form that needs to be filed with the Nevada State Bar can be found on the Nevada Division of Water Resources website found at [www.water.nv.gov](http://www.water.nv.gov) under Forms Room - Miscellaneous Forms. Nevada Supreme Court Rule 43 provides an exception for lawyers employed by or representing the United States Government.

We are pleased to make reasonable accommodations for members of the public who are disabled and wish to attend the hearing. If special arrangements for the hearing are necessary, please notify me at the Nevada Division of Water Resources, 901 South Stewart, Suite 2002, Carson City, Nevada, 89701, or by calling (775) 684-2800.

If you have any questions on this matter, feel free to call me.

Sincerely,



Tim Wilson  
Hearings Officer

TW/jm

**JA1516**  
SE ROA 1433



Notice of Hearing  
December 14, 2005  
Page 3

cc: Steve Lyon, regular mail  
Barbara Shand, regular mail  
Vince Alberta, E-mail  
Donna Burns, E-mail  
Ed Vogel, E-mail  
Henry Brean, E-mail  
Warren Bates, E-mail  
Sean Whaley, E-mail  
Mary Manning, E-mail  
Cy Ryan, E-mail  
Brendon Riley, E-mail  
Ken Ritter, E-mail  
Lance Rake, E-mail  
Steve DeIsoldato, E-mail  
Elko Branch Office, E-mail  
Southern Nevada Branch Office, E-mail  
Capitol Reporters, regular mail



## 2. Article Number

7106 7808 0630 0017 5630

1. Article Addressed to:

Washoe County  
P.O. Box 11130  
Reno, Nevada 89520-0027

## COMPLETE THIS SECTION ON DELIVERY

A. Signature Thomas J. Frigoli ☐ Agent  
X ☒ Addressee

B. Received by (Printed Name) [Signature] C. Date of Delivery DEC 15 2004

D. Is delivery address different from item 1? ☐ Yes  
If YES enter delivery address below: ☒ No

3. Service Type

☒ Certified

4. Restricted Delivery? (Extra Fee)

☐ Yes

PS Form 3811 File: 66873/hearing/tw/jm

Domestic Return Receipt

## 2. Article Number

7106 7808 0630 0017 5616

1. Article Addressed to:

Dwight L. Smith  
Interflow Hydrology, Inc.  
P.O. Box 1482  
Truckee, CA 96160

## COMPLETE THIS SECTION ON DELIVERY

A. Signature [Signature] ☐ Agent  
X ☒ Addressee

B. Received by (Printed Name) [Signature] C. Date of Delivery 12-25-04

D. Is delivery address different from item 1? ☐ Yes  
If YES enter delivery address below: ☒ No

3. Service Type

☒ Certified

4. Restricted Delivery? (Extra Fee)

☐ Yes

PS Form 3811 File: 66873/hearing/tw/jm

Domestic Return Receipt

## 2. Article Number

7106 7808 0630 0017 5609

1. Article Addressed to:

Intermountain Water Supply, Ltd.  
2440 Holcomb Lane  
Reno, Nevada 89511

## COMPLETE THIS SECTION ON DELIVERY

A. Signature [Signature] ☐ Agent  
X ☒ Addressee

B. Received by (Printed Name) R. Marshall C. Date of Delivery 12-15-05

D. Is delivery address different from item 1? ☐ Yes  
If YES enter delivery address below: ☒ No

3. Service Type

☒ Certified

4. Restricted Delivery? (Extra Fee)

☐ Yes

JA1518

SE ROA 1435



4171  
STATE OF NEVADA  
DIVISION OF WATER RESOURCES  
901 S. Stewart Street, Suite 2002  
Carson City, Nevada 89701

Return Service Requested

2005 DEC 23 AM 10:36

STATE ENGINEERING OFFICE



7106 7808 0630 0017 5623

**CERTIFIED MAIL**

*Re-send 12/29/05*  
Cert. #7106 7808 0630 0017 5623  
Lassen County  
c/o George Benesch  
9432 Double R Blvd. 170 W. Huffaker Lane  
Suite B  
Reno, Nevada 89521-5977 89511-2092



U.S. POSTAGE

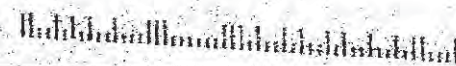
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METER 623925

UNIT  
FORWARDED  
406  
EXPIRED

Return Receipt Requested

89701/3338  
4821-74 R041



SE ROA 1436

JA1519



State of Nevada Division of Water Resources  
Request for Notice and Change of Address

In regards to permit number .....66873..... : (Check applicable item.)

- [ ] Please add my name to the mailing list and send copies of all correspondence to the address below:  
(Fill in NEW ADDRESS information only.)
- [X] Please change the address for copies to be sent as indicated below:  
(Fill in NEW ADDRESS and OLD ADDRESS information.)
- [ ] I am the permit holder. Please change my address as indicated below:  
(Fill in NEW ADDRESS and OLD ADDRESS information.)

NEW ADDRESS

NAME: \_\_\_\_\_ GEORGE N. BENESCH \_\_\_\_\_

ADDRESS: \_\_\_\_\_ 190 W. HUFFAKER LANE, SUITE 408 \_\_\_\_\_

CITY, STATE, ZIP: \_\_\_\_\_ RENO, NV 89511 \_\_\_\_\_

TELEPHONE: \_\_\_\_\_ 827-3100 \_\_\_\_\_

OLD ADDRESS

NAME: \_\_\_\_\_ GEORGE N. BENESCH \_\_\_\_\_

ADDRESS: \_\_\_\_\_ 9432 DOUBLE R BLVD., SUITE B \_\_\_\_\_

CITY, STATE, ZIP: \_\_\_\_\_ RENO NV 89521 \_\_\_\_\_

TELEPHONE: \_\_\_\_\_ 827-3100 \_\_\_\_\_

I am the:

- [X] Individual named above. (Complete signature below only.)
- [ ] Agent or representative. (Complete the signature, name, and address below.)

This form accurately reflects the mailing address for the permit holder or other individual identified above.

