

Item 7 & Item 8

Proposed & Existing Place of Use

All of T. 15N., R. 20E., MDB&M, E $\frac{1}{2}$ of T. 15N., R. 19E., MDB&M, Sections 2, 3, 4, E $\frac{1}{2}$ 5, and that portion of the N $\frac{1}{2}$ of the NE $\frac{1}{4}$ of Section 6 which lies within Carson City limits, T. 14N., R. 20E., MDB&M, Sections 31, 32, 33, 34, 35, W $\frac{1}{2}$ 36, and those portions of the E $\frac{1}{2}$ of Section 36 which lie within Carson City limits T. 16N., R. 20E., MDB&M, the S $\frac{1}{2}$ of Sections 34, 35, and 36, NE $\frac{1}{4}$ 36, and those portions of the SW $\frac{1}{4}$ NW $\frac{1}{4}$ 36 and the S $\frac{1}{2}$ NE $\frac{1}{4}$ 35 which lie within the Carson City limits T. 16N., R. 19E., MDB&M

TAB 15

**APPLICATION FOR PERMISSION TO CHANGE POINT OF DIVERSION, MANNER
OF USE AND PLACE OF USE OF THE PUBLIC WATERS OF THE
STATE OF NEVADA HERETOFORE APPROPRIATED**

Date of filing in State Engineer's Office MAR 23 1992

Returned to applicant for correction APR 24 1992

Corrected application filed JUN 22 1992 Map filed FEB 27 1992 under 57248

The applicant Sierra Creek Ranch, Inc., c/o Vasey Engineering Co., Inc.

P.O. Box 247 of Minden
Street and No. or P.O. Box No. City or Town

Nevada 89423 hereby make.... application for permission to change the
State and Zip Code No.

Manner of Use of a Portion

Point of diversion, manner of use, and/or place of use

of water heretofore appropriated under a District Court Decree dated August 29, 1879, affirmed
Identify existing right by Permit, Certificate, Proof or Claim Nos. If Decreed, give title of Decree and
by the Nevada Supreme Court in a decision dated April 1, 1885, Case No. 1081 as
identify right in Decree.

they pertain to 7/10 of the flow in Sierra Canyon Creek.

- The source of water is Sierra Canyon Creek (Infiltration Well)
40 percent of stream, lake, underground spring or other source.
- The amount of water to be changed of 7/10 of the Flow in Sierra Canyon Creek (see remarks)
Second feet, acre feet. One second foot equals 448.83 gallons per minute.
- The water to be used for Quasi-Municipal Use
Irrigation, power, mining, industrial, etc. If for stock state number and kind of animals.
- The water heretofore permitted for Irrigation, Stock and Domestic Purposes (see remarks)
Irrigation, power, mining, industrial, etc. If for stock state number and kind of animals.
- The water is to be diverted at the following point within the NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 3, T.13N., R.19E.,
Describe as being within a 40-acre subdivision of public survey and by course and
M.D.B.&M., or at a point from which the Southwest corner of said Section 3 bears
distance to a section corner. If on unsurveyed land, it should be stated.
S 37° 52' W. 2605 feet-Infiltration Well No. 1. (see remarks)
- The existing permitted point of diversion is located within the NE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 3, T.13N., R.19E.,
If point of diversion is not changed, do not answer.
M.D.B.&M. The aforementioned Decree does not
indicate a specific point of diversion. The existing point where Sierra Canyon
Creek enters onto the Sierra Creek Ranch property is within 300 feet of the proposed
point of diversion.
- Proposed place of use No Change.
Describe by legal subdivisions. If for irrigation state number of acres to be irrigated.
- Existing place of use portions of the SE SE, NE SE, NW SE, SW SE, SE NE, SW NE, NE
Describe by legal subdivisions. If permit is for irrigation, state number of acres irrigated. If changing place of use and/or
SW, NW NE, SE SW, and
the SW SW of Section 3; Portions of the SE NE, NE NE, NW NE, SW NE, NE NW and
manner of use of irrigation permit, describe acreage to be removed from irrigation.
the NW NW of Section 10 all in T.13N.,
R.19E., M.D.B.&M., Douglas County, Nevada (see remarks)
- Use will be from January 1 to December 31 of each year.
Month and Day Month and Day
- Use was permitted from January 1 to December 31 of each year.
Month and Day Month and Day
- Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and
specifications of your diversion or storage works.) A drilled infiltration well, 500,000 gallon
State manner in which water is to be diverted, i.e. diversion structure,
storage tank, and water lines of various
sizes necessary to provide potable water and fire protection for the development.
ditches, pipes and flumes, or drilled well, etc.
- Estimated cost of works \$1,732,000.
- Estimated time required to construct works 5 years

14. Estimated time required to complete the application of water to beneficial use..... 10 years

15. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use:

See Attachment

By s/B J Vasey B J Vasey
B.J. Vasey, PE, Vasey Engineering Co., Inc.
P O Box 247
Minden, NV. 89423

Compared bc/bc bk/vjw

Protested

OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit to change the point of diversion, manner and place of use of a portion of the waters of Sierra Canyon Creek as heretofore granted under district court decree, Case No. 1081, Sierra Canyon Creek Decree, and affirmed by the Supreme Court of the State of Nevada (Jones v. Adams, 17 Nev. 85) is issued subject to the terms and conditions imposed in said decree and with the understanding that no other rights on the source will be affected by the change proposed herein. The infiltration well shall be equipped with a 2-inch opening and a totalizing meter must be installed and maintained in the discharge pipeline near the point of diversion and accurate monthly measurements must be kept on water placed to beneficial use. The totalizing meter must be installed before any use of the water begins or before the proof of Completion of Work is filed. The state retains the right to regulate the use of the water herein granted at any and all times.

A monthly report shall be submitted to the State Engineer within 10 days from the end of each month which shall include the amount of water pumped from each well and the amount of water used.

This permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies.

(CONTINUED ON PAGE 2)

The amount of water to be changed shall be limited to the amount which can be applied to beneficial use, and not to exceed 1.11 cubic feet per second but not to exceed

*280 acre-feet annually.

Work must be prosecuted with reasonable diligence and be completed on or before December 1, 1994

Proof of completion of work shall be filed before January 1, 1995

Application of water to beneficial use shall be made on or before December 1, 1997

Proof of the application of water to beneficial use shall be filed on or before January 1, 1998

Map in support of proof of beneficial use shall be filed on or before N/A

Completion of work filed FEB 2 - 1995

Proof of beneficial use filed

Cultural map filed

Certificate No. Issued

IN TESTIMONY WHEREOF, I, R. MICHAEL TURNIPSEED, P.E.
State Engineer of Nevada, have hereunto set my hand and the seal of my
office, this 1st day of December

A.D. 1992

(State Engineer)

Submitted By 68337 1.11

ATTACHMENT

Please use the map submitted to support Applications 57248 and 57249 to support this Application.

Item 2. No rate of diversion is given in the aforementioned Decree other than "seven tenths of the water of Sierra Creek." The rate of diversion is based on the water requirements of the Genoa Lakes Project, which will have a water system serving 220 dwelling units, a golf course club house, and landscaping. The water system will include a 500,000 gallon storage tank for fire protection. The rate of diversion is estimated to be 500gpm during the time the pump in the infiltration well is pumping. The U.S. Geological Survey Water-Resources Investigations Report 86-4328 in Table 2 indicates that the estimated runoff in Sierra Creek is 1000 acre-feet per year. 7/10 of 1000 acre feet is 700 acre feet and this Application together with Application 57328 proposes to change a combined total of 280 acre feet per year or 40% of the water right in Sierra Canyon Creek owned by Sierra Creek Ranch, Inc.

Item 4. The manner of use is stated in the aforementioned Decree.

Item 5. It is the intent of the Applicant to withdraw a portion of the Sierra Canyon Creek water right established in the aforementioned Decree from an infiltration well.

Item 8. The aforementioned Decree indicates "that the Plaintiff, Joseph Jones, is entitled to use, as the first appropriator, upon his said land, upon each and every part thereof, seven-tenths of all the water customarily flowing in said Sierra Creek, and is entitled to divert the said water from the said stream upon his said land by means of flumes, ditches, or otherwise, and to use the same upon his said land for the irrigation thereof; and to use so much of the said seven-tenths of said stream as is necessary for his stock and domestic purposes." (Third Finding)

The above-described Jones land is now known as the Sierra Creek Ranch where the Genoa Lakes Project is being developed.

A copy of the Tentative Map for the Genoa Lakes Planned Unit Development, which has been approved by Douglas County, is enclosed.

Item 15. Each of the two (2) Infiltration wells will be equipped with submersible pumps capable of pumping 500 gpm each. The pumps will turn on a portion of each day depending on demands in the system. Water will be stored in a 500,000 gallon storage tank to meet a fire fighting demand. The portion of the existing water right being changed is described in Item 2 above.

(PERMIT TERMS CONTINUED)

*The annual duty of water under this permit is initially limited to 90 acre-feet. A minimum of 280 acre-feet annually to be changed under Permits 57327 and 57328 must be diverted back into the natural channel of Sierra Canyon Creek east of the major fault line at the base of the Sierra Nevada Mountain Range. Measuring devices to be approved by the State Engineer must be installed, maintained and weekly records of flow kept at or near the discharge point to the natural channel and at the point at which the channel crosses beneath Foothill Road. The monitoring wells constructed under Waiver Number W-365 for said permits shall be monitored on a weekly basis. Records of flow and static water levels shall be submitted to the Office of the State Engineer on a monthly basis. The measuring devices and static water level measurement must begin at least 3 months prior to the drilling and pumping of the proposed wells under said permits. The annual duty of water allowed by this permit may be raised to a maximum of 280 acre-feet in stages and as approved and authorized by the State Engineer only after the State Engineer has determined that the additional withdrawal will not adversely affect existing rights or the ground water resource.

TAB 16

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

IN THE MATTER OF APPLICATIONS 55450)
AND 58269 FILED TO APPROPRIATE THE)
WATERS FROM AN UNDERGROUND SOURCE)
IN THE MUDDY RIVER SPRINGS AREA)
(219) CLARK COUNTY, NEVADA.)

RULING

4243

GENERAL

I.

Application 55450 was filed on November 9, 1990, by Moapa Valley Water District (MVWD) to appropriate 3.0 cfs of water from an underground source for municipal purposes. The proposed point of diversion is the existing Arrow Canyon well and is located within the SE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 7, T.14S., R.65E., M.D.B.&M. The proposed place of use is the Moapa Valley Water District service area.¹

II.

Application 58269 was filed on October 27, 1992, by MVWD to appropriate 5.0 cfs of water from an underground source for municipal purposes. The proposed point of diversion is the Arrow Canyon well located as described above. The proposed place of use is the Moapa Valley Water District service area.²

III.

Application 55450 was timely protested by Nevada Power Company (NPC). NPC requested that the State Engineer deny the applications because "If approved, the appropriate(sic) and diversion proposed by this application will eventually reduce or eliminate the underground and surface water resources within the surrounding groundwater basin. Nevada Power Company's senior water rights would thus be impaired."¹

¹ File No. 55450, official records in the Office of the State Engineer.

² File No. 58269, official records in the Office of the State Engineer.

Application 55450 was timely protested by the United States Department of the Interior, National Park Service (NPS). NPS requested that the State Engineer deny Application 55450 because "...if granted, would divert water from the ground-water flow systems which feed the springs in Lake Mead National Recreation Area."¹

IV.

Application 58269 was timely protested by the NPS. NPS requested that the State Engineer deny Application 58269 because "...if granted, would divert water from the ground-water flow systems which feed the springs in Lake Mead National Recreation Area."²

Application 58269 was timely protested by the United States Fish and Wildlife Service (FWS). FWS requested that the State Engineer deny Application 58269 because "...the proposed increased withdrawal from this well, as described in Application No. 58269, may not be in the public interest because it may adversely affect the resident and migratory fish and wildlife species and their habitats within the Moapa Valley..." and could be detrimental to "...a pending Service water right."²

V.

As a result of the protests to both applications, Moapa Valley Water District (MVWD) submitted a phased aquifer test plan to the State Engineer for approval. The plan was approved and a phase one 72-hour test and a phase two, 120-day aquifer test were conducted.³

VI.

On July 14, 1971, Muddy River Springs Area Ground Water Basin (219) was designated by the State Engineer as a basin in need of additional administration.⁴

³ File Nos. 55450 and 58269, official records in the Office of the State Engineer.

⁴ State Engineer's Order No. 392, dated July 14, 1971, official records in the Office of the State Engineer.

The proposed point of diversion of Applications 55450 and 58269 is not located within the designated portion of Muddy Springs Area Ground Water Basin. The point of diversion is an existing well, known as the Arrow Canyon well and is located immediately up gradient from the designated area.^{3,4}

VII.

A public administrative hearing was held before the State Engineer on January 24 through 26, 1995 in Las Vegas, Nevada to receive testimony and evidence pertaining to Applications 55450 and 58269. A continuation of January's hearing was held in Las Vegas on February 7 through 10, 1995.⁵

MOTIONS

I.

At the hearing, MVWD made two motions to the Hearing Officer. The decisions on the motions are entered below.

Mr. Marshall, counsel for MVWD, made a motion to strike certain portions of the protests filed by the NPS. Mr. Marshall felt that those portions referring to the Las Vegas Valley Water District filings and their alleged impacts to Death Valley National Monument and Devil's Hole are irrelevant to the matter of Applications 55450 and 58269.⁶

Mr. Palmer, counsel for NPS, agreed in part, that portions of the protests may not directly relate to this matter.⁷

Mr. Marshall's motion was resolved at the conclusion of the hearing. The NPS submitted revised versions of its protests in which irrelevant portions were removed. These revised protests

⁵ Exhibit No. DWR-1, Public Administrative Hearing before the State Engineer, January, February, 1995.

⁶ Transcript, pp. 6-8, Public Administrative Hearing before the State Engineer, January, February, 1995.

⁷ Transcript, p. 8, Public Administrative Hearing before the State Engineer, January, February, 1995.

were admitted into the record as Exhibit Nos. 5 and 6.⁸ Therefore, the motion to strike was rendered moot and no decision is necessary.

II.

Mr. Marshall's second motion was to strike that portion of the NPS protests that asserts federal reserved rights for the Lake Mead National Recreation Area (LMNRA). Mr. Marshall felt that there is no valid claim for reserved rights because LMNRA was established in 1964, long after the Muddy River system was declared fully appropriated.⁹

Mr. Palmer objected to the motion because any reserved right pertaining to LMNRA would be senior to Applications 55450 and 58269 and additional pumping of water as requested in said applications would have an impact to the springs in the LMNRA.¹⁰

It is unknown at this time, the location, quantity of water, and extent of any reserved right at the LMNRA. However, if reserved rights exist and are determined to be prior to Applications 55450 and 58269, then the State Engineer would consider any impacts on the reserved rights that said Applications may cause. If one or both of these applications were approved, they would be issued subject to any existing rights. It is not the purpose of this ruling to determine the existence of any federal reserve rights but the State Engineer is taking notice of the possibility of their existence. Therefore, the motion to strike the reference in the NPS protest to federal reserved rights is denied.

⁸ Transcript, pp. 1263-1264, Public Administrative Hearing before the State Engineer, January, February, 1995.

⁹ Transcript, pp. 9-10, Public Administrative Hearing before the State Engineer, January, February, 1995.

¹⁰ Transcript, pp. 10-11, Public Administrative Hearing before the State Engineer, January, February, 1995.

FINDINGS OF FACTS

I.

The area served by the MVWD is experiencing a population growth rate of about 5% per year and the water demand is increasing by 7% to 9% per year.¹¹ Considering this rate of increase, the base annual water demand and base peak daily demand are projected for future years and shown in Table I.¹²

Table I. Projection of Future Water Demand

Muddy Valley Water District

Year	Annual Water Demand, AF	Peak Daily Demand, CFS
1994	2,500	8.0
1996	2,800	9.2
1998	3,200	10.5
2000	3,600	12.0
2002	4,000	13.7
2004	4,500	15.8

MVWD presently holds existing water rights for underground and spring water of acceptable quality which allow the diversion of 8.0 cfs and the use of a total annual duty of 3985.33 AF.¹³

After 1994, the peak daily demand exceeded the permitted diversion rate of 8.0 cfs. The total annual water demand will not exceed that allowed under existing rights until the year 2002. The State Engineer finds that MVWD has an immediate need for additional water rights, such as those requested in Applications 55450 and

¹¹ Transcript, p. 798, Public Administrative Hearing before the State Engineer, January, February, 1995.

¹² Exhibit Nos. MWD-8 and MWD-9, Public Administrative Hearing before the State Engineer, January, February, 1995. The data shown in Table I were taken from these two exhibits.

¹³ Exhibit No. MWD-7, Public Administrative Hearing before the State Engineer, January, February, 1995.

58269, to satisfy the peak daily demand. The State Engineer further finds that MVWD holds existing water rights in excess of the predicted total annual water demand until the year 2002. In 2004, MVWD will need an estimated 4,500 AFA or 515 AFA of additional annual duty to meet the demand.

II.

The Arrow Canyon well is completed to a depth of 565 feet and draws water from a large regional aquifer, in which ground water flows in a generally southerly direction, through fractured carbonate rocks.¹⁴ This aquifer is known as the carbonate aquifer. The carbonate aquifer, in a complex and poorly understood manner, is hydraulically connected to a shallow, alluvial aquifer.¹⁵ Ground water flows from the carbonate aquifer at a higher potentiometric surface to the alluvial aquifer and surfaces at the numerous springs in the Muddy River Springs Area.¹⁶ Additionally, the carbonate aquifer is the source of water for the Muddy River.¹⁶ The State Engineer finds that Applications 55450 and 58269 seek to appropriate additional water from the carbonate aquifer, which serves as the source of water for the underground water in the Muddy Springs Area Groundwater Basin, the springs in the basin, and the Muddy River.

III.

The United States of America, through the National Park Service (NPS) and the Fish and Wildlife Service (FWS) filed protests to Applications 55450 and 58269.¹⁷ The NPS is concerned

¹⁴ Exhibit Nos. MWD-16 and NPC-1, Public Administrative hearing before the State Engineer, January, February, 1995.

¹⁵ Transcript, p. 316, Public Administrative Hearing before the State Engineer, January, February, 1995.

¹⁶ Transcript, pp. 94-95 and Exhibit Nos. NPC-5 and MWD-16, Public Administrative Hearing before the State Engineer, January, February, 1995.

¹⁷ Exhibit Nos. DWR-5, DWR-6 and DWR-7, Public Administrative Hearing before the State Engineer, January, February, 1995.

about springs in the Lake Mead National Recreation Area (LMNRA) referred to the Rogers-Bluepoint Spring Complex. The source of water to the Rogers-Bluepoint Spring Complex is probably not the carbonate aquifer and the additional pumping of water at the Arrow Canyon well probably would have no effect on these springs.¹⁸ The NPS is initiating a study to better understand the source of water of these springs. Because there was no evidence or testimony provided to show any connection between the carbonate aquifer and the springs, the State Engineer finds that the proposed additional pumping of the Arrow Canyon well will not affect the Rogers-Bluepoint Spring Complex.

The NPS is concerned that additional pumping of the Arrow Canyon well will reduce the flow of the Muddy River, to which NPS holds permitted water rights.¹⁹ The pumping of the Arrow Canyon well during the 121 day pump test appeared to have no effect on the flow of the Muddy River, as measured at the U.S.G.S. gauge near Moapa.²⁰ The State Engineer finds that when upstream diversions are accounted for, the flow in the Muddy River can be monitored because of the existence of the U.S.G.S. gauge.

The FWS has the jurisdiction over the protection of the endangered Moapa Dace, a fish species whose only habitat is the spring outflow area located within the Moapa Wildlife Refuge.²¹ The Moapa Dace has very specific hydraulic and temperature

¹⁸ Transcript, pp. 729-732, Public Administrative Hearing before the State Engineer, January, February, 1995.

¹⁹ Transcript, pp. 726-728 and Exhibit No. NPS-12, Public Administrative Hearing before the State Engineer, January, February, 1995.

²⁰ Water Resources Data, Nevada, Water Year 1994, USGS Water Data Report NV-94-1, 1995. See stream flow record for gauge at the Muddy River near Moapa, No. 09416000, for December 1994 through April 1994.

²¹ Exhibit Nos. FWS-8, FWS-9, and FWS-10, Public Administrative Hearing before the State Engineer, January, February, 1995.

requirements.²² FWS is concerned that the additional pumping at the Arrow Canyon well will cause a reduction in flow of the springs at the Moapa Wildlife Refuge and cause negative impacts to the Dace habitat.²³

No monitoring of the existing flows in the springs has occurred in the past.²⁴ The State Engineer finds that the flows from the springs in the Moapa Wildlife Refuge must be monitored as a first step in protecting the habitat of the Moapa Dace. The State Engineer further finds that if Applications 55450 and 58269 are approved, then the monitoring of the springs would be required to detect any impacts caused by the additional pumping of the Arrow Canyon well.

IV.

Applications 55450 and 58269 seek to appropriate water from the regional flow system referred to as the carbonate aquifer. The carbonate aquifer is the source of water for the Muddy River, the springs in the basin, and the underground water in the Muddy Springs Area Groundwater Basin, referred to as the alluvial aquifer.²⁵ The existing water rights from all these sources in the alluvial system total approximately 45,260 AFA.²⁶

²² Transcript, pp. 497 and 509 and Exhibit No. FWS-10, Public Administrative Hearing before the State Engineer, January, February, 1995.

²³ Exhibit No. DWR-7, Public Administrative Hearing before the State Engineer, January, February, 1995.

²⁴ Transcript, pp. 493-494, Public Administrative Hearing before the State Engineer, January, February, 1995.

²⁵ Transcript, pp. 94-95 and Exhibit Nos. NPC-5 and MWD-16, Public Administrative Hearing before the State Engineer, January, February, 1995.

²⁶ Transcript, pp. 899-900, Public Administrative Hearing before the State Engineer, January, February, 1995.

The quantity of water flowing from the carbonate aquifer to the alluvial basin has historically been accepted as 51 cfs or 37,000 AFA.²⁷ However, experts testifying for the applicant estimate that there is probably at least 46,000 AFA and as much as 58,900 AFA flowing into the Muddy Springs Area Groundwater Basin, when the flows from California Wash, Lower Meadow Valley Wash and surface water inflows are considered.²⁸ It was estimated that an additional 5,000 AFA of secondary recharge from irrigation returns to the groundwater.²⁹ When this quantity is added to the previous estimates, the range of water available from all sources is estimated by the applicant to be between 51,000 AFA and 63,900 AFA. If the quantity of water under existing rights (45,260 AFA) is subtracted from the lower figure in the range of estimates (51,000 AFA), then 5,740 AFA of water would be available for appropriation. The State Engineer finds that while there is a degree of uncertainty inherent in the estimates, there is evidence that unappropriated water is available.

The above discussion of estimated recharge and quantity of existing water rights applies to the Muddy River Springs Area Groundwater Basin and surface water sources within the basin. Applications 55450 and 58269 seek to appropriate water from the carbonate aquifer which is the source of water for the alluvial basin. Therefore, the quantity of water available in the carbonate aquifer may be more important in deciding this matter than the availability of unappropriated water within the alluvial basin. Since the quantity of water existing in the carbonate aquifer is

²⁷ Transcript, pp. 1282-1286 and Exhibit Nos. MWD-15 and NPC-20, Public Administrative Hearing before the State Engineer, January, February, 1995.

²⁸ Exhibit No. MWD-16, Transcript, pp. 1191-1194, Public Administrative Hearing before the State Engineer, January, February, 1995. See also the Closing Brief filed on behalf of MVWD, March 27, 1995.

²⁹ Transcript, pp. 925-926, Public Administrative Hearing before the State Engineer, January, February, 1995.

unknown, we must address the issue of whether additional diversions from the carbonate aquifer at the Arrow Canyon well would reduce the inflow to the alluvial aquifer to a point where the water available in the basin would not satisfy the existing rights within the basin. This question may have to be answered in the analysis of data from a monitoring plan, which could be established to determine any conflict with existing rights. If at some time in the future, it is determined that pumping the Arrow Canyon well causes a conflict with existing rights, then that conflict would be caused by the reduction in water inflow from the carbonate aquifer to the alluvial system. If on the other hand, no conflict is shown to exist, then there must be unappropriated water available. The question of conflict with existing rights is explored in the following sections.

V.

From December 1993 to April 1994, MVWD conducted a long term pump test on the Arrow Canyon well, in which 1,550 acre feet of water were pumped at a rate of 2,900 gpm (6.39 cfs) for 121 days.³⁰ This quantity of water is equivalent to an average annual pumping rate of 2.12 cfs. The discharge rates from certain springs located within the Muddy River Springs Area and the water levels in several carbonate and alluvial wells were monitored throughout the test. The drawdowns in the monitored wells are presented in Table II.²¹ The discharge rates for the springs were unchanged.³¹

³⁰ Exhibit No. NPC-1, Public Administrative Hearing before the State Engineer, January, February, 1995.

³¹ Exhibit Nos. NPC-1 and MWD-23, Public Administrative Hearing before the State Engineer, January, February, 1995.

Table II. Maximum Drawdowns in Several Wells

Name	Aquifer	Distance from Arrow Canyon well, ft.	Maximum Drawdown, ft.
EH-4	Carbonate	14,000	0.50
EH-5B	Carbonate	1,800	0.50
MX-6	Carbonate	16,000	0.30
Dahlberg East	Alluvial	200	0.13
Lewis North	Alluvial	1,800	0
Lewis Farm	Alluvial	2,700	0

Several questions were raised about the pump test. First, NPC and FWS asserted that the length of time (121 days) was not adequate to stress the aquifer system to determine any negative impacts that would be observed in the carbonate and alluvial aquifers. The test should be a minimum of one year to cover all seasons, especially the summer when all the alluvial wells are pumping and the stress on the system is at its maximum.³²

Second, the test was accomplished during the winter, coinciding with the seasonal recovery of the carbonate and alluvial systems. Normally, the water level in the wells would rise during this time and NPC stated that the hydrographs for the monitoring wells should be adjusted to account for this phenomenon. NPC concludes that the real drawdown in the monitoring wells should be two to three times what was actually observed during the pump test.³³

³² Exhibit No. NPC-10 and Transcript, pp. 351-352 and pp. 592-595, Public Administrative Hearing before the State Engineer, January, February, 1995.

³³ Exhibit Nos. NPC-5 through NPC-8 and Transcript, pp. 340-347, Public Administrative Hearing before the State Engineer, January, February, 1995.

Next, NPC observed that the Arrow Canyon well was pumped at a rate of 6.39 cfs for 121 days. When the diversion rate of water requested under Application 55450 and 58269 (3 cfs and 5 cfs, respectively) is added to the quantity of water already appropriated in the Arrow Canyon well (2 cfs, Permit 52520), the result is 10 cfs. NPC feels that conclusions based on a pump test at 6.39 cfs may understate the impacts when 10 cfs is being diverted from the Arrow Canyon well. The MVWD analysis does not consider the complex boundary conditions, but instead assumes that the system has simple boundary conditions. NPC asserts that to correctly predict the drawdowns for higher pumped rates and longer times, one must consider the complex boundary conditions. NPC feels that MVWD's use of the Theis non-equilibrium method inaccurately estimates the long-term drawdowns.³⁴

Finally, NPC feels that the MVWD ignored the data gathered over years of monitoring the Muddy River Springs Area Groundwater Basin.³⁴

Considering the data produced from the 121 day pump test, there appears to be little or no impact to either the carbonate aquifer or the alluvial aquifer based on the observations from the monitoring wells. Even if we double or triple the observed drawdowns, they are still very small, on the order of one or two feet. The question is whether the 121 day pump test and MVWD's analysis of the data accurately predicts the long term effects on the aquifer system that will occur if Applications 55450 and 58269 are approved. Experts testified on both sides of the issue. After considering the evidence and testimony from the seven day hearing, the State Engineer makes the following findings:

1. The drawdowns observed during the 121 day pump test were reasonable;

³⁴ Exhibit No. NPC-11, Public Administrative Hearing before the State Engineer, January, February, 1995.

2. The results from the 121 day pump test are not sufficient to accurately predict the long term impacts to the carbonate and alluvial aquifers when 10 cfs are pumped continuously from the Arrow Canyon well. There may be no economical way to predict the long term effects;
3. A realistic way to assess the long term impacts is to allow additional pumping of the Arrow Canyon well while implementing a comprehensive monitoring program on the wells in the carbonate and alluvial aquifers, the springs in the Muddy River Springs Area, and the Muddy River.

VI.

MVWD has a need for additional pumping rate to meet the present and future peak demand for water within the service area.³⁵ Applications 55450 and 58269 were filed to appropriate additional water from the carbonate aquifer at the existing Arrow Canyon well, to meet the demand through the year 2004.³⁶ However, additional pumping of the Arrow Canyon well, up to a rate of 10 cfs, may lower the potentiometric elevation of the ground water surface in the carbonate aquifer, which would reduce the flow of water from the carbonate aquifer to the alluvial aquifer. The result may be a lower groundwater table in the alluvial aquifer and possibly reduced flows in the springs located within the basin and a reduced flow of the Muddy River.³⁷ It is not possible to predict the Arrow Canyon well pumping rate that causes unacceptable conditions, with the present information on the record.

³⁵ Exhibit Nos. MWD-8 and MWD-9, Public Administrative Hearing before the State Engineer, January, February, 1995.

³⁶ File Nos. 55450 and 58269, official records in the Office of the State Engineer.

³⁷ Transcript, pp. 348-349, Public Administrative Hearing before the State Engineer, January, February, 1995.

The answer can be found by instituting a comprehensive monitoring plan and allowing additional pumping of the Arrow Canyon well, above the permitted 2.0 cfs, at an increasing rate each year, as shown in Table III.³⁸

Table III. Required Pumping Rate from the Arrow Canyon Well to meet the Increasing Demand.

Year	Total Pumping Rate Required, cfs	Additional Pumping Rate Required, cfs
1996	3.2	1.2
1997	3.9	1.9
1998	4.5	2.5
1999	5.2	3.2
2000	6.0	4.0
2001	7.0	5.0
2002	7.7	5.7
2003	8.9	6.9
2004	9.8	7.8

The objectives of the comprehensive monitoring program are:

1. Provide an "early warning" so that any negative impact can be mitigated or reversed by ceasing pumping;
2. Protect the groundwater table in the alluvial aquifer;
3. Protect the groundwater table in the carbonate aquifer;
4. Protect the flow from the springs in the Muddy Springs Area, and in the LMNRA;
5. Protect the flow in the springs which supply water to the Moapa Dace habitat;
6. Protect the flow in the Muddy River.

³⁸ The total pumping rate required from the Arrow Canyon well (second column, Table III) was calculated by subtracting 6.0 cfs, the permitted diversion rate from all other sources, from the demand curve in Exhibit No. MWD-9. The additional pumping rate required (third column, Table III) was calculated by subtracting 2.0 cfs, the permitted diversion rate from the Arrow Canyon well, from the entries in the second column, Table III.

The successful implementation of the monitoring plan requires the cooperation of at least four parties, MVWD, FWS, NPS, and NPC. Each year, MVWD will be required to submit to the State Engineer the results of their monitoring, the results of the other parties' monitoring for the previous year, and a justification for increasing the Arrow Canyon well pumping for the next year.

The State Engineer finds that the approval of Applications 55450 and 58269, conditioned on the phased-in increases in pumping of the Arrow Canyon well, and the annual evaluation of the monitoring data will allow MVWD to meet its water demand, prevent any conflict with existing rights, and protect the public interest.

CONCLUSIONS

I.

The State Engineer has jurisdiction over the subject matter.³⁹

II.

The State Engineer is prohibited by law from granting an application to appropriate water where:

1. There is no unappropriated water in the proposed source of supply;
2. The proposed use conflicts with existing rights; or
3. The proposed use threatens to prove detrimental to the public interest.⁴⁰

III.

Under its present water rights, which allow the diversion of up to 8.0 cfs of water, MVWD cannot meet the peak daily demand.⁴¹ The State Engineer concludes that MVWD must obtain additional water rights to meet the peak daily demand. The State Engineer further

³⁹ NRS Chapters 533 and 534.

⁴⁰ NRS 533.370.

⁴¹ Exhibit Nos. MWD-7 and MWD-9, Public Administrative Hearing before the State Engineer, January, February, 1995.

concludes that the diversion rates requested under Applications 55450 and 58269, or 3.0 cfs and 5.0 cfs, respectively, will meet the projected demand through the year 2004.

Under its existing water rights, MVWD is allowed to divert 3985.33 AFA, which will meet the projected annual water demand through the year 2001.⁴² After that, MVWD will require an additional 515 AFA to meet the demand through the year 2004.

IV.

NPS protested Applications 55450 and 58269 because of potential impacts to the springs within the Rogers - Bluepoint Spring Complex on the LMNRA. However, the source of water for the springs is not known to be the carbonate aquifer and therefore, the additional pumping of the Arrow Canyon well would have no effect on the springs. NPS will attempt to determine the source of water for the Roger - Bluepoint Spring Complex. The NPS should begin a formal monitoring program of the springs of concern so that changes in spring flow can be detected and related to the causes.

NPS is concerned that additional pumping of the Arrow Canyon well will cause a reduction in the flow of the Muddy River. Because the source of water for the Muddy River is the carbonate aquifer, this is a valid concern. The United States Geological Survey maintains a monitoring station on the Muddy River near Moapa. The State Engineer concludes that the approval of Applications 55450 and 58269 must be conditioned upon the review and analysis of the stream gauge records, in order to detect any reduction in flow of the Muddy River.

V.

FWS manages the Moapa Wildlife Refuge, the location of the habitat for the endangered Moapa Dace. The source of water for the springs on the refuge is the carbonate aquifer. FWS is concerned that additional pumping of the Arrow Canyon well will reduce the flow of water from the springs and damage the Dace habitat. The

⁴² Exhibit No. MWD-8, Public Administrative Hearing before the State Engineer, January, February, 1995.

State Engineer concludes that a monitoring plan for the springs is an essential element in protecting the Dace habitat. The reporting of the monitoring of the springs is essential to the success of the comprehensive monitoring plan.

VI.

There is evidence on the record that the historically accepted quantity of water flowing from the carbonate aquifer to the alluvial system (51 cfs of 37,000 AFA) may underestimate the quantity of water available in the alluvial system. The applicant estimates the range of values to be 51,000 AFA to 63,900 AFA, which is more than the quantity of existing water rights from all sources within the alluvial basin (45,260 AFA).

The source of water for Applications 55450 and 58269 is the carbonate aquifer, not the alluvial system. There was no evidence or testimony received regarding the quantity of existing water available for appropriation from the carbonate aquifer. Instead, evidence and testimony were related to the issue of whether increased pumping of the Arrow Canyon well would reduce the inflow of water from the carbonate aquifer to the alluvial system. The State Engineer concludes that this issue is properly addressed later in this ruling when the subject of potential conflicts with existing rights is considered.

VII.

The results of the 121 day pump test of the Arrow Canyon well showed a very small drawdown (0.3 to 0.5 ft.) in the carbonate aquifer, spread over a large area and a negligible drawdown in the alluvial aquifer (up to 0.13 ft.). The flow in the Muddy River and the flow from the springs did not decrease during the pump test. It must be noted that with regard to the spring flows, there may have been some diversions upstream from the measuring points that were not taken into account. The protestants pointed out other problems with the pump test and the applicant's interpretation of the results. The State Engineer concludes that the way to accurately determine the impact of additional pumping of the Arrow

Canyon well on the carbonate aquifer and the alluvial aquifer is to allow the additional pumping and require the monitoring of the entire system.

VIII.

MVWD filed Applications 55450 and 58269 to obtain additional water rights to satisfy the increasing peak daily demand and the total annual demand for water within its service area. The protestants fear that additional pumping from the Arrow Canyon well will reduce the flow of water from the carbonate aquifer to the alluvial system, which is the source of water for the underground water within the Muddy River Springs Area Groundwater Basin, the springs within the basin, and the Muddy River. After reviewing the record which includes expert testimony from both sides, the State Engineer concludes the following:

1. The hydraulic connection between the carbonate aquifer and the alluvial system is poorly understood;
2. It is unknown whether the additional pumping of the Arrow Canyon well will reduce the quantity of water entering the alluvial system and reduce the groundwater table within the alluvial aquifer, the flow in the springs, and the flow in the Muddy River to a point when a conflict with existing rights is created;
3. It is unknown whether the quantity of water entering the alluvial system is limited to 37,000 AFA or if higher quantities in the range between 51,000 AFA to 64,000 AFA, are available for use in the basin;
4. The way to determine the impacts is to allow the additional pumping of the Arrow Canyon well and measure the effects.

Therefore, as a condition of approval, a comprehensive monitoring plan must be submitted by MVWD to the State Engineer and the Protestants. The Protestants will be allowed to comment on the plan. The plan must then be approved by the State Engineer.

MVWD will be required to submit an annual report of the monitoring results, which will include the monitoring data from the FWS, NPS, and NPC. The report will also include a justification for increasing the pumping rate for the next year. The FWS, NPS, and NPC will have the opportunity to review and comment on the annual report. The State Engineer will then approve the pumping rate that will be allowed for the next year, or any other action that may be necessary to protect the public interest or to prevent any conflict with existing rights.

If any of the parties choose not to cooperate with MVWD and submit the monitoring data in a timely manner, then the State Engineer will approve the pumping rate allowed for the next year, based on the information provided.