SIGNATURE: \_\_\_\_\_  1-18-06

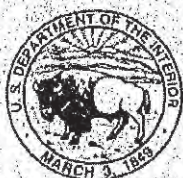
NAME: \_\_\_\_\_ GEORGE N. BENESCH \_\_\_\_\_

ADDRESS: \_\_\_\_\_ 190 W. HUFFAKER LANE, SUITE 408 \_\_\_\_\_

CITY, STATE, ZIP: \_\_\_\_\_ RENO, NV 89511 \_\_\_\_\_

**JA1520**  
SE ROA 1437





# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Carson City Field Office  
5665 Morgan Mill Road  
Carson City, Nevada 89701  
<http://www.nv.blm.gov>



MAY - 2 2006

In Reply Refer To:  
2800 (NV030)

Nevada Division of Water Resources  
Attn: Hugh Ricci, State Engineer  
901 S. Stewart St., Ste. 2002  
Carson City, NV 89701-5250

Dear Mr. Ricci:

On December 12, 2005, Terri Knutson, of my staff, and I met with Jason King, Robert Martinez, and Richard Felling, of your staff, to discuss the *North Valleys Rights-of-Way Projects Final Environmental Impact Statement - Fish Springs Ranch and Intermountain Water*. Included in Appendix D of this Final EIS is a document called *Recommended Water Resources Monitoring and Management Plan for Future Pumping in Honey Lake Valley, Dry Valley, and Bedell Flat, Nevada* (Plan). As was discussed in the meeting in December, this Plan was developed and recommended in coordination with the Cooperating Agencies for the EIS and for your consideration. The Cooperating Agencies for the North Valleys EIS are: U.S. Fish & Wildlife Service; U.S. Bureau of Indian Affairs; U.S. Geological Survey; Sierra Army Depot; Pyramid Lake Paiute Tribe; Susanville Indian Rancheria; California Department of Water Resources; California Department of Fish and Game; Lassen County, CA; Washoe County, NV; Truckee Meadows Water Authority; Truckee Meadows Regional Planning Agency; Airport Authority of Washoe County; City of Reno; and City of Sparks.

The Final EIS was released to the public on November 10, 2005 and the comment period ended on December 30, 2005. A total of 13 comment letters were received and seven of those letters were from Cooperating Agencies (BIA-Western Nevada Agency and Western Regional Office; Lassen County; California Water Resources; Pyramid Lake Paiute Tribe; Susanville Indian Rancheria; and Truckee Meadows Regional Planning Agency). All but one of the comment letters from the Cooperating Agencies contained revisions for the Plan. Attached is the revised Plan incorporating all comments received from the Cooperating Agencies.

The BLM Carson City Field Office strongly urges the implementation of the attached Plan. As stated in NRS 534.250(5.) "The State Engineer shall require the holder of a permit to monitor the operation of the project and the effect of the project on users of land and other water within the area of hydrologic effect of the project. In determining any monitoring requirements, the State Engineer shall cooperate with all government entities which regulate or monitor, or both, the quality of water." As described in the document, the BLM would not take a lead role in implementing the Plan but would be happy to help or facilitate in any other way needed. Please notify this office of any decisions you make in this matter. The record of decisions (RODs) for

**JA1521**  
SE ROA 1438



both the Fish Springs Ranch and Intermountain Water Projects should be issued within the next month.

Thank you for your consideration in review of this document. If you have any questions, please call either myself at 885-6000 or Terri Knutson at 885-6156.

Sincerely,



Donald T. Hicks  
Manager,  
Carson City Field Office

Enclosure: *Revised Recommended Water Resources Monitoring and Management Plan for Future Pumping in Honey Lake Valley, Dry Valley, and Bedell Flat, Nevada*

Cc: U.S. Fish & Wildlife Service; U.S. Bureau of Indian Affairs; U.S. Geological Survey; Sierra Army Depot; Pyramid Lake Paiute Tribe; Susanville Indian Rancheria; California Department of Water Resources; California Department of Fish and Game; Lassen County, CA; Washoe County, NV; Truckee Meadows Water Authority; Truckee Meadows Regional Planning Agency; Airport Authority of Washoe County; City of Reno; and City of Sparks.



**IN THE SUPREME COURT OF THE STATE OF NEVADA**

**Case No. 73933**

Electronically Filed  
Feb 08 2018 04:46 p.m.  
Elizabeth A. Brown  
Clerk of Supreme Court

SIERRA PACIFIC INDUSTRIES, a California Corporation,

Appellant,

v.

JASON KING, P.E., in his capacity as Nevada State Engineer; THE  
DIVISION OF WATER RESOURCES, DEPARTMENT OF  
CONSERVATION, an agency of the State of Nevada; and  
INTERMOUNTAIN WATER SUPPLY, LTD., a Nevada Limited Liability  
Company,

Respondents

---

Appeal From Order Denying Petition for Judicial Review  
District Court Case No.: CV16-01378  
Second Judicial District Court of Nevada

---

**JOINT APPENDIX**

**VOLUME VI Part 3 of 3**

---

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Debbie Leonard, Esq.

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Reno, NV 89501

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*Attorneys for Appellant*

*Sierra Pacific Industries*

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Richard L. Elmore, Esq.

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775-357-8172 (fax)

[relmore@rlepc.com](mailto:relmore@rlepc.com)

*Attorneys for Respondent*

*Intermountain Water Supply*

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775-684-1108 (fax)

[mfairbank@ag.nv.gov](mailto:mfairbank@ag.nv.gov)

*Attorneys for Respondent*

*NV State Engineer*



## CHRONOLOGICAL INDEX TO JOINT APPENDIX

| <b><u>DATE</u></b> | <b><u>DESCRIPTION OF DOCUMENT</u></b>  | <b><u>VOLUME</u></b> | <b><u>PAGE(S)</u></b> |
|--------------------|--|----------------------|-----------------------|
| 6/29/2016          | Notice of Filing Petition for Judicial Review (NRS 533.450) with 6/29/2016 filed Petition for Judicial Review and Exhibits | I                    | JA0001 – JA0028       |
| 7/22/2016          | Order Granting Stipulation to Allow Intervention   | I                    | JA0029 – JA0031       |
| 9/8/2016           | State Engineer's Summary of Record on Appeal: SE ROA 1 – SE ROA 748  | I – III              | JA0032 – JA0790       |
|                    | SE ROA 1-214   | I                    | JA0043 – JA0256       |
|                    | SE ROA 215-470   | II                   | JA0257 – JA0512       |
|                    | SE ROA 417-748   | III                  | JA0513- JA0790        |
| 10/5/2016          | State Engineer's Supplemental Summary of Record on Appeal: SE ROA 749 – SE ROA 2405  | IV – X               | JA0791 – JA2490       |
|                    | SE ROA 749-965   | IV                   | JA0830 – JA1046       |
|                    | SE ROA 966-1220  | V                    | JA1047 – JA1302       |
|                    | SE ROA 1221-1471   | VI                   | JA1303 – JA1554       |
|                    | SE ROA 1472-1723   | VII                  | JA1555 – JA1806       |
|                    | SE ROA 1724-1974   | VIII                 | JA1807 – JA2058       |
|                    | SE ROA 1975-2225   | IX                   | JA2059 – JA2308       |
|                    | SE ROA 2226-2405   | X                    | JA2309 – JA2490       |



| <b><u>DATE</u></b> | <b><u>DESCRIPTION OF DOCUMENT</u></b>   | <b><u>VOLUME</u></b> | <b><u>PAGE(S)</u></b> |
|--------------------|---|----------------------|-----------------------|
| 10/7/2016          | Petitioner's Sierra Pacific Industries' Opening Brief   | X                    | JA2491 – JA2517       |
| 11/17/2016         | Respondent-Intervenor Intermountain Water Supply's Answering Brief  | XI                   | JA2518 – JA2561       |
| 11/28/2016         | Respondent State Engineer's Answering Brief   | XI                   | JA2562 – JA2583       |
| 12/30/2016         | Petitioner's Sierra Pacific Industries' Reply Brief   | XI                   | JA2584 – JA2603       |
| 12/30/2016         | Exhibits 1-9: SROA 2406 – SROA 2475, to Petitioner Sierra Pacific Industries Motion to Supplement the Record, or in the Alternative, for Judicial Notice. | XI                   | JA2604 – JA2686       |
| 2/6/2017           | Order Granting Sierra Pacific Industries' Motion to Supplement the Record   | XI                   | JA2687 – JA2689       |
| 4/28/2017          | Application for Setting via Teleconference  | XI                   | JA2690 – JA2691       |
| 5/24/2017          | Petition for Judicial Review – Minutes  | XI                   | JA2692                |
| 5/24/2017          | Petition for Judicial Review Oral Arguments Transcript  | XI                   | JA2693 – JA2750       |
| 8/21/2017          | Order Denying Petition for Judicial Review  | XI                   | JA2751 – JA2759       |
| 8/22/2017          | Notice of Entry of Order Denying Petition for Judicial Review (Order not recopied)  | XI                   | JA2760 – JA2764       |
| 9/8/2017           | Notice of Appeal with Clerk's Certificate (Notice of Entry & Order not recopied)  | XI                   | JA2765 – JA2769       |



## ALPHABETICAL INDEX TO JOINT APPENDIX

| <b><u>DESCRIPTION OF DOCUMENT</u></b>   | <b><u>DATE</u></b> | <b><u>VOLUME</u></b> | <b><u>PAGE(S)</u></b> |
|---|--------------------|----------------------|-----------------------|
| Application for Setting via Teleconference  | 4/28/2017          | XI                   | JA2690 – JA2691       |
| Exhibits 1-9: SROA 2406 – SROA 2475, to Petitioner Sierra Pacific Industries Motion to Supplement the Record, or in the Alternative, for Judicial Notice. | 12/30/2016         | XI                   | JA2604 – JA2686       |
| Notice of Appeal with Clerk’s Certificate (Notice of Entry & Order not recopied)  | 9/8/2017           | XI                   | JA2765 – JA2769       |
| Notice of Entry of Order Denying Petition for Judicial Review (Order not recopied)  | 8/22/2017          | XI                   | JA2760 – JA2764       |
| Notice of Filing Petition for Judicial Review (NRS 533.450) with 6/29/2016 filed Petition for Judicial Review and Exhibits                                | 6/29/2016          | I                    | JA0001 – JA0028       |
| Order Denying Petition for Judicial Review  | 8/21/2017          | XI                   | JA2751 – JA2759       |
| Order Granting Sierra Pacific Industries’ Motion to Supplement the Record   | 2/6/2017           | XI                   | JA2687 – JA2689       |
| Order Granting Stipulation to Allow Intervention  | 7/22/2016          | I                    | JA0029 – JA0031       |
| Petition for Judicial Review – Minutes  | 5/24/2017          | XI                   | JA2692                |
| Petition for Judicial Review Oral Arguments Transcript  | 5/24/2017          | XI                   | JA2693 – JA2750       |
| Petitioner’s Sierra Pacific Industries’ Opening Brief   | 10/7/2016          | X                    | JA2491 – JA2517       |
| Petitioner’s Sierra Pacific Industries’ Reply Brief   | 12/30/2016         | XI                   | JA2584 – JA2603       |



| <b><u>DESCRIPTION OF DOCUMENT</u></b>   | <b><u>DATE</u></b> | <b><u>VOLUME</u></b> | <b><u>PAGE(S)</u></b> |
|---|--------------------|----------------------|-----------------------|
| Respondent-Intervenor Intermountain Water Supply's Answering Brief                  | 11/17/2016         | X                    | JA2518 – JA2561       |
| Respondent State Engineer's Answering Brief   | 11/28/2016         | XI                   | JA2562 – JA2583       |
| State Engineer's Summary of Record on Appeal: SE ROA 1 – SE ROA 748                 | 9/8/2016           | I – III              | JA0032 – JA0790       |
|   |                    |                      |                       |
| SE ROA 1-214  |                    | I                    | JA0043 – JA0256       |
| SE ROA 215-470  |                    | II                   | JA0257 – JA0512       |
| SE ROA 417-748  |                    | III                  | JA0513- JA0790        |
|   |                    |                      |                       |
| State Engineer's Supplemental Summary of Record on Appeal: SE ROA 749 – SE ROA 2405 | 10/5/2016          | IV – X               | JA0791 – JA2490       |
|   |                    |                      |                       |
| SE ROA 749-965  |                    | IV                   | JA0830 – JA1046       |
| SE ROA 966-1220   |                    | V                    | JA1047 – JA1302       |
| SE ROA 1221-1471  |                    | VI                   | JA1303 – JA1554       |
| SE ROA 1472-1723  |                    | VII                  | JA1555 – JA1806       |
| SE ROA 1724-1974  |                    | VIII                 | JA1807 – JA2058       |
| SE ROA 1975-2225  |                    | IX                   | JA2059 – JA2310       |
| SE ROA 2226-2405  |                    | X                    | JA2311 – JA2490       |
|   |                    |                      |                       |



**IN THE SUPREME COURT OF THE STATE OF NEVADA**

## AFFIRMATION

Pursuant to NRS 239B.030, the undersigned does hereby affirm that **JOINT APPENDIX VOLUME VI** does not contain the social security number of any person.