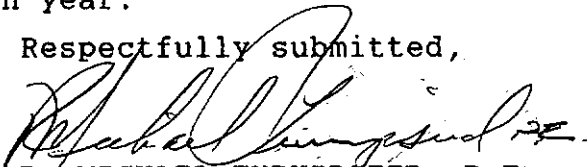
Applications 55450 and 58269 should be approved subject to limitations on the pumping rate and total quantity of water allowed for each year. Beginning in 1996, MVWD will be allowed to pump 1.2 cfs under Applications 55450 and 58269. Considering the 2.0 cfs already permitted in the Arrow Canyon well, MVWD will be allowed to pump a total of 3.2 cfs from this well. The total annual quantity diverted from all sources will be limited to 3985.33 AFA, the quantity of water already appropriated. At the end of 1996, MVWD will submit its report. After receiving comments from the other parties, the State Engineer will approve the allowable pumping rate for 1997 and any other appropriate action that may be required to protect the public interest and to ensure no conflict with existing rights.

RULING

The protests to Applications 55450 and 58269 are hereby overruled and said Applications are hereby approved subject to:

1. Existing rights;
2. The payment of statutory fees;
3. The approval of a comprehensive monitoring plan to be submitted by Moapa Valley Water District, on or before December 29, 1995.
4. Annual review of the previous year's monitoring data and approval of the allowed pumping rate for the next year. The annual review will continue past the year 2004.
5. Applications 55450 and 58269 are approved supplemental to Permits 22739, 28791, 46932, and 52520 and the total annual quantity of water will be limited to the actual demand for any given year.

Respectfully submitted,


R/ MICHAEL TURNIPSEED, P.E.
State Engineer

RMT/JCP/ab

Dated this 27th day of
October, 1995.

TAB 17

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

IN THE MATTER OF APPLICATIONS)
54003 THROUGH 54021, INCLUSIVE, FILED)
TO APPROPRIATE THE UNDERGROUND)
WATER OF THE SPRING VALLEY)
HYDROGRAPHIC BASIN (184),)
WHITE PINE COUNTY, NEVADA)

RULING
5726

GENERAL

I.

Application 54003 was filed on October 17, 1989, by the Las Vegas Valley Water District¹ to appropriate 6 cubic feet per second (cfs) of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined within NRS § 243.210-243.225 (Lincoln), 243.275-243.315 (Nye), 243.365-243.385 (White Pine), and 243.035-243.040 (Clark). The proposed point of diversion is described as being located within NW¼ NE¼ of Section 20, T.8N., R.68E., M.D.B.&M.² In Item 12, the remarks section of the application, it indicates that the water sought under the application shall be placed to beneficial use within the Las Vegas Valley Water District service area as set forth in Chapter 752, Statutes of Nevada 1989, or as may be amended. Further, that the water may also be served and beneficially used by lawful users within Lincoln, Nye and White Pine Counties, and that water would be commingled with other water rights owned or served by the applicant or its designee. By letter dated March 22, 1990, the Applicant further indicated, in reference to Item 12, that the approximate number of persons to be served is 800,000 in addition to the current service of approximately 618,000 persons, that the applications seek all the unappropriated water within the particular ground-water basins in which the water rights are sought and that the projected population of the Clark County service area at the time of the 1990 letter was estimated to be 1,400,000 persons by the year 2020.

¹ These applications are now held in the name of the Southern Nevada Water Authority.

² File No. 54003, official records in the Office of the State Engineer. Exhibit No. 3, public administrative hearing before the State Engineer, September 11 – 25, 2006. Hereinafter, the transcript and exhibits from this hearing will be referred to solely by the transcript page number or the exhibit number.

II.

Application 54004 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within NE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 25, T.9N., R.67E., M.D.B.&M.³ This application, along with the others referenced below all contain the same remarks as those identified as to Application 54003.

III.

Application 54005 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 14, T.9N., R.67E., M.D.B.&M.⁴

IV.

Application 54006 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 22, T.10N., R.67E., M.D.B.&M.⁵

V.

Application 54007 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 34, T.11N., R.66E., M.D.B.&M.⁶

VI.

Application 54008 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 1, T.11N., R.66E., M.D.B.&M.⁷

³ Exhibit No. 4.

⁴ Exhibit No. 5.

⁵ Exhibit No. 6.

⁶ Exhibit No. 7.

⁷ Exhibit No. 8.

VII.

Application 54009 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within NW¼ NE¼ of Section 36, T.13N., R.66E., M.D.B.&M.⁸

VIII.

Application 54010 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SE¼ SE¼ of Section 25, T.14N., R.66E., M.D.B.&M.⁹

IX.

Application 54011 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within NE¼ SE¼ of Section 14, T.14N., R.66E., M.D.B.&M.¹⁰

X.

Application 54012 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SE¼ NE¼ of Section 16, T.14N., R.67E., M.D.B.&M.¹¹

XI.

Application 54013 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SW¼ SW¼ of Section 25, T.15N., R.66E., M.D.B.&M.¹²

⁸ Exhibit No. 9.

⁹ Exhibit No. 10.

¹⁰ Exhibit No. 11.

¹¹ Exhibit No. 12.

¹² Exhibit No. 13.

XII.

Application 54014 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 15, T.15N., R.67E., M.D.B.&M.¹³

XIII.

Application 54015 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 14, T.15N., R.67E., M.D.B.&M.¹⁴

XIV.

Application 54016 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 7, T.15N., R.67E., M.D.B.&M.¹⁵

XV.

Application 54017 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 25, T.16N., R.66E., M.D.B.&M.¹⁶

XVI.

Application 54018 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 6 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 24, T.16N., R.66E., M.D.B.&M.¹⁷

¹³ Exhibit No. 14.

¹⁴ Exhibit No. 15.

¹⁵ Exhibit No. 16.

¹⁶ Exhibit No. 17.

¹⁷ Exhibit No. 18.

XVII.

Application 54019 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 10 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SW¼ NE¼ of Section 32, T.12N., R.68E., M.D.B.&M.¹⁸

XVIII.

Application 54020 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 10 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SE¼ SE¼ of Section 14, T.14N., R.67E., M.D.B.&M.¹⁹

XIX.

Application 54021 was filed on October 17, 1989, by the Las Vegas Valley Water District to appropriate 10 cfs of underground water from the Spring Valley Hydrographic Basin for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties as more specifically described and defined above. The proposed point of diversion is described as being located within SW¼ NE¼ of Section 33, T.16N., R.66E., M.D.B.&M.²⁰

XX.

Many persons or entities protested applications 54003 – 54021, inclusive; however, not every person protested every application.²¹ The applications were protested by the following persons as identified below and on many grounds as also identified below.

PROTESTANTS: Janell Ahivers, Joseph I. Anderson, Keith M. Anderson, Mary Ellen Anderson, Dolores A. Arnold, Bruce Ashby, Fred Baca & John Theissen, John Barney, Evan R. Barton, Bath Lumber Co., Donna Bath, James H. Bath, Walter J. Benson, Neva Bida, Bidart Brothers, Sarah G. Bishop, Joseph Boland, Boundy & Forman, Inc., Lance Burns, Donald R. Carrick, Cory Carson, Dewey E. Carson, Kay Carson, Marietta Carson, City of Caliente, Citizen Alert, Steve Collard, Mary Collins, Don Cooper, County of Nye, County of White Pine and City of Ely, Cindy Cracraft, Danny Cracraft, Diana B. Crane, Tara Cutler, Rutherford Day, Irvin Baker Edwards, David Eldridge, Delbert D. Eldridge, Dennis H. Eldridge, Elva J. Eldridge, George Eldridge & Sons, Inc., Gordon D. Eldridge, Helen Eldridge, Mary R. Eldridge, Nancy J. Eldridge, El Tejon Cattle Co., Ely Shoshone Tribe of Indians, Juan M. Escobedo, Donald T. Fackrell, Sherlyn K. Fackrell, Marcia

¹⁸ Exhibit No. 19.

¹⁹ Exhibit No. 20.

²⁰ Exhibit No. 21.

²¹ Exhibit Nos. 22-41.

Forman, Richard Forman, Richie Forman, Selena M. Forman, James F. Fraser, Lory M. Free, Beverly R. Gaffin, Mary Goeringer, Danny E. Griffith, Sally Gust, Helen Hackett, Max Hannig, Monte Hansen, Joan F. Hanson, Robert L. & Fern A. Harbecke, Glen W. Harper, John A. and Vivian A. Havens, Rick Havenstrite, Randy Heinfer, Christine Hermansen, Jess Hiatt, Bonnie J. Higdon, Bunny R. Hill, Harry James Hill, Edith Jean Hill, Merle C. Hill, Garland N. Hollingshead, Karma H. Hollingshead, Charlene R. Holt, Wesley A. Holt, Barry C. Isom, Linda H. Isom, Abigail C. Johnson, Lee Jensen, Kristine P. Kaiser, Art Kinder, Kirkeby Ranch, Rudolph E. Krause, Las Vegas Fly Fishing Club, Alton C. Leavitt, James I. Lee, Sarah Locke, Dr. Dan A. Love, John R. McKay, Wanda McKrosky, Lenora McMurray, Daniel Maes, Dennis Mangum, Robert N. Marcum, Chuck Marques, Beatrice D. Mathis, Laurel Ann Mills, Moriah Ranches, Inc., Mary Mosley, Frances Murrajo, Nevada Cattlemen's Association, Eastern Unit, Nevada Farm Bureau Federation, Dean G. Neubauer, Janet K. Neubauer, Bob Nichols, Jim & Betty Nichols, Lyle Norcross, Donna A. Nye, Helen O'Connor, Nancy Overson, Edna Oxborrow, Linda Palczewski, Panaca Irrigation Co., Bruce Pencek, Carter L. Perkins, John Perondi, Pioche Town Board, Clarence S. Prestwich, Karen L. Prestwich, Duane Reed, Debbie Rollinson, Katherine A. Rountree, William R. Rountree, Margaret Rowe, Marsha Lynn Sanders, Mark Schroeder, Larry Shew, Diana Smith, Amelia Sonnenberg, Irene Spaulding, Sportsworld, Karen Sprouse, Connie K. Stasiak, Mildred L. Stevens, Virginia B. Terry, Roy Theiss, Toiyabe Chapter of the Sierra Club, Tonya K. Tomlinson, John G. Tryon, Candi Tweedy, Freddy Van Camp, Jack Van Camp, John M. Wadsworth, Daniel Weaver, Lois Weaver, Randy Weaver, Selena Weaver, Barlow White, White Pine County Cowbells, Kelly Wiedmeyer, Thomas R. Wiedmeyer, Patricia Williams, Paula Williams, Unincorporated Town of Pahump, U.S. Department of Interior, Bureau of Land Management, U.S. Department of Interior, Fish and Wildlife Service, U.S. Department of Interior, National Park Service.

Prior to the administrative hearing, the Applicant filed a Motion to Dismiss Individual Protest Claims Regarding Spring Valley Applications and Memorandum in Support.²² In response to the motion, replies were filed and stipulations entered into with the Federal agencies.²³ The State Engineer's response to the motion is found in State Engineer's Intermediate Order No. 4 pursuant to which he dismissed some protest claims and denied the request as to others.²⁴ Some of the claims may be addressed below, as they are also statutory criteria that must be met. Other protest claims were resolved by the Stipulation entered into with Federal agencies that resulted in the withdrawal of their protests.²⁵ The remaining protest grounds are summarized as follows:

²² Exhibit No. 44.

²³ Exhibit Nos. 47, 50, 51, 52, 53.

²⁴ Exhibit No. 57.

²⁵ Exhibit No. 63.

PROTEST GROUNDS:

1. The applications should be denied because they fail to adequately describe the proposed works, the cost of such works, estimated time required to construct the works and place the water to beneficial use and the approximate number of persons to be served.
2. The water is not available for appropriation and the quantity requested for appropriation will exceed the safe yield of the area. Mining of ground water is not acceptable and appropriation of this magnitude will lower the water table and degrade the quality of water from existing wells, cause negative hydraulic gradient influences and other negative impacts and adversely affect existing rights and the public interest.
3. The proposed diversions are from the carbonate-rock province of Nevada that is typified by complex, interbasin, regional-flow systems that include both basin-fill and carbonate-rock aquifers along with interbasin flows that are poorly defined, and the diversions will reduce the interbasin flows, and modify the direction of ground-water movement in adjoining and hydraulically connected basins thereby reducing spring and stream flows. Different flow systems underlie the state of Nevada and these flow systems link the ground water beneath many of the hydrologic basins over distances greater than 200 miles. While water taken from a basin may be within the perennial yield of that basin, areas as far away as 200 miles may experience drawdown thereby experiencing negative impacts.
4. Granting the applications in the quantity requested will impair, conflict and interfere with existing water rights, sources and uses.
5. The granting of the applications would conflict with or tend to impair existing water rights because, if granted, the amount of water appropriated would exceed the safe yield thereby unreasonably lowering the water table.
6. It is unclear whether the amount contemplated in the applications is necessary and reasonably required for the proposed purposes.
7. The Applicant has not shown a need for the water or that the project is feasible.
8. The Applicant lacks the financial capability for developing the project.
9. Further study is needed because the potential effects are impossible to anticipate and we do not want to render Spring Valley into another Owens Valley.
10. The available scientific literature is not adequate to reasonably assure that the proposed diversions will not impact senior rights and water resources.
11. The water will not be put to a good use and it will not serve or benefit the public interest. The Las Vegas Valley population is big enough. Further growth is not in the best interest of the Las Vegas community; neither will it benefit Nevada and the Nation. Rather than give the Las Vegas Valley more water, the State should encourage growth control, water economy, a sustainable life-style, and the building up of other communities.

12. The applications should be denied because the Applicant has failed to provide information necessary for the State Engineer to protect the public interest, such information including, the cumulative impacts of the proposed extractions, mitigation measures that will reduce the impacts of the proposed extractions and alternatives to the proposed extractions.
13. The applications should be denied because the per capita water consumption rate for the Las Vegas area is far above that of similarly situated southwestern cities.
14. Clark County must grow within the limits of their natural resources or the environmental and socioeconomic balance of the state of Nevada will be destroyed.
15. The use of water as proposed will interfere with the purpose for which federal lands are managed under the Federal Land Use Policy and Management Act of 1976.
16. The water is now being used and further pumping in large amounts would deplete the underground water and dry up springs thereby adversely affecting wildlife, livestock and game animals, birds, fish and Homo sapiens forever. It is about time for Clark County to solve their problems and not steal the good things rural Nevada offers.
17. The applications will encourage and enable the uncontrolled population growth in the Las Vegas Valley, which will exacerbate existing problems of air quality, traffic and crime.
18. The applications will cause water rates to go up thereby causing demand to go down thereby rendering the water unnecessary.
19. The applications should be denied because they lie within the land covered by the Treaty of Ruby Valley of 1863 and land claims under this treaty are currently in litigation and would conflict with the reserved rights of the Western Shoshone Tribe.
20. A project of such unprecedented magnitude is likely to cost far more than the Applicant has anticipated; a partially completed project – a white elephant – will burden local rate payers, bond holders, and eventually the State with higher costs, while neither meeting the water demands of the metropolitan Las Vegas area nor mitigating adverse ecological, economic and cultural effects of the project on rural Nevadans.
21. California's experiences suggest that large-scale water projects injure the state's reputation, promote factious politics and allegations of corruption, waste horrendous quantities of water through leakage and evapotranspiration, and foster dangerous illusions that water supplies are limitless and are either free for the wasting or are allocated solely for the advantage of the rich and powerful.
22. A lack of water will restrict growth in the Pioche area.
23. The D-X Ranch plans to re-open previously existing commercial businesses and the applications would affect the owner's lifestyle.
24. The applications will discourage lower cost, more efficient alternatives to obtaining water and pass the development costs on to the consumer.

25. The applications should be denied because removal of the water will adversely impact economic activity such as agriculture, power generation and transmission, mineral extraction, manufacturing, tourism, and concentration of population.
26. Mining of the water resources will negate recreational and fish habitat benefits provided through voluntary contributions.
27. Rural water sources have value in their natural state for recreation and scenic vistas.
28. The applications were some of the 146 applications to appropriate water filed by the Las Vegas Valley Water District, which combined seek approximately 800,000 acre-feet annually of underground and surface water, and diversion of such a quantity of water would deprive the area of origin of water needed to protect and enhance its environment and economic well being, and would unnecessarily destroy environmental, ecological, scenic and recreational values the State holds in trust for its citizens. Additionally, the diversion and exportation of this water will lower the static water level adversely affecting water quality, existing wells, cause negative hydraulic gradient influences, negative impacts, threaten springs, seeps and phreatophytes, which provide water and habitat critical to the survival of wildlife and grazing livestock, and will adversely affect existing rights and the public interest.
29. In as much as an interbasin transfer project of this magnitude has never been considered, it is impossible to anticipate all possible adverse effects without further information and study. This project cannot be properly evaluated without an independent, formal and public reviewable assessment.
30. The granting of the applications is not in the public interest, as it would allow the Applicant to "lock-up" vital water resources for possible use in the distant future beyond current planning horizons.
31. The applications should be denied because population projection numbers are unrealistic, current and developing trends in housing, landscaping, plumbing fixture standards and demographic patterns all suggest that the simplistic water demand forecasts upon which the proposed transfers are based substantially overstate future water demands.
32. The applications should be denied because conservation programs in the water district are ineffective and the granting of these applications will increase the waste of water in Las Vegas.
33. These appropriations, even if limited to annual recharge, will inevitably damage plant and animal life on the surface. Precious wild and cultivated areas will be destroyed, wildlife will be disturbed or killed off and the lives of human residents and visitors damaged. In this sense, the water is not available for appropriation.
34. Spring Valley is home to the Swamp Cedar and Spring Valley Pupfish, which are rare and unique species. The survival of both depends on water quality and water levels that currently exist and they cannot tolerate less.

35. The appropriation of the quantity requested will have negative impacts to the streams and pools within the Great Basin National Park; thus, having a negative effect on migratory birds and the plant and animal species. Great Basin National Park is the state's only national park and to divert and export water from it without a water resource plan would be sinful. The environmental impact and economic well-being of the basin of origin need to be addressed.

36. The use of water as proposed under the applications would threaten to prove detrimental to the public interest because they would likely jeopardize the continuance of threatened and endangered species. The use of the water as proposed under the applications will impair wetlands and water in the area that support migratory birds, native fish and other wildlife in conflict with Federal laws that seek to protect wetlands, migratory birds and wildlife for the benefit of all.

37. The granting of the applications will lower the water table, sanction water mining, degrade water quality, cause negative hydraulic gradient influences, threaten springs and seeps and phreatophytes which provide water and habitat critical to the survival of wildlife including, endangered species and grazing livestock.

38. The applications will negatively impact Nevada's environment. The applications should be denied since it is the public policy of the State of Nevada, per Governor Bob Miller's January 25, 1990, State of the State Address to protect Nevada's environment, even at the expense of growth.

39. Granting the applications in the quantity requested, that is for all the unappropriated water in the basin, will adversely affect agricultural operations in that it will affect the economic welfare of all farms and ranches, it will destroy the environmental balance thereby destroying grazing lands, wetlands and farm lands, and it will halt all potential agricultural growth.

40. In modern periods of drought there is insufficient water that currently creates hardships on cattlemen in that grazing areas do not have sufficient feed, surface waters are insufficient for irrigation and stock watering, water tables are lowered making it more difficult and expensive to pump water, which all affects the economic welfare. If drought creates this many hardships, continual removal of the perennial yield will destroy ranching.

41. The State Engineer must consider all of the future environmental and socioeconomic ramifications of the trans-basin transfer of ground water in order to protect the state of Nevada by not allowing these transfers.

42. The State Engineer has a responsibility to all of the people of Nevada and must consider all adverse effects, which the granting of these applications will have on all areas in the state of Nevada. The appropriation of this magnitude of water will deprive the area of origin of water needed for its environmental and economic well being, especially as it applies to the agricultural uses for this area.

43. Granting the applications would be inconsistent with the federally owned water rights as to lands affected by Applications 54003-54005 and the proposed points of diversion are located near a wilderness study area that is managed by the BLM for study and potential designation as a National Wilderness Area.

44. Granting the applications will be detrimental to the public interest because it will eliminate the capability of the federal agencies to fulfill federal land management activities imposed by legislative action.

XXI.

The United States Department of Interior, Bureau of Land Management (BLM), National Park Service and Fish and Wildlife Service were Protestants to the applications. The Ely Shoshone Tribe of Indians protested Application 54019. A Stipulation for the Withdrawal of Protests (Stipulation) was entered into between the Southern Nevada Water Authority and the United States Department of Interior on behalf of the Bureau of Indians Affairs, the Bureau of Land Management, the National Park Service, and the Fish and Wildlife Service.²⁶ The intent of the Parties to the Stipulation was to provide initial express conditions to allow development of the waters applied for to proceed; however, to recognize that future conditions may be adjusted based on the implementation of the monitoring, management and mitigation plans specified in the attachments to the Stipulation. The common goals stated by the Parties to the Stipulation are that the Parties are (1) to manage the development of ground water by the Applicant in the Spring Valley Hydrographic Basin without causing injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources in the Area of Interest, (2) to accurately characterize the ground-water gradient from Spring Valley Hydrographic Basin to Snake Valley Hydrographic Basin via Hamlin Valley, and (3) to avoid any effect on Federal Resources located within the boundaries of the Great Basin National Park from ground-water withdrawal by the Applicant in the Spring Valley Hydrographic Basin. Additional common goals were indicated to be (1) to manage the development of ground water in order to avoid unreasonable adverse effects to wetlands, wet meadow complexes, springs, streams, and riparian and phreatophytic communities and maintain biologic integrity and ecological health of the Area of Interest over the long term, (2) to avoid any effect to water-dependent ecosystems within the boundaries of the Great Basin National Park, and (3) to avoid an unreasonable degradation of the scenic values of and visibility from the Great Basin National Park due to a potential increase in airborne particulates and loss of surface vegetation which may result from ground-water withdrawals by the Applicant.

The Parties agreed that the preferred conceptual approach for protecting Federal Water Rights from injury and Federal Resources from unreasonable adverse effects within the Area of Interest and for avoiding any effect on Federal Resources located within the boundaries of the Great Basin National Park that may be caused by ground-water withdrawals by the Applicant in Spring Valley is through the development of such ground water in conjunction with the implementation of the monitoring, management and mitigation plans described in Exhibits A and B to the Stipulation.

²⁶ Exhibit No. 63.

The Parties agreed that it was in their best interests to cooperate in the collection and analysis of hydrologic, hydrogeologic, and water chemistry information. The Parties are also to cooperate in the development of a regional ground-water-flow numerical model for assessing the effects of ground-water withdrawals by the Applicant in the Spring Valley Hydrographic Basin.

To facilitate the implementation of the Monitoring, Management, and Mitigation Plans, the Parties agreed to establish a Technical Review Panel, a Biological Working Group, and an Executive Committee. The Parties requested that the Stipulation and Exhibits A and B to the Stipulation be included as part of the permit terms and conditions of any applications granted.

Exhibit A to the Stipulation provides for agreed upon monitoring requirements including, but not limited to monitoring wells, spring flow measurements, water chemistry analysis, quality control procedures, and reporting requirements. The management requirements include, but are not limited to the modification, relocation or reduction in points of diversion and/or rates and quantities of ground-water withdrawals or the augmentation of Federal Water Rights and/or Federal Resources as well as measures designed and calculated to rehabilitate, repair or replace any and all Federal Water Rights and Resources, if necessary, to achieve the goals set forth in Recital G of the Stipulation. The Parties agreed that the monitoring network shall be comprised of the Applicant's exploratory wells, the springs selected by the Technical Review Panel and Biological Working Group listed in Table 1 of the Stipulation and certain selected stream discharge sites. The Applicant is to monitor ground-water levels quarterly in 10 representative monitoring wells and continuously monitor ground-water levels in 15 representative monitoring wells in the Spring Valley and Hamlin Valley Hydrographic Basins. These wells are to be selected by the Technical Review Panel from the wells listed in Table D.1-1 of the Stipulation, which are all existing wells. The Parties agreed to collect data to characterize the ground-water gradient from the Spring Valley Hydrographic Basin to the Snake Valley Hydrographic Basin via Hamlin Valley by establishing an Interbasin Groundwater Monitoring Zone in which the Applicant will construct and equip four monitoring wells in the carbonate-rock aquifer and two monitoring wells in the basin-fill aquifer. The Stipulation also calls for monitoring wells adjacent to several production wells in the vicinity of the Interbasin Groundwater Monitoring Zone, in the vicinity of Shoshone Ponds, and in the vicinity of 12 springs listed in Table 1. The Parties agreed constant-rate aquifer tests are needed and a water-chemistry sampling program must be initiated and that spring and stream discharge measurements are needed, particularly referencing Big Springs Creek and Cleve Creek.

The Stipulation also provides a plan for biologic monitoring, management and mitigation the purpose of which is to avoid and/or mitigate any effects to water-dependent ecosystems within the boundaries of the Great Basin National Park or Area of Interest. The plan includes the collection of baseline data, identifying research and study needs, among other things.

The State Engineer is not a party to the Stipulation.

XXII.

After all parties were duly noticed a public administrative hearing was held before the Office of the State Engineer on September 11 - 25, 2006.

FINDINGS OF FACT

I.

By Notice dated October 26, 2005, the State Engineer sent notice to all Protestants at their addresses of record in the Office of the State Engineer and to the Applicant as to the scheduling of a pre-hearing conference. To the right of each Protestant's name on the list below, the State Engineer indicates whether or not he received any response from said Protestant or the information received from the U.S. Postal Service as to its ability to deliver the notice.

Janell Ahivers	No information
Joseph I. Anderson	Responded as no intent to participate
Keith M. Anderson	Not deliverable as addressed
Mary Ellen Anderson	Responded as no intent to participate
Dolores A. Arnold	Attempted not known
Bruce Ashby	Attempted not known
Fred Baca & John Theissen	No receptacle
John Barney	Forwarding order expired
Evan R. Barton	No information
Bath Lumber Co.	No response, but signed for certified mail
Donna Bath	No response, but signed for certified mail
James H. Bath	No response, but signed for certified mail
Walter J. Benson	No receptacle
Neva Bida	Unclaimed, resent regular mail
Bidart Brothers	Responded as no intent to participate
Sarah G. Bishop	No information
Joseph Boland	Telephone call received, not at that address
Boundy & Forman, Inc.	Resent to new address
Lance Burns	Attempted not known
Donald R. Carrick	No response, but signed for certified mail
Cory Carson	No receptacle
Dewey E. Carson	No receptacle
Kay Carson	Attempted not known
Marietta Carson	No receptacle
City of Caliente	No response, but signed for certified mail
Citizen Alert	Addressee unknown
Steve Collard	Attempted not known
Mary Collins	No such number
Don Cooper	No response, but signed for certified mail
County of Nye	Responded with intent to participate
County of White Pine and City of Ely	Responded with intent to participate

Cindy Cracraft	Responded as no intent to participate
Danny Cracraft	Responded as no intent to participate
Diana B. Crane	No response, but signed for certified mail
Tara Cutler	No such number
Rutherford Day	Unclaimed, resent regular mail
Irvin Baker Edwards	Responded as no intent to participate
David Eldridge	Responded as no intent to participate
Delbert D. Eldridge	No such number
Dennis H. Eldridge	No such number
Elva J. Eldridge	No such number
George Eldridge & Sons, Inc.	No such number
Gordon D. Eldridge	No such number
Helen Eldridge	Responded as no intent to participate
Mary R. Eldridge	No such number
Nancy J. Eldridge	No such number
El Tejon Cattle Co.	No response, but signed for certified mail
Ely Shoshone Tribe of Indians	Responded with intent to participate
Juan M. Escobedo	No response, but signed for certified mail
Donald T. Fackrell	Forwarding order expired
Sherlyn K. Fackrell	No response, but signed for certified mail
Marcia Forman	No such number, forwarded to company address
Richard Forman	Deceased
Richie Forman	No such number, forwarded to company address
Selena M. Forman	No such number, forwarded to company address
James F. Fraser	Deceased
Lory M. Free	Not deliverable as addressed
Beverly R. Gaffin	No response, but signed for certified mail
Mary Goeringer	Not deliverable as addressed
Danny E. Griffith	No receptacle
Sally Gust	No such number
Helen Hackett	Addressee unknown
Max Hannig	No response, but signed for certified mail
Monte Hansen	No response, but signed for certified mail
Joan F. Hanson	No response, but signed for certified mail
Robert L. & Fern A. Harbecke	No such number
Glen W. Harper	Not deliverable as addressed
John A. and Vivian A. Havens	No response, but signed for certified mail
Rick Havenstrite	Not deliverable as addressed
Randy Heinfer	Responded as no intent to participate
Christine Hermansen	Not deliverable as addressed
Jess Hiatt	No such number
Bonnie J. Higdon	Addressee unknown
Bunny R. Hill	No response, but signed for certified mail

Harry James Hill	No response, but signed for certified mail
Jean Edith Hill	No response, but signed for certified mail
Merle C. Hill	No response, but signed for certified mail
Garland N. Hollingshead	No response, but signed for certified mail
Karma H. Hollingshead	No response, but signed for certified mail
Charlene R. Holt	No response, but signed for certified mail
Wesley A. Holt	No response, but signed for certified mail
Barry C. Isom	No response, but signed for certified mail
Linda H. Isom	No response, but signed for certified mail
Abigail C. Johnson	Responded with intent to participate
Lee Jensen	Attempted not known
Kristine P. Kaiser	No response, but signed for certified mail
Art Kinder	Attempted not known
Kirkeby Ranch	No such number
Rudolph E. Krause	No response, but signed for certified mail
Las Vegas Fly Fishing Club	No information
Alton C. Leavitt	No information
James I. Lee	No response, but signed for certified mail
Sarah Locke	No such number
Dr. Dan A. Love	Responded with intent to participate
John R. McKay	Attempted not known
Wanda McKrosky	Responded with no intent to participate
Lenora McMurray	No response, but signed for certified mail
Daneil Maes	Not deliverable as addressed
Dennis Mangum	Attempted not known
Robert N. Marcum	Attempted not known
Chuck Marques	No such number
Beatrice D. Mathis	Deceased
Laurel Ann Mills	Responded with no intent to participate
Moriah Ranches, Inc.	Responded with intent to participate
Mary Mosley	No response, but signed for certified mail
Frances Murrajo	No response, but signed for certified mail
Nevada Cattlemen's Association, Eastern Unit	No response, but signed for certified mail
Nevada Farm Bureau Federation	Undeliverable
Dean G. Neubauer	Not deliverable as addressed
Janet K. Neubauer	Not deliverable as addressed
Bob Nichols	No such number
Jim & Betty Nichols	No such number
Lyle Norcross	No such number
Donna A. Nye	Not deliverable as addressed
Helen O'Connor	Responded with no intent to participate
Nancy Overson	No such number
Edna Oxborrow	Not deliverable as addressed
Linda Palczewski	No such number
Panaca Irrigation Co.	Responded with intent to participate
Bruce Pencek	No information

Carter L. Perkins	No receptacle
John Perondi	No such number
Pioche Town Board	No response, but signed for certified mail
Clarence S. Prestwich	Not deliverable as addressed
Karen L. Prestwich	Not deliverable as addressed
Duane Reed	No response, but signed for certified mail
Debbie Rollinson	Not deliverable as addressed
Katherine A. Rountree	Responded with intent to participate
William R. Rountree	Responded with intent to participate
Margaret Rowe	Forwarding order expired
Marsha Lynn Sanders	Attempted not known
Mark Schroeder	Attempted not known
Larry Shew	No such number
Diana Smith	No such number
Amelia Sonnenberg	No response, but signed for certified mail
Irene Spaulding	Attempted not known
Sportsworld	No response, but signed for certified mail
Karen Sprouse	No such number
Connie K. Stasiak	Forwarding order expired
Mildred L. Stevens	Attempted not known
Virgina B. Terry	Attempted not known
Roy Theiss	Attempted not known
Toiyabe Chapter of the Sierra Club	Responded with intent to participate
Tonya K. Tomlinson	No response, but signed for certified mail
John G. Tryon	No response, but signed for certified mail, later made appearance
Candi Tweedy	Attempted not known
Freddy Van Camp	No response, but signed for certified mail
Jack Van Camp	No response, but signed for certified mail
John M. Wadsworth	No response, but signed for certified mail
Daniel Weaver	No such number
Lois Weaver	No such number
Randy Weaver	No such number
Selena Weaver	No such number
Barlow White	No such number
White Pine County Cowbelles	No such number
Kelly Wiedmeyer	No response, but signed for certified mail
Thomas R. Wiedmeyer	No response, but signed for certified mail
Patricia Williams	No such number
Paula Williams	No receptacle
Unincorporated Town of Pahrump	Undeliverable, resent to new address, no response
U.S. Dept .of Interior, Bureau of Land Management –	Responded with intent to participate
U.S. Dept. of Interior, Fish and Wildlife Service–	Responded with intent to participate
U.S. Dept. of Interior, National Park Service–	Responded with intent to participate

Nevada Revised Statute (NRS) § 533.365 requires that if within the State Engineer's discretion he decides to hold a public administrative hearing on a protested application he shall give notice of the hearing by certified mail to the applicant and protestant(s). The State Engineer provided the required notice to Applicant and Protestants at the addresses of record in the relevant application files in the Office of the State Engineer. Additionally, two days after the State Engineer's Notice of Pre-hearing Conference was issued, The Ely Times, the local newspaper in the area, also published an article addressing the notice of pre-hearing conference. The State Engineer finds it was well publicized in the local area that the pre-hearing conference was going to be held and when and where. Additionally, the State Engineer finds he provided notice of the hearing to all Protestants at their addresses of record in the files of the Office of the State Engineer. The State Engineer also finds it is the responsibility of every applicant and protestant to keep the Office of the State Engineer informed as to a current address.

II.

STATUTORY STANDARD TO GRANT

The State Engineer finds that NRS § 533.370(1) provides that the State Engineer shall approve an application submitted in proper form which contemplates the application of water to beneficial use if the applicant provides proof satisfactory of his intention in good faith to construct any work necessary to apply the water to the intended beneficial use with reasonable diligence, and his financial ability and reasonable expectation actually to construct the work and apply the water to the intended beneficial use with reasonable diligence.

III.

STATUTORY STANDARD TO DENY

The State Engineer finds that NRS § 533.370(5) provides that the State Engineer shall reject an application and refuse to issue the permit where there is no unappropriated water in the proposed source of supply, or where the proposed use conflicts with existing rights or with protectible interests in existing domestic wells as set forth in NRS § 533.024, or where the proposed use threatens to prove detrimental to the public interest.

IV.

STATUTORY STANDARD FOR INTERBASIN TRANSFERS

The State Engineer finds that NRS § 533.370(6) provides that in determining whether an application for an interbasin transfer of ground water must be rejected, the State Engineer shall consider: (1) whether the applicant has justified the need to import the water from another basin; (2) if the State Engineer determines a plan for conservation of water is advisable for the basin into which the water is imported, whether the applicant has demonstrated that such a plan has been adopted and is being effectively carried out; (3) whether the proposed action is environmentally

sound as it relates to the basin from which the water is exported; (4) 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 (5) any other factor the State Engineer determines to be relevant.

V.

INADEQUACY OF APPLICATIONS

The Protestants allege that the applications should be denied because they fail to adequately describe the proposed works, the cost of such works, estimated time required to construct the works and place the water to beneficial use and the approximate number of persons to be served. The application form used by the Office of the State Engineer only requires a brief explanation of the description of the proposed works of diversion and delivery of water. On its applications, the Applicant described that the water was to be diverted via a cased well, pump, pipelines, pumping stations, reservoirs and distribution system.²⁷ The Applicant estimated the cost of each well and indicated it believed it would be a minimum of 20 years to construct the works of diversion and place the water to beneficial use.

Applicants who request an appropriation for municipal water use are required by NRS § 533.340(3) to provide information approximating the number of persons to be served and future requirement. While the Applicant did not have this information physically on its application, by letter dated March 22, 1990, the Applicant supplemented its applications and indicated the approximate number of persons to be served was 800,000 in addition to the 618,000 persons it was currently serving. The population of Southern Nevada already exceeds this projection as it now is nearing 2,000,000 citizens.²⁸

The Southern Nevada Water Authority's 2006 Water Resource Plan and the Integrated Water Planning Advisory Committee Recommendations Report²⁹ provide information on the projections of the need for water in the area through 2050, and the need for future resources in relationship to the population growth was testified to at the hearing.³⁰ The information indicates that by the year 2030 it is anticipated that Southern Nevada will need about 900,000 acre-feet annually of water to serve its citizens.³¹

The State Engineer finds this protest claim was dismissed in State Engineer's Intermediate Order No. 4. The State Engineer finds for the purposes of the application form, the applications

²⁷ Exhibit Nos. 3 – 21.

²⁸ Transcript, p. 77.

²⁹ Exhibit Nos. 511, 516.

³⁰ *See generally*, Testimony of Pat Mulroy, Kay Brothers, Ken Albright.

³¹ Exhibit No. 516, pp. 37 - 41.

adequately describe the proposed works, the cost of such works, estimated time required to construct the works and place the water to beneficial use and the approximate number of persons to be served.

VI. NEED FOR THE WATER

The Protestants allege that it is unclear whether the amount of water contemplated in the applications is necessary and reasonably required for the proposed municipal purposes and that the Applicant has not shown a need for the water. Some of the Protestants allege that the population projection numbers are unrealistic. Protestants also allege that the applications will cause water rates to go up thereby reducing demand and rendering the water unnecessary.

As noted above, the Applicant by letter dated March 22, 1990, supplemented its applications and indicated the approximate number of persons to be served was 800,000 in addition to the 618,000 persons it was currently serving. The evidence indicates that the actual population has consistently been in excess of the estimated numbers³² and the current population is nearing 2,000,000 people. Additionally, the State Engineer dismissed this protest claim in State Engineer's Intermediate Order No. 4.