DATED this 8<sup>th</sup> Day of February, 2018.

MCDONALD CARANO LLP

BY: /s/ Debbie Leonard  
Debbie A. Leonard, Esq.  
Nevada Bar No. 8260  
100 West Liberty Street, 10<sup>th</sup> Floor  
Reno, Nevada 89501  
Tel.: (775) 788-2000  
Fax: (775) 788-2020  
[dleonard@mcdonaldcarano.com](mailto:dleonard@mcdonaldcarano.com)

*Attorneys for Appellant*



## **CERTIFICATE OF SERVICE**

Pursuant to NRCP 5(b), I hereby certify that I am an employee of McDonald Carano, LLP and that on February 8, 2018, **JOINT APPENDIX VOLUME VI** was electronically filed with the Clerk of the Court for the Nevada Supreme Court by using the Nevada Supreme Court's E-Filing system (E-Flex). Pursuant to NRAP 30(f)(2), all Participants in the case will be served and provided an electronic copy via U.S. mail as follows:

Richard L. Elmore, Esq.  
3301 S. Virginia Street, Suite 125  
Reno, Nevada 89502

Office of the Nevada Attorney General  
Micheline N. Fairbank, Esq.  
100 North Carson Street  
Carson City, NV 89701

/s/ Pamela Miller  
An employee of McDonald Carano, LLP



Engineer finds that this represents an interbasin transfer of underground water between two adjacent groundwater basins, both of which have been designated by the State Engineer.

### 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(4), 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.

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 recharge 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, increased economic 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

---

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



perennial yield of the Bedell Flat Hydrographic Basin to be approximately 300 afa.<sup>5</sup>

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 groundwater basin's limited underground water resources. In several groundwater basins, the USGS has modified their initial reconnaissance level estimates of perennial yield through additional published studies, with the Office of the State Engineer accepting the revised numbers. At this time, the State Engineer finds that the perennial yield of the Bedell Flat Hydrographic Basin has not been modified by the USGS and remains at the original 300 afa level.

#### IV.

It is the applicant's contention that sufficient underground water is currently available from the Bedell Flat Hydrographic Basin to support the project that is to be developed under Application 66873. To support this position, the applicant provided the State Engineer with a report prepared by several private consulting firms.<sup>6</sup> Contained within this report is a revised estimate of the basin's perennial yield that ranges from 600 to 1,300 afa, which represents a 200% to 433% increase over the perennial yield estimate derived from Recon Report No. 43. The State Engineer finds that any consideration as to the merits of Application 66873 must also include an analysis of whether the information presented by the applicant

---

<sup>5</sup> F. Rush & P. Glancy, Water Resources - Reconnaissance Series Report 43, Water Resources Appraisal of the Warm Springs-Lemmon Valley Area, Washoe County, Nevada. Nv. Dept. of Conservation and Natural Resources and U.S.G.S., p. 49, November 1967.

<sup>6</sup> Hydrology of Bedell Flat and Potential for Ground Water Development, Washoe County, Nevada, Prepared by Interflow Hydrology, Inc. and Cordilleran Hydrology, Inc. May 2003. This report has been incorporated into the information filed under water right Application 66873, which is an official record in the Office of the State Engineer.



justifies changing the perennial yield beyond the established 300 afa level.

V.

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. Unlike neighboring Dry Valley and Warm Springs, there are no on going studies being conducted on the federal or county level regarding a reassessment of the Bedell Flat groundwater budget. The lack of new data is not significantly altered by the applicant's report, which presents a new interpretation of existing data. Without a significant expansion of the pool of existing data, the State Engineer finds that there is no justification for doubling and replacing the accepted 300 afa perennial yield.

VI.

Although the State Engineer rejects the applicant's revised perennial yield, further consideration of the interbasin transfer can proceed using the 300 afa level as a starting point. An adjustment to this level must be made due to the fact that the groundwater basin is no longer in an undeveloped state. Increased pressure to develop this area has resulted in the creation of new residential parcels throughout the basin. By comparing the current Washoe County parcels maps with the Bedell Flat basin boundary map, it was determined that 159 residential parcels reside within the groundwater basin. The creation of these residential parcels represents both an addition and subtraction in the basins groundwater budget. Assuming that one parcel equates to one domestic well, the presence of 159 parcels represents a potential addition of 159 domestic wells to the Bedell Flat Hydrographic Basin.<sup>7</sup> It has been determined that

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<sup>7</sup> Review of Water Availability in Bedell Flat Area, December 02, 2003, filed within File No. 66873, official records in the Office of the State Engineer.



the average groundwater use from a domestic well in Carson City, Douglas County and Lyon County is 200 gallons per day per person and that the average parcel in Lemmon Valley contains 3.2 persons per household.<sup>8</sup> At these levels, the future domestic well demand within the subject area would equate to (159 residential lots) x (3.2 persons per lot) x (200 gallons used per day per person) x (365 days per year), which equals 114.3 acre-feet of water over the course of a year.

To this amount must be added the 77.1 acre-feet of underground water that currently is permitted for annual appropriation under active water right permits and certificates issued by the Office of the State Engineer. From a basin wide approach, the addition of this number to the future domestic well demand produces a total basin wide appropriation of 191.4 afa. The State Engineer finds that the existing committed water use and the future domestic well demand in the Bedell Flat Hydrographic Basin is 191.4 afa.

#### VII.

The influence that the creation of 159 residential parcels has on the water resources of the Bedell Flat Hydrographic Basin is not limited to the discharge side of the water budget equation. The development of a residential parcel would also require the construction of a septic tank system. It is estimated that each domestic well returns 200 gallons per day of water to the groundwater basin through the parcel's septic system. Taking this into account, at peak development, the 159 parcels would return 35.6 acre-feet of water to the groundwater basin on an annual basis. By adding this secondary recharge to the 300 acre-feet perennial yield, the State Engineer finds that the amount of available underground water contained within the Bedell Flat Hydrographic Basin is increased to 335.6 acre-feet.

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<sup>8</sup> State Engineer's Ruling No. 5132, official records in the Office of the State Engineer.



VIII.

It should be noted at this point that there are currently no active water right permits or certificates for irrigation purposes within the subject groundwater basin; therefore, the State Engineer finds that there is no secondary recharge component that can be attributed to the irrigation of developed land.<sup>9</sup>

IX.