The Applicant provided witnesses who addressed the water resource planning for the service area of all the members of the Southern Nevada Water Authority (SNWA) over the last decade. The testimony indicated that for many years the planning efforts went into solutions that could be provided by the Colorado River and conservation. However, around 2002 a severe drought was seen on the Colorado River, Lake Mead dropped nearly 100 feet and it became very clear that other in-state resources needed to be developed not only to support future growth but as protection from drought on the Colorado River. A concern was expressed about reliance on the Colorado River for 90% of the municipalities' water-resource supplies and that this reliance was not prudent in the face of severe drought.³³ By 2002-2003, surplus water in the river was no longer an option and the water banking that had been arranged with Arizona was not going forward as planned.³⁴ The Applicant is pursuing these ground-water rights for anticipated future growth, because severe drought continues to be a possibility on the Colorado River, reservoir levels in Lake Mead and Lake Powell could drop further impacting intake structures in Lake Mead, and the Secretary of the Interior has taken actions on the Colorado River which have limited available options. It is believed that Southern Nevada must diversify its water supply and not rely so heavily on the Colorado River. The testimony indicated there is a need to protect the health and safety of approximately 2,000,000 citizens of Southern Nevada through the diversification of the area's

³² Exhibit No. 516, p. 11.

³³ See generally, testimony of Pat Mulroy and Kay Brothers, Transcript, pp. 51-115, 140-199.

³⁴ Transcript, pp. 64-65.

water supply and it is the responsibility of the Applicant to project demand and plan accordingly.³⁵

The testimony indicated that by the middle of the next decade (approximately 2013), depending on the rate of growth and rate of conservation, the SNWA is going to need to bring in additional water resources to supply the region.³⁶ Southern Nevada has been for many years and continues to be one of the fastest growing areas in the United States. Actual growth has far out-paced population growth projections and the Chairman of the Clark County Commission testified that all credible projections show that Clark County will continue to experience growth in the future and the area is bumping up against the limits of the amount of water it can take from the Colorado River, not taking drought shortages into consideration.³⁷

The Nevada Supreme Court, in a decision issued after this hearing was conducted, held that in an interbasin transfer of water the applicant must demonstrate how much water is needed in actual acre-feet.³⁸ It is noted that the Applicant was not aware of this exacting standard at the time of the hearing, but was aware that it had to show a need for the quantity of water for which it applied. However the Applicant provided testimony that indicated that Southern Nevada currently diverts approximately 480,000 acre-feet annually for a consumptive use of 300,000 acre-feet of Colorado River water, which is Nevada's total allotment of Colorado River water.³⁹ The Integrated Water Planning Advisory Committee report found that the drought conditions impacting the Colorado River Basin have reduced the projected availability of near-term additional water resources such as Interim Surplus on the Colorado River. The Committee report found that the drought has underscored the need for Southern Nevada to begin accessing undeveloped, non-Colorado River water supplies within the SNWA's water resource portfolio.⁴⁰ The 2006 Water Resource Plan indicates that by 2034 the projected demand for water in Southern Nevada will be approximately 900,000 acre-feet, which is an amount that is far in excess of the current resources of the SNWA.⁴¹

The State Engineer finds the Applicant has demonstrated a need for the water and has justified the need to import water from another basin. The State Engineer finds the evidence demonstrates that the amount of water contemplated in the applications is necessary and reasonably required for the proposed purposes and the protest claims are overruled. The State Engineer finds the population projections were not unrealistic and the protest claim is overruled. The State Engineer finds the allegation that the applications will cause water rates to go up thereby causing

³⁵ Transcript, pp. 76-77.

³⁶ Transcript, p. 99.

³⁷ Transcript, pp. 131, 135.

³⁸ *Bacher v. Office of the State Engineer*, 122 Nev. Adv. Op. No. 95 (November 22, 2006).

³⁹ Transcript, p. 161.

⁴⁰ Exhibit No. 516.

⁴¹ Exhibit No. 511, p. 38.

demand to go down, rendering the water unnecessary to be completely hypothetical and not within the purview of his review and is hereby dismissed.

VII.

LAS VEGAS IS BIG ENOUGH

The State Engineer finds no evidence was provided in support of the protest claim that the population of Las Vegas is big enough and future growth is not in the interest of the Las Vegas community, the state or the nation. As to the protest claim that the applications will encourage and enable the uncontrolled population growth in the Las Vegas Valley, which will exacerbate existing problems of air quality, traffic and crime, the State Engineer finds he has not been delegated the responsibility to control growth and has not been delegated the responsibility for land use planning in Nevada. The decisions as to growth control are the responsibility of other branches of government; therefore, the protest claim is overruled.

VIII.

FAILED TO PROVIDE RELEVANT INFORMATION

Protestants allege that the applications should be denied because the Applicant has failed to provide Protestants relevant information and said failure denies the Protestants due process of law in that said information may provide the Protestants further grounds of protest that may forever be barred. The State Engineer finds no evidence was provided in support of this protest claim and there is no evidence that the public has been denied relevant information and due process; therefore, the protest claim is dismissed.

IX.

WILL EXACERBATE AIR POLLUTION

A Protestant alleges that the applications should be denied because the State Engineer is a member of the Nevada Environmental Commission and has a duty to prevent, abate and control air pollution in the state of Nevada and the air pollution in the Las Vegas Valley is so bad that the valley has been classified a non-attainment area for national and state ambient air-quality standards for carbon monoxide and PM-10. Since the applications are for the purpose of securing growth and more growth means more air pollution, the State Engineer should be taking steps to ameliorate the air-quality problem in the Las Vegas Valley, not exacerbate it. No evidence was provided in support of this protest claim.

The State Engineer finds this protest claim is not within the considerations found under Nevada water law, and it was held in *County of Churchill, et al. v. Ricci*, 341 F.3d 1172 (9th Cir. 2003) citing to *Pyramid Lake Paiute Tribe of Indians v. Washoe County*, 918 P.2d 697 (Nev. 1996) that the State Engineer's authority in the review of water right applications is limited to considerations identified in Nevada's water policy statutes. The State Engineer does not include

consideration of factors identified in directives in Nevada statutes requiring other governmental agencies to act in the consideration of water right applications; therefore, the protest claim is dismissed.

X.

SUBDIVISION MAPS

The State Engineer finds no evidence was provided in support of the protest claim that the applications should not be approved if said approval is influenced by the State Engineer's desire or need to ensure there is sufficient water for new lots and condominium units created in the Las Vegas Valley by subdivision maps. The State Engineer finds it is his responsibility and obligation to follow the law, not his desire; therefore, the protest claim is dismissed.

XI.

MANAGEMENT OF FEDERAL LAND

A Protestant alleges that the use of water as proposed would interfere with the purpose for which federal lands are managed under the Federal Land Use Policy Act of 1976. The State Engineer finds no evidence was presented to support this protest claim; therefore, the protest claim is dismissed.

XII.

TREATY OF RUBY VALLEY

The State Engineer finds no evidence was presented to support the protest claim that the use of the water as proposed under the applications would interfere with the rights of the Ely Shoshone Tribe of Indians under the Treaty of Ruby Valley; therefore, the protest claim is dismissed. Additionally, the U.S. Department of Interior, Bureau of Indian Affairs stipulated to withdraw Federal agency protests.

XIII.

RESTRICT GROWTH IN PIOCHE

A Protestant alleges that a lack of water will restrict growth in the Pioche area. The State Engineer finds no evidence was provided in support of this protest claim and nothing in the records of the Office of the State Engineer would support this protest claim; therefore, the protest claim is dismissed.

XIV.

DX RANCH ISSUES

The D-X Ranch protested the applications on the grounds that the subject applications would adversely affect their ranching and commercial business, which depend on an existing water right. The owners of the D-X Ranch testified that they hold water right Permit 5546, Certificate 714, which is a water right on Woodman's Springs, also known as Turnley Spring. Certificate 714 is a water right for irrigation and domestic purposes that allows for the diversion of 0.2325 cubic

feet per second from March 15th to October 15th with a priority date of June 18, 1919. The springs are located in the SW¼ of the SW¼ of Section 16, T. 15 N., R. 68 E., M.D.B.&M. Testimony indicated that spring flows varies from year to year and spring to fall, depending on the amount of precipitation, but that the trend of flow over the years they have lived there is down.

The springs are located approximately four miles east of the nearest application, Application 54015, and five miles east of Application 54014. The next nearest applications are approximately eight miles away. The nearest applications lie at an elevation 1,000 feet or more lower than Woodman's Springs. The Protestants testified to variable flows, depending on annual precipitation and time of year. Published geologic maps indicate that the springs occur at or near a geologic contact between overlying permeable carbonate rocks and underlying, relatively impermeable, metamorphic rocks. The State Engineer finds that the flow and geologic information supports a conclusion that the Woodman's Springs are not directly connected to the valley-fill alluvial or regional carbonate aquifers, are most likely derived from perched waters, are subject to seasonal and climatic variability, and will not be adversely affected by the subject applications.

XV.

NEED COMPREHENSIVE PLANNING

Some of the Protestants allege that the applications should not be granted in the absence of comprehensive planning. The State Engineer finds there is no provision in Nevada water law that requires comprehensive water-resource development planning prior to the granting of a water right application, and further, as demonstrated by Exhibit Nos. 511 and 516 and the testimony, the Applicant has engaged in comprehensive long-range planning.⁴²

XVI.

LOCK-UP RESOURCES

Some Protestants allege that these applications, amongst others, would allow the Applicant to "lock-up" vital water resources for possible use in the distant future beyond current planning horizons, and further allege that the applications substantially overstate future water demand.

In 1989, when these applications were filed, the Las Vegas Valley Water District believed it was running out of additional water resources in the very near future. In 1991, the Las Vegas Valley Water District issued a moratorium, which prohibited any new hookups to the water system; thus, the future water demands were not beyond current planning horizons. Since the filing of the applications, the members of SNWA have been involved in many varied programs to plan for the future water resources of the Las Vegas Valley. In 1991, the SNWA was formed, and the SNWA purveyors agreed that any new contract with the Secretary of the Interior for remaining unallocated water from the Colorado River would be with the SNWA. The SNWA would then deliver water to

⁴² See generally, testimony of Patricia Mulroy, Kay Brothers and Ken Albright.

purveyor members based on an agreed method of allocating the water received. The remaining Colorado River water was contracted for in 1992.

The October 1999 Southern Nevada Resource Plan (which outlined plans for water resources for all purveyors in the Las Vegas Valley through 2050) identified the Cooperative Water Project as a potential future option. However, at that time there were no current plans to move forward with the importation of ground water from the rural counties since other options, such as the Arizona Groundwater Bank and Colorado River water provided by the recently approved Interim Surplus guidelines, were more probable and cost effective. However, as noted in the testimony of the General Manager of the Southern Nevada Water Authority, much has changed on the river since 2002.

As demonstrated in Chapter 4 of the Southern Nevada Water Authority 2006 Water Resource Plan, SNWA is exploring many options for future water supply and as was testified to by the SNWA General Manager Patricia Mulroy, Deputy General Manager for Engineering Operation Kay Brothers, and Director of Ground-water Resources Development, Ken Albright, the Applicant is pursuing development of this project now.

The State Engineer finds that Nevada is a prior appropriation state, that is, first in time, first in right, and the Applicant is moving forward with a use for the water requested for appropriation under these applications. Therefore, there is a reasonable expectation to go to beneficial use within a reasonable amount of time and the Applicant is not locking-up vital water resources for possible use in the distant future beyond current planning horizons and, as found in other portions of this ruling, the applications do not substantially overstate future water demand needs.

XVII.

GROUND-WATER MODELS

As provided for in the Stipulation referenced above, the Parties to the Stipulation agreed that it was in their best interests to cooperate in the collection and analysis of hydrologic, hydrogeologic, and water chemistry information and to also cooperate in the development of a regional ground-water-flow numerical model for assessing the effects of ground-water withdrawals by the Applicant in the Spring Valley Hydrographic Basin. The State Engineer is concerned that the parties may use a model that is not readily usable and reviewable by other interested persons. Therefore, the State Engineer finds that any model created to be used in the monitoring and mitigation by the Office of the State Engineer must use available MODFLOW code. The State Engineer also finds that any model required by the State Engineer must first be reviewed and approved by the State Engineer.

XVIII.

PROOF OF GOOD FAITH AND REASONABLE DILIGENCE

Some of the Protestants alleged that the Applicant has not obtained rights-of-way from the BLM for the project. Testimony was provided that the Lincoln County Lands Act identified a utility corridor for this and other utilities and that the Applicant has met with cooperating agencies several times and is putting forth the application to the United States Department of Interior, Bureau of Land Management to obtain the rights-of-way to put the project in the ground.⁴³ The State Engineer dismissed this protest claim in State Engineer's Intermediate Order No. 4. Additionally, the State Engineer finds the evidence indicates the Applicant is pursuing the right-of-way.

XIX.

FINANCIAL ABILITY AND REASONABLE EXPECTATION TO PERFECT

Nevada Revised Statute § 533.370(1) provides that the State Engineer shall approve an application submitted in proper form which contemplates the application of water to beneficial use if the applicant provides proof satisfactory of his intention in good faith to construct any work necessary to apply the water to the intended beneficial use with reasonable diligence, and his financial ability and reasonable expectation to actually construct the work and apply the water to the intended beneficial use with reasonable diligence. Protestants alleged that the Applicant lacks the financial capability for developing the project and that a project of such unprecedented magnitude is likely to cost far more than the Applicant has anticipated. Additionally, that a partially completed project (a white elephant) will burden local rate payers, bond holders, and eventually the State with higher costs, while neither meeting the water demands of the metropolitan Las Vegas area nor mitigating adverse ecological, economic and cultural effects of the project on rural Nevadans.

The Applicant presented testimony about its financial ability to construct the project through its witness Mr. Bonow, who is the managing director and part owner of Public Financial Management. Mr. Bonow testified that his company is the largest independent financial investment advisor serving governments and non-profit entities in the United States.⁴⁴ He testified that the cost of the Integrated Water Plan for the six-basin approach, which includes the water applied for in this basin, would be approximately \$1.9 billion dollars in 2006 dollars. Mr. Bonow testified that based on their conclusions bonds could be sold on capital markets in light of SNWA's past practices, high credit rating and financial wherewithal and that these bonds would achieve very high credit ratings, which means they would be readily accepted by the marketplace and investors. In his opinion, the bottom line was that the project could be financed.⁴⁵

⁴³ Transcript, p. 282.

⁴⁴ Transcript, p. 209.

⁴⁵ Transcript, pp. 250-251. *See also*, Exhibit No. 512 (financial report).

The Applicant provided evidence of other large projects it has constructed, such as the water intakes at Lake Mead, increasing its capacity from 400 million gallons per day to 900 million gallons per day in the last ten years, water treatment facilities and large transmission systems.⁴⁶

The State Engineer finds the Applicant has provided proof satisfactory of the intention in good faith to construct any work necessary to apply the water to the intended beneficial use with reasonable diligence, and a financial ability and reasonable expectation actually to construct the work and apply the water to the intended beneficial use with reasonable diligence.

XX.

PLACE OF USE

The applications under consideration in this ruling were filed for municipal and domestic uses in Clark, Lincoln, Nye and White Pine Counties. No evidence was provided as to any beneficial use of water other than in Clark County and for potential mitigation in White Pine County. Nevada Revised Statute § 533.035 provides that beneficial use is the basis, the measure and the limit of the right to use water, and NRS § 533.370 provides that any applicant must demonstrate an intention in good faith to construct works with reasonable diligence to apply the water to a beneficial use. The State Engineer finds there was no demonstration of beneficial use of the water anywhere other than Clark County and Spring Valley in White Pine County; therefore, the place of use is restricted to those two places.

XXI.

FEDERAL LAND USE

Protestants allege that granting the applications would be inconsistent with the Federally owned water rights as to lands affected by Applications 54003-54005 and the proposed points of diversion are located near a wilderness study area that is managed by the BLM for study and potential designation as a National Wilderness Area. No evidence was provided in support of this protest claim and the Federal agencies withdrew their protests pursuant to the Stipulation; therefore, the State Engineer finds the protest claim is dismissed.

XXII.

PERENNIAL YIELD

In determining the amount of ground water available for appropriation in a given hydrographic basin, the State Engineer relies on all available hydrologic studies to provide relevant data to determine the perennial yield for a basin. The perennial yield of a ground-water reservoir may be defined as the maximum amount of ground water that can be salvaged each year over the long term without depleting the ground-water reservoir. Perennial yield is ultimately limited to the maximum amount of natural discharge that can be salvaged for beneficial use. The

⁴⁶ Exhibit Nos. 513, 516.

perennial yield cannot be more than the natural recharge to a ground-water basin and in some cases is less. If the perennial yield is exceeded, ground-water levels will decline and steady-state conditions will not be achieved, a situation commonly referred to as ground-water mining. Additionally, withdrawals of ground water in excess of the perennial yield may contribute to adverse conditions such as water quality degradation, storage depletion, diminishing yield of wells, increased economic pumping lifts, and land subsidence.⁴⁷

In most Nevada basins, ground water is discharged primarily through evapotranspiration (ET). In those basins, the perennial yield is approximately equal to the estimated ground-water ET; the assumption being that water lost to natural ET can be captured by wells and placed to beneficial use. Many of the basins in the Carbonate Aquifer terrain discharge their ground water mostly via subsurface flow to adjacent basins, that is, there is little or no ET. The amount of subsurface discharge that can be captured is highly variable and uncertain. Perennial yields for these basins have historically been set at one-half of the subsurface discharge. However, when conditions are such that there is subsurface flow through several basins, there is a potential for double accounting and over appropriating the resource if the perennial yield of each basin is equal to one half of the subsurface outflow and basin subsurface inflows are not adjusted accordingly. Therefore, allowances and adjustments are required to the perennial yields of basins in these "flow systems" so that over appropriation does not occur. The Spring Valley Hydrographic Basin has a significant amount of discharge via ET and an uncertain amount of subsurface flow to adjacent basin(s). Historically, in basins similar to the Spring Valley Hydrographic Basin, the perennial yield has generally been established as equal to ET.

Rush and Kazmi completed the first comprehensive hydrologic study of the Spring Valley Hydrographic Basin in 1965.⁴⁸ Their study used the well-known Maxey-Eakin method of estimating ground-water recharge with the 1936 Hardman precipitation map. The authors note that recharge occurs within the mountain block, below streams on the alluvial fans, and through direct infiltration on the upper alluvial fans.⁴⁹ They estimated ground-water recharge to be 75,000 acre-feet annually.⁵⁰ Ground-water ET was estimated by mapping phreatophyte communities and applying a probable average rate of ground-water use to derive the basin's total discharge via ET. Their estimate of ground-water ET was 70,000 acre-feet annually, with an additional 4,000 acre-feet annually exiting the basin via subsurface flow to Hamlin Valley. In their study, Rush and Kazmi assumed that all of the 70,000 acre-feet annually of ET could be salvaged, but that none of the outflow to Hamlin Valley could be recovered; therefore, 70,000

⁴⁷ State Engineer's Office, Water for Nevada, State of Nevada Water Planning Report No. 3, p. 13, Oct. 1971.

⁴⁸ Exhibit No. 608.

⁴⁹ Exhibit No. 608, p. 20 & Fig. 6.

⁵⁰ Exhibit No. 608, p. 20.

acre-feet annually could be considered as the minimum perennial yield. In addition, they estimated that up to one-third of the 90,000 acre-feet annually of the mountain front runoff "could be salvaged by extensive and well-distributed pumping;"⁵¹ therefore, the maximum potential perennial yield of the basin was determined to be 100,000 acre-feet annually.

The Applicants presented testimony that questioned the accuracy of Rush and Kazmi's study. Mr. Burns testified that the 1936 Hardman precipitation map used in their study is inaccurate and underestimates actual average precipitation; therefore, recharge estimates made using the 1936 Hardman precipitation map would subsequently underestimate actual average recharge.⁵² However, under questioning from the State Engineer it was recognized that the Maxey-Eakin recharge coefficients were calibrated to discharge from several basins, and if a different precipitation map had been used then the recharge coefficients would have been commensurately adjusted, the end result being the same estimate of average annual recharge.⁵³

A second issue brought up by the Applicant was that the Maxey-Eakin method may have been calibrated to basin ground-water ET estimates that were less than actual average ET discharge. In addition, the Applicant points out that precipitation and runoff in the years up to and including the Rush and Kazmi study were below normal, which would result in estimates of ET that are less than the long-term average.⁵⁴

Nichols (2000) estimated ground-water ET in Spring Valley and 15 other valleys using a relationship between plant cover and ET at 12 sites in and around the Great Basin and Landsat-derived vegetation indices.⁵⁵ Using his ET estimates and the 1961 to 1990 PRISM precipitation map,^{56, 57} he then computed recharge coefficients for precipitation zones using multiple linear regressions, much as Maxey and Eakin did in their original work.⁵⁸ Nichols calculated ET for 1985, a relatively wet year, to be 102,000 acre-feet. He also estimated ET for 1989, a relatively dry year, to be 77,500 acre-feet. Nichols then averaged the two results to obtain an average basin-wide ET rate for Spring Valley of 90,000 acre-feet annually. Nichols' estimate of ground-water recharge in Spring Valley is 104,000 acre-feet annually, as determined by his computed

⁵¹ Exhibit No. 608, p. 26.

⁵² Transcript, pp. 992 – 1129.

⁵³ Transcript, pp. 1105 – 1118.

⁵⁴ Transcript, pp. 1043-1044.

⁵⁵ Exhibit No. 610.

⁵⁶ Daly, C., et al., 1994, A statistical-topographic model for mapping climatological precipitation over mountainous terrain: *Journal of Applied Meteorology*, v. 33, pp. 140-158.

⁵⁷ Taylor, G.H., 1997 Oregon State University written with Nichols.

⁵⁸ Eakin et al., Contributions to the Hydrology of Eastern Nevada, Nevada Water Resources Bulletin No. 12, Nevada Division of Water Resources in cooperation with the United States Geological Survey, pp. 99-125, 1951.

recharge coefficients.⁵⁹ The 14,000 acre-feet annual imbalance between recharge and discharge was assumed to exit Spring Valley as subsurface flow to the east. It should be noted that Nichols did not estimate the perennial yield for Spring Valley.

The Protestants presented testimony and evidence to support their claim that the Nichols' ET estimates may be too high. The basis of the Protestants testimony and evidence can be summarized as follows: Nine of the 12 ET sites used by Nichols are located in Ash Meadows, Nevada and Owens Valley, California.⁶⁰ Ash Meadows and Owens Valley are much further south with higher evaporative demand than Spring Valley. As a result, these locations will have a greater ET rate for a given plant community and density than Spring Valley, and using these sites as a basis for ET rates in Spring Valley is in error because it will result in an over-estimation of total annual ET. In addition, the Protestants claimed that the Nichols' study was completed in one of the wettest decades on record, which could result in more plant growth and measured ET that is greater than the long-term average.⁶¹

The water budget of Spring Valley was also addressed by the Applicant in Exhibit No. 509 and in the testimony of Andrew Burns.⁶² Both the testimony and accompanying exhibits discuss the previous studies mentioned above, but also provide new estimates for precipitation, surface-water flows, ground-water recharge, and evapotranspiration. The Applicant estimated ground-water recharge using the Maxey-Eakin recharge coefficients, but with a precipitation distribution estimated from a local altitude-precipitation regression.⁶³ The Applicant's estimate of Spring Valley's average ground-water recharge from precipitation is 87,000 acre-feet annually.

The State Engineer finds that estimates of recharge using the Maxey-Eakin recharge coefficients with precipitation distributions other than the Hardman map⁶⁴ constitute a misapplication of the method. The Maxey-Eakin method uses the Hardman precipitation map, which relates elevation zones to annual precipitation. The amount of precipitation in each precipitation zone that recharged the ground water was balanced by trial-and-error with ground-water discharge estimates in 13 ground-water basins in eastern Nevada.⁶⁵ The percent of recharge in each zone was systematically adjusted until total basin recharge acceptably matched total basin discharge. Because the Maxey-Eakin recharge coefficients are tied to the Hardman map, the use of any other precipitation map would require that the recharge coefficients be re-established to match total basin discharge estimates in multiple basins. That is, if any other

⁵⁹ Exhibit No. 610, pp. C14 – C29.

⁶⁰ Exhibit No. 610, pp. A4 and A5.

⁶¹ Exhibit No. 3005, pp. 7 - 9.

⁶² Exhibit No 789; Transcript, pp. 999 - 1122.

⁶³ Exhibit No. 509, Chapter 3.

⁶⁴ Exhibit No. 28.

⁶⁵ Exhibit No. 606, pp. 40 & 41.

precipitation map is used, the recharge coefficients need to be re-calibrated by trial-and-error against known ground-water discharge. The Applicant used a new precipitation distribution, but did not re-estimate recharge coefficients or calibrate those coefficients to ground-water discharge.

In addition to their estimate of recharge from precipitation, the Applicant proposes that recharge to ground water due to stream infiltration is a source of recharge not considered in the Maxey-Eakin method. It considers the Maxey-Eakin method to apply only to recharge within the mountain block,⁶⁶ and estimated an additional 11,750 acre-feet annually of recharge due to stream-flow infiltration. Because the Maxey-Eakin technique is balanced to the full basin discharge, the actual location of recharge is not material. Maxey-Eakin recognized that recharge occurs in locations other than the mountain block. In Water Resources Bulletin No. 33, Eakin writes “The distribution of water runoff from the mountains also permits some inferences of the distribution and manner of recharge to the groundwater system. For mountain areas of otherwise similar characteristics, proportionally large runoff suggests little recharge by deep infiltration in bedrock in the mountains, and small runoff suggests proportionally large recharge by deep infiltration in the bedrock. Also, substantial runoff from the mountains suggests that recharge by infiltration of stream flow on the valley fill may be significant.”⁶⁷ Similarly, in the Spring Valley Reconnaissance report of Rush and Kazmi, the authors recognize recharge occurs below the streams. “Part of the snow and rain in the mountains infiltrates the rock material and part collects into small, short streams, which generally are absorbed on the alluvial fans. Much of this water is evaporated before and after infiltration, some adds to soil moisture, and some percolates to the water table and recharges the groundwater reservoir.”⁶⁸ Additionally in Table 6, Rush and Kazmi clearly attribute 65,000 acre-feet annually to recharge from streams and underflow.⁶⁹ It is widely recognized that the above authors were experts – even pioneers – in Nevada hydrology. It is unreasonable to suggest that they did not fully understand and account for such a basic hydrologic process in their studies and reconnaissance reports. The State Engineer finds that the Maxey-Eakin method estimates the entire basin recharge, and to apply additional recharge in specific areas or hydrologic settings is a misapplication of the method.

The Applicant’s discharge analysis included a report and testimony by Dr. Dale Devitt,⁷⁰ which addressed ET studies and basin-wide ET estimates for Spring Valley and White River Valley. Dr. Devitt placed meteorological stations in each of the valleys and measured ET from

⁶⁶ Exhibit No. 509, pp. 7-3 & 7-4.

⁶⁷ Eakin, T.E., A Regional Interbasin Groundwater System in the White River Area, Southeastern Nevada, Nevada Dept. of Conservation and Natural Resources Water Resource Bulletin No. 33, p. 260, 1966.

⁶⁸ Exhibit No. 608, p. 20.

⁶⁹ *Id.*, Table 6, unnumbered page between p. 25 and p. 26.

⁷⁰ Exhibits Nos. 505 and 787.

August of 2004 to August 2005. For Spring Valley, the total ET estimate for the measurement period was approximately 307,000 acre-feet. This estimate includes ET from all sources within a delineated area of phreatophytes, including ground-water ET, surface-water ET, and precipitation. The ground-water component of ET was not differentiated, but can generally be calculated as total ET less surface-water contributions and total precipitation. It was also noted that the 2005 water year was a very wet year with Cleve Creek flowing at 208% of its long-term average. As was the case with Cleve Creek, other streams measured by SNWA in 2005 had flows much higher than their estimated long-term average, ranging from 170% to 440% of average.⁷¹ The total acreage included in the ET study by Dr. Devitt was 150,030 acres; 127,430 acres in the phreatophytic zone, and 22,600 acres in the wetland meadows.⁷² By subtracting the measured precipitation for the study period at their monitoring Site 2 of 12.8 inches (1.07 feet) from the total acreage, he estimated half of the total ET, or approximately 150,000 acre-feet, is derived from surface-water and ground-water sources.⁷³ However, if one were to consider 17.1 inches (1.42 feet) of precipitation at the Shoshone 5 N station for the same time period, and assume that Shoshone 5 N precipitation was representative for the area, then only 94,000 acre-feet of ET would be from surface-water and ground-water sources and the ET results of Dr. Devitt may be in line with the results of Rush and Kazmi, and Nichols.⁷⁴

Additional evidence brought out at the hearing included potential errors in the regression function Dr. Devitt used to estimate actual ET from the Normalized Difference Vegetative Index, the satellite-based method he used to estimate ET. Dr. Devitt acknowledged that his regression function might overestimate ET because the regression⁷⁵ represents only cloud-free days and does not consider daily variations in meteorological conditions.⁷⁶ The Applicant presented a revised ground-water budget and perennial yield for Spring Valley of 101,000 acre-feet annually, which did not use Dr. Devitt's ET estimate. The Applicant's revised ground-water budget and perennial yield, were obtained by using an estimated annual recharge of 87,000 acre-feet using the Maxey-Eakin coefficients with their own precipitation map, adding 25% of stream flow as infiltration for an additional 12,000 acre-feet, and 2,000 acre-feet of underflow from Tippet Valley. Their outflow included Nichols' average ET of 90,000 acre-feet, 4,000 acre-feet of underflow to Hamlin Valley, and 6,000 acre-feet consumed by crops and other uses.⁷⁷

⁷¹ Exhibit No. 509, Appendix C.

⁷² Exhibit No. 789, p. 41.

⁷³ *Id.* at 45.

⁷⁴ Exhibits Nos. 608 and 509, respectively.

⁷⁵ Exhibit No. 787, p. 13.

⁷⁶ Transcripts, pp. 748 – 752.

⁷⁷ Exhibit No. 789, pp. 63 – 68.

The State Engineer finds that a reasonable and conservative estimate of the perennial yield of the Spring Valley Hydrographic Basin is 80,000 acre-feet. This estimate relies on the capture of ground-water ET as the limit of the perennial yield. The ET estimate of Rush and Kazmi is 70,000 acre-feet while the average estimate of Nichols is 90,000 acre-feet. Expert testimony and evidence was presented stating that Rush and Kazmi's ET estimate was too low and that Nichols' estimate was too high. Using an average of the two estimates to determine the likely long-term annual ground-water ET for the basin is therefore justified by the evidence. The location and volume of subsurface outflows are highly uncertain, and it is questionable if such flows can be captured without an unacceptable amount of storage depletion and water-level decline. The assertion of Rush and Kazmi that 30,000 acre-feet annually of mountain front runoff could be salvaged with an extensive pumping network is regarded as overly optimistic, without adequate factual support, and does not consider the State Engineer's requirement to protect existing surface-water rights.

XXIII. EXISTING RIGHTS

Prior to making a determination of the total committed ground-water rights, a determination needs to be made regarding the effective duty of supplemental ground-water rights and the consumptive use portion of the non-supplemental ground-water rights and supplemental irrigation ground-water rights. Supplemental irrigation water rights, as discussed in this ruling, are ground-water rights which have a place of use appurtenant to the same place of use as an existing surface-water right and are available for use when the surface-water flow is inadequate to meet irrigation demands.

Testimony and evidence was presented in which the effective duty of supplemental ground-water rights ranged from zero to the full duty of 4.0 acre-feet per acre as indicated on the permit or certificate. While the Office of the State Engineer has not previously established an effective duty for supplemental irrigation ground-water rights for the purposes of determining total existing ground-water rights in Spring Valley it is reasonable to assume that the effective duty of a supplemental irrigation ground-water right is neither zero nor the full duty of 4.0 acre-feet per acre as indicated on the permit or certificate. Instead, it is much more reasonable to establish the effective duty of a supplemental irrigation ground-water right as the maximum annual amount of the ground-water right actually used to supplement the surface-water right to meet irrigation demands. The State Engineer's effective duty estimate of supplemental irrigation ground-water rights in Spring Valley is based on the following:

In Spring Valley, there is no information available regarding the amount of supplemental ground water used on a well by well basis in which to make a determination of the effective duty of supplemental irrigation ground-water rights; therefore, the State Engineer must look at other

available data, which is limited, and then correlate the available data to the Spring Valley area. Of the basins in which the State Engineer's office conducts ground-water pumpage inventories, which also includes surface-water rights and supplemental ground-water rights, the tributary creeks to the Carson River in the Carson Valley Hydrographic Basin (Basin No. 105) best represents the conditions found in the Spring Valley area.

For the period of 1996 to 2005, a comparison was made of the places of use, which have surface-water rights from tributary creeks to the Carson River and supplemental ground-water rights for the entire place of use of the surface-water right. The total duty of supplemental ground-water rights used on a percentage basis during the review period ranged from a low of 9.3 percent to a high of 26.8 percent with an average of 18.1 percent.

When the State Engineer calculates the existing rights in a basin the actual permitted or certificated duty is used for all rights, not an average of each right's annual use. Therefore, while as previously stated it is reasonable to assume that the effective duty of a supplemental irrigation ground-water right is not the full duty, it is also reasonable to assume that the effective duty of a supplemental ground-water right is the maximum amount of the right required to supplement the surface-water source during a single irrigation season.

While the tributary creeks to the Carson River were the best representation of the available data to the Spring Valley area, they are not a direct representation. A review of the long-term hydrographs for Daggett Creek⁷⁸ (1966-2005) and Cleve Creek⁷⁹ (1914-2005) shows a difference in the timing of runoff, which affects the amount of supplemental ground water used to meet irrigation demands when the surface-water flow is inadequate. In making the correlation from the available data on Daggett Creek to Cleve Creek the following assumptions were made: (1) Seven month growing season – April to October; (2) No supplemental ground water is used prior to July, i.e., 3 months surface water only, 4 months supplemented by ground water; (3) The surface-water source is fully appropriated, but not over appropriated; and (4) Runoff hydrographs are of roughly similar shape and distribution for all creeks in Spring Valley.

For the four growing months (July to October) following the peak flow in Daggett Creek and Cleve Creek, the average flows in Daggett Creek were 65 percent of the peak flow and the average flows in Cleve Creek were 35 percent of the peak flow. This results in less surface water on a percentage basis being available post-peak flow in Cleve Creek than Daggett Creek, which in turn results in more ground water being needed to supplement Cleve Creek surface-water rights than Daggett Creek surface-water rights.

⁷⁸ Carson Valley Hydrographic Basin.

⁷⁹ Spring Valley Hydrographic Basin.

During the comparison period for the tributary creeks to the Carson River, the maximum amount of supplemental ground-water rights used was 26.8 percent of the maximum duty of 4.0 acre-feet per acre annually. Solving for the proportional unknown percentage value results in a maximum supplemental use in Spring Valley of 49.8 percent. The State Engineer finds that based on the difference in base flow in Daggett Creek as compared to Cleve Creek the amount of supplemental ground-water rights used in the Spring Valley area is 49.8 percent of the 4.0 acre-feet per acre annual duty being approximately 2.0 acre-feet annually.

The State Engineer defines consumptive use of a crop as that portion of the annual volume of water diverted under a water right that is transpired by growing vegetation, evaporated from soils, converted to non-recoverable water vapor, incorporated into products, or otherwise does not return to the waters of the state. Consumptive use does not include any water that falls as precipitation directly on the place of use. The consumptive use of a crop is equal to the crop evapotranspiration less the precipitation amount that is effective for evapotranspiration by the crop, that is, the amount of water that is consumed in the growing of the crop.

Testimony presented at the hearing by the Applicant's witness indicated a consumptive use for crops of 2.5 to 3.2 acre-feet per acre.⁸⁰ The State Engineer's consumptive use estimate for Spring Valley is based on the Penman-Monteith short reference evapotranspiration and crop coefficient approach for estimating growing season crop evapotranspiration. The methods are described by the American Society of Civil Engineers⁸¹ and the Food and Agriculture Organization of the United Nations,⁸² and are for a crop of alfalfa with a growing season from the last killing frost to the first killing frost of 20° F (-6°C).⁸³ The mean annual last and first frost dates for Spring Valley are calculated to be April 16th and October 24th, respectively, using the National Weather Service Shoshone 5N Station (267450) minimum temperature 50-percentile probability at 20° F (-6° C). Using these methods, the State Engineer calculated the crop evapotranspiration during the growing season in Spring Valley to be 38.2 inches per year.

Effective precipitation as defined by the Natural Resource Conservation Service National Engineering Handbook⁸⁴ is the part of precipitation that can be used to meet the evapotranspiration of growing crops. Using the mean monthly precipitation for the period of record at the Shoshone 5N Station (267450) as reported by the Western Regional Climate Center, the calculated mean monthly effective precipitation during the growing season and a soil water balance during the non-growing season is 4.3 inches per year.

⁸⁰ Transcript, pp. 513 – 515; Exhibit No. 503, pp. 2.4 & 2.5.

⁸¹ State Engineer's Office, The ASCE Standardized Reference Evapotranspiration Equation, 2005.

⁸² State Engineer's Office, Crop Evapotranspiration: Guidelines for Computing Crop Water Requirements, 1998.

⁸³ State Engineer's Office, Evapotranspiration and Consumptive Irrigation Water Requirements for Idaho, 2006.

⁸⁴ State Engineer's Office, Irrigation Water Requirements, 2003.

The State Engineer finds that by using a crop evapotranspiration rate of 38.2 inches per year with an effective precipitation rate of 4.3 inches per year, the annual consumptive use of irrigated areas in Spring Valley is 33.9 inches (2.8 feet) per year, being 70 percent of the established duty of 4.0 acre-feet per acre annually.