The 335.6 afa level represents the safe yield of the Bedell Flat Hydrographic Basin. The safe yield is defined as the amount of water, which can be withdrawn from a supply, source, or an aquifer over a period of years without causing eventual depletion or contamination of the supply.<sup>10</sup> To determine the amount of underground water, which is available for transfer under Application 66873, the committed resource and future domestic well demand must be deducted from the basin's estimated safe yield. Accordingly, for Bedell Flat, subtracting 191.4 afa from 335.6 afa leaves 144.2 afa water available for transfer to the Lemmon Valley area, as proposed under Application 66873. The State Engineer finds that any transfer of underground water from the Bedell Flat Hydrographic Basin cannot exceed 144.2 acre-feet annually.

X.

The Nevada Revised Statutes require the State Engineer to consider the following points when an interbasin transfer of water is proposed by a water right application:<sup>11</sup>

- A. Whether the applicant has justified the need to import water from another basin;

<sup>9</sup> Nevada Division of Water Resources Hydrographic Basin Summary, Bedell Flat Area, February 27, 2004, official records in the Office of the State Engineer.

<sup>10</sup> Water Words Dictionary, Nevada Division of Water Planning, Department of Conservation and Natural Resources, August 1999.

<sup>11</sup> NRS § 533.370(5).



- B. If the State Engineer determines that a plan for conservation of water is advisable for the basin into which the water is to be imported, whether the applicant has demonstrated that such a plan has been adopted and is being effectively carried out;
- C. Whether the proposed action is environmentally sound as it relates to the basin from which the water is exported;
- D. Whether the proposed action is an appropriate long-term use which will not unduly limit the future growth and development in the basin from which the water is exported; and
- E. Any other factor the State Engineer determines to be relevant.

Examining this criterion point by point the State Engineer makes the following findings:

- A. The State Engineer has established a policy of consistently denying water right applications, which request additional appropriations of water from the Lemmon Valley Hydrographic Basin. This position is due to the fact that the basin's underground water resources are inadequate to meet the demands of existing water rights, much less new appropriations of water. The State Engineer finds that there is a need for additional water within the proposed place of use.
- B. The proposed place of use is contained within the boundaries of Washoe County and as such, is subject to its water conservation programs and requirements.
- C. The negative effects of appropriating a level of groundwater, which surpasses the basin's safe yield, have been stated within this ruling. The State Engineer finds that maintaining a level of appropriation, which is below the basin's safe yield, will prevent these negative effects from occurring.



D. A portion of the underground water resources of the Bedell Flat Hydrographic Basin has been dedicated to service future domestic well demand. This will allow the continued development of the residential lots that currently exist. It must be remembered that the area representing the Bedell Flat Hydrographic Basin is very limited and represents one of the states smallest groundwater basins. The State Engineer finds that future commercial growth and development within the basin is already limited by the basins modest size and predominance of residential lots, and that the exportation of water at or below the safe yield level would not be the deciding factor in limiting future growth.

XI.

Similarly, the individual protests of Washoe and Lassen County can be addressed, beginning with the former;

Washoe County's examination of the Bedell Flat area estimated that 12.4 afa of water is available for appropriation from the groundwater basin. This analysis estimates the number of residential parcels to be (130) and credits each parcel with a domestic well demand of 2.02 acre-feet, which equates to 262.6 afa. The level of committed resources under existing permits and certificates was, at the time of the protests, assigned a level of 25 afa, which when added to the future domestic well demand produces a combined basin wide appropriation of 287.6 afa. Washoe County's assessment did not consider any secondary recharge through septic systems and may have assigned the wrong unit (afa) to the committed resource, which is identified on the State Engineers database as 25.12 million gallons annually (mga) or 77.08 afa. The State Engineer disagrees with the analysis performed by Washoe County and finds that its estimate of available water understates the available resource.



Washoe County's protest also includes a statement that a senior protested application has yet to be addressed by the State Engineer. This is apparently a reference to Application 56541, which was denied on May 29, 2003, by State Engineer's Ruling No. 5249. This application, which requested a new appropriation of underground water from the Bedell Flat Hydrographic Basin, was denied on the grounds that the project proposed under the application no longer existed. This denial by the State Engineer was timely appealed and the State Engineer's decision was affirmed by the Second Judicial District Court. The State Engineer finds that the legal challenges to his denial of Application 56541 are concluded; therefore, this protest issue is moot. The State Engineer also finds that other than this issue, the protest lodged by Washoe County can be overruled.

### XII.

Lassen County's protest contends that there is no unappropriated water at the source, the approval of the application would affect the basin's surface water sources and would threaten to prove detrimental to the public interest. Additionally, this protest alleges that there are more viable sources of water available and the magnitude of the proposed pumpage would result in a mining of the groundwater.

The question regarding the level of unappropriated water has been previously addressed and answered in this ruling. Whether more viable sources exist to service the Lemmon Valley area remains to be seen. The project described under the subject application will provide at best, 144.2 afa of underground water to the Lemmon Valley area; therefore, further development of this area, if desired, will require additional sources of water. In regard to the issue of water mining, this scenario will be avoided by limiting the annual duty appropriated to the 135.6 acre-foot level. The State Engineer



finds that the protest issues set forth within Lassen County's protest to Application 66873 can be overruled.

CONCLUSIONS

I.

The State Engineer has jurisdiction over the parties and the subject matter of this action and determination.<sup>12</sup>

II.

The State Engineer is prohibited by law from granting an application to appropriate the public waters where:<sup>13</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.

Taking into account the committed groundwater resource and future domestic well demand, the State Engineer concludes that 144.2 afa of underground water is available for appropriation under any permit derived from Application 66873.

IV.

The State Engineer concludes that the approval of Application 66873 will not conflict with the three existing water rights, which are located within the Bedell Flat Hydrographic Basin.

V.

The State Engineer has 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. The State Engineer

<sup>12</sup> NRS chapters 533 and 534.

<sup>13</sup> NRS § 533.370(4).



Ruling  
Page 13

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

VI.

The State Engineer concludes that the approval of a water right permit, which has met all the statutory requirements, would not threaten to prove detrimental to the public interest.

RULING

The respective protests to Application 66873 are overruled and Application 66873 is approved at an annual duty of 144.2 afa subject to existing water rights, and the payment of the statutory permit fee.