Using the above findings for supplemental ground-water rights and consumptive use, the total committed ground-water rights in the Spring Valley Hydrographic Basin are as follows:

Method of Use	Annual Duty (acre-feet)	Consumptive Use (acre feet)
Irrigation – non-supplemental	9,831	6,882
Irrigation – supplemental	6,751	
Irrigation – supplemental (effective duty of 3,362 AF)		2,353
Mining/Milling	1,361	1,361
Quasi-Municipal	79	79
Stock water	393	393
Wildlife	20	20
Domestic	40	40
Total	18,475	11,128

XXIV.

IMPACTS TO EXISTING RIGHTS

Nevada Revised Statute § 533.370(5) provides that the State Engineer shall reject an application where the proposed use conflicts with existing rights. Water rights that could potentially be adversely affected by the proposed applications include both ground-water rights and surface-water rights originating as springs on the valley floor or valley margins. Surface-water rights with points of diversion within the mountain block are not likely to be measurably affected by the proposed project. Water-level drawdown will occur in a cone of depression around the pumping wells, which will eventually coalesce, resulting in wide-spread water-level declines. The Applicant did offer expert witnesses in hydrogeology; however, none of those witnesses presented any testimony or evidence pertaining to the magnitude or timing of water-level declines, decrease in spring flows, or impacts to existing rights. A ground-water flow model presented by the Applicant was completed for steady-state conditions only and was deemed unsuitable for predictive simulations.⁸⁵ Protestants' expert witness Dr. Myers completed

⁸⁵ Transcript, pp. 1345 – 1456.

a predictive ground-water flow model to evaluate future effects from pumping.⁸⁶ The model results indicate water-level declines throughout the southern portion of the valley of up to 100 feet or more after 100 years of pumping based on an annual recharge of 75,000 acre-feet and the pumping of the full amount applied for by the Applicant of 90,000 acre-feet annually.⁸⁷ The Applicant raised questions concerning the data used in Dr. Myers' model construction, conceptual accuracy and scale of the model, and testified that model results are uncertain and should be discounted.⁸⁸ The State Engineer finds that the Dr. Myers' model results may overestimate water-level decline, particularly over long periods of time, because in Dr. Myers' model recharge is less than the amount pumped. In essence, Dr. Myers' model simulations have a water budget deficit and steady state conditions cannot be reached until the deficit is made up by inflow from outside the modeled area. A decline in water levels always occurs when a new pumping stress is applied and water levels will continue to decline as transitional storage is removed until steady state conditions can be reached. The magnitude of transitional storage depletion and ground-water decline are dependent on the location and magnitude of pumping, the location and magnitude of natural inflow and outflow, and the hydraulic properties of the aquifers; thus, a water-level decline alone is not grounds for rejection of a water right application. Nevertheless, the State Engineer finds the effects of pumping of the subject applications could potentially result in significant water-level decline.

Applications 54016, 54017, 54018, and 54021 are located on the Cleve Creek alluvial fan. Distributed around the eastern toe of the fan there are 12 claims of vested spring rights, which total 9,600 acre-feet annually for the irrigation of 2,400 acres. Much of the land is sub-irrigated and the actual discharge of the springs is difficult, if not impossible, to measure due to the physical characteristics of the springs. None-the-less, the claims of vested rights are for all of the flow being discharged from the springs along the toe of the Cleve Creek alluvial fan. The Applicant proposes to pump 28 cfs (20,270 acre-feet annually) from points of diversion upgradient of the existing vested claims. Under questioning from the State Engineer, the Applicant's witness D'Agnese testified that there is insufficient data to determine either how much pumping might impact the claims of vested rights or how extensive those impacts might be.⁸⁹ Absent any presented evidence, the State Engineer must make a determination on potential conflicts based on past experience and professional judgment. The State Engineer finds that pumping under Applications 54016, 54017, 54018, and 54021 will impact existing spring rights at the Cleve Creek alluvial fan.

⁸⁶ Exhibit No. 3001.

⁸⁷ *Id.* at 4.

⁸⁸ *See generally*, Testimony of D'Agnese, Transcript, pp. 1316-1456.

⁸⁹ Transcript, pp. 1428 – 1434.

The State Engineer finds that the remaining applications under consideration are in locations where the monitoring and mitigation plan that will be required as a condition of the approval will provide early warning for potential impacts to existing rights and also will provide for mitigation if unforeseen unreasonable impacts occur.

XXV.

PROTECTIBLE INTEREST IN EXISTING DOMESTIC WELLS

Nevada Revised Statute § 533.370(5) provides that the State Engineer shall reject an application and refuse to issue the permit where the proposed use of the water will conflict with protectible interests in existing domestic wells as set forth in Nevada Revised Statute § 533.024. Nevada Revised Statute § 533.024 provides that it is the policy of this State to recognize the importance of domestic wells as appurtenances to private homes, to create a protectible interest in such wells and to protect their supply of water from unreasonable adverse effects which are caused by municipal, quasi-municipal or industrial uses and which cannot be reasonably mitigated. The State Engineer finds that no evidence was presented which demonstrated with any certainty there would be unreasonable adverse effects to any specifically identified domestic well and it is not possible in this case to know in advance with any certainty that such impacts will occur and could not reasonably be mitigated. The State Engineer finds that if once the project is developed and unreasonable adverse effects are seen in any domestic well the Applicant will be required to mitigate the impacts in a timely manner.

XXVI.

PUBLIC INTEREST NRS § 533.370(5)

Nevada Revised Statute § 533.370 provides that the State Engineer must reject an application if the proposed use of the water threatens to prove detrimental to the public interest. More and more protestants are using this statutory provision to argue why an application should be denied and applicants are using it to argue their project is in the public interest; therefore, the application should be granted.

Only one Nevada Supreme Court case addresses this statutory criterion. In what is commonly known as the Honey Lake case,⁹⁰ the State Engineer found that the Nevada Legislature has provided substantial guidance as to what it determines to be in the public interest and identified thirteen policy considerations contained in Nevada water statutes (NRS chapters 533, 534 and 540) and also indicated that Nevada water law identified other principles that should also serve as guidelines in the determination of what constitutes "the public interest" within the meaning of NRS § 533.370. He found that it was in the public interest to facilitate the augmentation of the water supplies of the Reno-Sparks and North Valleys areas because of their declining water tables, so

⁹⁰ *Pyramid Lake Paiute Tribe v. Washoe County*, 112 Nev. 743 (1996).

long as the other public interest values were not compromised or could be mitigated.

On appeal, the Appellants contended that the State Engineer's failure to include economic considerations, such as whether the proposal was economically feasible or an analysis of alternatives, in the public interest guidelines was a dereliction of duty. The Appellants referenced the statutes of other states to indicate the types of issues they believed should be encompassed in the analysis of whether the use of the water as proposed would threaten to prove detrimental to the public interest. However, the Nevada Supreme Court held that it could find no indication that Nevada's legislature intended the State Engineer determine public policy in Nevada by incorporating another state's statutes and vesting the State with the authority to re-evaluate the political and economic decisions made by local government. The Court held that the Nevada Legislature, presumably aware of the broad definition of the public interest enacted by other states (particularly Alaska and Nebraska), demonstrated through its silence that Nevada's water law statutes should remain as they have been for over forty-five years.

Only two other courts have specifically considered the meaning of Nevada's public interest criterion. The first case addressed State Engineer's Ruling No. 4848, pursuant to which the State Engineer was considering water right applications for the use of water at a nuclear waste storage facility. In the ruling, he found that the Nevada Legislature had determined the public interest through its determination of policy in the enactment of NRS § 459.910, which provides that it is unlawful for any person or governmental entity to store high-level radioactive waste in Nevada. The State Engineer held pursuant to that statutory provision that the Nevada Legislature had already determined that the use of water applied for threatened to prove detrimental to the public interest and denied the applications. The Federal District Court for the District of Nevada overturned the State Engineer's decision focusing its reasoning on the grounds that NRS § 459.910 is not a Nevada water law statute, either substantive or procedural.⁹¹

The second opinion addressing the criterion was from the Ninth Circuit Court of Appeals in *United States v. Alpine Land & Reservoir Co. (County of Churchill v. Ricci)*, 341 F.3d 1172 (9th Cir. 2003). In that case, the United States Fish and Wildlife Service (Service) had filed eight applications to transfer 2,855 acre-feet of water from irrigation use to the Stillwater National Wildlife Refuge to maintain wetland habitat. The transfers were in furtherance of a water right acquisition program that instructed the Service to acquire 75,000 acre-feet of water to fulfill the congressional directive set forth in Section 206(a) of Public Law 101-618, 104 Stat 3289. Churchill County and the City of Fallon had protested the applications on the grounds that the State Engineer should study the cumulative effect on the public interest of the entire acquisition program and not just the eight applications that were currently before him for decision. The Ninth Circuit Court of

⁹¹ See, *United States v. Nevada*, CV-S-00-268-RLH (LRL) (D. Nev. 2003).

Appeals held that the State Engineer has broad discretion under Nevada law to determine whether the use of water as proposed under an application will threaten to prove detrimental to the public interest. The Court noted that the Nevada Legislature has not provided an explicit definition of what constitutes a threat to the public interest under NRS § 533.370(3) [now 533.370(5)], but held that the State Engineer's authority is limited to considerations identified in Nevada's water policy statutes.

To determine whether the use of water under these applications threatens to prove detrimental to the public interest, the State Engineer reviews how other State Engineers interpreted this provision of the law and finds that during the 1940s and 1950s the focus of the rulings was development of water resources and prevention of conflicts with existing rights. During these decades the public interest criterion was almost always tied to other statutory criteria such as water availability and impairment to existing rights.

Throughout the 1960s whether the use of water would threaten to prove detrimental to the public interest was still almost always tied to another provision of Nevada water law. Applications were denied because the applicant could not demonstrate the ability to apply the water to beneficial use; therefore, granting the application would threaten to prove detrimental to the public welfare. Applications in Pahrump were denied on the grounds that the Pahrump Fan was fully appropriated; therefore, granting the application would impair the value of existing rights and be detrimental to the public welfare. Also, applications were denied where a water purveyor under the provisions of NRS § 534.120 could supply water to the applicant, and to grant a water right under those circumstances would threaten to prove detrimental to the public welfare.

The analyses did not change much during the 1970s except rulings now denied applications where the use of the water conflicted with a basin designation order; therefore, granting the application would be detrimental to the public interest. Additionally, applications were denied where use of the water would create a cone of depression that would potentially draw in nearby poor quality water; therefore, the State Engineer determined that use would conflict with existing rights and be detrimental to the public welfare.

Environmental issues were also coming to the forefront in the 1970s. For example, in 1974 the Federal District Court for Nevada decided the case of *United States v. Cappaert*, 375 F. Supp. 456 (D. Nev. 1974) pursuant to which it found that pumping of ground water in the area of concern was jeopardizing the survival of an endangered species because it was lowering the water level below the ledge where the endangered species bred. It found that the United States had shown the public interest lies in the preservation of endangered species. "Congress, state legislatures, local governments and citizens have all recently voiced their expression for the preservation of our environment, and the destruction of the Devil's Hole pupfish would go clearly against the theme of

environmental responsibility.”⁹²

As we entered the 1980s, the rulings began to demonstrate a concern about areas of the state where issued or applied for water rights exceeded the estimated water availability and, during this period, analyses of the public interest criterion began to make significant changes. In Little Fish Lake Valley, a change application from mining and milling to irrigation was denied on the grounds that water levels were declining, water rights exceeded the availability of water in the source, irrigation was not a preferred use and the right sought to be changed had been issued as a temporary use. The State Engineer held that it would not be in the public interest to allow a preferred use to be changed to a non-preferred use within a designated basin as it would adversely affect existing rights. In State Engineer’s Supplemental Ruling No. 2776, the State Engineer found that:

The water law does not specifically define what criteria the State Engineer must follow in determining whether the act of appropriating or changing the point of diversion of existing water rights is “detrimental to the public interest or welfare.” The State Engineer therefore must exercise discretion in his interpretation under the express authority granted in law. The State Engineer must, to the extent possible, make a factual determination of all interests involved in any particular appropriation or change of existing rights. It is not unusual that more than one public interest is determined or defined. Some interests may ultimately outweigh others.

In Steptoe Valley, the State Engineer designated the preferred use for industrial purposes and found that:

The arid conditions that prevail in the state of Nevada dictate that this vital resource be allocated to the most reasonable and economic use and that the public interest and welfare be an integral part of any determination in reaching these decisions. That interest and welfare extends to the protection of the existing rights which is mandated by statute as well as the wants and necessities of the state and local areas. The State Engineer in many cases is simply faced with weighing one public interest against another in reaching a decision especially when competitive beneficial uses are at issue.

Based on that analysis of the public interest, the State Engineer designated the preferred use of water in Steptoe Valley to be industrial, denied senior applications pending for irrigation purposes under Desert Land Entry or Carey Act entries and granted the junior applications of White Pine County for industrial purposes (power plant). The main thrust of White Pine County’s testimony and evidence had been directed towards the critical economic conditions faced by the County and the relationship of that economy to the power project. The State Engineer found a vital public interest associated with White Pine County’s applications and granted the applications,

⁹² 375 F. Supp. at 460.

which were for a significant quantity of water (25,000 acre-feet annually) with the conditions of a substantial monitoring program and a companion study program. The primary objective of the monitoring program was early detection of any adverse effects of large ground-water withdrawals to satisfy the legitimate concerns of the Protestants. Finally, he noted that Nevada water law allows for a reasonable lowering of the water table at the appropriator's point of diversion and found that should the withdrawal of the large quantity of ground water to support the power project result in some adverse effects on ground-water levels in Steptoe Valley, there would have to be a determination made as to whether that lowering is reasonable. The State Engineer noted the law requires the protection of existing rights, but not the unreasonable protection.

The 1990s saw interpretations very similar to the decades that preceded it. In the Supplemental Ruling on Remand in the Honey Lake case referenced above, the State Engineer set forth for the first time the criteria he found in Nevada water law for assessing whether the use of water as proposed under those applications threatened to prove detrimental to the public interest. But he also made public interest findings on issues that were not identified in that list and made findings of what was in the public interest. He decided that to allocate resources to reasonable and economical uses was in the public interest, so long as other public interest values were not unreasonably compromised or could be mitigated. But he also found that it would threaten to prove detrimental to the public interest to impair the endangered or threatened species in the area or degrade the quality of the water in the Truckee River. He found that even though there would be minimal loss of wetlands that there was an overriding public interest value to put the water to its highest and best use by allowing the water to be exported for municipal use.

In 1992, the State Engineer denied applications that were filed for a large quantity of water for municipal purposes to be used in every populated area in western Nevada on the grounds that it would threaten to prove detrimental to the public interest to grant applications where the applicant had not provided information on its financial ability to construct the project, and had failed to provide information that it had even begun studies to determine whether the water was available, cost to capture the water or whether there was a potential buyer for the water. All which are notably statutory criteria. He also found that it would threaten to prove detrimental to issue permits on applications acquired for the purpose of speculation.

The State Engineer has found that socioeconomic issues, such as decreased property values, loss of county tax base, and unemployment, related to changing 20,000 acre-feet of water from irrigation to wetlands were properly addressed in the required comprehensive planning process rather than under the public interest criterion found in Nevada water law and that the enforcement of land development guidelines was beyond the State Engineer's statutory authority.

In a ruling on appropriating water from the carbonate-rock aquifer, the State Engineer stated that even though it was unknown what quantity of water could be taken out of the carbonate-rock aquifer, there were adequate safeguards in place by the way of monitoring sites to give an early warning before any environmental damage was done or before the pumping decreased the flow in the Muddy River Springs. The State Engineer concluded that to meet the growing demands for electricity in southern Nevada the use of the water as proposed would not threaten to prove detrimental to the public interest. The first decade of the 21st century brought significant new challenges to Nevada. The population had been growing exponentially and fears of power shortages were resonating throughout the Western United States. Addressing these challenges, the State Engineer made his interpretations as to whether the use of water as proposed under an application would threaten to prove detrimental to the public interest. Like his predecessors his rulings mainly focused on the standard statutory criteria and public interest decisions were tied closely to those criteria; however, he also had to balance economic and growth concerns for the state against the environmental issues of concern.

This historical review points to a consistent thread throughout the decisions, that being, violating specific statutory provisions of Nevada's water law threatens to prove detrimental to the public interest. The State Engineers' expressions of the public interest were that it was important for the highest and best use of waters to be made and development of important industries should be encouraged. However, the State Engineer must exercise discretion in his interpretation under the express authority granted in law and must look at all the interests involved as to any particular appropriation and balance them, but that the wants and necessities of the state should be weighed against local interests. The public interest analysis included looking at the benefits of a project, protection of threatened or endangered species, and protection of the quality of water sources, but indicated that water should be allocated to reasonable and economic use, so long as other public interest values will not be unreasonably compromised. Even though some wetlands habitat might be lost there is an overriding public interest value in putting water to its highest and best use by allowing water to be exported for municipal use. The State Engineer is not a land use planner and history has indicated that water resources should be developed, but cautiously, as it would threaten to prove detrimental to the public interest to allow large scale development of water resources to go forward in support of municipal development when the confidence in predictions as to water availability long-term without damaging impacts is low and dire consequences could result. That it is important to encourage the development of the resources to their reasonable and economic use is demonstrated in the legislative policy found in NRS § 540.011(1), which provides that besides protecting existing rights it is also the policy of the state to encourage efficient and non-wasteful use of the state's limited supplies of water resources. In granting water rights in resources where it is not known if there will be impacts, but there is a concern there might be, the State Engineers'

decisions have reflected a policy that the water belongs to the public and subject to existing rights may be appropriated, but development of the resources should be done in conjunction with significant monitoring and mitigation, if necessary.

The State Engineer finds the analysis of whether the use of water for a proposed project threatens to prove detrimental to the public interest must be addressed on a case-by-case basis. The State Engineer finds the statutory criterion, like beneficial use, is a dynamic concept changing over time, particularly as the Nevada Legislature provides more guidance as to the issues of importance. As addressed below in the next section of this ruling, since the Honey Lake case, the Nevada Legislature in 1999 provided the State Engineer with the additional statutory criteria found in NRS § 533.370(6) to consider whether the use of water in an interbasin transfer project, such as the one requested here, would threaten to prove detrimental to the public interest.

The State Engineer finds in this case that the Applicant has applied for water that belongs to the public at large. The Applicant has demonstrated a need for the water and a beneficial use for the water and it does not threaten to prove detrimental to the public interest to allow the use of the water for reasonable and economic municipal uses in the service area of the members of the Southern Nevada Water Authority. The State Engineer recognizes the critical nature between the limitations of the Applicant's current water resources and the increasing demands based on projected population growth. The State Engineer recognizes that existing rights must be protected as well as a concern for the wildlife and maintenance of wetlands and fisheries; therefore, the State Engineer finds, as addressed in later sections of this ruling, it would threaten to prove detrimental to the public interest to allow the resource to be developed without significant monitoring and additional study. The State Engineer finds the springs and streams upon which water rights exist and wildlife depend on must be protected. The Applicant has demonstrated the approximate number of persons to be served and the approximate future requirements of water supply. The Applicant has demonstrated the ability to finance the project and has demonstrated a capability to develop large water projects. Also, the Applicant has demonstrated its willingness to significantly monitor its ground-water development. The Applicant has demonstrated the benefit to all of Nevada from the proposed appropriations and under these circumstances the State Engineer finds the proposed use of the water does not threaten to prove detrimental to the public interest as limited in later sections of this ruling.

XXVII.

INTERBASIN TRANSFERS NRS § 533.370(6)

Nevada Revised Statute § 533.370(6) provides that in determining whether an application for an interbasin transfer of ground water must be rejected, the State Engineer shall consider: (1) whether the applicant has justified the need to import the water from another basin; (2) if the State Engineer determines a plan for conservation of water is advisable for the basin into which the water is imported, whether the applicant has demonstrated that such a plan has been adopted and is being effectively carried out; (3) whether the proposed action is environmentally sound as it relates to the basin from which the water is exported; (4) 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 (5) any other factor the State Engineer determines to be relevant. The State Engineer finds that NRS § 533.370(6) provides the State Engineer with the guidelines to be used in determining whether the use of water under an interbasin transfer threatens to prove detrimental to the public interest.

XXVIII.

NEED TO IMPORT THE WATER

The State Engineer finds as addressed in Section VI of the Findings of Fact that the Applicant has justified the need to import water from another basin.

XXIX.

CONSERVATION PLAN

Nevada Revised Statute § 533.370(6) provides that in determining whether an application for an interbasin transfer of ground water must be rejected the State Engineer is to consider whether a plan for conservation of water is advisable for the basin into which the water is imported and whether the applicant has demonstrated that such a plan has been adopted and is being effectively carried out. Additionally, some of the Protestants alleged that the approval of the applications would sanction and encourage the willful waste and inefficient use of water in Las Vegas Valley and that the applications should be denied because the per capita water consumption rate for the Las Vegas area is far above that of similarly situated southwestern cities.

In Las Vegas, the role of conservation has been critical to the region's water-planning efforts. In 1990, the local water and wastewater agencies completed an extensive supply and demand projection process that resulted in public realization that the region would run out of water in 15 years even with conservation. The need for conservation was quickly acknowledged by the public and widespread conservation efforts began in the summer of 1991. Creation of artificial lakes was banned, water waste ordinances were adopted, and lawn watering was restricted during the hotter time of the day. To begin the shift to water-conserving rates, local water purveyors switched from flat rates to increasing block rates.

With the formation of the SNWA in 1991, the first long-term coordinated conservation efforts began among local purveyors. Using 1990 as a base year and building on a recommendation from its integrated resource planning process of the mid-nineties, the SNWA established a goal of 25 percent conservation by 2010. . . . At that time, the SNWA purveyor members also agreed to follow a series of conservation “best management practices” published by the Bureau of Reclamation. . . . Southern Nevada made consistent progress towards its conservation goals through the 1990s . . . In 2002, as drought conditions in the Colorado River Basin became more severe, the SNWA member agencies recognized that a more immediate and actionable community response was necessary. As a result, the conservation strategic planning effort evolved to address drought conditions and ultimately set the stage for development of the SNWA Drought Plan. . . . Following the implementation of the Drought Plan in 2003, conservation and drought saving rebounded with a 23.1 percent saving for that year. A year later, the community surpassed the 25 percent conservation goal set in 1996 – a full six years ahead of schedule. The SNWA anticipates conservation will remain above the 25 percent conservation goal for 2005.⁹³

Further activity towards conservation in the Las Vegas Valley has encompassed regulation through land use codes and ordinances to promote a more effective use of water, water pricing, incentive programs, water smart landscape rebate programs, as well as other programs as noted in the 2006 Water Resource Plan.⁹⁴ The Integrated Water Planning Advisory Committee puts water conservation at the top of the planning tools for future resources.⁹⁵ In the Recommendations Report of the Integrated Water Planning Advisory Committee, additional conservation is strongly supported with opinions only varying on the extent to which conservation should be used as a substitute for the completion of in-state water resource projects.⁹⁶

To address the allegation that the approval of the applications would sanction and encourage the willful waste and inefficient use of water in Las Vegas Valley and that the applications should be denied because the per capita water consumption rate for the Las Vegas area is far above that of similarly situated southwestern cities, the Protestants presented a witness that showed the per capita consumption rate for other southwestern cities. The evidence indicates that the single-family residential per capita daily use in Albuquerque is 125 gallons per day, in Tucson it is 114 gallons per day and in Las Vegas Valley it averages 164 gallons per day. The system-wide per capita consumption in Las Vegas Valley is 227 gallons per day, Tucson 137 gallons per day and

⁹³ Exhibit No. 511, p. 17.

⁹⁴ Exhibit No. 511, pp. 18-19.

⁹⁵ Exhibit No. 516.

⁹⁶ Exhibit No. 516, p. 8.

Albuquerque 152 gallons per day.⁹⁷ While the system-wide per capita consumption is certainly lower in those cities, these numbers alone do not provide a complete picture of the actions taken by the members of the Southern Nevada Water Authority to promote conservation nor do they present a complete picture of why the use is different, such as tourism, social economic, metrological and ecological factors.

The State Engineer finds a plan for conservation of water is advisable for the basin into which the water is imported and finds the Applicant has demonstrated that such a plan has been adopted and is being effectively carried out; therefore, the protest claims are overruled. The State Engineer finds no evidence supports the protest claim that the approval of the applications would sanction and encourage the willful waste and inefficient use of water in Las Vegas Valley and the protest claim is dismissed. The State Engineer finds that the comparison of per capita consumption of other southwestern cities to that of Southern Nevada is not an accurate comparison due to the factors impacting per capita consumption and the protest claim is overruled.

XXX.

ENVIRONMENTALLY SOUND

Nevada Revised Statute § 533.370(6)(c) provides that in determining whether an application for an interbasin transfer of ground water must be rejected the State Engineer shall consider whether the proposed action is environmentally sound as it relates to the basin from which the water is exported. The words environmentally sound have intuitive appeal, but the public record and discussion leading up to the enactment of NRS § 533.370(6)(c) do not specify any operational or measurable criteria for use as the basis for a quantitative definition. This provision of the water law provides the State Engineer with no guidance as to what constitutes the parameters of “environmentally sound;” therefore, like the criterion “does the use of the water threaten to prove detrimental to the public interest,” it has been left to the State Engineer’s discretion to interpret the meaning of environmentally sound.

The legislative history of NRS § 533.370(6)(c) shows that there was minimal discussion regarding the term environmentally sound. However, the State Engineer at that time indicated to the Subcommittee on Natural Resources that he did not consider the State Engineer to be the guardian of the environment, but rather the guardian of the state ground water and surface water. The State Engineer noted that he was not a range manager or environmental scientist.⁹⁸ Senator James pointed out that by the language “environmentally sound” it was not his intention to create an environmental impact statement process for every interbasin water transfer application and that the State Engineer’s responsibility should be for the hydrologic environmental impact in the

⁹⁷ Exhibit No. 3064, p. 18.

⁹⁸ Minutes of the February 22, 1999, Subcommittee meeting of the Senate Committee on Natural Resources.

basin of export.⁹⁹ Additional testimony pointed to the fact that the greatest concern was that there would be enough water left in the basin from which the water was exported to ensure that the basin would remain environmentally viable and that it was important to protect the future environment of basins in the rural communities to ensure water would be available for future growth.¹⁰⁰

While there are no definitions of what environmentally sound is, there are examples of what environmentally sound is not, such as the Owens Valley project in California. The State Engineer believes that the legislative intent of NRS § 533.370(6)(c) was to protect the natural resources of the basin of origin and prevent a repeat of the Owens Valley while at the same time allowing for responsible use of the available water resources by the citizens of Nevada.

In the State Engineer's Intermediate Order No. 4, the State Engineer addressed the Applicant's motion to dismiss or limit the State Engineer's review of any protest claim that addresses whether the proposed transfer is environmentally sound. The State Engineer noted that the protest claims addressed issues such as threatened and endangered species, destruction of environmental, ecological, scenic and recreational values held in trust for the citizens, and purposes for which the lands are managed under the Federal Land Use Policy and Management Act. In its motion, the Applicant asserted that the State Engineer is not required to duplicate the environmental review that other state and federal agencies are obliged to complete under state and federal law. In Intermediate Order No. 4, the State Engineer found that the legislation was not intended to create an environmental impact process and that care needed to be taken to avoid requirements that would be duplicative of Environmental Impact Statements. The State Engineer found that NRS § 533.370(6)(c) requires the State Engineer to consider environmental issues; however, the perspective he is to focus on is that of hydrologic issues. Therefore, as State Engineers have done with the public interest criterion, the State Engineer turns to the water law to define the parameters of whether the use of the water is environmentally sound for the basin of origin. The State Engineer finds this means whether the use of the water is sustainable over the long-term without unreasonable impacts to the water resources and the hydrologic-related natural resources that are dependent on those water resources.

Environmental consideration for wildlife is found in NRS § 533.367, which provides that before a person may obtain a right to the use of water from a spring or water that has seeped to the surface of the ground, he must ensure that the wildlife which customarily uses the water will continue to have access to it. While this provision of the water law does not specifically apply to an appropriation of ground water, it is a clear demonstration of the public interest in that the sources of water for wildlife remain accessible and viable.

⁹⁹ *Ibid.*; Minutes of the March 8, 1999, Subcommittee meeting of the Senate Committee on Natural Resources.

¹⁰⁰ Minutes of the April 21, 1999, Subcommittee meeting of the Senate Committee on Natural Resources.

Nevada Revised Statute § 534.020 provides that it is the intention of the Nevada Legislature to prevent the pollution and contamination of the ground water and empowered the State Engineer to take action to prevent that pollution. Pollution of the ground water would be considered to be environmentally unsound; therefore, in allowing for appropriating water, the State Engineer must take into consideration whether the extent of the pumping could draw non-potable water into a drinkable water supply.

Another issue as to whether the use of the water is environmentally sound is the resulting ground-water level decline from the ground-water pumpage. The development of ground water from a hydrologic basin with ET occurs through the capture of the ET by ground-water pumpage and a lowering of the ground-water levels. Nevada Revised Statute § 534.110(4) provides that it is a condition of each appropriation of ground water that the right must allow for a reasonable lowering of the static water level at the appropriator's point of diversion. Water-level decline in and of itself is not environmentally unsound, rather it is the effects of water-level decline on the hydrologic-related natural resources that must be considered.

Plant communities are always in a natural state of transition given naturally occurring environmental conditions and it is clear that if there was a decline in the ground-water table there would be a change in the existing ground-water dependent plant community. However, the type of plant community change and the time frame over which this transition would occur are unknown and change is not inherently unacceptable. There are many hydrologically related parameters which are part of a viable ecosystem, including the area of vegetative cover and vegetative density in this area. The ecological impact to the ecosystem from the transition of a ground-water dependent ecosystem to a precipitation-dependent ecosystem is unknown. However, while it is evident that rainfall and ground-water dependent plant communities can exist in an area with similar ET and precipitation, there was no evidence or testimony presented which supported the concept that a plant community can transition from a ground-water dependent to precipitation-dependent without significant impacts to that ecosystem.

The State Engineer finds that in consideration of whether the proposed project is environmentally sound there can be a reasonable impact on the hydrologic related natural resources in the basin of origin. The State Engineer finds by requiring the collection of biological and hydrological baseline data, by requiring a significant monitoring and mitigation plan, and by requiring a staged development and associated studies there are sufficient safeguards in place to ensure that the interbasin transfer of water from Spring Valley will be environmentally sound.

XXXI.

LONG-TERM USE BASIN OF ORIGIN

Nevada Revised Statute § 533.370(6) provides that in determining whether an application for an interbasin transfer of ground water must be rejected, the State Engineer shall consider 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. Protestants claim the applications should be denied because removal of the water will adversely impact economic activity such as agriculture, power generation and transmission, mineral extraction, manufacturing, tourism and concentration of population. That in modern periods of drought there is insufficient water which creates hardships on cattlemen in that grazing areas do not have sufficient feed, surface waters are insufficient for irrigation and stock watering, water tables are lowered making it more difficult and expensive to pump water, and this effects economic value. If drought creates this many hardships, it is alleged that continual removal of the perennial yield will destroy ranching. Finally, it is alleged that granting the applications in the quantity requested, that is for all the unappropriated water in the basin, will adversely affect agricultural operations in that it will affect the economic value of all farms and ranches, it will destroy the environmental balance thereby destroying grazing lands, wetlands, and farm lands and it will halt all potential agricultural growth.

The Protestants provided a report titled Estimation of Economic Impacts of the Agricultural and Recreational Activities in Spring Valley Area, White Pine County: An Application of Input-Output Analysis.¹⁰¹ This report does not provide any analysis that addresses 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. A witness for the Protestants, Mr. Harris, noted that White Pine County has been a boom/bust county and notes that growth is variable and could include ranges.¹⁰² Testimony indicated that one of the main economic engines for White Pine County is the export price of gold along with alfalfa hay and cattle and when you discuss long-term growth and development it must be recognized that you have to look at scenarios, such as the economic impact if gold is \$800/ounce vs. \$200/ounce.¹⁰³ It was indicated that in rural areas, because of this boom/bust cycle, they are trying to diversify their economies to mitigate these

¹⁰¹ Exhibit No. 3063.

¹⁰² Transcript, pp. 1802 - 1810.

¹⁰³ Transcript, pp. 1816 - 1817.

variabilities, but it is very tough.¹⁰⁴ The testimony indicated that rural areas are very difficult areas in which to do economic forecasts,¹⁰⁵ but there are many different ways to expand the economy of the area, for example, improving telecommunications through broadband.¹⁰⁶

The Protestants provided testimony and evidence through White Pine County's economic diversification coordinator to address potential future growth in Spring Valley. That evidence included the White Pine County Water Resource Plan, which looks at a 50-year planning process (2006-2056).¹⁰⁷ Of note, was the testimony that indicated historically the economy of White Pine County has been a natural resource economy, that being mining and ranching.¹⁰⁸ After the closing of the Kennecott mine in 1978 and the smelter in 1983, the County in attempting to diversify its economy looked to tourism, which is based on natural resources and outdoor recreation.¹⁰⁹ In recent years, the County has seen growth in summer and retirement homes.¹¹⁰ Testimony was provided about growth in White Pine County in Steptoe Valley, which indicated that the County did see a growth in population of 3.4 percent, growth in housing, assessed valuation and firms doing business in 2006. Testimony also indicated the County is working on power plant projects and energy projects that require water, such as seed oil crops for biofuels.¹¹¹

Additional testimony directed specifically towards Spring Valley indicates that the economic activity in the valley consists mostly of ranching activity that includes irrigated cropland for alfalfa and livestock production, and recreational use such as hunting and fishing and visits to federal lands and Great Basin National Park. The County Assessor's records indicate that 16.22 percent of the total agricultural property in the county is in Spring Valley with alfalfa production generating \$2.6 million dollars annually or 37.94 percent of the total alfalfa hay production in the county. Spring Valley represents 20 percent of the county's cattle production for an economic contribution of approximately \$1.38 million dollars annually. The valley accounts for 30 percent of the sheep production in the county and several million dollars of economic activity is generated by recreational activities.¹¹² The testimony indicated that the future economic growth in Spring Valley would relate to the potential for additional agricultural development, residential

¹⁰⁴ Transcript, p. 1817.

¹⁰⁵ Transcript, p. 1818.

¹⁰⁶ Transcript, p. 1821.

¹⁰⁷ Transcript, pp. 1723-1725.

¹⁰⁸ Transcript, p. 1728.

¹⁰⁹ Transcript, pp. 1728-1729.

¹¹⁰ Transcript, p. 1729.

¹¹¹ Transcript, pp. 1729-1731.

¹¹² Exhibit No. 3054.

development and tourism with a potential for mining and related processing. The witness indicated a belief that water is needed to support environmental quality, wildlife populations, and plant communities to maintain scenic beauty so important to outdoor recreational activities.¹¹³

The testimony and evidence provided indicates from the assessor's records there is 40,406 acres of agricultural property and 3,132¹¹⁴ acres taxed as single-family residences, but all are not occupied.¹¹⁵ Of these 3,132 acres many are large parcels that could be divided into five-acre parcels.¹¹⁶ Of note, the White Pine County Water Plan does not provide any indication of anticipated water needs for future growth in Spring Valley.¹¹⁷ If all 3,132 acres were divided into 5-acre parcels there would be 626 new single-family residences and, if each was estimated to use the 2.02 acre-feet per acre, which is the annual figure allotted by the State Engineer as the amount for domestic well use, particularly on a larger parcel, then 1,265 acre-feet annually would be needed for future growth.

The Applicant provided testimony that was a review of the Protestants' analysis of the long-term growth of the Spring Valley basin (the Harris Report Exhibit No. 3063) and agreed that the Protestants' witness is probably one of the most knowledgeable people on rural economics in the state of Nevada.¹¹⁸ The criticism of the Harris Report was that it tended to look at agriculture and tourism related industries in the absence of other activities that may or may not occur in the region. It was making the assumption of impact to industries that presently exist without looking at the other side of the equation, which is what type of additional growth impetus there might be. The Applicant's witness indicated that the Harris Report presupposes there is going to be some factor that results in the agriculture or tourism portion of the economy declining, but does not factor in that the project is a major construction project, and such projects have a tendency to have significant positive impact in terms of employment, wages and related factors. The Applicant's witness agreed with Dr. Harris that far more research is necessary in order to take a look at the entirety of the question.¹¹⁹

The Applicant submitted Exhibit No. 528, the Nevada County Population Projections for 2004 to 2024, which was prepared by the Nevada State Demographer's Office for the Nevada Department of Taxation. It predicts that Clark County will have over 2,751,082 people by 2024, and White Pine County will have lost population every year with approximately 1,500 fewer people residing in the county in 2024 than currently reside there in 2004.

¹¹³ Transcript, p. 1734.

¹¹⁴ The State Engineer notes later testimony indicated 3,162 acres of private land taxed as single-family residences.

¹¹⁵ Transcript, pp. 1740-1741; Exhibit No. 3054.

¹¹⁶ Transcript, p. 1752.

¹¹⁷ Transcript, pp. 1742-1743.

¹¹⁸ Transcript, p. 252.

¹¹⁹ Transcript, pp. 252-254.

Legislative history does not assist the State Engineer in determining the time frame the Legislature was contemplating under this statutory provision, whether it be 10 years, 30 years or 75 years. It was noted that population projections do a good job of predicting the future based on the past, but it is not always an accurate prediction of the future, as has been seen in the inability of Southern Nevada to accurately predict its own population growth. Testimony was provided that disagreed with the demographer figures and called into question the accuracy of their long-term predictions.¹²⁰ A number of unforeseen factors could affect future growth in the Spring Valley.

The State Engineer finds a certain quantity of unappropriated water must be left in the basin for future long-term growth, but there is little evidence to support any specific quantity of water. As noted above, if all 3,132 acres of private land were divided into five-acre parcels, this would equate to 626 individual parcels with a domestic use equivalent of 1,265 acre-feet annually needed for the long-term future growth and development of said parcels. However, this does not include other potential future demands such as, but not limited to, commercial, industrial, scenic or recreational uses. There was no substantial evidence or testimony presented at the hearing, which indicated the potential or limit of the future growth within the basin. Therefore, the State Engineer finds that it is reasonable and necessary to leave 10% of the perennial yield of the Spring Valley Hydrographic Basin as unappropriated water for the future growth and development within said basin.