Respectfully Submitted,



HUGH RICCI, P.E.  
State Engineer

HR/MB/jm

Dated this 14th day  
of October 2004.

**JA1478**  
SE ROA 1396



1 **4105**  
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11 Email: [mfairbank@ag.nv.gov](mailto:mfairbank@ag.nv.gov)  
12 *Attorney for Respondent,*  
13 *Nevada State Engineer*

14 **IN THE SECOND JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA**  
15  
16 **IN AND FOR THE COUNTY OF WASHOE**

17 SIERRA PACIFIC INDUSTRIES, a  
18 California Corporation,

19 Petitioner,

20 vs.

21 JASON KING, P.E., in his capacity as  
22 Nevada State Engineer, and the  
23 DIVISION OF WATER RESOURCES,  
24 DEPARTMENT OF CONSERVATION,  
25 an agency of the State of Nevada,

26 Respondent,

27 and,

28 INTERMOUNTAIN WATER SUPPLY,  
LTD., a Nevada limited liability company,

Intervenor-Respondent.

Case No. CV16-01378

Dept. No. 1

**SUPPLEMENTAL RECORD ON APPEAL**

**Part III of V**

**SE ROA 1397 - 1747**

**JA1479**



KENNY C. GUINN  
Governor

STATE OF NEVADA



R. MICHAEL TURNIPSEED, P.E.  
Director

HUGH RICCI, P.E.  
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WATER RESOURCES

123 W. Nye Lane, Suite 246  
Carson City, Nevada 89706-0818  
(775) 687-4380 • Fax (775) 687-6972  
<http://water.nv.gov>

Re: 66873

October 14, 2004

Intermountain Water Supply, LTD.  
P.O. Box 2790  
Reno, Nevada 89505-2790  
Certified Mail #7106 7808 0630 0008 7926

Ladies and Gentlemen:

Enclosed is our official Ruling granting Application 66873 filed to appropriate the underground water from the Bedell Flat Hydrographic Basin (094), Washoe County County, Nevada, subject to payment of the statutory permit fee.

Please be advised that within the next few weeks you will receive notice from this office requesting payment of the fee for the issuance of your permit.

Sincerely,

*Hugh Ricci, P.E.*  
Hugh Ricci, P.E.  
State Engineer

HR/jm  
Enclosures

cc: Dwight L. Smith - agent  
Certified Mail #7106 7808 0630 0008 7933  
Washoe County  
Certified Mail #7106 7808 0630 0008 7964  
Lassen County, c/o George N. Benesch  
Certified Mail #7106 7808 0630 0008 7971  
Southern Nevada Branch Office  
Elko Branch Office



**SENDER:**  
 Complete items 1, 2 and 3.  
 Indicate if restricted delivery is desired.  
 Print your name and address.  
 Attach this form to the front of the mailpiece, or on the back if space does not permit.  
 Write "Return Receipt Requested" on the mailpiece below the article number.  
 The Return receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following service (for an extra fee):  
☐ Restricted Delivery  
 Consult postmaster for fee.

1. Article Addressed to:  
 WASHOE COUNTY  
 PO BOX 11130  
 RENO NV 89520-0027

2. Article Number:  
 7106 7808 0630 0008 7964

3. Service Type: ☒ CERTIFIED  
 Date of Delivery: 15

Received By: (Print Name)  
 Thomas J. Frigoli

Signature - (Addressee or Agent)  
*Thomas J. Frigoli*

PS Form 3811  
 Je: File: 66873/RULING/MB/JM

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 Complete items 1, 2 and 3.  
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 LASSEN COUNTY  
 C/O GEORGE N. BENESCH  
 PO BOX 3498  
 RENO NV 89505

2. Article Number:  
 7106 7808 0630 0008 7972

3. Service Type: ☒ CERTIFIED  
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 Amanda Wilkinson

Signature - (Addressee or Agent)  
*Amanda Wilkinson*

PS Form 3811  
 Je: File: 66873/RULING/MB/JM

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 Write "Return Receipt Requested" on the mailpiece below the article number.  
 The Return receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following service (for an extra fee):  
☐ Restricted Delivery  
 Consult postmaster for fee.

1. Article Addressed to:  
 INTERMOUNTAIN WATER  
 SUPPLY LTD  
 P.O. BOX 2790  
 RENO NEVADA 89505-2790

2. Article Number:  
 7106 7808 0630 0008 7925

3. Service Type: ☒ CERTIFIED  
 Date of Delivery: 15

Received By: (Print Name)  
 Karen Proctor

Signature - (Addressee or Agent)  
*Karen Proctor*

PS Form 3811  
 Je: File: 66873/RULING/MB/JM

**DOMESTIC RETURN RECEIPT**

**SENDER:**  
 Complete items 1, 2 and 3.  
 Indicate if restricted delivery is desired.  
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 Attach this form to the front of the mailpiece, or on the back if space does not permit.  
 Write "Return Receipt Requested" on the mailpiece below the article number.  
 The Return receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following service (for an extra fee):  
☐ Restricted Delivery  
 Consult postmaster for fee.

1. Article Addressed to:  
 DWIGHT L. SMITH  
 INTERFLOW HYDROLOGY, INC.  
 PO BOX 1482  
 TRUCKEE, CA 96160

2. Article Number:  
 7106 7808 0630 0008 7933

3. Service Type: ☒ CERTIFIED  
 Date of Delivery: 15

Received By: (Print Name)  
 Dwight Smith

Signature - (Addressee or Agent)  
*Dwight Smith*

PS Form 3811  
 Je: File: 66873/RULING/MB/JM

**DOMESTIC RETURN RECEIPT**

SE ROA 10998

JA1481



KENNY C. GUINN  
Governor

STATE OF NEVADA



R. MICHAEL TURNIPSEED, P.E.  
Director

HUGH RICCI, P.E.  
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCES

123 W. Nye Lane, Suite 246  
Carson City, Nevada 89706-0818  
(775) 687-4380 • Fax (775) 687-6972  
<http://ndwr.state.nv.us>  
October 28, 2004

Re: 66873

Intermountain Water Supply, Ltd  
C/o Robert W Marshall  
2440 Holcomb Ln.  
Reno, NV 89511

Dear Mr. Marshall:

You are hereby advised that your application to appropriate the public waters of the State of Nevada, under our Serial Number 66873 for the waters of an underground source is now ready to be approved by this office.

You are further advised that in accordance with NRS 533.435 it will be necessary that you forward to this office, within **sixty (60) days** from the date hereof, the sum of \$439.00 for the issuing of your permit under the application.