XXXII.

UNAPPROPRIATED WATER

The Protestants allege that the water is not available for appropriation and the quantity requested for appropriation will exceed the safe yield of the area. Mining of ground water is not acceptable and appropriation of this magnitude will lower the water table and degrade the quality of water from existing wells, cause negative hydraulic gradients influences, other negative impacts and adversely affect existing rights and the public interest.

As previously stated, the State Engineer finds the perennial yield of Spring Valley is 80,000 acre-feet annually, committed consumptive use of ground-water rights is 11,128 acre-feet annually, potential future domestic use is 1,265 acre-feet annually, and 10 percent of the perennial yield is 8,000 acre-feet annually. The sum of these existing demands is approximately 20,000 acre-feet annually to meet existing rights and future growth within the basin. Therefore, the State Engineer finds that there is 60,000 acre-feet annually of water available for appropriation and export from the Spring Valley Hydrographic Basin.

¹²⁰ Transcript, pp. 1735-1736.

The State Engineer finds that due to the great uncertainty, and no party's ability to quantify impacts with any degree of certainty, caution is warranted as it cannot definitively be said that there will or will not be unreasonable impacts, if those impacts would continue for an unreasonable period of time if pumping were ceased or if any impacts, reasonable or unreasonable, are environmentally sound. The State Engineer finds, in order to gather the necessary information to more accurately predict the effects of pumping, the development of water will occur in stages in conjunction with a significant monitoring and mitigation plan. If unreasonable impacts from the pumping are seen or are likely, curtailment of pumping will be ordered unless the impacts can be reasonably and timely mitigated. The State Engineer finds that prior to the Applicant exporting any ground-water resources from Spring Valley biological and hydrologic baseline studies shall be completed and approved by the State Engineer.

Evidence submitted by the Applicant indicates that the earliest development of the water resources in the five or six basin In-State Resource Importation Project is 2015.¹²¹ Additionally the Southern Nevada Water Authority 2006 Water Resource Plan submitted by the Applicant indicates that the in-state water resources option is anticipated for use to meet long-term water demands beginning in 2017.¹²²

The State Engineer finds that staged development and monitoring of biological and water resources in the Spring Valley Hydrographic Basin will be as follows:

- A monitoring and mitigation plan consisting of both biological and hydrological parameters shall be approved by the State Engineer.
- A minimum of five years of biological and hydrological baseline data shall be collected by the Applicant after the approval of the monitoring and mitigation plan and submitted to the State Engineer prior to the Applicant exporting any ground-water resources from Spring Valley.
- The initial staged development shall consist of a minimum ten-year period during which time a maximum of 40,000 acre-feet can be pumped in any year. But over a ten-consecutive year period, the pumping must average at least 35,000 acre-feet annually.
- With the exception of incidental uses related to the project, all ground water pumped during the staged development period shall be exported from Spring Valley.
- During the initial staged development period, the Applicant shall file an annual report with the State Engineer by March 15th of each year detailing the findings of the monitoring and mitigation plan.

¹²¹ Exhibit No. 516.

¹²² Exhibit No. 511.

- During the initial staged development period, the Applicant shall update a ground-water-flow model approved by the State Engineer every five years.
- At the end of the staged development period, the Applicant shall submit the updated ground-water flow model with the data obtained during the staged development period and provide predictive results for 10 years, 25 years and 100 years.
- The State Engineer will then make a determination as to whether the remaining permitted amount may be pumped or additional study is necessary.

XXXIII.

FURTHER STUDY/INADEQUATE SCIENTIFIC INFORMATION

Various Protestants allege that further study is needed because the potential effects are impossible to anticipate and they do not want to render Spring Valley into another Owens Valley, the available scientific literature is not adequate to reasonably assure that the proposed diversions will not impact senior rights and water resources, and in as much as an interbasin transfer project of this magnitude has never been considered, it is impossible to anticipate all possible adverse effects without further information and study. Additionally, this project cannot be properly evaluated without an independent, formal and public reviewable assessment.

The State Engineer finds there is nothing in Nevada water law that requires water resource evaluation by an independent entity, but rather that is the responsibility of the State Engineer; therefore, this protest claim is dismissed. The State Engineer agrees additional study is needed. Additional information will be derived through the collection of both biological and hydrological baseline information, the continued development of the approved ground-water model, the staged development of the water resources and the required monitoring plan.

CONCLUSIONS OF LAW

I.

The State Engineer has jurisdiction over the parties and the subject matter of this action and determination.¹²³

II.

The State Engineer is prohibited by law from granting an application to appropriate the public waters where:¹²⁴

- 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.

The State Engineer concludes, based on the findings, there is unappropriated water for export from the basin, there is no substantial evidence the proposed use will conflict with existing rights, except for those rights on the Cleve Creek alluvial fan, there is no substantial evidence that the proposed use will conflict with protectable interests in existing domestic wells, or the use of the water will threaten to prove detrimental to the public interest; thus, under NRS § 533.370(5), the law mandates the granting of the water rights.

III.

The State Engineer concludes the Applicant provided proof satisfactory of its intention in good faith to construct any work necessary to apply the water to the intended beneficial use with reasonable diligence, and its financial ability and reasonable expectation actually to construct the work and apply the water to the intended beneficial use with reasonable diligence.

IV.

The State Engineer concludes that based on the findings that the Applicant has justified the need to import the water from another basin, that an acceptable conservation plan is being effectively carried out, that the use of the water is environmentally sound as it relates to the basin of origin, and that by limiting the amount permitted for appropriation and leaving a portion of the water in the basin of origin that the use of the water will not unduly limit the future growth and development of the basin of origin. Therefore, there is no reason to reject the applications under NRS § 533.370(6) that are being permitted pursuant to this ruling.

¹²³ NRS chapters 533 and 534.

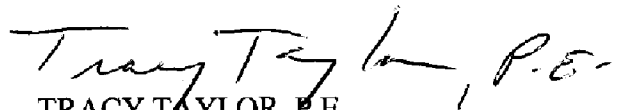
¹²⁴ NRS 533.370(5).

RULING

The protests to Applications 54016, 54017, 54018 and 54021 are hereby upheld in part and the applications are hereby denied on the grounds that approval will conflict with existing rights and would threaten to prove detrimental to the public interest. The protests to Applications 54003, 54004, 54005, 54006, 54007, 54008, 54009, 54010, 54011, 54012, 54013, 54014, 54015, 54019 and 54020 are hereby overruled in part and the Applications are hereby granted subject to:

1. Existing rights;
2. Payment of the statutory fees;
3. A monitoring and mitigation program approved by the State Engineer a minimum of five years prior to the export of any water under these permits;
4. A minimum of five years of biological and hydrological baseline data shall be collected by the Applicant and approved by the State Engineer prior to the Applicant exporting any ground-water resources from Spring Valley under these permits;
5. A minimum ten-year period during which time a maximum of 40,000 acre-feet can be pumped in any one year with a ten consecutive-year average of at least 35,000 acre-feet annually;
6. File an annual report with the State Engineer by March 15th of each year detailing the findings of the approved monitoring and mitigation plan;
7. The total combined duty under Permits 54003, 54004, 54005, 54006, 54007, 54008, 54009, 54010, 54011, 54012, 54013, 54014, 54015, 54019 and 54020 shall be limited to 60,000 acre-feet annually, subject to the staged development guidelines and findings of the initial staged development period;
8. If pumpage impacts existing rights, conflicts with the protectible interests in existing domestic wells as set forth in NRS § 533.024, threatens to prove detrimental to the public interest or is found to not be environmentally sound the Applicant will be required to curtail pumpage and/or mitigate the impacts to the satisfaction of the State Engineer.

Respectfully submitted,


TRACY TAYLOR, P.E.
State Engineer

Dated this 16th day of
April, 2007.

In the Supreme Court of Nevada

CORPORATION OF THE PRESIDING BISHOP OF THE
CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS,
ON BEHALF OF CLEVELAND RANCH,

Petitioners,

vs.

THE SEVENTH JUDICIAL DISTRICT COURT of the
State of Nevada, in and for the County of White
Pine; and THE HONORABLE ROBERT E. ESTES,
Senior District Judge,

Respondents,

and,

JASON KING, P.E., in his official capacity as the
NEVADA STATE ENGINEER, and the NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL
RESOURCES, DIVISION OF WATER RESOURCES, and
SOUTHERN NEVADA WATER AUTHORITY,

Real Parties in Interest.

Electronically Filed
Aug 28 2014 08:13 a.m.
Tracie K. Lindeman
Clerk of Supreme Court

RULE 28(f) PAMPHLET

District Court Case Nos. CV-1204050, CV-1204051, CV-1204052,
CV-1204053, CV-1204054, CV-1204055, CV-0418012, CV-0419012

DANIEL F. POLSENBERG
Nevada Bar No. 2376

JOEL D. HENRIOD
Nevada Bar No. 8492

JUSTIN J. HENDERSON
Nevada Bar No. 13349

LEWIS ROCA ROTHGERBER LLP
3993 Howard Hughes Parkway, Suite 600
Las Vegas, Nevada 89169
(702) 949-8200

DPolsenberg@LRRLaw.com
JHenriod@LRRLaw.com

PAUL G. TAGGART
Nevada Bar No. 6136

GREGORY H. MORRISON
Nevada Bar No. 12454

TAGGART & TAGGART, LTD.
108 North Minnesota Street
Carson City, Nevada 89703
(775) 882-9900

Paul@LegalTNT.com
Greg@LegalTNT.com

GREGORY J. WALCH
Nevada Bar No. 4780

DANA R. WALSH
Nevada Bar No. 10228

SOUTHERN NEVADA WATER AUTHORITY
1001 South Valley View Boulevard
Las Vegas, Nevada 89153
(702) 258-7166

Greg.Walch@lvvwd.com
Dana.Walsh@lvvwd.com

Attorneys for Southern Nevada Water Authority

TABLE OF CONTENTS TO PAMPHLET

Tab / Bates	Ruling/Permit & Issue Date	Basin	Source & Use	Permits Granted in Ruling	Text from Ruling/Permit
1 (1-5)	Permits 35040 - 35043 Issued 7/17/1981	Truckee Meadows	Underground & Quasi- Municipal	no ruling	Permit Terms: "The permittee shall submit a proposal and receive approval from the State Engineer for the first stage of the water use and management procedure before placing water to beneficial use. Water for the second stage and subsequent stages will be dependent upon the State Engineer's determination that: 1. As a result of water use and management during the previous stage: a. There has been no net average long-term depletion of ground water within the place of use. b. Existing surface water and ground water rights have not been adversely affected. If the State Engineer determines that condition 1 has been satisfied, he may approve the next stage of the use and management procedure as proposed. Otherwise, the State Engineer may reject the proposal and refuse to allow further development of water for the procedure."
2 (6-10)	Permit 41674- 41679 Issued 7/22/1981	Truckee Meadows	Underground & Quasi- Municipal	no ruling	Permit Terms: "The permittee shall submit a proposal and receive approval from the State Engineer for the first stage of the water use and management procedure before placing water to beneficial use. Water for the second stage and subsequent stages will be dependent upon the State Engineer's determination that: 1. As a result of water use and management during the previous stage: a. There has been no net average long-term depletion of ground water within the place of use. b. Existing surface water and ground

					water rights have not been adversely affected. If the State Engineer determines that condition 1 has been satisfied, he may approve the next stage of the use and management procedure as proposed. Otherwise, the State Engineer may reject the proposal and refuse to allow further development of water for the procedure."
3 (11-15)	Permit 43401 Issued 10/27/1981	Dayton Valley	Underground & Municipal	no ruling	Permit Terms: "The annual duty of this permit is initially limited to 500 acre feet. At least 4 groundwater monitoring wells are to be located or installed within the general area of the production well under this permit at locations approved by the State Engineer. These monitoring wells must be installed prior to any diversion of groundwater allowed by this permit. The monitoring wells must penetrate at least 75 feet below the existing water table. The annual duty of water allowed by this permit may be raised to a maximum of 1000 acre-feet in stages and as approved and authorized by the State Engineer only after the State Engineer has determined that the additional withdrawal will not adversely affect existing rights or the ground water resource."
4 (16-18)	Permit 45548 Issued 2/21/1984	Elko Segment	Underground/ Geothermal & Commercial	no ruling but subject to findings under Ruling 2850	Permit Terms: "This Permit is restricted to a consumptive use of one-half of 1084 acre-feet annually, or 542 acre-feet annually, until a record is available which shows no adverse effect on the resource or other existing rights"
5 (19-22)	Ruling 2850 Issued 2/22/1984	Elko Segment	Underground/ Geothermal & Commercial	Permit 47043	Page 2: "This permit is restricted to a consumptive use of 268 acre feet per year, 1/2 of the requested amount, until a record is available which shows no adverse effect on the protestant's existing rights."
6	Permit 47252	Elko Segment	Underground/	no ruling	Permit Terms: "This permit is restricted to a consumptive use of 543 acre-feet per

(23-26)	Issued 5/3/1984		Geothermal & Commercial		year, 1/2 of the requested amount, until a record is available which shows no adverse effect on existing rights"
7 (27-66)	Ruling 2989 Issued 7/18/1984	Pleasant Valley	Underground & Quasi- Municipal	Permits 47127- 47132	Page 24: "The State Engineer finds, after detailed review and consideration of the record, that by placing conditions on the use of wells through phased development, a record can be developed on a phase-by-phase basis that will demonstrate whether use by the applicant can be made without material adverse effects. The State Engineer makes this finding with caution and with the understanding that the provisions of NRS 278, NRS 278A and NRS 117 will require that the applicant demonstrate the reliability of the sources of water and that the development of those sources will not adversely affect existing rights." Page 31: "Applications to Change 47133 through 47138, inclusive, and 47127 through 47132, inclusive, can be approved under conditions and terms consistent with a phased development of the Galena Resort project. The applicants bear the responsibility of demonstrating the conservation and efficiency set forth in the record. Initial approval will be limited to phase I of the development and the applicants should clearly understand that the State Engineer will require additional evidence or may set additional public hearings for the purpose of receiving additional evidence consistent with the findings and conclusions of this ruling and statutory water quantity review required under the provisions of NRS 278, NRS 278A and NRS 117." Page 31-32 (Ruling Section): "The total annual combined duty is limited to 1,000 acre-feet. Initial combined diversion of water shall not exceed 500 acre-feet annually until such time as the applicant demonstrates that the source of water can sustain the yield necessary to support additional phased development and

					without interference or adverse effects on existing rights."
8 (67-87)	Ruling 3467 Issued 10/22/1987	Brady's Hot Springs Area	Underground/ Geothermal & Industrial	Permits 49943- 49946	Page 18: "The issuance of the subject permits, with proper monitoring requirements through development stages, up to and including full scale operations or more specifically described in Ex. A-11, will not tend to conflict with existing rights to the extent they cannot be satisfied."
9 (88-91)	Permit 51841- 51848 Issued 11/4/1988	Amargosa Desert	Underground & Mining and Milling	no ruling	Permit Terms: "The duty under Permits 51841 through 51848, inclusive, is initially limited to 1500 acre-feet for the calendar year 1989. The annual duty of water allowed under Permits 51841 through 51848, inclusive, may be raised to a maximum of 3200 acre-feet per year as approved and authorized by the State Engineer after the review of the monitoring data."
10 (92-95)	Permits 50701, 50808, 51870, 51871, 51872, 51873, 52087 and 52088 Issued 12/8/1988	Ivanpah	Underground & Quasi- Municipal	no ruling	Permit Terms: "The permittee shall submit a monitoring plan to show any impact resulting from an increase in groundwater pumping. Upon approval by the State Engineer of such a plan, data will be submitted to the State Engineer on a monthly basis. Upon further groundwater development a report shall be submitted to the State Engineer to identify the amount of water recharged through the proposed rapid infiltration basins into the groundwater system. Upon review of that data by the State Engineer, the amount of water credited by the recharge program will be determined. The maximum amount to be credited will not exceed 90 percent of the amount of recharge. The total annual withdrawal of water under Permits 50701, 50808, 51870, 51871, 51872, 51873, 52087 and 52088 is initially limited to 177.92 million gallons annually. The total annual withdrawal of

					water under Permits 50701, 50808, 51870, 51871, 51872, 51873, 52087 and 52088 may be raised in stages up to a maximum of 177.92 million gallons annually in addition to the amount credited for recharge, as approved and authorized by the State Engineer, only after the State Engineer has determined the amount to be credited by the recharge program."
11 (96-108)	Ruling 3573 Issued 1/26/1989	Goshute Valley	Underground & Municipal	47615, etc.	Page 10: "The issuance of the subject permits, with proper monitoring requirements through development stages, up to and including full scale operations will not tend to conflict with existing rights to the extent they cannot be satisfied."
12 (109-112)	Permit 43699 Issued 3/29/1990	Carson Valley	Underground & Municipal	no ruling	Permit Terms: "The annual duty of this permit is initially limited to 500 acre feet. At least 4 groundwater monitoring wells are to be located or installed within the general area of the production well under this permit at locations approved by the State Engineer. These monitoring wells must be installed prior to any diversion of groundwater allowed by this permit. The monitoring wells must penetrate at least 75 feet below the existing water table. The annual duty of water allowed by this permit may be raised to a maximum of 1000 acre-feet in stages and as approved and authorized by the State Engineer only after the State Engineer has determined that the additional withdrawal will not adversely affect existing rights or the ground water resource." Also see permit 54866 below, which is a change application of this right.

13 (113-116)	Permits 46029, 46030, 53704, 53829, 53830 and 53831 Issued 8/30/1990	Black Mountains Area	Underground & Quasi- Municipal	Also subject to Ruling 3724	Permit Terms: "The total combined duty of water under permits 46029, 46030, 53704, 53829, 53830 and 53831 is initially limited to 2200 acre-feet. At least four groundwater monitoring wells are to be located or installed within the general area of the production well under this permit at locations approved by the State Engineer. These monitoring wells must be installed prior to any diversion of groundwater allowed by this permit. The monitoring wells must penetrate at least 75 feet below the existing water table. The total combined duty of water allowed under permits 46029, 46030, 53704, 53829, 53830 and 53831 may be raised to a maximum of 4400 acre-feet in stages and as approved and authorized by the State Engineer only after the State Engineer has determined that the additional withdrawal will not adversely affect existing rights or the groundwater resource, and upon showing the withdrawal of water is developed in the Horse Springs formation."
14 (117-121)	Permit 54866 Issued 11/6/1990	Carson Valley	Underground & Municipal	no ruling Changed Permit 43699 (above)	Permit Terms: "The annual duty of water under this permit is initially limited to 500 acre-feet. At least 4 ground water monitoring wells are to be located or installed within the general area of the production well under this permit at locations approved by the State Engineer. These monitoring wells must be installed prior to any diversion of ground water allowed by this permit. The monitoring wells must penetrate at least 75 feet below the existing water table. The annual duty of water allowed by this permit may be raised to a maximum of 1000 acre-feet in stages and as approved and authorized by the State Engineer only after the State Engineer has determined that the additional withdrawal will not adversely affect existing rights or the groundwater resource."

15 (122-126)	Permit 57327 Issued 12/1/1992	Carson Valley	Sierra Canyon Creek (Infiltration Well) & Quasi- Municipal	no ruling	Permit Terms: "The annual duty of water under this permit is initially limited to 90 acre-feet.....The annual duty of water allowed by this permit may be raised to a maximum of 280 acre-feet in stages as approved and authorized by the State Engineer only after the State Engineer has determined that the additional withdrawal will not adversely affect existing rights or the ground water resource."
16 (127-147)	Ruling 4243 Issued 10/27/1995	Muddy River Springs Area	Underground & Municipal	Permits 55450, 58269	Page 15: "The State Engineer finds that the approval of Applications 55450 and 58269, conditioned on the phased-in increases in pumping of the Arrow Canyon well, and the annual evaluation of the monitoring data will allow MVWD to meet its water demand, prevent any conflict with existing rights, and protect the public interest." Page 20 (ruling section): "4. Annual review of the previous year's monitoring data and approval of the allowed pumping rate for the next year. The annual review will continue past the year 2004."
17 (148-204)	Ruling 5726 Issued 4/16/2007	Spring Valley	Underground & Municipal	Apps. 54003- 54021	Page 48: "The State Engineer finds by requiring the collection of biological and hydrological baseline data, by requiring a significant monitoring and mitigation plan, and by requiring a staged development and associated studies there are sufficient safeguards in place to ensure that the interbasin transfer of water from Spring Valley will be environmentally sound." Page 53: "The State Engineer finds, in order to gather the necessary information to more accurately predict the effects of pumping, the development of water will occur in stages in conjunction with a significant monitoring and mitigation plan."

					Page 54: "Additional information will be derived through the collection of both biological and hydrological baseline information, the continued development of the approved ground-water model, the staged development of the water resources and the required monitoring plan." Page 56: "5. A minimum ten-year period during which time a maximum of 40,000 acre-feet can be pumped in anyone year with a ten consecutive-year average of at least 35,000 acre-feet annually" and "7. The total combined duty under Permits 54003, 54004, 54005, 54006, 54007, 54008, 54009, 54010, 54011, 54012, 54013, 54014, 54015, 54019 and 54020 shall be limited to 60,000 acre-feet annually, subject to the staged development guidelines and findings of the initial staged development period."
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TAB 1

APPLICATION FOR PERMIT
TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

Date of filing in State Engineer's Office FEB 28 1978

Returned to applicant for correction

Corrected application filed

Map filed FEB 28 1978

The applicant Nevada Central Holding Company
102 Roff Way, of Reno
Street and No. or P.O. Box No. City or Town

Nevada (89501), hereby make application for permission to appropriate the public
State and Zip Code No.
waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorpora-
tion; if a copartnership or association, give names of members.)

Incorporated in Carson City, Nevada on November 22, 1977

1. The source of the proposed appropriation is Underground Well No. 1
Name of stream, lake, spring, underground or other source

2. The amount of water applied for is 3.5 cfs second-foot
One second-foot equals 448.83 gals. per min.

(a) If stored in reservoir give number of acre-feet

3. The water to be used for Quasi-Municipal (Subdivision) and Domestic
Irrigation, power, mining, manufacturing, domestic, or other use. Must limit to one use.

4. If use is for:

(a) Irrigation, state number of acres to be irrigated:

(b) Stockwater, state number and kinds of animals to be watered:

(c) Other use (describe fully under "No. 12. Remarks")

(d) Power:

(1) Horsepower developed:

(2) Point of return of water to stream:

5. The water is to be diverted from its source at the following point: SW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 21, T18N, R20E,
Describe as being within a 40-acre subdivision of public
M.D.B. & M., or at a point from which the E $\frac{1}{4}$ corner of Section 16, T18N, R20E,
survey, and by course and distance to a section corner. If on unsurveyed land, it should be so stated.
M.D.B. & M., bears N 48° 19' 09" E 6,954.79 feet

6. Place of use. See Attached Exhibit "A".
Describe by legal subdivision. If on unsurveyed land, it should be so stated.

7. Use will begin about January 1 and end about December 31, of each year.
Month and Day Month and Day

8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and
specifications of your diversion or storage works.) Drill well, install pump, motor, water
State manner in which water is to be diverted, i.e. diversion structure, ditches and
lines, storage tanks and all appurtenant works for a community water system.
flumes, drilled well with pump and motor, etc.

9. Estimated cost of works \$500,000.00

10. Estimated time required to construct works..... Two Years
If well completed, describe works.
11. Estimated time required to complete the application of water to beneficial use..... Ten Years
12. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

This well is going to be comingled with Wells 2, 3 and 4 to develop a community water system to serve a maximum of 6,000 single family and apartment units along with a commercial and neighborhood shopping area. This underground source is being comingled with water from a surface right under the Orr Ditch Decree to develop a total community water system. The wells will be used for peaking during the summer and also for winter use when Steamboat and Last Chance Ditches are dry.

By s/Richard W. Arden
Richard W. Arden, Agent
950 Industrial Way
Sparks, Nevada (89431)

Compared..... gk/bc..... gk/bc

Protested 5/22/78 by Virginia Foothills Property Owners Association, Inc.
5/22/78 by Trans Sierra
Water Service Inc.

APPROVAL..... OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

Applications 35981-35986 (inclusive) for injecting and temporarily storing a portion of existing surface water rights underground as recharge and Applications 35040-35043 (inclusive) for withdrawing up to the amount recharged underground on an average long-term basis are part of a proposed but unproved water use and management procedure in a limited segment of the South Truckee Meadows Ground Water Basin. It is expressly understood from recorded testimony at the hearing of August 17, 1978, in which Applications 35040-35043 (inclusive) were considered, that the procedure as proposed would be developed and refined in stages. Hence, the amounts, places, and timing for water stored and placed to beneficial use will occur in stages. Water for each stage must be approved or rejected by the State Engineer.

The permittee shall submit a proposal and receive approval from the State Engineer for the first stage of the water use and management procedure before placing water to beneficial use. Water for the second stage and subsequent stages will be dependent upon the State Engineer's determination that:

1. As a result of water use and management during the previous stage:
 - a. There has been no net average long-term depletion of ground water within the place of use.

The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, and not to exceed..... 3.5.....cubic feet per second.....

Work must be prosecuted with reasonable diligence and be completed on or before..... July 17, 1983

Proof of completion of work shall be filed before..... August 17, 1983

Application of water to beneficial use shall be made on or before..... July 17, 1988

Proof of the application of water to beneficial use shall be filed on or before..... August 17, 1988

Map in support of proof of beneficial use shall be filed on or before..... August 17, 1988

Completion of work filed..... IN TESTIMONY WHEREOF, I..... PETER G. MORROS

Proof of beneficial use filed..... State Engineer of Nevada, have hereunto set my hand and the seal of

Cultural map filed..... my office, this..... 17th.....day of..... JULY

Certificate No..... Issued..... A.D. 19..... 87

..... Peter G. Morros

State Engineer

218 (Rev.)

CANCELLED OCT 6 1988 BECAUSE OF FAILURE
 OF APPLICANT TO COMPLY WITH THE PROVISIONS OF PERMIT
Peter G. Morros
 STATE ENGINEER

000003

- b. Existing surface water and ground water rights have not been adversely affected.

If the State Engineer determines that condition 1 has been satisfied, he may approve the next stage of the use and management procedure as proposed. Otherwise, the State Engineer may reject the proposal and refuse to allow further development of water for the procedure. The final extent to which this water management procedure can be allowed for using the ground water reservoir as an exchange medium for implementing the use of surface water may be considerably less than the extent of the surface water rights proposed to be stored and used under Applications 35981-35986 (inclusive).

A quarterly water balance for the place of use shall be maintained as a written record by the permittee and reported annually or at lesser time intervals to the State Engineer as he may require. The water balance shall be developed in a manner and format satisfactory to the State Engineer. Such balance shall contain measured amounts of water input, withdrawal, and accumulation by place and time for specific sources and uses. Sufficient information shall be developed and reported to enable the State Engineer to determine the effectiveness of the use and management procedure for exchanging surface and ground water through the medium of storage underground.

At least five strategically placed ground water monitor wells are to be installed within the place of use at locations satisfactory to the State Engineer before any diversion of ground water from the production wells. The monitor wells must be suitably cased, perforated, sealed, and capped and must penetrate at least 50 feet below the water table. The State Engineer may order the placement of additional monitoring wells if necessary.

The combined diversion from this well and the wells under Permits 35041, 35042, and 35043 shall not exceed 1,000 acre-feet for each 12-month period beginning April 1st and ending March 31st of the following year. The permittee shall maintain a written record including but not limited to the amounts of water diverted and used from the well under this permit, and from each of the wells under Permits 35041, 35042, and 35043 the amount of water diverted and used under Permits 35981-35986 (inclusive) for the purpose or recharging the underground reservoir; the water level in wells for monitoring the ground water reservoir prior to recharge; and the water level in the said monitor wells subsequent to recharge.

The water allowed under this permit and Permits 35041, 35042, and 35043 may not be diverted and used until such time as the water granted under Permits 35981-35986 (inclusive) is not sufficient to supply the needs of the development for which Permits 35981-35986 (inclusive) were granted. The water allowed under this permit and Permits 35041, 35042, and 35043 may not be diverted and used during the irrigation season set on the Truckee River and its tributaries without specific written authorization of the State Engineer. The permittee must make written application to the State Engineer for such authorization.

Since the proposed water use and management procedure provides the potential for exchange of surface and ground water rights in addition to those allowed herein, the limitation of 1,000 acre-feet annual diversion from the wells under this permit and Permits 35041, 35042, and 35043 may be waived and the period of use extended by the State Engineer after sufficient operating experience has been evaluated.

This permit is subject to the State Engineer's verbal ruling at the hearing of August 17, 1978.

This permit is issued subject to existing rights. It is understood that the amount of water herein granted is only a temporary allowance and that the final water right obtained under this permit will be dependent upon the amount of water actually placed to beneficial use. It is also understood that this right must allow for a reasonable lowering of the static water level. This well shall be equipped with a two (2) inch opening for measuring depth to water. If the well is flowing, a valve must be installed and maintained to prevent waste. A totalizing meter must be installed and maintained in the discharge pipeline near the point of diversion and accurate measurements must be kept of water placed to beneficial use. The totalizing meter must be installed before any use of water begins, or before the Proof of Completion of Work is filed. This source is located within an area designated by the State Engineer, pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

Cancellation, termination, withdrawal or any other restriction that may be imposed on the right to divert or use the water under Permits 35981-35986 (inclusive), shall result in the same loss or restriction to divert and beneficially use the water granted under Permits 35040 through 35043.

The total combined annual duty of water under this permit and Permits 35041, 35042, and 35043 shall not exceed 2,433.828 acre-feet or that amount less than 2,433.828 acre-feet as authorized and approved by the State Engineer.

EXHIBIT A

6. S $\frac{1}{2}$ Section 10, W $\frac{1}{2}$ Section 11, NW $\frac{1}{4}$ SW $\frac{1}{4}$, portions of NW $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 14, all of Section 15, SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$, Section 16, portion of SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 17, portions of NE $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 20, NW $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ NE $\frac{1}{4}$, portions of NW $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 21, N $\frac{1}{2}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ NE $\frac{1}{4}$, portions of NE $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$, NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 22, portion of NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 23, T.19N., R.20E., M.D.B. & M.

TAB 2

APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

Date of filing in State Engineer's Office JUL 8 1980
 Returned to applicant for correction JUL 24 1980
 Corrected application filed SEP 5 1980
 Map filed SEP 17 1980 under 41660

The applicant George I. Benny - c/o Double Diamond Development Company
100 N. Arlington, Suite 350, of Reno,
Street and No. or P.O. Box No. City or Town
Nevada 89501, hereby makes application for permission to appropriate the public
State and Zip Code No.
 waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association, give names of members.)

1. The source of the proposed appropriation is an underground source - Well #P-1
Name of stream, lake or other source.
2. The amount of water applied for is 2.07 second-feet
One second-foot equals 448.83 gals. per min.
 (a) If stored in reservoir give number of acre-feet acre-feet
3. The water to be used for Quasi-Municipal
Irrigation, power, mining, manufacturing, domestic, or other use. Must limit to one use.
4. If use is for:
 - (a) Irrigation (state number of acres to be irrigated)
 - (b) Stockwater (state number and kinds of animals to be watered)
 - (c) Other use (describe fully under "No. 12. Remarks")
 - (d) Power:
 - (1) Horsepower developed
 - (2) Point of return of water to stream
5. The water is to be diverted from its source at the following point: within NE 1/4, SE 1/4, Sec. 5 T18N,
R. 20E, MDB&M at a point from which the south 1/4 corner of said Sec. 5 bears
Describe as being within a 40-acre subdivision of public survey, and by course and distance to a section corner. If on unsurveyed land,
S 43° 30' W, a distance of 2380 feet.
it should be stated.
6. Place of use See Attached
Describe by legal subdivision, if on unsurveyed land it should be so stated.
7. Use will begin about January 1 and end about December 31, of each year.
Month and Day Month and Day
8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) Well, pump, and pipelines
State manner in which water is to be diverted, whether by dam or other works, whether through pipes, ditches, flumes, or other conduits.

9. Estimated cost of works \$20,000.00
10. Estimated time required to construct works 1 year
11. Estimated time required to complete the application to beneficial use 5 years
12. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

Water to be used in proposed Double Diamond Development consisting of 8000 residential units, 1315 acres of open space and 489 acres of commercial and industrial properties. Well to be used to divert excess surface waters which have been recharged to the groundwater basin for "carry over" storage, and/or utilize groundwaters currently lost to evapotranspiration. Due to the proposed

management scheme, no net loss to groundwater basin will occur.

Applicant By s./ Brien B. Walters

Brien B. Walters

Compared sg/ha gk/bc 248 W. 1st St., Suite 106
Reno, NV 89501

APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

Applications 41661-41669 (inclusive) for injecting and temporarily storing a portion of existing surface water rights underground as recharge and Applications 41674-41679 (inclusive) for withdrawing up to the amount recharged underground on an average long-term basis are part of a proposed but unproved water use and management procedure in a limited segment of the South Truckee Meadows Ground Water Basin. It is expressly understood from recorded testimony at the hearing of April 16, 1981, in which Applications 41674-41679 (inclusive) were considered, that the procedure as proposed would be developed and refined in stages. Hence, the amounts, places, and timing for water stored and placed to beneficial use will occur in stages. Water for each stage must be approved or rejected by the State Engineer.

The permittee shall submit a proposal and receive approval from the State Engineer for the first stage of the water use and management procedure before placing water to beneficial use. Water for the second stage and subsequent stages will be dependent upon the State Engineer's determination that:

1. As a result of water use and management during the previous stage:
 - a. There has been no net average long-term depletion of ground water within the place of use.
 - b. Existing surface water and ground water rights have not been adversely affected.

If the State Engineer determines that condition 1 above has been satisfied, he may approve the next stage of the use and management procedure as proposed. Otherwise,

The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, and

not to exceed SEP 29 20047 cubic feet per second.

WITHDRAWN BY APPLICANT SEP 02 1998 SEE P.2 FOR ADDIT'L withdrawal of portions

STATE ENGINEER Peter G. Morros STATE ENGINEER N/A
Actual construction work shall begin on or before 20 Meadows Prop.
total combined 777.38 cfs wdn

Proof of commencement of work shall be filed before N/A

Work must be prosecuted with reasonable diligence and be completed on or before July 22, 1983

Proof of completion of work shall be filed before August 22, 1983

Application of water to beneficial use shall be made on or before July 22, 1988

Proof of the application of water to beneficial use shall be filed on or before August 22, 1988

Map in support of proof of beneficial use shall be filed on or before August 22, 1988

Commencement of work filed IN TESTIMONY WHEREOF, I PETER G. MORROS
Completion of work filed State Engineer of Nevada, have hereunto set my hand and the seal of
Proof of beneficial use filed my office, this 22nd day of JULY
Cultural map filed

Certificate No. SEP 29 1983 BECAUSE OF FAILURE
OF APPLICANT TO COMPLY WITH THE PROVISIONS OF PERMIT

A.D. 19 81

Cancellation

State Engineer

STATE ENGINEER

BR

rescinded 12.13.84

Permit Terms Continued
Page 2

the State Engineer may reject the proposal and refuse to allow further development of water for the procedure. The final extent to which this water management procedure can be allowed for using the ground water reservoir as an exchange medium for implementing the use of surface water may be considerably less than the extent of the surface water rights proposed to be stored and used under Applications 41661-41669 (inclusive).

A quarterly water balance for the place of use shall be maintained as a written record by the permittee and reported annually or at lesser time intervals to the State Engineer as he may require. The water balance shall be developed in a manner and format satisfactory to the State Engineer. Such balance shall contain measured amounts of water input, withdrawal, and accumulation by place and time for specific sources and uses. Sufficient information shall be developed and reported to enable the State Engineer to determine the effectiveness of the use and management procedure for exchanging surface and ground water through the medium of storage underground.

Strategically placed ground water monitor wells are to be installed within the place of use at locations satisfactory to the State Engineer before any diversion of ground water from the production wells. The monitor wells must be suitably cased, perforated, sealed, and capped and must penetrate at least 50 feet below the water table. The State Engineer may order the placement of additional monitoring wells if necessary.

The combined diversion from this well and the wells under Permits 41675, 41676, 41677, 41678, and 41679 shall not exceed 1,000 acre-feet for each 12-month period beginning April 1st and ending March 31st of the following year. The permittee shall maintain a written record including but not limited to the amounts of water diverted and used from the well under this permit, and from each of the wells under Permits 41675, 41676, 41677, 41678, and 41679 the amount of water diverted and used under Permits 41661-41669 (inclusive); for the purpose or recharging the underground reservoir; the water level in wells for monitoring the ground water reservoir prior to recharge; and the water level in the said monitor wells subsequent to recharge.

The water allowed under this permit and Permits 41675, 41676, 41677, 41678, and 41679 may not be diverted and used until such time as the water granted under Permits 41661-41669 (inclusive) is not sufficient to supply the needs of the development for which Permits 41661-41669 (inclusive) were granted. The water allowed under this permit and Permits 41675, 41676, 41677, 41678, and 41679 may not be diverted and used during the irrigation season set on the Truckee River and its tributaries without specific written authorization of the State Engineer. The permittee must make written application to the State Engineer for such authorization.

Since the proposed water use and management procedure provides the potential for exchange of surface and ground water rights in addition to those allowed herein, the limitation of 1,000 acre-feet annual diversion from the wells under this permit and Permits 41675, 41676, 41677, 41678, and 41679 may be waived and the period of use extended by the State Engineer after sufficient operating experience has been evaluated.

This permit is subject to the State Engineer's verbal ruling at the hearing of April 16, 1981.