In the event that this office does not receive the permit fee within **sixty (60) days** from this date, your application will be subject to denial.

Sincerely,

A handwritten signature in cursive script, reading "Hugh Ricci, P.E.", written in dark ink.

Hugh Ricci, P.E.  
State Engineer

HR/sg

cc: Interflow Hydrology, Inc.  
George N. Benesch, Esq.



# **Numeric Ground-Water Flow Modeling Bedell Flat Hydrographic Basin Washoe County, Nevada**

**November, 2004**

(Amended Dec, 2004)

**Prepared for:**  
**Intermountain Water Supply, Ltd.**  
**Reno, NV**

**Prepared by:**  
**InterFlow Hydrology, Inc**  
**Truckee, CA**



**JA1483**  
SE ROA 1400

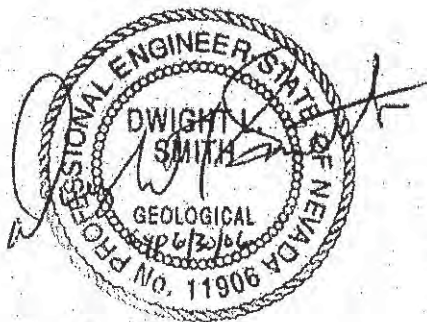


# **Numeric Ground-Water Flow Modeling, Bedell Flat Hydrographic Basin Washoe County, Nevada**

**November, 2004**  
(Amended December, 2004)

Prepared for:  
Intermountain Water Supply, Ltd.  
Reno, NV

Prepared by:  
InterFlow Hydrology, Inc  
Truckee, CA



**JA1484**  
SE ROA 1401



## Table of Contents

|  | <u>Page</u> |
|--|-------------|
| Introduction .....   | 1           |
| Overview of Hydrogeologic Studies and Available Data ..... | 1           |
| Hydrogeologic Setting .....                                | 2           |
| Model Construction .....                                   | 6           |
| Model Calibration .....                                    | 12          |
| Modeling Results .....                                     | 14          |
| Sensitivity Analysis .....                                 | 19          |
| Conclusions and Limitations .....                          | 21          |
| References.....  | 23          |

## List of Figures

|  |    |
|--|----|
| 1. Bedell Flat Vicinity Map .....  | 3  |
| 2. Well Locations and Ground Water Contour Map .....   | 4  |
| 3. Bedell Flat Model Area .....  | 7  |
| 4. Top Elevation of Layer 1 .....  | 8  |
| 5. Bottom Elevation of Layer 1 .....   | 8  |
| 6. Cross-Sections through the Model .....  | 9  |
| 7. Hydraulic Conductivity Distribution for Layer 1 .....   | 9  |
| 8. Recharge Distribution .....   | 10 |
| 9. Evapotranspiration Distribution .....   | 11 |
| 10. Distribution of General Head Boundaries .....  | 12 |
| 11. Potentiometric Contours for Steady-State Model of Existing Conditions .....                                      | 15 |
| 12. Potentiometric Contours for Steady-State Simulation with 310 GPM Pumping<br>(500 AF/YR) at Well BF-2 .....       | 16 |
| 13. Potentiometric Contours for 100-Year Transient Simulation with 310 GPM<br>Pumping (500 AF/YR) at Well BF-2 ..... | 17 |
| 14. Simulated Drawdown at the Campbell Spring .....  | 18 |
| 15. Simulated Drawdown at the BLM Stockwater Well .....  | 18 |
| 16. Simulated Drawdown at the Etcheverry Domestic Well in Red Rock Estates .....                                     | 19 |

## List of Tables

|  |    |
|--|----|
| 1. Summary of Model Calibration Targets .....  | 13 |
| 2. Comparison of Steady-State Model Calibration Results to Target Water<br>Levels .....                                | 14 |
| 3. Computed Drawdown at Target Wells in Steady-State Simulation with<br>310 GPM Pumping (500 AF/yr) at Well BF-2 ..... | 15 |
| 4. Computed Ground-Water Elevations in 100-Year Transient Simulation .....   | 17 |
| 5. Summary of Sensitivity Testing of Primary Hydraulic Parameters .....  | 20 |
| 6. Summary of Sensitivity Testing of Storage Coefficient and Specific Yield<br>Parameters .....                        | 21 |



# **Numeric Ground-Water Flow Modeling, Bedell Flat Hydrographic Basin, Washoe County, Nevada**

## **Introduction**

A simulation of ground-water flow and pumping in Bedell Flat has been prepared by Interflow Hydrogeology on behalf of Intermountain Water Supply, Ltd., the proponents of a proposed project to develop ground water in Bedell Flat for municipal uses in Lemmon Valley. The goal of the modeling has been to provide an interpretation of the potential magnitude of pumping effects, for use in the North Valleys Pipeline Environmental Impact Statement (EIS) being prepared under the direction of the Bureau of Land Management (BLM). The conceptual numeric model for this analysis was agreed upon by the project proponents and BLM in the summer of 2004 (Interflow Hydrology, April 14, 2004; BLM, June 9, 2004; and meeting held on July 1, 2004).

This report documents the numeric flow model construction and summarizes model simulation results.

## **Overview of Hydrogeologic Studies and Available Data**

The hydrogeology of Bedell Flat was first assessed on a reconnaissance-level by Maxey, Mifflin, Domenico and McLane (1966) in an unpublished report entitled Geology and Water Resources of Red Rock Ranch, and by Rush and Glancy (1967) in Water-Resources Appraisal of the Warm Springs-Lemmon Valley Area, Washoe County, Nevada. At the time of these studies, only one well was known to exist in Bedell Flat. Nonetheless, these reconnaissance-level works include reasonable first-order approximations of the water resources in Bedell Flat.

In 2003, Interflow Hydrology and Cordilleran Hydrology (Interflow, 2003) prepared a report entitled Hydrogeology of Bedell Flat and Potential for Ground Water Development. This report analyzes hydrogeologic data collected since the time of the reconnaissance reports and presents interpretations of the ground-water flow system in Bedell Flat. The Interflow (2003) report forms the basis of the conceptual numeric flow model. Data and published reports that substantially aided in conceptualization and construction of the model are summarized below:

1. Exploration drilling, test well construction, and aquifer tests in the north part of Bedell Flat (SEA, Incorporated, 1978).



2. USGS Water Resources Investigations Report 01-4220 entitled "Hydrogeologic Framework of Antelope Valley and Bedell Flat, Washoe County, West-Central Nevada" (Berger and others, 2001).
3. Ground-water level and chemistry data from domestic, stockwater and test wells, and springs distributed over Bedell Flat and in down-gradient neighboring basins, available from multiple sources (NDWR well logs; Nevada State Health Laboratory; Washoe County; SEA, 1978; Interflow, 2003).
4. Published Geologic Mapping by the Nevada Bureau of Mines and Geology (Bohnam, 1969; Bell, 1981; Garside, 1993; and Henry and others, 2004a, 2004b, and 2004c)
5. Other recently published hydrogeologic studies of neighboring valleys, including Dry Valley, Warm Springs Valley, and Spanish Springs Valley (Berger and others, 2004; Thomas and Albright, 2003; Katzer, 1997; Ross, 1997; Berger and others 1997).

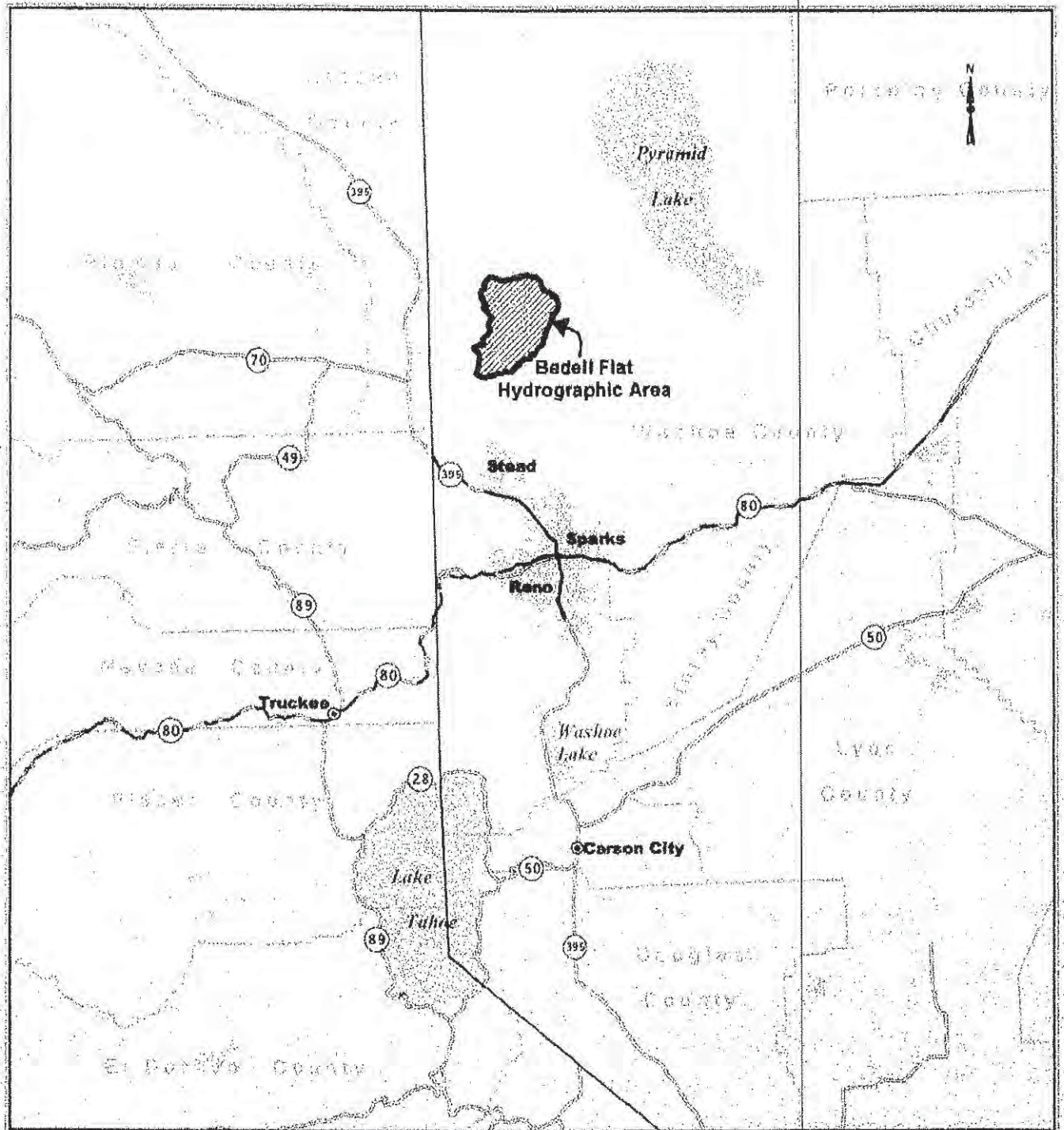
#### **Hydrogeologic Setting (summarized from Interflow, 2003)**

The Bedell Flat hydrographic basin encompasses 51 square miles situated north of Lemmon Valley and east of Red Rock Valley, in Washoe County, Nevada (Figure 1). The basin is surrounded by mountain ranges and low-altitude bedrock hills with a minor ephemeral drainage exiting the basin in the northwest corner, to Red Rock Valley. Over 90 percent of Bedell Flat is public lands, with the majority of private property being associated with the Red Rock Estates on the southern basin periphery (Interflow, 2003).

Minimal ground-water development currently exists in Bedell Flat. One stockwater well has been drilled on the valley floor and is owned by the BLM (see Figure 2). Approximately 33 domestic wells have been drilled for single-family residences in Red Rock Estates (Interflow, 2003). Two production-capacity wells were constructed in the 1970s in the northwest part of the basin (BF-1 and BF-2; SEA, 1978), and still exist but have not been pumped since construction.

Ground water occurs at depths ranging from 30 to 650 feet below ground surface (Figure 2). Over a majority of the basin, depth to ground water exceeds 50 feet. Depth to ground water at the BLM stockwater well, situated on the central valley floor, has been periodically measured by Interflow Hydrology, with depths to ground water of approximately 180 feet below land surface.





5 0 5 10 15 Miles

#### Legend



Badell Flat Hydrographic Area



State Boundary



County line



Urban Areas



Lakes

#### Road classification



Divided highway



Heavy-duty



Light duty



Medium duty

Project Site



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InterFlow Hydrology, Inc.

Intermountain Pipeline, LTD  
Reno, Nevada

Vicinity Map

FIGURE 1