This permit is issued subject to existing rights. It is understood that the amount of water herein granted is only a temporary allowance and that the final water right obtained under this permit will be dependent upon the amount of water actually placed to beneficial use. It is also understood that this right must allow for a reasonable lowering of the static water level. This well shall be equipped with a two (2) inch opening for measuring depth to water. If the well is flowing, a valve must be installed and maintained to prevent waste. A totalizing meter must be installed and maintained in the discharge pipeline near the point of diversion and accurate measurements must be kept of water placed to beneficial use. The totalizing meter must be installed before any use of water begins, or before the Proof of Completion of Work is filed. This source is located within an area designated by the State Engineer, pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

Cancellation, termination, withdrawal or any other restriction that may be imposed on the right to divert or use the water under Permits 41661-41669 (inclusive), shall result in the same loss or restriction to divert and use the water granted under Permits 41674 through 41679 (inclusive).

The total combined annual duty of water under this permit and Permits 41675, 41676, 41677, 41678, and 41679 shall not exceed 4,848.40 acre-feet or that amount less than 4,848.40 acre-feet as authorized and approved by the State Engineer.

* WITHDRAWN BY APPLICANT MAR 24 2000.
a portion being 1,748.02 afa, combined
from all permits. An additional
1,170.57 afa combined from all permits
was withdrawn JUN 15 2000 cmf
STATE ENGINEER R. MICHAEL TURNIPSEED

ATTACHMENT - ANSWER TO QUESTION 6

<u>USE WITHIN</u>	<u>1/4 of 1/4</u>	<u>SECTION</u>	<u>T.18N., R.20E., M.D.B. & M.</u>
SE - NW		4	
SE - NE		4	
S 1/2		4	
E 1/2 - NE		5	
E 1/2 - SE		5	
SW - SE		5	
NW - SE		5	
NE 1/4		8	
N 1/2 - SE		8	
SW - SE		8	
SE - SE		8	
SE - SW		8	
NE - SW		8	
ENTIRE SECTION		9	
N 1/2		16	
NW - SE		16	
NE - SE		16	
NW - SW		16	
NW - NE		17	
NE - NE		17	
SE - NE		17	
SW - NE		17	
NE - SE		17	
SE - SE		17	
SW - SE		17	
NW - SE		17	

1

ATTACHMENT - continued

<u>USE WITHIN</u>	<u>1/4 of 1/4</u>	<u>SECTION</u>	<u>T.19N., R.20E., M.D.B. & M.</u>
NE - SW		33	
SE - SW		33	
SW - SW		33	
NW - SW		33	

TAB 3

APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

Date of filing in State Engineer's Office MAR 26 1981

Returned to applicant for correction

Corrected application filed

Map filed

The applicant Carson City1711 N. Roop Street

Street and No. or P.O. Box No.

of

Carson City

City or Town

Nevada 89701

State and Zip Code No.

hereby make^s application for permission to appropriate the public waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association, give names of members.)

1. The source of the proposed appropriation is underground

Name of stream, lake or other source.

2. The amount of water applied for is 5 c.f.s. second-feet
One second-foot equals 448.83 gals. per min.

(a) If stored in reservoir give number of acre-feet acre-feet

3. The water to be used for municipal and domestic

Irrigation, power, mining, manufacturing, domestic, or other use. Must limit to one use.

4. If use is for:

N/A

(a) Irrigation (state number of acres to be irrigated)

(b) Stockwater (state number and kinds of animals to be watered)

(c) Other use (describe fully under "No. 12. Remarks")

(d) Power:

(1) Horsepower developed

(2) Point of return of water to stream

5. The water is to be diverted from its source at the following point: NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 15 T.15N., R.20E., M.D.B.&M., or at a point which bears S.53°46'33"W. 2473.85'
Describe as being within a 40-acre subdivision of public survey, and by course and distance to a section corner. If on unsurveyed land, to the S $\frac{1}{4}$ corner of said Sec. 15.
it should be stated.

6. Place of use See Attached

Describe by legal subdivision, if on unsurveyed land it should be so stated.

7. Use will begin about January 1 and end about December 31, of each year.
Month and Day Month and Day

8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) a steel cased, gravel packed well approximately 240 ft. deep with a grouted seal, turbine pump and building
State manner in which water is to be diverted, i.e. diversion structure, ditches and flumes, drilled well with pump and motor, etc.

9. Estimated cost of works. \$10,000
10. Estimated time required to construct works 5 years
If well completed, describe works.
11. Estimated time required to complete the application to beneficial use 10 years
12. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

This water will be used for municipal and domestic
purposes by the Carson City Water Department.

By s/Lawrence A. Werner
Signature, applicant or agent

Compared ha/sg bc/bl Lawrence A. Werner, P.E., R.L.S.
1711 N. Roop St.
Carson City, NV 89701

APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit is issued subject to existing rights. It is understood that the amount of water herein granted is only a temporary allowance and that the final water right obtained under this permit will be dependent upon the amount of water actually placed to beneficial use. It is also understood that this right must allow for a reasonable lowering of the static water level. This well shall be equipped with a two (2) inch opening for measuring depth to water. If the well is flowing, a valve must be installed and maintained to prevent waste. A totalizing meter must be installed and maintained in the discharge pipeline near the point of diversion and accurate measurements must be kept of water placed to beneficial use. The totalizing meter must be installed before any use of water begins, or before the Proof of Completion of Work is filed. This source is located within an area designated by the State Engineer, pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

The annual duty of water under this permit is initially limited to 500 acre-feet. At least 4 ground water monitoring wells are to be located or installed within the general area of the production well under this permit at locations approved by the State Engineer. These monitoring wells must be installed prior to any diversion of ground water allowed by this permit. The monitoring wells must penetrate at least 75 feet below the existing water table. The annual duty of water allowed by this permit may be raised to a maximum of 1000 acre-feet in stages and as approved and authorized by the State Engineer only after the State Engineer has determined that

(Continued on Page 2)

The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, and not to exceed 5.0 cubic feet per second, but not to exceed 1,000 acre-feet annually.

Actual construction work shall begin on or before N/A

Proof of commencement of work shall be filed before N/A

Work must be prosecuted with reasonable diligence and be completed on or before October 27, 1982

Proof of completion of work shall be filed before November 27, 1982

Application of water to beneficial use shall be made on or before October 27, 1987

Proof of the application of water to beneficial use shall be filed on or before November 27, 1987

Map in support of proof of beneficial use shall be filed on or before

Commencement of work filed DEC 27 1982
Completion of work filed
Proof of beneficial use filed
Cultural map filed
Certificate No. Issued

IN TESTIMONY WHEREOF, I PETER G. MORROS
State Engineer of Nevada, have hereunto set my hand and the seal of my office, this 27th day of OCTOBER,
A.D. 19 81

[Signature]
State Engineer

A portion of the N1/2 of the NE1/4, Section 6; all of E1/2, Section 5, Section 4, 3, 2 T.14N., R20E, MDB&M; all of Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, and 36, T.15N., R.19E., MDB&M; all of T.15N. R.20E., MDB&M; the S1/2, Section 34, S1/2 and a portion of the S1/2 NE1/4 of Section 35, SW1/4, E1/2 and a portion of the SW1/4 NW1/4 Section 36 T.16N., R19E., MDB&M; and Sections 31, 32, 33, 34, 35, W1/2, S1/2 SE1/4, NW1/4 SE1/4 Section 36 and portions of the NW1/4 NE1/4, SW1/4 NE1/4, SE1/4 NE1/4, NE1/4 SE1/4 Section 36, T.16N., R.20E., MDB&M.

- 2 -

the additional withdrawal will not adversely affect existing rights or the ground water resource. The permittee will maintain pumping records on the amounts of water withdrawn and submit copies of these records to the State Engineer on a monthly basis. Water level measurements will be maintained on the monitoring wells and copies of these records will be submitted to the State Engineer on a monthly basis.

TAB 4

APPLICATION FOR PERMISSION TO CHANGE POINT OF DIVERSION, MANNER
OF USE AND PLACE OF USE OF THE PUBLIC WATERS OF THE
STATE OF NEVADA HERETOFORE APPROPRIATED

Date of filing in State Engineer's Office APR 16 1982

Returned to applicant for correction

Corrected application filed Map filed MAR 18 1982 under 42981

The applicant Elko Heat Company, a Nevada Corporation

% Chilton Engineering 421 Court of Elko
Street and No. or P.O. Box No. City or TownNevada 89801 hereby makes application for permission to change the
State and Zip Code No.Manner of Use
Point of diversion, manner of use, and/or place of useof water heretofore appropriated under Permit 42981
(Identify existing right by Permit, Certificate, Proof or Claim Nos. If Decreed, give title of Decree and
identify right in Decree.)

1. The source of water is Underground
Name of stream, lake, underground spring or other source.
2. The amount of water to be changed 1.5 cfs
Second feet, acre feet. One second foot equals 448.83 gallons per minute.
3. The water to be used for commercial use-heat extraction-consumptive
Irrigation, power, mining, industrial, etc. If for stock state number and kind of animals.
4. The water heretofore permitted for commercial use-heat extraction-non consumptive
Irrigation, power, mining, industrial, etc. If for stock state number and kind of animals.
5. The water is to be diverted at the following point same as existing
Describe as being within a 40-acre subdivision of public survey and by course and
distance to a section corner. If on unsurveyed land, it should be stated.
6. The existing permitted point of diversion is located within SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 15, T34N, R55E,
If point of diversion is not changed, do not answer.
MDM, at a point from which the SW corner of said Section 15 bears S 62° 12' W
946 feet
7. Proposed place of use Same as existing
Describe by legal subdivisions. If for irrigation state number of acres to be irrigated.
8. Existing place of use Sections 9, 10, 11, 14, 15, 16, 21, 22 and N $\frac{1}{2}$ of Section 23, all
Describe by legal subdivisions. If permit is for irrigation, state number of acres irrigated. If changing place of use and/or
in T34N, R55E, MDM (City of Elko)
manner of use of irrigation permit, describe acreage to be removed from irrigation.
9. Use will be from January 1 to December 31 of each year.
Month and Day Month and Day
10. Use was permitted from January 1 to December 31 of each year.
Month and Day Month and Day
11. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and
specifications of your diversion or storage works.) drilled well with solid casing and cemented
State manner in which water is to be diverted, i.e. diversion structure, ditches,
below cold water zones to a minimum of 700 to 800 feet
pipes and flumes, or drilled well, etc.
12. Estimated cost of works \$100,000.00
13. Estimated time required to construct works 3 years

14. Estimated time required to complete the application of water to beneficial use 10 years

15. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

Estimated consumptive use=1084 acre feet/annually (in addition to the 1084 ac/a
requested under Application 45234) Water will be used for Heat Extraction from
geothermal sources for space heating, service hot water and process heat
Use map under 42981 to support this application

By s/ William A. Nisbet

William A. Nisbet

421 Court, Elko, Nevada 89801

Compared lmw/ja dcb/br

7/9/82 by Donald E. Sherlock & Estate of Delpha M. Jewell; 7/12/82 by

Protested William B. Gibbs for the Board of Co. Commissioners -- PROTEST OVERRULED Jan. 24, 1984

APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit to change the manner of use of the waters of an underground source as heretofore granted under permit 42981 is issued subject to the terms and conditions imposed in said permit 42981 and with the understanding that no other rights on the source will be affected by the change proposed herein. Accurate measurements must be kept of water placed to beneficial use and semi-annual pumpage records must be submitted. If the well is flowing, a valve must be installed and maintained to prevent waste. This source is located within an area designated by the State Engineer pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

* This permit is restricted to a consumptive use of one-half of 1084 acre-feet annually, or 542 acre-feet annually, until a record is available which shows no adverse effect on the resource or other existing rights. If there is an effect at any future date, then additional pumpage may be limited. This permit is issued subject to the conditions and evidence presented at the hearing before the State Engineer dated January 24, 1984.

The amount of water to be changed shall be limited to the amount which can be applied to beneficial use, and not

* to exceed 1.5 cubic feet per second, but not to exceed

1,084 acre-feet annually

Work must be prosecuted with reasonable diligence and be completed on or before February 21, 1985

Proof of completion of work shall be filed before March 21, 1985

Application of water to beneficial use shall be made on or before February 21, 1988

Proof of the application of water to beneficial use shall be filed on or before March 21, 1988

Map in support of proof of beneficial use shall be filed on or before

Completion of work filed MAR 20 1985 IN TESTIMONY WHEREOF, I PETER G. MORROS,

State Engineer of Nevada, have hereunto set my hand and the seal of

Proof of beneficial use filed my office, this 21st day of FEBRUARY,

Cultural map filed A.D. 1984

Certificate No. Issued

Peter G. Morros
 State Engineer

TAB 5

IN THE MATTER OF APPLICATION 47043)
FILED BY ELKO COUNTY SCHOOL DISTRICT)
TO APPROPRIATE WATER FROM AN UNDER-)
GROUND SOURCE IN THE ELKO SEGMENT)
GROUND WATER BASIN, ELKO COUNTY,)
NEVADA)

R U L I N G

FINDINGS OF FACT

I

Application 47043 was filed by Elko County School District on June 30, 1983 to appropriate 1.0 c.f.s. of underground water for geothermal (heat extraction) purposes. The point of diversion is within the NE $\frac{1}{4}$ of Section 15, T.34N., R.55E., M.D.B.&M., and the place of use is portions of the S $\frac{1}{2}$ SE $\frac{1}{4}$ Section 10; N $\frac{1}{2}$ NE $\frac{1}{4}$ Section 15, all in T.34N., R.55E., M.D.B.&M.

II

A timely protest was filed by Elko Heat Company against the granting of the subject application on December 5, 1983. The protest requested the State Engineer deny Application 47043 for the reason that the proposed diversion may adversely effect existing water rights of Elko Heat Company¹.

III

The State Engineer held a public hearing on January 24, 1984, to collect additional information and hear testimony from the applicant and the protestant regarding Application 47043. ²

IV

The protestant presented testimony and evidence at the hearing regarding the existing geothermal water rights and geothermal resource in the vicinity of the City of Elko. The protestant's primary concern was the close proximity (approximately 600 feet) between the proposed point of diversion under Application 47043 and the point of diversion under existing Permit 39052. ²

V

The applicant presented testimony regarding the potential effects of water useage under their proposed Application 47043 upon the well which would be drilled under Permit 39052. Various scenerios of aquifer characteristics were reviewed.

¹ Public records in the office of the State Engineer.

² Transcript of public hearing before State Engineer on January 24, 1984.

VI

The protestant and applicant generally agreed that, if 1,000 feet was maintained between the point of diversion of Application 47043 and the point of diversion of Permit 39052 the potential interference between the two wells would be decreased.

CONCLUSIONS

Considering the evidence and testimony presented at the hearing, conducted by the State Engineer on January 24, 1984, it is concluded that the effect on existing water rights by appropriation under Application 47043 will be reasonable as per NRS 534.110 and the rights of holders of existing appropriations can be satisfied if the point of diversion under Application 47043 is placed a minimum distance of 1,000 feet from the point of diversion under Permit 39052 and if Application 47043 is issued subject to strict conditions.

RULING

The protest to the granting of Application 47043 is herewith overruled on the grounds that existing water rights can be reasonably satisfied per NRS 534.110.

A permit will be issued under 47043 upon receipt of permit fees required by statute.

Application 47043 will be approved with the following terms:

1. This permit is issued subject to existing rights.
2. The well under Application 47043 must be drilled a minimum distance of 1,000 feet from the point of diversion under Permit 39052.
3. Semi-annual pumpage reports must be submitted to the State Engineer on the amount of water diverted and placed to beneficial use.
4. This permit is restricted to a consumptive use of 268 acre-feet per year, 1/2 of the requested amount, until a record is available which shows no adverse effect on the protestant's existing rights.
5. If pumpage under this permit has any adverse effect on the protestant's water rights at any future date, then withdrawals may be limited or reinjection of the geothermal fluids may be required.

6. The production well under this permit shall be cemented from the producing levels to the surface to protect fresh water zones. The completion plans of the well must be reviewed and approved by the State Engineer.
7. This permit is issued subject to the condition that only geothermal fluids are to be diverted and used for heating purposes, and fresh, cold water aquifers are not to be diverted or interfered with.

Respectfully submitted,



Peter G. Morros
State Engineer

PGM/GB/bc

Dated this 22nd day of
FEBRUARY, 1984.

TAB 6

APPLICATION FOR PERMISSION TO CHANGE POINT OF DIVERSION, MANNER
OF USE AND PLACE OF USE OF THE PUBLIC WATERS OF THE
STATE OF NEVADA HERETOFORE APPROPRIATED

Date of filing in State Engineer's Office SEP 19 1983

Returned to applicant for correction.

Corrected application filed. Map filed May 15, 1980 under 39051

The applicant Elko Heat Co., a Nevada Corporation

%Chilton Engineering 421 Court of Elko
Street and No. or P.O. Box No. City or TownNevada 89801 hereby make^s application for permission to change the

State and Zip Code No. Manner of Use of a portion

Point of diversion, manner of use, and/or place of use

of water heretofore appropriated under Permit No. 39052

(Identify existing right by Permit, Certificate, Proof or Claim Nos. If Decreed, give title of Decree and

identify right in Decree.)

1. The source of water is Underground Well No. 3

Name of stream, lake, underground spring or other source.

2. The amount of water to be changed 1.5 cfs

Second feet, acre feet. One second foot equals 448.83 gallons per minute.

3. The water to be used for Commercial Use (Heat Extraction-consumptive)

Irrigation, power, mining, industrial, etc. If for stock state number and kind of animals.

4. The water heretofore permitted for Commercial Use (Heat Extraction -(non consumptive)

Irrigation, power, mining, industrial, etc. If for stock state number and kind of animals.

5. The water is to be diverted at the following point same as existing

Describe as being within a 40-acre subdivision of public survey and by course and

distance to a section corner. If on unsurveyed land, it should be stated.

6. The existing permitted point of diversion is located within SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 10, T 34 N, R 55 E,

If point of diversion is not changed, do not answer.

MDM, at a point from which the SE corner of said Section 10 bears S 77° 00' E

1,000 feet

7. Proposed place of use same as Existing

Describe by legal subdivisions. If for irrigation state number of acres to be irrigated.

8. Existing place of use Sections 9, 10, 11, 14, 15, 16, 21, 22, N $\frac{1}{2}$ Section 23, all

Describe by legal subdivisions. If permit is for irrigation, state number of acres irrigated. If changing place of use and/or

in T 34 N, R 55 E, MDM - City of Elko, Nevada

manner of use of irrigation permit, describe acreage to be removed from irrigation.

9. Use will be from January 1 to December 31 of each year.

Month and Day

Month and Day

10. Use was permitted from January 1 to December 31 of each year.

Month and Day

Month and Day

11. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and

specifications of your diversion or storage works.) drilled and cased well equipped with

State manner in which water is to be diverted, i.e. diversion structure, ditches,

motor, pump, proper seals and pipeline to place of use.

pipes and flumes, or drilled well, etc.

12. Estimated cost of works \$100,000.00

13. Estimated time required to construct works 5 years

14. Estimated time required to complete the application of water to beneficial use 10 years

15. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

Estimated consumptive use: $1\frac{1}{2}$ cfs x 24 hrs./day x 365 days/year =

1086 acre feet/year

Please use map filed under 35612 to support this application

By s/William A. Nisbet

Agent

421 Court

Elko, Nevada 89801

Compared is/dcb dcb/br

Protested

APPROVAL

OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit to change the manner of use of a portion of the waters of an underground source as heretofore granted under Permit 39052 is issued subject to the terms and conditions imposed in said Permit 39052 and with the understanding that no other rights on the source will be affected by the change proposed herein. This source is located within an area designated by the State Engineer pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

The well shall be equipped and maintained to prevent any waste of the geothermal fluid. The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal, and local agencies.

This permit to change 39052 is issued with the following terms:

1. The well under Permit 47252 must be drilled a minimum distance of 1,000 feet from the point of diversion under Permit 47043.
2. Semi-annual pumpage reports must be submitted to the State Engineer on the amount of water diverted and placed to beneficial use.

(PERMIT TERMS CONTINUED ON NEXT PAGE.)

The amount of water to be changed shall be limited to the amount which can be applied to beneficial use, and not

to exceed 1.5 cubic feet per second.

Work must be prosecuted with reasonable diligence and be completed on or before May 3, 1986

Proof of completion of work shall be filed before June 3, 1986

Application of water to beneficial use shall be made on or before May 3, 1988

Proof of the application of water to beneficial use shall be filed on or before June 3, 1988

Map in support of proof of beneficial use shall be filed on or before

Completion of work filed IN TESTIMONY WHEREOF, I, PETER G. MORROS
State Engineer of Nevada, have hereunto set my hand and the seal of

Proof of beneficial use filed
my office, this 3rd day of MAY

Cultural map filed

Certificate No. Issued
A.D. 1984

3. This permit is restricted to a consumptive use of 543 acre-feet per year, 1/2 of the requested amount, until a record is available which shows no adverse effect on existing rights.
4. If pumpage under this permit has any adverse effect on the existing rights at any future date, then withdrawals may be limited or reinjection of the geothermal fluids may be required.
5. The production well under this permit shall be cemented from the producing levels to the surface to protect fresh water zones. The completion plans of the well must be reviewed and approved by the State Engineer.
6. This permit is issued subject to the condition that only geothermal fluids are to be diverted and used for heating purposes, and fresh, cold water aquifers are not to be diverted or interfered with.

TAB 7

IN THE MATTER OF APPLICATIONS TO)
CHANGE 47127 THROUGH 47132, INCLUSIVE,)
AND 47133 THROUGH 47140, INCLUSIVE,)
FOR THE WATERS OF AN UNDERGROUND)
SOURCE AND GALENA CREEK AND)
TRIBUTARIES FILED BY MT. ROSE SERVICE)
CO. AND VERNON L. DAVIS WITHIN THE)
PLEASANT VALLEY DRAINAGE AND GROUND)
WATER BASINS IN WASHOE COUNTY, NEVADA.)

RULING

GENERAL

I.

Application 47127 was filed on August 5, 1983, by the Mt. Rose Service Company to change the point of diversion and place of use of a portion of water (0.23027 c.f.s.) from an underground source for quasi-municipal purposes heretofore appropriated under Permit 35147.⁽¹⁾⁽²⁾ The proposed point of diversion is described as being within the SE1/4 NW1/4 Section 19, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 35147.⁽²⁾

Application 47128 was filed on August 5, 1983, by the Mt. Rose Service Company to change the point of diversion and place of use of a portion of water (0.2307 c.f.s.) from an underground source for quasi-municipal purposes heretofore appropriated under Permit 35148.⁽³⁾⁽⁴⁾ The proposed point of diversion is described as being within the NW1/4 SW1/4 Section 19, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29, and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 35148.⁽⁴⁾

¹ Public record in the State Engineer's office under Application 47127.

² Public record in the State Engineer's office under Permit 35147.

³ Public record in the State Engineer's office under Application 47128.

⁴ Public record in the State Engineer's office under Permit 35148.

Application 47129 was filed on August 5, 1983, by the Mt. Rose Service Company to change the point of diversion and place of use of a portion of water (0.23027 c.f.s.) from an underground source for quasi-municipal purposes heretofore appropriated under Permit 35149.⁽⁵⁾⁽⁶⁾ The proposed point of diversion is described as being within the SW1/4 SW1/4 Section 18, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29, and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 35149.⁽⁶⁾

Application 47130 was filed on August 5, 1983, by the Mt. Rose Service Company to change the point of diversion and place of use of a portion of water (0.23027 c.f.s.) from an underground source for quasi-municipal purposes heretofore appropriated under Permit 35150.⁽⁷⁾⁽⁸⁾ The proposed point of diversion is described as being within the NE1/4 SW1/4 Section 18, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 35150.⁽⁸⁾

Application 47131 was filed on August 5, 1983, by the Mt. Rose Service Company to change the point of diversion and place of use of a portion of water (0.23027 c.f.s.) from an underground source for quasi-municipal purposes heretofore appropriated under Permit 35151.⁽⁹⁾⁽¹⁰⁾ The proposed point of diversion is described as being within the SE1/4 SW1/4 Section 18, T.17N.,

⁵ Public record in the State Engineer's office under Application 47129.

⁶ Public record in the State Engineer's office under Permit 35149.

⁷ Public record in the State Engineer's office under Application 47130.

⁸ Public record in the State Engineer's office under Permit 35150.

⁹ Public record in the State Engineer's office under Application 47131.

¹⁰ Public record in the State Engineer's office under Permit 35151.

R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 35151.(10)

Application 47132 was filed on August 5, 1983, by the Mt. Rose Service Company to change the point of diversion and place of use of a portion of water (0.23027 c.f.s.) from an underground source for quasi-municipal purposes heretofore appropriated under Permit 35152.(11)(12) The proposed point of diversion is described as being within the NW1/4 NW1/4 Section 19, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; and Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 35152.(12)

The total combined annual duty of water under Applications to Change 47127 through 47132 inclusive, shall not exceed 1,000 acre-feet.(13)

Application 47133 was filed on August 5, 1983, by Vernon L. Davis to change the point of diversion, manner and place of use of a portion of water from Galena Creek and tributaries for quasi-municipal and domestic purposes heretofore decreed and changed under Permit 36217.(14)(15)(16) The proposed point of diversion is described as being within the SE1/4 NW1/4 Section 19, T.17N., R.19E., M.D.B.&M., and proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29

11 Public record in the State Engineer's office under Application 47132.

12 Public record in the State Engineer's office under Permit 35152.

13 Public record in the State Engineer's office under Applications 47127 through 47132, inclusive.

14 Public record in the State Engineer's office under Application 47133.

15 See Truckee River Decree Claims 655, 656, 657, 658 and 659, page 74.

16 Public record in the State Engineer's office under Permit 36217.

and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 36217.⁽¹⁶⁾ The existing manner of use is irrigation and domestic.

Application 47134 was filed on August 5, 1983, by Vernon L. Davis to change the point of diversion, manner and place of use of a portion of water from Galena Creek and tributaries for quasi-municipal and domestic purposes heretofore decreed and changed under Permit 36217.⁽¹⁷⁾⁽¹⁵⁾⁽¹⁶⁾ The proposed point of diversion is described as being within the NW1/4 SW1/4 Section 19, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and the N1/2 Section 30, T.17N., R.18E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 36217.⁽¹⁶⁾ The existing manner of use is irrigation and domestic.

Application 47135 was filed on August 5, 1983, by Vernon L. Davis to change the point of diversion, manner and place of use of a portion of water from Galena Creek and tributaries for quasi-municipal and domestic purposes heretofore decreed and changed under Permit 36217.⁽¹⁸⁾⁽¹⁵⁾⁽¹⁶⁾ The proposed point of diversion is described as being within the SW1/4 SW1/4 Section 18, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 36217.⁽¹⁶⁾ The existing manner of use is irrigation and domestic.

Application 47136 was filed on August 5, 1983, by Vernon L. Davis to change the point of diversion, manner and place of use of a portion of water from Galena Creek and tributaries for quasi-municipal and domestic purposes heretofore decreed and changed under Permit 36217.⁽¹⁹⁾⁽¹⁵⁾⁽¹⁶⁾ The proposed point of diversion is described as being within the NE1/4 SW1/4 Section 18, T.17N., R.19E., M.D.B.&M., and the proposed place of use is

¹⁷ Public record in the State Engineer's office under Application 47134.

¹⁸ Public record in the State Engineer's office under Application 47135.

¹⁹ Public record in the State Engineer's office under Application 47136.

described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 36217.⁽¹⁶⁾ The existing manner of use is irrigation and domestic.

Application 47137 was filed on August 5, 1983, by Vernon L. Davis to change the point of diversion, manner and place of use of a portion of water from Galena Creek and tributaries for quasi-municipal and domestic purposes heretofore decreed and changed under Permit 36217.⁽²⁰⁾⁽¹⁵⁾⁽¹⁶⁾ The proposed point of diversion is described as being within the SE1/4 SW1/4 Section 18, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 36217.⁽¹⁶⁾ The existing manner of use is irrigation and domestic.

Application 47138 was filed on August 5, 1983, by Vernon L. Davis to change the point of diversion, manner and place of use of a portion of water from Galena Creek and tributaries for quasi-municipal and domestic purposes heretofore decreed and changed under Permit 36217.⁽²¹⁾⁽¹⁵⁾⁽¹⁶⁾ The proposed point of diversion is described as being within the NW1/4 NW1/4 Section 19, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 36217.⁽¹⁶⁾ The existing manner of use is irrigation and domestic.

The total decreed duty of water and rate of diversion under Applications to Change 47133 through 47138 is set forth under Claims 655, 656, 657, 658 and 659 of the Truckee River Decree.⁽¹⁵⁾

²⁰ Public record in the State Engineer's office under Application 47137.

²¹ Public record in the State Engineer's office under Application 47138.

Application 47139 was filed on August 5, 1983, by Vernon L. Davis to change the point of diversion, manner and place of use of a portion of water (0.4059 c.f.s.) from an underground source for quasi-municipal and domestic purposes heretofore appropriated under Permit 30297, Certificate 9934.⁽²²⁾⁽²³⁾ The proposed point of diversion is described as being within the SE1/4 NW1/4 Section 19, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 30297, Certificate 9934.⁽²³⁾ The existing manner of use is irrigation and domestic.

Application 47140 was filed on August 5, 1983, by Vernon L. Davis to change the point of diversion, manner and place of use of a portion of water (0.49 c.f.s.) from an underground source for quasi-municipal and domestic purposes heretofore appropriated under Permit 30298, Certificate 9935.⁽²⁴⁾⁽²⁵⁾ The proposed point of diversion is described as being within the SE1/4 SW1/4 Section 18, T.17N., R.19E., M.D.B.&M., and the proposed place of use is described as being within Sections 13, 14, 23, 24, 25 and 26, T.17N., R.18E.; Sections 7, 8, 17, 18, 19, 20, N1/2 Section 29 and the N1/2 Section 30, T.17N., R.19E., M.D.B.&M. The existing point of diversion and place of use are set forth under Permit 30298, Certificate 9935.⁽²⁵⁾ The existing manner of use is irrigation and domestic.

II.

Application to Change 47130 was timely protested on October 5, 1983, by Jim and Violet Sloan, Judi M. Anderson, Ken and Bonnie Reimers and Dannie and Lynn Jasmine on the following grounds:⁽²⁶⁾

22 Public record in the State Engineer's office under Application 47139.

23 Public record in the State Engineer's office under Permit 30297, Certificate 9934.

24 Public record in the State Engineer's office under Application 47140.

25 Public record in the State Engineer's office under Permit 30298, Certificate 9935.

26 Public record in the State Engineer's office under Application 47130.

"Granting the proposed point of diversion and place of use change will impair the value of existing rights and threaten to prove detrimental to the public welfare within the Pleasant Valley Basin. When application #34622 for irrigation and domestic use was denied in 1978, one of the grounds for denial was the amount of water and the use applied for in this concentrated area would threaten existing rights."

Application to Change 47131 was timely protested on October 5, 1983, by Evelyn Hedstrom and Violet M. Sloane on the following grounds: (27)

"We oppose the removal of water from this district. All property owners within the boundaries of the Mt. Rose service area are dependent for their water needs upon this water company. Their first responsibility is to fulfill those needs; therefore, under no circumstances should the water be removed from the present service area."

Application to Change 47131 was timely protested on October 5, 1983, by Ken Breckenridge on the following grounds: (27)

"I oppose the proposed change by the Mt. Rose Service Company. All property owners within the boundaries of the present Mt. Rose service area that have not built on their property are dependent on this company for their water needs. Their first responsibility is to fulfill those needs; therefore the water should not be removed from the present service area."

Applications to Change 47127 through 47132 were timely protested on January 27, 1984, by the Truckee Carson Irrigation District on the following grounds: (28)

"1. The additional appropriation of underground water as applied for in this application will over-appropriate this ground water basin and will diminish and damage existing and historical Galena Creek decreed rights of

27 Public record in the State Engineer's office under Application 47131.

28 Public record in the State Engineer's office under Applications 47127 through 47132.

all downstream water users that depend upon this source (Galena Creek) for their water supply. All of the underground water in the Galena Creek basin is currently being put to beneficial use.

2. The allowing of this application to change the place of use from the Mt. Rose Service Co Inc service area to another area (Galena Resort) will promote the further construction of single dwelling domestic wells in the Mt. Rose Service Co Inc "service area" and thereby create further over appropriation to the underground water supply.

3. The change in manner of use to a more concentrated Quasi-municipal development in the Galena Resort proposed place of use and the subsequent export of the a large portion of the water in the form of wastewater to the Huffacker Hill are for "land application" treatment, which is consumptively used, will not allow for the historical recharge and reuse of this water to the Galena Creek basin and thence to downstream users on Steamboat and the Truckee River."

Applications to Change 47127 through 47132 were timely protested on January 27, 1984, by the Washoe Lake Reservoir and Galena Creek Ditch Company on the following grounds: (28)

"Based on the grounds sited in Exhibit 'A' (attached), the application should be denied because the proposed change in groundwater rights will adversely impact our prior existing surface water rights.

EXHIBIT 'A'

1. The developer who will use the water rights, which are the subject of this application, has proposed transporting a major portion of this water out of the drainage of Galena Creek and thus making it unavailable for return flow to satisfy historic uses and existing water rights.

2. The applications represent an overall demand for water by the developer who will use these rights at 3300 acre-feet, while representation before the Washoe County Commission on 11/09/83 indicated that much less will be needed. The applications must be limited to the amount that actually can be placed to beneficial use consistent with historic state policy.

3. Action on this application must be withheld until U.S.G.S. studies are completed which deal with this drainage area.

4. Action on this application must be withheld until the final results of the Washoe County Hydrologist, D.A. Mahin, are available.

5. If the Mt. Rose Service Company is allowed to move a large portion of their water rights into an area outside their existing service area, they will not have enough water rights left to serve the area. Water service in this area will then have to be sought from other sources including individual domestic wells. Due to uncertainty of ground water availability, it would be better to have one company in one area allowing control as more data is made available.

6. The previously referenced studies may show a distinction in groundwater sources from the existing point of diversion to the new.

7. The proposed point of diversion is also proposed to be a point of 'induction' from Galena Creek. Before action can be taken, specific test results must be made available to all interested parties for thorough analysis to determine the viability of specific 'well' sites to accomplish the water extraction applied for. In this area, mistakes in judgement will effect historic users for years to come and any judgement decision should very heavily favor historic existing water rights."

Applications to Change 47129 through 47131 were timely protested on January 27, 1984, by Frank Evarts on the following grounds: (29)

"1. I oppose the removal of water from this water service area that is supposed to be served by the Mt Rose Service Co. Inc. All property owners within the boundaries of the Mt Rose Service Co Inc. service area are dependent upon their water needs from this water company. The first responsibility is to fulfill those

29 Public record in the State Engineer's Office under Applications 47129 through 47131.

needs; therefore, under no circumstances should the water be removed from the present service area.

2. The additional appropriation of underground water as applied for in this application will over-appropriate this ground water basin and will diminish and damage the existing underground water rights, including single dwelling domestic wells in the pleasant balley basin. All of the underground water inthe Galena Creek basin is currently being put to beneficial use.

3. The application for change in place of use from the Mt Rose Service Co Inc. service area to the upper Galena Creek watershed (Galena Resort Site) will impair the amount and value of existing downslope underground water right holders, including water users and land holders (owners) located in the Mt Rose Service Co. Inc. service area, and will be detrimental to the public interest and welfare of the water users in this drainage basin.

4. The allowing of this application to change the place of use from the Mt. Rose Service Co Inc service area to another area (Galena Resort) will promote the further construction of single dwelling domestic wells in the Mt Rose Service Co Inc 'service area' and thereby create further overappropriation of the underground water supply.

5. The change in manner of use to a more concentrated Quasi-Municipal (Q-M) development in the Galena Resort development and the export of a large portion of this water in the form of wastewater to the Huffacker Hill area for treatment will not allow for recharge and reuse of this water in the Galena Basin, thereby further reducing the weater supply (Galena Creek and underground) in the plasant Valley basin.

6. The additional appropriation of underground water as applied for in these permits will over appropriate the Galena Creek underground water basin to the extent that water will be taken from Galena Creek itself, thereby reducing and damaging downstream water users surface and groundwater rights located in and on Galena Creek basin, pleasant and Steamboat Valleys, S.E. Truckee meadows and the lower Truckee River including TCID.

7. The proposed manner of use water demands, anticipated salvage and 'available' water rights

exhibits that were presented before the Nov. 8, 1983 Washoe County Commission by Galena Resort consultants appear to be adverse to the water right of current water users (decreed and underground) in the Galena Creek basin, Pleasant and Steamboat Valleys, S.E. Truckee meadows and TCID. These exhibits should be examined before action is taken on these applications.

8. The request is made that prerequisite to the consideration of this application that the following publications, reports and/or test results be made available to all parties prior to a public hearing concerning these applications:

A. U.S.G.S. report describing the Galena Creek Basin Water budget by T. Katzer (in preparation)

B. Washoe County Hydrologist studies that include groundwater well pumping tests made in the Galena Creek basin and a Memo written (8/11/83) by D.A. Mahin, P.E. Hydrologist to M. Harper, Assistant Dir. Planning Admin.

C. Aquifer tests of two (2) test well constructed and developed by Galena Resort consultants in the upper Galena water shed on the project site. Available data includes: lithography, rate drilling penetration, sieve analysis of aquifer(s), 'E' logs, and /or gamma logs, well casing and intake placement and intake type, gravel envelope description, sanitary seal depth, pumping test including constant Q, and/or step test, water chemistry and temperature and overvoltage well observations."

Application to Change 47139 was timely protested on October 5, 1983, by Jack G. O'Brien on the following grounds: (30)

"The well was applied for as a supplement to Galena Creek in dry years. If this application is granted, it will change the creek flow and be very unfair to the water rights in all the downstream users. If water is changed from agriculture (irrigation) to quasi-municipal or domestic and pumped out of the valley in effluent, it will eliminate secondary recharge in the whole basin."

30 Public record in the State Engineer's office under Application 47139.

Applications to Change 47133 through 47138 were timely protested on January 27, 1984, by the Washoe Lake Reservoir, Truckee Carson Irrigation District and Galena Creek Ditch Co. and Timothy Holt on the following grounds: ⁽³¹⁾

1. The proposed transfer of existing water rights upstream above our diversion could not be equitably distributed to protect our water rights in light of the fact the Truckee River Decree entitles us to diversion of 114 cubic feet per second during the winter and the proposed period of use is annual.

2. The developer who will use the water rights, which are the subject of this application, has proposed transporting a major portion of this water out of the drainage of Galena Creek and thus making it unavailable for return flow to satisfy historic uses and existing water rights.

3. The applications represent an overall demand for water by the developer who will use these rights at 3300 acre-feet, while representation before the Washoe County Commission on 11/09/83 indicated that much less will be needed. The applications must be limited to the amount that actually can be placed to beneficial use consistent with historic state policy.

4. Action on this application must be withheld until U.S.G.S. studies are completed which deal with this drainage area.

5. Action on this application must be withheld until the final results of the Washoe County Hydrologist, D.A. Mahin, are available.

Applications to Change 47138 and 47140 were timely protested on January 27, 1984 by Frank Evartz on the following grounds: ⁽³²⁾

"1. By allowing this application to change the point of diversion upstream (from Pleasant Valley to the upper Galena watershed) will diminish the amount of water

³¹ Public record in the State Engineer's office under Applications 47133 through 47138.

³² Public record in the State Engineer's office under Applications 47138 and 47140.

available in the streambed for recharging the underground aquifer(s) in the lower Galena Creek basin, thereby adversely affecting or reducing the water supply to my well.

2. The change in manner of use to a more concentrated Quasi-municipal (Q-M development in the Galena Resort development and the export of a large portion of this water in the form of wastewater to the Huffacker Hill area for treatment will not allow for recharge and reuse of this water in the Galena Basin, thereby further reducing the water supply (Galena Creek and underground water) in the Pleasant Valley basin."

Applications 47139 and 47140 were timely protested on January 27, 1984 by Timothy F. Holt on the following grounds: (33)

1. The developer who will use the water rights, which are the subject of this application, has proposed transporting a major portion of this water out of the drainage of Galena Creek and thus making it unavailable for return flow to satisfy historic uses and existing water rights.

2. The applications represent an overall demand for water by the developer who will use these rights at 3300 acre-feet, while representation before the Washoe County Commission on 11/09/83 indicated that much less will be needed. The applications must be limited to the amount that actually can be placed to beneficial use consistent with historic state policy.

3. Action on this application must be withheld until U.S.G.S. studies are completed which deal with this drainage area.

4. Action on this application must be withheld until the final results of the Washoe County Hydrologist, D.A. Mahin, are available."

Applications to Change 47139 and 47140 were timely protested on January 27, 1984, by Washoe Lake Reservoir and Galena Creek Ditch Co. on the following grounds: (33)

33 Public record in the State Engineer's office under Applications 47139 and 47140.

1. The developer who will use the water rights, which are the subject of this application, has proposed transporting a major portion of this water out of the drainage of Galena Creek and thus making it unavailable for return flow to satisfy historic uses and existing water rights.
2. The applications represent an overall demand for water by the developer who will use these rights at 3300 acre-feet, while representation before the Washoe County Commission on 11/09/83 indicated that much less will be needed. The applications must be limited to the amount that actually can be placed to beneficial use consistent with historic state policy.
3. Action on this application must be withheld until U.S.G.S. studies are completed which deal with this drainage area.
4. Action on this application must be withheld until the final results of the Washoe County Hydrologist, D.A. Mahin, are available."

Application to Change 47138 was timely protested on October 5, 1983, by Harry P. Callahan on the following grounds: ⁽³⁴⁾

"The proposed use will conflict with existing rights. To allow this application the change point of diversion, place of use, manner of use, and time of use will endanger the Decree. Pumping this water out in effluent will eliminate secondary recharge."

Application to change 47140 was timely protested on October 5, 1983, by Harry P. Callahan on the following grounds: ⁽³⁵⁾

"Changing the place of use on this certified well with decreed rights will jeopardize existing rights in Galena Creek. Changing the manner of use from irrigation to domestic or quasi-municipal will give an unfair priority to the new right over the older rights. Pumping this water out in effluent will eliminate secondary recharge."

³⁴ Public record in the State Engineer's office under Application 47138.

³⁵ Public record in the State Engineer's office under Application 47140.

Applications to Change 47133 through 47140 were timely protested on January 27, 1984 by the Truckee Carson Irrigation District on the following grounds: (36)

"1. By allowing this application to change the point of diversion upstream (from Pleasant Valley to the upper Galena watershed) will diminish the amount of water available for downstream diversion as set out in the Truckee River decree.

2. By allowing this application's change in manner of use from irrigation to quasi-municipal (Q-M) and the subsequent export of a large portion of this diversion out of the stream system and consumptively used, will preclude the historical reuse of this water and will decrease the water supply to downstream water right holders.

3. The granting of a change in the period of use from a 'summertime' or irrigation period of use, as set by the Federal Water Master, to a year-around period of use will be detrimental to other water right holders of this stream system. The establishment of priorities will be difficult, if not impossible to implement.

4. By allowing the change in period of use, thereby allowing wintertime use in the upper Galena watershed (Galena Resort) will diminish that amount of water that historically has served the Washoe Lake Reservoir and Galena Creek Ditch Co and the Truckee Carson Irrigation District's storage rights.

5. By allowing the construction of the Q-M Galena Resort on riparian-spring discharge areas that are tributary to Galena Creek, the resultant drainage facilities required for construction will change the flow regime of Galena Creek in such a manner as to be detrimental to downslope and downstream water users.

6. The proposed manner of use water demands, anticipated salvage and 'available' water rights exhibits that were presented before the Nov. 8, 1983 Washoe County Commission by Galena Resort consultants

36 Public record in the State Engineer's office under Applications 47133 through 47140.

appear to be adverse to the water right of current water users (decreed and underground) in the Galena Creek basin, pleasant and Steamboat Valleys, S.E. Truckee meadows and TCID. These exhibits should be examined before action is taken on these applications.

7. The request is made that prerequisite to the consideration of this application that the following publications, reports and/or test results be made available to all parties prior to a public hearing concerning these applications:

A. U.S.G.S. report describing the Galena Creek Basin Water budget by T. Katzer (in preparation)

B. Washoe County Hydrologist studies that include groundwater well pumping tests made in the Galena Creek basin and a Memo written (8/11/83) by D.A. Mahin, P.E. Hydrologist to M. Harper, Assistant Dir. Planning Admin.

C. Aquifer tests of two (2) test well constructed and developed by Galena Resort consultants in the upper Galena water shed on the project site. Available data includes: lithography, rate drilling penetration, sieve analysis of aquifer(s), 'E' logs, and /or gamma logs, well casing and intake placement and intake type, gravel envelope description, sanitary seal depth, pumping test including constant Q, and/or step test, water chemistry and temperature and overvation well observations."

Applications to Change 47133 through 47138 were timely protested by the Nevada Department of Wildlife on January 27, 1984, on the following grounds: ⁽³¹⁾

"The use of 2.36 cubic feet per second of water from the headwaters of Galena Creek in addition to the cumulative effect of 2,550 acre feet per year as proposed in application numbers 47133 through 47138 could have a serious detrimental impact on the existing fishery resource within the drainage. Stream surveys conducted in the area during September, October, and November of 1978 and again during May of 1979 show that Galena Creek supports approximately 8.2 miles of fishable water with rainbow and brook trout being the primary fish species (see attached map). Densities of fish ranged between 17.6 and 211.2 fish per mile within the drainage.

Fish stocking records which are maintained by our agency show that 101,704 total fish were planted in Galena Creek between 1952 and 1973 as a means of increasing the put-and-take recreational opportunity. Fish stocking was discontinued in the area from 1973 through 1980. Stocking was reinstigated in 1981 with 3,889 total fish planted during 1981, 1982, and 1983.

Angler use of Galena Creek as measured by a ten percent angler questionnaire showed an average of 799.5 days per year expended on Galena Creek between 1972 and 1977. It is anticipated that fishing pressure on small streams throughout northwestern Nevada will continue to increase based on various records.

In view of the importance of Galena Creek to the fisheries and associated riparian habitat, we believe that a minimum flow should be assured as a means of protecting these valuable resources."

III.

A public administrative hearing in the matter of Applications to Change 47127 through 47140, inclusive, was held before the State Engineer on May 21st through 23rd, 1984.⁽³⁷⁾ The applicants and protestants made evidentiary presentations at the hearing. Additionally, the State Engineer took administrative notice of all records and information available in the State Engineer's office.⁽³⁸⁾ Several studies relating to water resources analysis and appraisal of the surface water and ground water systems within the Pleasant Valley Ground Water Basin (also known as the Pleasant Valley Hydrographic Area) and adjacent basins were entered into the record⁽³⁹⁾. Additionally, extensive testimony was received by experts and witnesses representing applicants or protestants who had standing in this matter.⁽⁴⁰⁾

37 See transcript of hearing, public record in the State Engineer's office.

38 See transcript of hearing, page 11, public record in the State Engineer's office.

39 State of Nevada Exhibits 2 and 3; Galena, et al., Exhibits 18 and 28; Poore Exhibit 2; TCID, et al., Exhibits 20 and 21.

40 See transcript of hearing, public record in the State Engineer's office.

IV.

The applications to change the public waters which are the subject matters of this ruling were filed in support of a resort development of approximately 6,000 acres of private fee land located between the Sky Tavern and Mt. Rose Ski areas and the summit of the Mt. Rose Highway (State Route 431) in Washoe County.⁽⁴¹⁾ The development is ski-recreation oriented and will include lodges, hotels, employee housing, commercial and gaming facilities as well as a golf course.

V.

The effects of the proposed applications to change on existing rights and the public interest require a factual determination and judgment through close examination of the extensive hearing record combined with other hydrologic data and information available to the State Engineer.⁽⁴²⁾ Additionally a close review of the hydrologic and geologic elements of the Pleasant Valley hydrographic area is essential because of the substantial interconnection between the surface water and ground water systems and the hydraulic interconnection of these systems with adjacent basins.

FINDINGS OF FACT

I.

On March 1, 1978, the State Engineer described and designated the Pleasant Valley Ground Water Basin as a ground water basin coming under the provisions of NRS Chapter 534 (Conservation and Distribution of Underground Waters).⁽⁴³⁾

The location, physiographic, geologic and hydrogeologic setting of the Pleasant Valley Ground Water Basin and drainage basins are described and set forth by various exhibits entered into the record before the State Engineer.⁽⁴⁴⁾ The Galena Creek

⁴¹ Galena, et al., Exhibits 3, 17 and 19.

⁴² NRS 533.370.

⁴³ State Engineer's Order No. 709, public record in the office of the State Engineer.

⁴⁴ State of Nevada Exhibits 2, 3, 7, 8, 9 and 10; Galena, et al., Exhibits 10, 18, 26 and 28; TCID, et al., Exhibit 20.

drainage basin encompasses an area of approximately 18 square miles which consists of what is known as the "Mountain Block" or mountain slopes (11.6 square miles) and the alluvial fan areas (6.4 square miles).⁽⁴⁵⁾ The Galena Creek Ground Water Basin is a sub-basin element of the Pleasant Valley Ground Water Basin, which is additionally considered a physiographic element of the Truckee River Basin. The ground water basin is generally coincident with the area of the alluvial fans within the drainage basin. In addition, there are two other identified sub-basin areas within the Pleasant Valley Ground Water Basin; the Pleasant Valley ground water sub-basin and the Steamboat area sub-basin.

II.

The source of all water in the Galena Creek drainage basin is precipitation which deposits a high of 65 inches at the upper elevations to a low of 15 inches at the point of lowest altitude for an average mean-annual precipitation of 33 inches or about 32,000 acre-feet.⁽⁴⁶⁾

Primary evapotranspiration within the Galena Creek drainage basin is on the order of 22,000 acre-feet annually dependent on how much water enters the fracture system at the bedrock contact.⁽⁴⁷⁾

III.

Mean annual water budgets for both the Galena Creek drainage basin and ground water basin were entered into the record which describe and set forth the water yield of the system.⁽⁴⁸⁾ These budgets additionally quantify by detailed appraisal the surface water and ground water inflows to the basin and the respective outflow components.

IV.

Natural primary ground water recharge to the Galena alluvial fan area is on the order of 3,000 acre-feet annually and is derived principally from the streambed of Galena Creek and

45 State of Nevada Exhibits 2 and 3.

46 State of Nevada Exhibit 3, page 25.

47 State of Nevada Exhibit 3, pages 25 through 36.

48 State of Nevada Exhibit 3, pages 24 and 41.

tributaries with minimal contribution from precipitation within the fan area. (49) 50

V.

Existing ground water rights within the Pleasant Valley Ground Water Basin exceed 6700 acre-feet annually. (51) An additional 5700 acre-feet annually has been approved for industrial (geothermal) purposes. (52)

The State Engineer has denied applications to appropriate ground water within the Pleasant Valley Ground Water Basin in the past. (53) Existing rights exceed 3,000 acre-feet within the Galena Creek Ground Water basin and in addition, there are presently in excess of 370 domestic wells within the boundaries of the basin. (54) (55)

VI.

A substantial portion of the record addresses the hydrologic elements in the mountain block and warrants discussion because of the conclusions of the engineering studies entered into the record. There were several hydrologic points of conflict, the most significant was the quantification of water flowing or recharging the bedrock component in the upper drainage of Galena Creek and in particular in the proposed Galena resort area. The relationship between precipitation, runoff, ground water recharge, and evapotranspiration was addressed in both the U.S. Geological Survey Water Resources appraisal and the applicants and protestants investigations. (56) 57 In attempting to define

49 State of Nevada Exhibit 3, pages 40 through 45.

50 State of Nevada Exhibit 3, page 43.

51 State of Nevada Exhibit 4.

52 State of Nevada Exhibit 4.

53 Public record in the State Engineer's office.

54 State of Nevada Exhibit 4.

55 TCID Exhibit 10; well logs - public record in the State Engineer's office.

56 State of Nevada Exhibits 2 and 3; testimony of Terry Katzer, hearing transcript pages 11 through 84, 665 through 667; testimony of A.S. Vandenburg, hearing transcript pages 102 through 110.

and evaluate the bedrock component, the record of hydrogeologic investigation necessarily was subject to detailed evaluation. The hypothesis set forth in the applicants' investigation relating to quantification of recharge into the fractured bedrock is highly improbable in light of established hydrogeologic principals of occurrence and movement of ground water in the bedrock environment.⁽⁵⁸⁾ A more reasonable hypothesis is found to support a limited recharge, especially if the ground water hydraulics of the bedrock are semi-defined by the well logs and aquifer tests of the two test wells.⁽⁵⁹⁾

It can be reasonably assumed that some of the fractured rock flow is reaching the Steamboat geothermal area which discharges approximately 1,800 acre-feet per year.⁽⁶⁰⁾ The total contributing area of flow is estimated to be approximately 345 square miles. The amount that is being contributed from the relatively small Galena drainage may be undefinable at this time; however, it must be considerably less than the total discharge and assumed in proportion to the total contributing area.

The applicant's theory and quantitative analysis of the bedrock component is not supported by the record on review or reasonable assumption and therefore is not hydrologically sound.

VII.

Secondary evapotranspiration and ground water recharge to the Galena fan area is closely connected to and influenced by mans activities.⁽⁶¹⁾ Secondary ground water recharge therefore cannot be considered a long term reliable source of ground water recharge or perennial yield.

58 See Appendix "B" of this Ruling.

59 Galena, et al., Exhibit 28, see Appendix "A" and "B".

60 U.S. Geological Survey Water Supply Paper 458-C, by Donald E. White, titled "Hydrology, Activity, and Heat Flow of the Steamboat Springs Thermal System, Washoe County, Nevada".

61 State of Nevada Exhibit 3, pages 36 and 42.

VIII.

There is substantial hydraulic connection between the surface water flows of Galena Creek and tributaries and the alluvial outwash of the mountain block in the upper reaches of the Galena Creek drainage. (62)

IX.

The proposed changes in existing ground water rights will provide the water supply for human consumption in the Galena Resort project. (63) Review of the record including the information from the two test wells that were drilled under waiver reveals significant information concerning the potential yield of ground water in the upper basin outwash alluvium. (64)

The upper 300 to 400 feet of fill below the surface consists of unconsolidated clay, silt, sand, gravel and boulders both large and small. The extremities of this unconfined aquifer system are somewhat contained because of the predominance of the granite outcroppings on both the north, south and west side of the drainages. Below the unconfined aquifer are impermeable beds of fractured granite whose hydrologic and geologic characteristics are addressed in Finding VII.

The recharge areas in the mountain block are considerably higher in elevation than the Galena fan area. This coupled with the steep easterly slope of the mountain block and the relatively shallow depth of the unconfined upper basin alluvium result in free flow of water from springs and artesian flow in wells that penetrate the alluvium. (65) Artesian head is likely to expose itself in significant fractures within the granite bedrock especially where the granite is exposed at the surface. Additionally, it is reasonable to assume that some water reaching the bedrock contact may move down gradient and either enter the stream channel or alluvial fan area as ground water recharge.

62 State of Nevada Exhibit 3; Galena, et al., Exhibits 18 and 28; TCID, et al., Exhibit 20.

63 Galena, et al., Exhibits 18 and 28.

64 Galena, et al., Exhibit 28.

65 Galena, et al., Exhibit 28 - see reports on test wells 1 and 2, Appendix "A" and "B".

Information developed by the test well activity also reveals a saturated alluvium condition with no soil moisture deficiency at the time the wells were drilled and tested.⁽⁶⁶⁾ The evidence is substantial that the unconfined alluvial aquifer in the upper reaches of the Galena drainage is directly connected with the surface water system and to varying degrees, the surface streams, the unconfined aquifer, and the confined bedrock aquifer are hydraulically connected.

The issue that now must be considered is first, whether withdrawals of ground water from the confined bedrock aquifer can be accomplished without interfering with surface water sources and existing rights and second, can sources of water be developed from the bedrock with reliability to sustain the yield necessary to support the proposed development and the public interest.

One crucial element of any ground water system is the amount of water in storage that can be drawn on during periods of drought or less than average recharge. Additionally, when withdrawal consistently exceeds recharge or perennial yield, short term and long term adverse conditions develop which include but are not limited to:

- (a) cones of depression
- (b) land subsidence
- (c) declining ground water levels
- (d) increased pumping lifts
- (e) potential water quality deterioration
- (f) decreased artesian pressure
- (g) increased recharge to aquifers from the streams in the area
- (h) decreased flow into surface streams from springs connected to both confined and unconfined aquifers which results ultimately in streamflow depletion
- (i) reversal of ground water gradients.

These conditions are not illusions but are well documented in several ground water basins within the State of Nevada where withdrawals have exceeded recharge.⁽⁶⁷⁾ The mountain block of the upper Galena drainage is not unique in hydrologic characteristics to the extent that would provide significant distinctions as a basis for disqualifying any potential injury to

⁶⁶ See footnote 63, additionally, testimony of William Nork, hearing transcript pages 565 through 664.

⁶⁷ See Appendix "A", List of References.

existing rights that may or could occur. However, information available on recharge, storage, yield and ground water movement in the mountain block is limited.

The State Engineer finds, after detailed review and consideration of the record, that by placing conditions on the use of wells through phased development, a record can be developed on a phase-by-phase basis that will demonstrate whether use by the applicant can be made without material adverse effects. The State Engineer makes this finding with caution and with the understanding that the provisions of NRS 278, NRS 278A and NRS 117 will require that the applicant demonstrate the reliability of the sources of water and that the development of those sources will not adversely effect existing rights.⁽⁶⁸⁾⁽⁶⁹⁾

X.

The limit and extent of the water rights of the Truckee River and tributaries has been determined and are set forth in the final decree titled The United States of America vs. Orr Water Ditch Company, et al. in equity docket No. A3 U.S. District Court in and for the District of Nevada.⁽⁷⁰⁾ Galena Creek and Steamboat Creek are tributaries to the Truckee River.

XI.

Galena Creek is a perennial stream with its headwaters rising in the upper reaches or highlands of the Carson Range on the southern slopes of Mt. Rose and within the drainage basin of the Pleasant Valley hydrographic area.⁽⁷¹⁾ The creek from the general area of its head waters transits the mountain slopes off the Carson Range in a northeasterly direction, gains flow from tributaries and exits the mountain block onto what is commonly known as the Galena alluvial fan, approximately in the vicinity of the NW1/4 SW1/4 Section 9, T.17N., R.19E., M.D.B.&M.⁽⁷²⁾ The creek continues in an easterly direction down gradient across the fan to the narrows formed by the Steamboat hills where it exits into the Pleasant Valley sub-basin and joins Steamboat Creek as a

68 NRS 278.377, NRS 278.355, NRS 278A.450, NRS 278A.530.

69 NRS 117.027.

70 Truckee River Decree, pages 72 through 81.

71 State of Nevada Exhibits 2, 3, 7, 8, 9 and 10.

72 State of Nevada Exhibit 9.

tributary.⁷² Steamboat Creek then flows to the northeast to join the Truckee River as a tributary.

XII.

The record establishes that the average annual flow of Galena Creek as it exits the mountain block and enters the alluvial fan, is approximately 8,100 acre-feet before any diversions occur.⁽⁷³⁾ The evidence is substantial to support this finding even though it was disputed by the applicant's experts. Some 20 years of gaged measurements have been documented by the U.S. Geological Survey at the gaging station located on the alluvial fan approximately 1-1/2 miles downstream from the mountain front. The computed average flow of Galena Creek at the mountain front is reasonable and technically sound. Upon entering the upper fan area, Galena Creek becomes a "losing" stream, diversions occur under decreed rights and additionally water from the stream bed percolates into the ground water system as recharge.⁽⁷⁴⁾⁽⁷⁵⁾ The flow record of the U.S. Geological Survey gaging station located on the fan establishes an average annual flow of 6,380 acre-feet which demonstrates the depletive effects of diversions and ground water recharge.⁽⁷⁶⁾ Down gradient from the gaging station in the lower reaches of Galena Creek, the annual flow begins to increase because of tributaries, return flows from upstream diversions and ground water which surfaces and reenters the stream channel.⁽⁷⁷⁾ The creek therefore becomes a "gaining" stream augmented by flows that are not available in the upper reaches of the system. Upon entering the Pleasant Valley sub-basin, this augmented flow is available and diverted to meet the decreed rights proposed to be changed under Applications 47133, 47134, 47135, 47136, 47137 and 47138, as well as other downstream decreed rights under the priority system set forth in the Truckee River Decree. The changes proposed under the applications will, in effect, move the points of diversion from the lower reaches to the head waters of Galena Creek. The effects on downstream users below the existing

⁷³ State of Nevada Exhibit 3, page 28 - also see cited reference pages 58 and 59.; Galena, et al., Exhibit 18.

⁷⁴ Truckee River Decree, pages 72 through 74.

⁷⁵ State of Nevada Exhibit 3, pages 40 and 43.

⁷⁶ Water Resources Data, Nevada 1982; USGS Report NV-82-1, p. 261.

⁷⁷ State of Nevada Exhibit 3, page 38.

diversions will be beneficial and in favor of those users simply because those sources of water that augment the flow in the lower reaches will no longer be diverted and subject to consumptive use, thereby reducing the depletive effect on the downstream flows. There was no evidence presented at the hearing to challenge or invalidate this finding.

XIII.

The record establishes the natural consumption of water by evapotranspiration. The applicants experts contend that the Galena Resort development is well planned and designed to result in a substantial salvage of water that would otherwise be lost through the evapotranspiration process, thereby augmenting the historical flow patterns of upper Galena Creek. The applicant seeks to demonstrate that post development conditions on a case-by-case basis will be beneficial to the downstream users.⁽⁷⁸⁾ The protestants counter with evidence and testimony that takes direct issue with applicant's hypothetical situations and offers of proof relating to the effect of the development on historical stream flows primarily related to consumptive uses.⁽⁷⁹⁾

The State Engineer has no doubt that the proposed development will result in alteration of the runoff characteristics within the upper reaches of the Galena drainage. The State Engineer finds, after careful review of the record, the applicants have presented persuasive evidence and demonstrated an effort to promote conservation and efficiency in the use of water, at least in theory.

XIV.

The proposed change of use from irrigation to quasi-municipal will necessarily be restricted by the provisions of the Truckee River Decree. The decree specifically provides at page 87:

"No owner or person or party entitled to the use of water under this decree shall be allowed to use for irrigation during any calendar month more than twenty-five percent of the quantity of direct water in acre-feet hereby allowed for the land for the season."

⁷⁸ Galena, et al., Exhibits 6, 7, 11, 12, 13 and 18; testimony of Frederick Duberow; hearing transcript pages 430 through 561.

⁷⁹ TCID, et al., Exhibits 20 and 21; testimony of Clair Mahannah, hearing transcript pages 133 through 184.

The decree further provides at page 87:

"Water for irrigation is allowed to be used at any time provided that the amount applied to the land during any calendar year shall not exceed the quantity in acre feet allowed to the land." (Emphasis added)

And at page 88:

"Persons whose rights are adjudicated hereby, their successors or assigns, shall be entitled to change, in the manner provided by law, the point of diversion and the place, means, manner or purpose of use of the waters to which they are so entitled or any part thereof, so far as they may do so without injury to the rights of other persons whose rights are fixed by this decree." (Emphasis added)

These provisions are of special importance to the proposed use and development, especially the consequences in years of low flow or drought. The applicants have an obligation to identify the areas of risk and uncertainty in their analysis of the effects of the development on the public interest. The State Engineer must consider the degree of reliability associated with this analysis and render administrative judgment. The public interest is not independent of or restricted to any demonstration or finding that there is sufficient unappropriated water at the source, or that the proposed use will not adversely affect existing rights. The public interest is imbedded in the historical decreed uses and changes of point of diversion, manner and place of use associated with the Truckee River stream system and the respective diversions to satisfy those uses.⁽⁸⁰⁾ Diminished flows may well result in strict distribution by priority or partial availability of water to rights of equal priority. The record establishes that beneficial use of Galena Creek water under the proposed changes will be limited to non-human consumptive uses and will not be subject to export after use. The record also establishes the level of expectation on actual consumption, diversion requirements and return flows to the stream. During periods of low flow, diversions may be restricted to satisfy downstream existing rights in compliance with the provisions of the decree. Measuring devices, gaging stations and control structures will be required to monitor and control diversions.

⁸⁰ Public records in the State Engineer's office.

XV.

Applications to Change 47139 and 47140 propose to change water from an underground source within the Pleasant Valley sub-basin to the upper reaches of the Galena Creek drainage basin. Application to Change 47140 proposes to change the point of diversion, manner and place of use of a portion of Permit 30298, Certificate 9935, which previously changed Permit 15839, Certificate 4886. Application 47139 proposes to change the point of diversion, manner and place of use of a portion of Permit 30297, Certificate 9934. The existing rights issued under Permits 15839, 30297 and 30298 are supplemental to decreed rights under the Truckee River Decree.⁽⁸¹⁾ The underground sources of water that serve these rights include components of recharge that are not available in the Galena Creek ground water basin, therefore, to allow the changes proposed under Applications to Change 47139 and 47140 would place an additional burden on the limited ground water resource within the Galena Creek ground water basin and would be detrimental to existing rights.⁽⁸²⁾

XVI.

Applications to Change 47127 through 47132 propose to change the point of diversion and place of use of a portion of water from an underground source that was previously appropriated under Permits 35147 through 35152. Permits 35147 through 35152 were issued subject to an agreement entered into by certain parties and the Mt. Rose Water Co., predecessor to Mt. Rose Service Co.⁽⁸³⁾ The State Engineer was not a party to the agreement. The terms and conditions of the agreement specifically allow for change of point of diversion and place of use; therefore, the approval of applications 47127 through 47132 would not be adverse to the terms and conditions of the agreement or the terms and conditions of Permits 35147 through 35152.

XVII.

The record reflects the export of waste water after use under Applications to Change 47127 through 47132 to treatment facilities in the Truckee River Basin and subsequent land application of the treated effluent.⁽⁸⁴⁾ The granting of

81 See footnote 73.

82 State of Nevada Exhibit 2.

83 Galena, et al., Exhibit 2.

Applications 47127 through 47132, therefore, would be totally consumptive as regards secondary recharge or return flows to the Galena ground water basin. Approval of the changes would constitute an increase in consumptive use over that which is allowed under the rights being changed assuming secondary recharge as addressed in Finding VII.

XVIII.

The record does not establish any right for the purpose of maintaining minimum stream flows on Galena Creek or tributaries.

CONCLUSIONS

I.

The State Engineer has jurisdiction over the subject matter set forth herein.⁽⁸⁵⁾

II.

The State Engineer is prohibited by law from granting a permit to appropriate the public waters or change of an existing right where:⁽⁸⁶⁾

- A. There is no unappropriated water in the proposed source, or
- B. The proposed use conflicts with existing rights, or
- C. The proposed use threatens to prove detrimental to the public welfare.

III.

Primary ground water recharge to the Galena Creek Ground Water Basin is approximately 3,000 acre-feet.

IV.

The State Engineer has declared the Pleasant Valley Ground Water Basin to be fully appropriated.⁽⁸⁷⁾

84 Galena, et al., Exhibit 17, page 16.

85 NRS Chapters 533 and 534.

86 NRS 533.370.

V.

Existing rights exceed the estimated annual ground water recharge to the Pleasant Valley Ground Water Basin and Galena Creek Ground Water Basin.

VI.

Information available to estimate or quantify the amount of water entering the fractured bedrock system of upper Galena Creek basin is limited and dependent on the extent of the fracture system and the ability of the system to accept percolating water from precipitation and the unconsolidated outwash alluvium.

VII.

It is highly probable that there is hydraulic contact or connection between the fractured bedrock system and the Steamboat geothermal discharge area located in the Truckee Meadows hydrographic area.

VIII.

There is substantial ground water outflow from the Galena Creek Ground Water Basin to adjacent sub-basins and the Truckee Meadows ground water system.

IX.

The historic runoff patterns, water yield and hydrologic interconnection of Galena Creek and tributaries with the ground water system and the Truckee River are well defined in the record.

X.

The Truckee River Decree limits the diversion of water under any decreed right to no more than 25% of the total right during any 30 day (thirty day) period.

XI.

Rights set forth under the Truckee River Decree are entitled to change in the manner provided by law relating to the point of diversion and the place, means, manner or purpose of use so far

87 See transcript of public hearing before the State Engineer, May 23, 1984, page 689.

as they may do so without injury to the other rights set forth in the decree. Approval of applications to change 47133 through 47138, inclusive, would be subject to other decreed rights set forth in the decree even if junior in priority to the extent of protecting those rights from injury. This may well prohibit the diversion of Galena Creek water under Applications 47133 through 47138, inclusive, during periods of low flow or drought.

XII.

The Truckee River Decree does not prohibit the diversion of water under decreed rights to certain periods of the year, however, by virtue of the changes proposed herein by Applications 47133 through 47138, inclusive, the historical use patterns of other decreed rights may be affected as set forth in Conclusion XI. Diversions can be restricted to certain periods of the year under the changes proposed consistent with the decree if necessary to protect or preclude inquiry to those other rights.

XIII.

Applications to Change 47133 through 47138, inclusive, and 47127 through 47132, inclusive, can be approved under conditions and terms consistent with a phased development of the Galena Resort project. The applicants bear the responsibility of demonstrating the conservation and efficiency set forth in the record. Initial approval will be limited to phase I of the development and the applicants should clearly understand that the State Engineer will require additional evidence or may set additional public hearings for the purpose of receiving additional evidence consistent with the findings and conclusions of this ruling and statutory water quantity review required under the provisions of NRS 278, NRS 278A and NRS 117.

RULING

I.

The protests to the granting of Applications to Change 47127 through 47132, inclusive, are herewith overruled and permits will be issued subject to the following terms and conditions:

1. Subject to existing rights on the source.
2. The total annual combined duty of water is limited to 1,000 acre-feet. Initial combined diversions of water shall not exceed 500 acre-feet annually until

such time as the applicant demonstrates that the source of water can sustain the yield necessary to support additional phased development and without interference or adverse effect on existing rights.

3. Well logs for all production wells will be submitted to the State Engineer's office for review before any perforations are placed in the casing.
4. The State Engineer shall specify and set the depth of outside seals on all wells, but in no case, will seals be placed less than a depth to the bedrock contact or less than 100 feet from the ground surface.
5. The applicant shall submit specifications on the method of sealing to the State Engineer for approval before the placing of any seals. The seals will be so designed as to prevent the downward percolation of ground water into the well through the alluvial outwash.
6. Totalizing meters will be installed on all wells and accurate records of diversion of water maintained and submitted to the State Engineer on a quarterly basis.
7. At least four (4) observation wells shall be so located as to monitor any effects of pumpage on the outwash alluvium. The observation wells shall be no less than 100 feet in depth unless it is demonstrated that the bedrock contact is at a shallower depth.
8. Transfer of title of the applications on the record of the State Engineer's office will be completed to the entity responsible for operation and maintenance of the water system before issuance of permits.

II.

The protests to the granting of Applications 47133 through 47138, inclusive, are herewith overruled and permits will be issued subject to the following terms and conditions:

1. Subject to the terms and conditions of the Truckee River Decree.

2. Total combined annual duty of water shall not exceed 425 acre-feet and the total combined rate of diversion shall not exceed 2.36 c.f.s.
3. Return flows will be allowed to return to the stream system.
4. Export of water out of the basin is prohibited.
5. An approved U.S. Geological Survey gaging station on Galena Creek will be installed and maintained at the expense of the applicant. The location of the gaging station will be specified by the State Engineer.
6. Control structures and measuring devices will be installed at all points of diversion and approved by the State Engineer.
7. Accurate records of all water diverted and returned to the stream system will be maintained and submitted to the State Engineer on a quarterly basis.
8. The applicant or successors in interest will specify in detail by legal description the lands under the existing place of use that are no longer to be irrigated under the proposed changes. The remaining portion of the place of use under Permit 36217 shall be described by legal description and reflect the annual duty of water as set forth under the Truckee River Decree.
9. The diversion and use of water from underground sources set forth under Permit 30298, Certificate 9935 and Permit 30297, Certificate 9934, as supplemental to Permit 36217, is restricted to that place of use remaining under Permit 36217 after the proposed changes so as not to constitute an expansion of acreage under those rights. The total combined annual duty of water under the remaining place of use under Permit 36217; Permit 30297, Certificate 9934; and Permit 30298, Certificate 9935, as well as the remaining Truckee River Decreed rights, shall not exceed that annual duty set forth under the Truckee River Decree for those lands.

10. The priorities set forth in the Truckee River Decree under Claims 655, 656, 657, 658 and 659, as to the proportionate diversions and annual duties, shall be set forth in the terms and conditions of the permits issued under the applications to change.
11. Transfer of title of the applications on the record of the State Engineer's office will be completed to the entity responsible for operation and maintenance of the water system before issuance of permits.

III.

The granting of Applications to Change 47133 through 47138 will be subject to the provisions contained in Conclusions X through XIII.

IV.

Nothing in this Ruling shall be interpreted as a waiver to requirements of any other local, state or federal governmental agencies.

V.

The protests to Applications 47139 and 47140 are herewith upheld and the applications are denied on the grounds that the granting thereof would adversely effect existing rights.

Respectfully submitted


Peter G. Morros
State Engineer

PGM/bl

Dated this 18th day of
JULY, 1984.

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Flow in Fractured Porous Media, by James O. Dugvid and P.C.Y. Lee, Department of Civil Engineering, Princeton University, Princeton, New Jersey.

Virginia City Highlands Recharge Investigation, by Howard Kolterman and Roger Jacobsen, Desert Research Institute for U.S. Geological Survey.

Clear Creek Recharge Investigation, by Richard Boone, Clarence Skau and Mike Campana, Desert Research Institute for the U.S. Geological Survey.

APPENDIX "B"

APPLICANT'S HYDROLOGIC INVESTIGATION
EXHIBIT 28

This summary is a selective review of portions of William Nork's Hydrologic Investigation of the Galena Resort Development area. There are several hydrologic points of conflict. The most significant is the amount of water flowing through the bedrock in the upper drainage area of Galena Creek, in particular, the proposed resort area and the interconnection with the shallow alluvium and surface water system.

On page 34 is a mathematical exercise which defines the flow in the bedrock in the area of test well No. 2 as about 4,200 acre-feet per year. To do this, a single equipotential line length of 20,000 feet is utilized. A flow net is a graphical illustration of a flow pattern with two sets of curves. The first, equipotential lines, represents contours of equal head in the aquifer. Intersecting the equipotential lines at right angles (in an isotropic aquifer which bedrock is not) is another set of lines representing flow lines which indicate the path followed by water as it goes down gradient. Each one of the flow lines will have a different gradient dependent, in part, on the configuration of the basin. However, Nork used a gradient based on the water level in well No. 2 and the altitude of springs up gradient in the bedrock. This is not hydrologically acceptable for it assumes the altitude of the water table represented as spring flow is equal throughout the basin. If this were the case, you would expect a series of springs wherever the land surface intersected this altitude. Yet Nork shows only two springs and it is unclear if the altitude of both were used.

On pages 33-34, K is defined as fractured rock permeability (which the U.S.G.S. calls hydraulic conductivity) equal to $1.0 \text{ ft}^2/\text{day}$ per foot of aquifer depth. He refers to a depth of 150 feet which he assumed is about the thickness of the granite penetration in test well No. 2. This is acceptable and the permeability is an estimate which could be higher or lower. The hydrologic gradient which is not representative of the flow net is probably high; an average might be 0.15. This seemingly minor change will make a substantial difference. He now proceeds to solve Darcey's equation and demonstrate that the amount of water flowing down gradient from the equipotential line equals about 4,200 acre-feet per year. If an equipotential line width of 20,000 feet is used (with a corresponding altitude as defined by the 0.17 gradient) to move water down gradient, then all of this water must pass a flow-section width perpendicular to the valley axis near well No. 2 that is approximately 2,000 feet wide. Recomputing Darcey's equation, using the 2,000 foot width and the other hydrologic data from test well No. 2, shows an order in magnitude substantially less than indicated by Nork, even if you

use the gradient of 0.17 ft/ft, which may be high. On pages 33-34, permeability (hydraulic conductivity) is shown as 150 ft/day. For test well No. 2, the transmissivity (the product of conductivity and aquifer thickness) is 600 GPD/ft. Converting this transmissivity to hydraulic conductivity with a 150 width of aquifer thickness equals 0.5 ft/day, considerably less than the value used on pages 33-34. The equipotential width is a magnitude high; gradient is probably high and the resultant flow in bedrock is substantially less than the reported flow (pages 33-34).

On pages 36-37, ground water storage is discussed - granitic porosity is low, less than 3%, porosity is defined as the ratio of the volume of the interstices (voids) to the total volume of the soil or rock expressed. Primary porosity comprises the original interstices created when a rock was formed in its present state. In intrusive rocks, the few primary interstices result from cooling and crystallization. In general, this value is very low in comparison to 25% which is usually allowed for alluvium. Primary porosity in granite may be from 1% to 0.1% and could easily be .001%. Secondary porosity of granite is caused by fractures and cracks through faulting and weathering. In general, the secondary porosity may increase the primary porosity by as much as 30% or 40%. A primary porosity of .01% can be increased to 0.13%. In general, these values decrease with depth simply due to the weight of the rock pressure. Specific yield cannot be used to compute storage in a confined aquifer. The storage coefficient of an aquifer equals the volume of water an aquifer releases or takes into storage per unit surface area of the aquifer per unit change in head. On page 3 of Nork's report, an assumed coefficient of storage of .001 is adopted for the unconsolidated deposits. The amount of water in storage in the bedrock, in view of the year-round saturated condition of the outwash alluvium, is probably limited and, at the very best, considerably less than represented.

No hydraulic properties were determined in the outwash alluvium (page 34); consequently, the rate and volume of ground water was not determined. However, he did confirm that the alluvial outwash was in a saturated condition. By examination of the drill cuttings from the test wells, he determines that the material in the alluvium has a confining effect on the underlying consolidated rock (page 35) and functions as an effective "aquitard" to the upward vertical movement of ground waters contained therein. It is highly unlikely that the conceptual hydrogeology of the bedrock component (Fig. 7, page 25) is reflected accurately. Now he states, on page 35, that there is little doubt that some ground water becomes part of the total stream flow in Galena Creek before it exits the project property. On page 36, he states that, within the project area, there is no contribution to ground water from surface water and on page 41 states that, in some cases, surface waters percolate downward and become part of the ground water flow system and all of these flow features exist within the Galena Creek sub-basin.

It is unclear whether this is applicable to the upper basin or the alluvial fan area. Then, again on page 44, he states that no contributions to ground water are derived from surface waters; yet some waters in the outwash/alluvium contribute to stream flow. The remainder exits the upper basin as ground water.

These conclusions set forth in the report are unclear and contradictory.

TAB 8

IN THE OFFICE OF THE STATE ENGINEER

IN THE MATTER OF APPLICATIONS 49943,) 49944, 49945 and 49946 FILED BY MUNSON) GEOTHERMAL, INC. TO APPROPRIATE) UNDERGROUND WATER WITHIN THE) BRADY'S HOT SPRINGS AREA, CHURCHILL) COUNTY, NEVADA.)

RULING

GENERAL

I.

Application 49943 was filed with the State Engineer by Munson Geothermal, Inc. on June 25, 1986, to appropriate underground (geothermal) water within the SW1/4 SE1/4 of Section 1, T.22N., R.26E., M.D.B.&M. The beneficial use contemplated by this Application involves utilization of a flow rate of 1529 GPM for electric power generation purposes, and a potential related consumption of water of up to 20% of this flow rate.

Application 49944 was filed with the State Engineer by Munson Geothermal, Inc. on June 25, 1986, to appropriate underground (geothermal) water within the NW1/4 SE1/4 of Section 1, T.22N., R.26E., M.D.B.&M. The beneficial use contemplated by this Application involves utilization of a flow rate of 1529 GPM for electric power generation purposes, and a potential related consumption of water of up to 20% of this flow rate.

Application 49945 was filed with the State Engineer by Munson Geothermal, Inc. on June 25, 1986, to appropriate underground (geothermal) water within the SW1/4 SE1/4 of Section 1, T.22N., R.26E., M.D.B.&M. The beneficial use contemplated by this Application involves utilization of a flow rate of 1529 GPM for electric power generation purposes, and a potential related consumption of water of up to 20% of this flow rate.

Application 49946 was filed with the State Engineer by Munson Geothermal, Inc. on June 25, 1986, to appropriate underground (geothermal) water within the NW1/4 SE1/4 of Section 1, T.22N., R.26E., M.D.B.&M. The beneficial use contemplated by this Application involves utilization of a flow rate of 1529 GPM for electric power generation purposes, and a potential related consumption of water of up to 20% of this flow rate.

II.

Applications 49943, 49944, 49945 and 49946 were timely protested by Gilroy Foods (Hereinafter"GFP). Each protest requested the application be denied on the following grounds:

"The granting of Application(s) (49943, 49944, 49945 and 49946) will jeopardize existing rights of Gilroy Foods. These applications and existing permits are for consumptive use of geothermal water. The Brady Geothermal System is recharged from the ground water basin that depends upon the perennial yield of the basin. This basin is already over-appropriated and the granting of additional permits well have an effect on existing rights. The transient presure analysis performed showed that Munson Geothermal, Inc. wells and Gilroy Foods' wells are interconnected. MGI-1 and Grace 1 response were almost identical, entirely independent of radial distance. This certainly illustrates that no large local aquifer exists. Geothermal resource is being extracted from the Brady Fault which is recharged by leakage through the fracture patterns from the valley to the west. The total consumptive use for existing permits is 4155 acre feet which far exceeds the estimated perennial yield of 2500 acre feet. For further documentation, refer to the transcript and brief in the joint hearing of

Munson Geothermal, Inc. and Gilroy Foods."

Applications 49943, 49944, 49945 and 49946 were ready for action on October 25, 1986.¹

III.

The wells described under Applications 49943, 49944, 49945 and 49946 were the subject of a joint administrative hearing held before the Nevada Department of Minerals and the State Engineer beginning on April 17, 1986. Full opportunity was provided to all parties to supplement the record. No additional evidence or testimony were received within the time period allowed.²

IV.

A significant number of exhibits, published reports and analyses of well testing results, as well as other references have been reviewed by the State Engineer in rendering this determination. For brevity, this list of references and exhibits is not duplicated here and the reader is referred to the entire list of exhibits and references found in the complete hearing files in the Office of State Engineer. The State Engineer has reviewed the entire record in this matter, and has taken administrative notice of the record developed in the previous related matter of Applications 47168 - 47176 (inclusive).

¹ See Applications 49943, 49944, 49945 and 49946 filed in the office of the State Engineer.

² The authority for this hearing is provided under NRS 534A.070(4). See also letter dated April 21, 1987, under the signature of Peter G. Morros, State Engineer, in Application File Nos. 49943, 49944, 49945 and 49946.

FINDINGS OF FACT

I.

Gilroy Foods, Inc. is the senior appropriator within the Brady's Hot Springs area by virtue of the earlier filing dates on its seven underground water appropriation permits, for industrial (geothermal) and domestic purposes. Gilroy Foods, Inc., (hereinafter "GFP") is the owner of record of seven (7) well permits on five (5) wells. Proof of beneficial use has been filed on Permits 29511, Certificate 10559, and on Permit 29512, Certificate 10560, for diversion rate of 1.56 c.f.s. (700 GPM) each and a total consumption of 473.31 acre-feet each for the period of June 1st to October 31 of each year. Permits 44643, 44644, 44645, 44646 and 44647 allow a diversion rate of 5.0 c.f.s. (2244 GPM) each and a consumptive use of 181.0 acre-feet annually each with the remaining 95% of water withdrawn to be returned to the source as a condition of the permits. Permits 29511 and 44646 cover the same well, commonly known as Brady No. 5. Permits 29512 and 44646 cover the well known as Brady No. 8. Permits 44643, 44644 and 44645 are filed on three (3) other existing wells. Permits 29511 and 29512 have a priority date of June 30, 1975. Permits 44643, 44644, 44645, 44646 and 44647 with a priority date of October 15, 1981, are presently in good standing with proof of beneficial use due March 1, 1988. These five (5) wells are located within the SE1/4 NW1/4 Section 12, T.22N., R.26E., M.D.B.&M.³

NOTE: Unless otherwise noted all footnote references to hearing transcript and exhibits will mean the transcript of the joint hearing beginning on April 17, 1986, and exhibits received into the record thereunder.

³ See Permit file numbers 29511, 29512, 44643, 44644, 44645, 44646 and 44647 in the office of the State Engineer. See NRS 534.080(3).

II.

The State Engineer designated and described the Brady's Hot Springs area as in need of additional administration under Chapter 534 of the Nevada Revised Statutes. (See Ex. SE-3)

III.

All of the evidence, testimony, testing data and information available provides the basis for a descriptive or qualitative assessment of the Brady Hot Springs underground geothermal reservoir. The State Engineer has utilized such a conceptual model during the analysis of the quantitative information gained from geologic, geophysical, geochemical and hydrologic studies. The entire record developed in this matter supports the finding that the reservoir at Brady's is a liquid water dominated, structurally controlled and convectively heated system. The groundwater is deep circulating, heated in or near the basement rock, and the buoyancy imbalance (temperature, density and viscosity differences) in effect drives the hotter fluids to near surface via a highly permeable fault zone. Thus, a large underground convection cell is visualized to exist at Brady's, a dynamic system in its natural state. This conceptual model is neither new nor unique and provides a logical explanation of why the high temperatures exist near surface without the presence of a near surface magmatic source of heat.

IV.

The up-flow of hot groundwater in the Brady fault zone is confirmed by the record. The U.S.G.S. in 1975 first noted from the water table altitude contours, the presence of "an elongate mound of thermal water" in the area of the fault, which seems to function as a "long, narrow, steeply inclined aquifer, nearly perpendicular to the gently dipping aquifers in the alluvial and lacustrine deposits".⁴ This up-flowing thermal

⁴ Ex. P-4, pp. 212-213.

water then flows "out laterally east and west in the fractured zones of rock paralleling the fault".⁵ The existence of these highly fractured layers is further confirmed throughout the drilling history at Brady where significant lost circulation zones were encountered, sealed and drilling continued in hard rock immediately beneath the zone. This up-flow of thermal water could very well represent a separate source of recharge to the groundwater basin, and is further confirmed in the following Findings.

V.

Multiple fractured lateral zones are known to exist between approximately 300 feet and 5050 feet below ground level at Brady's.⁶ In addition to the data obtained from the drilling histories, static temperature surveys, spinner surveys and post-water injection surveys have been conducted in the existing wells, and all indicate these fractured zones have high temperatures and permeabilities, and demonstrate that intermixing occurs between the zones.⁷ The isothermal zones depicted on the temperature surveys indicate fluid is circulating in the fracture system, within that interval.⁸ The temperature profiles also confirm the depths at which inflows occur, i.e. the intervals where the profile peaks and goes isothermal below, especially when these depths correspond with lost circulation zones in the drilling history.⁹ Since the early exploration drilling programs at Brady's were directed at finding very high temperature production zones, it appears that lost circulation zones were more of an inconvenience

⁵ Ex. P-5, Appendix I pp. 1-2 and figure 1.

⁶ Ex. P-5, Appendix I, p. 2; Transcript July 1, 1986, (hereinafter "Tr." date, page, line) pp. 43-48 and p. 162.

⁷ Tr. 7/1, pp. 43-48; p. 120, l. 21 - p. 121, l. 6; Ex. P-5, Appendix I, Ex. A-19(1), A-20, A-20(1), A-21, A-21(1).

⁸ Tr. 7/1, pp. 48, l. 24 - p. 49, l. 2.

⁹ Tr. 7/1, p. 44, ll. 5-11 and p. 49, ll. 6-8.

than anything else.¹⁰ Therefore, great volumes of drilling mud, drill cuttings, lost circulation material and cement were pumped into these highly permeable (but lower temperature) zones in order to re-gain circulation.¹¹ This process probably damaged those particular zones around those particular wells to the extent that these early deep wells (SP-1, SP-2 and EE-1) were not capable of commercially producing a large quantity of fluid nor could those zones ever be fairly tested.¹² The record supports the findings that there are probably other potentially productive zones of high temperature water at depths greater than 300 feet, and realizing that production will be a function of well depth, design and location, and is further confirmed in the following Findings.

VI.

Evidence and testimony was received addressing the limit and extent of the hot groundwater reservoir. Testimony addressed factors other than the existence of a high angle normal fault that had to be considered to explain the high convective heat flow associated with Brady's, when other similarly faulted areas in Nevada had no hot springs associated with them.¹³ The occurrence of structurally raised basement rocks in the known thermal areas is also a factor common to all successful geothermal fields in Nevada.¹⁴ These factors, together with the insulating effect of the thick blanketing of saturated tertiary sediments above the high heat flow basement rock, provide a reasonable explanation for the 400 to 450 degrees Fahrenheit temperatures at the top of

¹⁰ Tr. 7/1, p. 43, ll. 13-18; p. 164, ll. 1-6.

¹¹ Tr. 7/1, p. 46-47, pp. 126-127, p. 135.

¹² Tr. 7/1, p. 97 ll. 11-22; p. 126, l. 20 - p. 127, l. 10; p. 135, ll. 17-19; p. 162, ll. 7-11; p. 163, ll. 1-12; p. 164, ll. 1-12.

¹³ Tr. 7/3, pp. 93-95 and Ex. A-56.

¹⁴ Tr. 7/3, p. 95, ll. 7-21.

the basement rock and below the sedimentary cover.¹⁵ The significance of the structural highs is that once the water is heated in the permeable basement rocks, it will migrate toward the structural high due to density differences.¹⁶ The State Engineer finds the record undisputed in this interpretation of the system.

VII.

The record confirms that Brady's is fed hot water from the basement rock via the Hot Springs fault. The record also confirms the probable areal extent of this basement rock and that the geothermal wells in the Desert Peak area are producing from this fractured basement rock.¹⁷ The size of the temperature anomaly, based on all existing data, was shown to expand in size with increasing depth, and the anomaly covers an area on the order of tens of square miles.¹⁸

The total reserves of thermal waters in the fractured basement rock, with a minimum areal extent of 20-30 square miles and utilizing a conservative figure for porosity, were estimated to be at least 3 million acre-feet.¹⁹ The State Engineer finds the size of the ultimate reservoir can only be described as very large.

Two other conceptual models of the geothermal reservoir prepared for nearby Desert Peak add further confidence to the conceptual model prepared by the applicant, since they represent separate works prepared by other professionals.²⁰

¹⁵ Tr. 7/3, p. 96, ll. 1-10.

¹⁶ Tr. 7/3, p. 96, ll. 11-18.

¹⁷ Tr. 7/2, p. 106, l. 13 - p. 109, l. 20, and p. 149, l. 9 - p. 150, l. 5; Tr. 7/3, p. 106, l. 8 - p. 107, l. 10; See Ex. A-61.

¹⁸ Tr. 7/3, p. 102, l. 18 - p. 106, l. 7; See Ex. A-57, A-58, A-59, A-60, P-2 (Plate 1), P-4, p. 219.

¹⁹ Tr. 7/3, p. 109 - p. 110, l. 4.

²⁰ Tr. 7/3, p. 108, ll. 9-20 and p. 122, ll. 6 - 7; Ex. A-63; Ex. P-64, p. 164).

VIII.

Exhibits A-57 through A-60 and P-2 (Plate 1), compiled from the existing data and confirmed by more recent temperature surveys, provide a logical explanation for the source of the thermal waters. If the geothermal system at Brady's was only confined to a single fault zone, the temperature anomaly would appear as a localized oblong shape around the area of the upflow zone itself.²¹

IX.

The U.S.G.S., after studying another hot springs area with similar geology and within the same geological province as Brady's, found that circulation on a single fault did not explain the data they had for that system and concluded that the system is due to large, deep circulation in the basement rocks.²²

The U.S.G.S., because of the data collected indicating high reservoir temperatures at Brady's of between 200°C and 246°C (392°F and 475°F), concluded "the thermal water must circulate to depths of several kilometers in order to attain the observed temperatures".²³

The U.S.G.S. further described the Brady's Hot Springs area as having the electrical energy equivalent of 157 megawatts, for 30 years or more, in the form of recoverable heat energy.²⁴

²¹ Tr. 7/3, p. 103, ll. 1-6 and ll. 18-20; p. 105, ll. 18-21; p. 113, ll. 15-20; p. 105, l. 23 - p. 106, l. 3.

²² Tr. 7/3, p. 97, l. 10 - p. 98, l. 6; p. 99, ll. 14-21; p. 100, ll. 6-12; See USGS Open File Report 81-915, p. 165 and pp. 180-181.

²³ Exhibit P-4, p. 227; Exhibit A-35, p. 53.

²⁴ Tr. 6/30, p. 93, ll. 14-21; Tr. 7/2, p. 139, l. 1 to p. 140, l. 19; Exhibit A-35, p. 53.

X.

The well production temperatures have remained unchanged through the years of existing development in the system.²⁵ If the source of recharge had been solely from annual infiltration of precipitation within the basin or from groundwater at shallow depths, the reservoir probably would have cooled down hundreds of years ago.²⁶

XI.

The ultimate source of the thermal water is meteoric water that fell thousands of years ago, infiltrated down to the basement rock and became heated. The area over which this infiltration occurs probably covers many hydrologic basins.²⁷ The State Engineer finds the source of recharge is ultimately meteoric water but must be so far removed in time and space that it ceases to be meaningful when attempting to explain the temperatures involved in this system.

XII.

One of the first known quantitative assessments of the behavior of the reservoir in response to development was reported by J.M. Rudisill in 1978. The 300 plus hour test included the continuous pumping of GFP well B-8 at 650 gpm and recording the (water level) response in three observation wells, EE-1, B-5 and B-1.²⁸ The drawdown data, together with 1000 hours of recovery (build up) data indicate the recharging ability of the reservoir. The rate of water level decline decreased after 150 hours into the test in Brady 5 and Brady 1, and the water level nearly stabilized through the remainder of the

²⁵ Tr. 6/2, p. 35, ll. 9-18.

²⁶ Tr. 7/2, p. 153, ll. 9-14; Tr. 7/2, p. 120, ll. 11-17.

²⁷ Tr. 7/2, p. 118, l. 2- p 120, l. 17; p. 151, l. 15 - p. 153, l. 14;

²⁸ It should be noted here that Brady 4 in Rudisill's report is plotted at the location of Brady 5 and vice versa, indicating a mixup in the historical well nomenclature.

test. Also, the total drawdown observed in Brady 5 was only about 4 feet and in Brady 1 about 10 feet at the end of the pumping test and the water level in the producer immediately after shutdown was approximately 20 feet.²⁹ The results of this test led Rudisill to conclude: (1) the Brady 8 well was obtaining production from between 610 feet and 800 feet; (2) these relatively shallow aquifers were being fed by a deeper reservoir which would cause pressure (water level) declines to slow greatly over time; and (3) the Brady reservoir is highly fractured and highly connected.³⁰ The record does not dispute this interpretation of the reservoir and the State Engineer finds these conclusions to be valid.

XIII.

The next reported interference testing was also conducted for GFP by GeothermEx, Inc., in 1981. This test involved similar water level monitoring in existing wells while B-8 produced continuously since June 1980 at between 450-500 gpm and a new well (Grace-1) was produced at 1000 gpm for a 59 day period. Both wells were shut in on January 28, 1981, and build up data were recorded. The data analysis from this test led GeothermEx to conclude that the Brady reservoir consists of multiple permeable layers transmitting hot water out laterally from the upflow occurring in the Brady fault and that the reservoir is large with fairly high permeability-thickness (kh) and storage capacity (Ach) values. This conclusion stems from the fact that no (negative) boundaries were encountered during the test and that the wells recovered to near the original (static) water levels within 6 weeks after the end of the test.³¹

It is further noted here that no evidence was presented indicating any decline of

²⁹ Ex. P-5, pp. 2-3 and figures 2, 3 and 4.

³⁰ Exhibit P-5, pp. 2-3, and Appendix I, p. 2.

³¹ SEE EX. P-3.

the static water levels in GFP wells, and in testimony it was plainly stated that no decline in the temperature of production water has been experienced by GFP³² even with the total production between 1978 and 1985 of nearly 1.5 billion gallons (B-8 at 600 gpm, 6 mos/year, plus testing). In view of the evidence and testimony, the State Engineer finds the Brady geothermal reservoir cannot be described as a small, bounded (closed box) reservoir, in the absence of a trend in static water level and/or temperature declines. A bounded system without recharge would have experienced a proportional static water level drop for every gallon of water produced, and that production would have been pulling the shallow cooler groundwater into the hot reservoir.

XIV.

The most recent long term pressure interference test was conducted in the spring of 1986 for the applicant Munson by GeothermEx, Inc. Two new production wells had been drilled by the applicant, "MGI-1" which was monitored and "New MGI-2" which was produced continuously for the test.³³ The duration of the test was 1450 hours (60 days) within which time New MGI-2 produced 480 gpm (total flow at reservoir conditions) for 700 hours then the rate was increased to 750 gpm for 150 hours, then shut in to record build up data for 230 hours, then produced again at 750 gpm through the end of the test.³⁴ Reservoir pressures in wells SP-1, SP-2, Grace-1, MGI-1 and New MGI-2 were all recorded and plotted in Exhibit A-12.³⁵

The State Engineer finds that the quality of the data collected from this test was very good.³⁶ By trial and error, different values of flow capacity and skin effect were

³² Tr. 6/2, p. 35, ll. 9-18.

³³ See Ex. A-12, p. 23 for location plat.

³⁴ Ex. A-12, pp. 2-10.

³⁵ Tr. 7/2, p. 17 - p. 32, l. 6.

³⁶ Tr. 7/1, p. 66, l. 7 to p. 68, l. 15; 7/2, p. 14, ll. 5-8; p. 148, ll. 9-13.

used to generate a model that matched the measured pressure response for the production well New MGI-2.³⁷ Similarly, different values of kh and storage capacity were used (trial and error) until a computer generated model reflected the measured response in the observation wells.³⁸ The model which best fit the actual pressure response utilized values that are representative of the reservoir's actual characteristics.³⁹ The State Engineer finds the reservoir characteristics have been adequately defined.

XV.

From the analysis of the interference test, the representative values of flow capacity and storage capacity were then used in various production/injection scenarios to predict the performance of the reservoir with development over the next 30 years. The predictions used exact well locations and likely injection well locations, actual permitted and/or probable production/injection flow rates and ignored any effect from recharge.⁴⁰ On cross examination, GeothermEx confirmed that the performance predictions reflect the strong effect on where the wells are located and how much is produced (and injected).⁴¹ These factors, together with appropriate production/injection well design (and completions), will be fundamentally important in realizing the full

³⁷ Tr. 7/2, p. 36, ll. 14-17; p. 38, ll. 12-19; See Ex. A-12, pp. 14-16; Tr. 7/3, p. 8, l. 21 to p. 10, l. 2; p. 11, ll. 10-23.

³⁸ Tr. 7/2, p. 40, l. 18 - p. 45, l. 4; Ex. A-12, pp. 17-20.

³⁹ Tr. 7/3, p. 8, l. 12 - p. 10, l. 2. This model matching method is not unlike the curve fitting techniques used in well testing analysis and found throughout the literature in the fields of groundwater hydrology (well hydraulics) and petroleum reservoir engineering. In fact, GeothermEx utilized curve fitting to obtain very similar values for the flow capacity (kh) of the same reservoir from the 1981 test data for GFP. (See Ex. P-3 and Tr. 7/2, p. 37, ll. 5-11.)

⁴⁰ Tr. 7/2, p. 58 - p. 59, l. 5; p. 219, l. 2 - p. 225, l. 19.

⁴¹ Tr. 7/2, p. 196, l. 11-20)

production potential of the system.

XVI.

The State Engineer finds the performance predictions generated by GeothermEx utilized a very standard methodology⁴² involving the two reservoir parameters, flow capacity and storage capacity and the infinite acting nature of the reservoir, all derived from state of the art solution techniques widely recognized for solving the basic diffusivity equation that describes fluid flow in porous media, and further finds the predictions made could be reproduced by other experts using the same or similar solution techniques.⁴³

XVII.

The interference effects (drawdown) caused by further development and predicted at GFP well B-5, as indicated in Exhibit A-12, p. 26 (case 6) and in Exhibit A-26 (case 9), utilized the most representative values of actual permitted and/or proposed production/injection rates. The test data indicate radial flow conditions are experienced after the (early time) fracture dominated flow and that no negative boundaries have been encountered.⁴⁴ However, the effect of no negative boundaries incorporated in the extrapolations of drawdown by GeothermEx, if and when it appears in the data, will likely be offset by the positive effect of recharge which was also not incorporated into the long term extrapolations of drawdowns. The State Engineer finds that the model

⁴² The methodology used is a very standard one utilized world-wide for the purposes of insuring that enough production capacity and reserve will be available over the years. (Tr. 7/2, p. 102, l. 11 - p. 106, l. 11.)

⁴³ Tr. 7/2, p. 202, l. 5-16, p. 203, l. 5 to p. 204, l. 25; p. 206 to p. 207, l. 13; p. 208, ll. 11-15; p. 211, ll. 15-19; p. 215, ll. 14-25; p. 217, ll. 4-24; p. 219, ll. 12-16; p. 223, l. 13 to p. 225, l. 4; p. 51, l. 17.

⁴⁴ Tr. 7/7 Eve., pp. 131-132.

extrapolations made by GeothermEx, though not completely accurate in the presence of boundaries, provide reasonable estimates of how the reservoir will respond to development, especially since these predictions did incorporate injection rates and well locations into the model. The State Engineer further finds these drawdowns will probably be less due to the recharge of thermal water that will occur from the Brady fault.⁴⁵

XIII.

Evidence and testimony was received related to geochemical studies conducted at Brady's in an effort to establish the sink/source relationship between the cold groundwater basin and the thermal waters of the Hot Springs Fault area. Much of the information was directly from a recently published report that examined the chemistry and stable isotope data acquired from samples obtained from shallow monitor wells in and near the area of the fault.⁴⁶ GFP collected and analyzed additional samples from some of the same wells used in the USGS paper. GFP argued that the chemical and isotope data indicated a marked similarity in the hot and cold groundwaters in the area, and the hydraulic gradients were such that there could be flow from the groundwater basin into the thermal area.⁴⁷

However, the State Engineer finds that the hydraulic gradient of the groundwater in the area clearly is from the thermal area to the groundwater to the west, and other testimony and evidence presented consistently describe the thermal waters of the fault zone as leaking out into the shallow groundwater aquifers to the west. GFP's argument is further found to be invalid since the cold water samples used as a baseline were actually cooled thermal waters and GFP's argument does not adequately explain how the waters

⁴⁵ Tr. 7/2, p. 76, ll. 2-11; Ex. P-7, p.8; See Applications 49943, 49944, 49945 and 49946 filed in the office of the State Engineer; Tr. 6/2, p. 73, l. 5 - p. 75, l.6; Tr. 7/2, p. 79, l. 3 - p. 84 l. 1; p. 51, l. 25 - p.53, l. 3; See Ex P-5, pp 2-3.

⁴⁶ See Ex. P. 40.

⁴⁷ Tr. 6/3, p. 130, ll. 8-23.

become heated.⁴⁸

XIX.

Based on the record, the State Engineer finds the upflow and discharge of thermal water to the groundwater basin represents essentially a contributing source of recharge. The State Engineer further finds this geothermal source is not fully appropriated.

XX.

The State Engineer finds the proposed monitoring plan outlined by MGI in Exhibit A-11 is a necessary condition that must be implemented to insure the protection of the rights of all holders of prior appropriations in the subject area, as well as to provide the data base necessary for judicious placement and operation of wells and to diligently pursue an effort toward maximum injection of excess thermal waters during full operation of the field.⁴⁹

CONCLUSIONS

I.

The protestant Gilroy Foods, Inc., (GFP) holds existing rights and is first in time by virtue of the earlier filing dates on their seven permits.⁵⁰

⁴⁸ See Ex. P-40, p. 19 and pp. 23-24; Ex. P-4, pp. 213-214; Ex. P-5, pp 1-3 and Appendix I, p. 1 and Figure I; Ex. P-3, p.21; Tr. 7/7, day, p. 89, ll. 5-9; Tr. 7/7, eve, p.136, l. 1- p. 137, l.3.

⁴⁹ See Ex. A-11, pp. 1-2; Tr. 7/1, p. 73, l. 22 - p, 76, l. 25; Tr. 7/2, p. 127 - p. 129, l. 13.

⁵⁰ NRS 534.080(3).

II.

As provided under NRS 533.370, the State Engineer shall approve an application submitted in proper form which contemplates the application of water to beneficial use unless (NRS 533.370(3)):

1. There is no unappropriated water in the proposed source of supply,
2. The proposed use conflicts with existing rights, or
3. The proposed use threatens to prove detrimental to the public interest.

III.

Protestant GFP attempted to describe the Brady system as very shallow, limited in size and as being recharged from the infiltration of precipitation to the groundwater basin annually. If this is a correct model, GFP provided insufficient evidence to explain why the high temperature is seen at Brady's, or why there has been no decline in the temperature of producing wells at Bradys. These fundamental questions remain unanswered in GFP's interpretation of the reservoir, the result of which tends to grant additional weight to the evidence and testimony presented by the applicant, Munson. The source of recharge is ultimately meteoric water but must be so far removed in time and space that it ceases to be meaningful when attempting to explain the temperatures involved in this system.

IV.

NRS 534.110(4) provides, as an express condition of each appropriation of groundwater acquired pursuant to Chapters 533 and 534, that the right of the appropriator shall relate to a specific quantity of water and that such right must allow for a reasonable lowering of the static water level at the appropriator's point of diversion.

GFP argued the "resource would be destroyed" if interference effects of other wells in the field caused a water level drop such that they could not pump well B-8 from 200 feet below ground level when, (1.) B-8 is 3,469 feet deep, (2.) the static water level in B-8 is less than 5 feet below ground level, (3.) there are known production zones to depths in excess of 5,000 feet, and (4.) the pump in B-8 has been historically set as deep as 500 feet. The State Engineer concludes that GFP's claim of unreasonable interference caused by new wells producing from the field is not supported by substantial evidence.

V.

NRS 534.110(5) authorizes the State Engineer to issue permits in (designated) areas to applicants later in time, even when such later appropriations may cause the water level to be lowered at the point of diversion of the prior appropriator, so long as the rights of holders of existing appropriations can be satisfied under such express conditions. The proposed new appropriations under applications 49943, 49944, 49945 and 49946 will not cause an unreasonable lowering of the static water table in the senior appropriators points of diversion such that the rights of the holders of the senior appropriations cannot be satisfied.

VI.

The issuance of the subject permits, with proper monitoring requirements through developement stages, up to and including full scale operations or more specifically described in Ex. A-11, will not tend to conflict with existing rights to the extent they cannot be satisfied.

VII.

The entire record provides substantial evidence to support the Finding that there is unappropriated thermal underground water in the proposed source of supply under Applications 49943 - 49946 inclusive.

RULING

The protests to the granting of permits under Applications 49943, 49944, 49945 and 49946 are herewith overruled based on substantial evidence that there is unappropriated geothermal water in the proposed source of supply, the proposed use will not conflict with existing rights nor prove detrimental to the public interest. Permits will be granted subject to existing rights and further subject to the following conditions:

1. Immediate implementation of the reservoir monitoring program described in Exhibit A-11.
2. A written status report on the implementation of this monitoring program must be submitted within 60 days of this date.
3. A clear, definitive injection program and timetable for implementation must be submitted within six (6) months of this date.

4. Permits 49943, 49944, 49945 and 49946 are limited to a diversion rate of 1529 GPM (3.41 cfs) each, and the consumption of thermal water at the surface shall not exceed 20% of the diversion rate. The State Engineer retains the authority to regulate the consumption of thermal water if he deems it necessary to protect existing rights and the resource.

Respectfully submitted,



PETER G. MORROS
State Engineer

PGM/TKG/jjk

Dated this 22nd day of
October, 1987.

TAB 9

AMENDED
APPLICATION FOR PERMIT
TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

FEB 19 1988

Date of filing in State Engineer's Office.....

Returned to applicant for correction..... MAR 07 1988

Corrected application filed..... MAR 18 1988

Map filed..... MAR 18 1988

The applicant..... St. Joe Bullfrog, Inc.

..... P.O.Box 576 of Beatty
Street and No. or P.O. Box No. City or Town

..... Nevada 89003 hereby make^s application for permission to appropriate the public
State and Zip Code No.

waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association, give names of members.)..... January 25, 1988; State of Delaware

1. The source of the proposed appropriation is..... underground
Name of stream, lake, spring, underground or other source

2. The amount of water applied for is..... 4.46second-feet
One second-foot equals 448.83 gals. per min.

(a) If stored in reservoir give number of acre-feet.....

3. The water to be used for..... mining, milling, and related domestic
Irrigation, power, mining, manufacturing, domestic, or other use. Must limit to one use.

4. If use is for:

(a) Irrigation, state number of acres to be irrigated.....

(b) Stockwater, state number and kinds of animals to be watered.....

(c) Other use (describe fully under "No. 12. Remarks")..... See No. 12

(d) Power:

(1) Horsepower developed.....

(2) Point of return of water to stream.....

5. The water is to be diverted from its source at the following point..... Within the SW1/4 NE1/4 Sec. 26,
Describe as being within a 40-acre subdivision of public

T12S, R.46E., M.D.B.&M. at a point from which the NE corner of Section 26, T12S,
survey, and by course and distance to a section corner. If on unsurveyed land, it should be so stated.

R.46E., M.D.B.&M. bears N 44° 56'24"E a distance of 3045.63 feet.

6. Place of use..... Sections 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18,
Describe by legal subdivision. If on unsurveyed land, it should be so stated.

19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 33, 34, 35, 36, T.12S., R.46E., M.D.B.&M.;

Sections 7, 18, 19, 30, and 31, T.12S., R.47E., M.D.B.&M.; Sections 1,2,3, T.13S,

R.46E., M.D.B.&M.

7. Use will begin about..... January 1 and end about..... December 31 of each year.
Month and Day Month and Day

8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.)..... Drilled well, pump and pipe-line
State manner in which water is to be diverted, i.e. diversion structure, ditches and distribution system.

flumes, drilled well with pump and motor, etc.

9. Estimated cost of works..... \$100,000.00

10. Estimated time required to construct works. 2 years
If well completed, describe works.

11. Estimated time required to complete the application of water to beneficial use. 5 years

12. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

Annual consumptive use of this well, in combination with wells specified on permit application No. 51842 through 51848 and No. 51891 will not exceed 4.46 cfs (2000 gpm expanded year-round or 1,051,200,000 gallons per year). The projected life of the mine is 15 years and, thus, the water use is temporary in nature. Water will be used for mining, milling, and domestic purposes associated with the mine.

By s/Forrest L. Fox
Forrest L. Fox, Agent
Hydro-Search, Inc.
333 Flint St., Reno, Nevada 89501
Compared bk/se pm/se
Protested _____

APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

Pursuant to NRS 534.120, the State Engineer declares mining and milling to be a preferred use of the limited resource within the Amargosa Desert Ground Water Basin as described in the State Engineer's Order No. 724, dated May 14, 1979.

This permit is issued subject to existing rights. It is understood that this right must allow for a reasonable lowering of the static water level. This well shall be equipped with a two (2) inch opening for measuring depth to water. If the well is flowing, a valve must be installed and maintained to prevent waste. A totalizing meter must be installed and maintained in the discharge pipeline near the point of diversion and accurate measurements must be kept of water placed to beneficial use. The totalizing meter must be installed before any use of water begins, or before the Proof of Completion of Work is filed. This source is located within an area designated by the State Engineer, pursuant to NRS 534.030.

The State Engineer's records indicate that the total ground water withdrawals under existing rights in the Amargosa Ground Water Basin has been less than the perennial yield from 1983 through the irrigation season of 1988. This permit is issued with the clear understanding that the State Engineer does not waive any right to regulate and restrict groundwater withdrawals under this permit if withdrawals (CONTINUED ON PAGE 2)

The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, and not to exceed 4.46 cubic feet per second, but not to exceed 3,200 acre-feet annually.

Work must be prosecuted with reasonable diligence and be completed on or before November 4, 1990
Proof of completion of work shall be filed on or before December 4, 1990
Application of water to beneficial use shall be made on or before November 4, 1993
Proof of the application of water to beneficial use shall be filed on or before December 4, 1993
Map in support of proof of beneficial use shall be filed on or before N/A

Completion of work filed _____ IN TESTIMONY WHEREOF, I PETER G. MORROS
State Engineer of Nevada, have hereunto set my hand and the seal of my
Proof of beneficial use filed _____ office, this 4th day of November,
Cultural map filed _____ A.D. 19 88
Certificate No. _____ Issued _____
Peter G. Morros
State Engineer

(PERMIT TERMS CONTINUED)

under existing rights increase or exceed the perennial yield of the groundwater basin.

The permittee shall develop a monitoring plan for both surface water and groundwater and submit this plan to the State Engineer for approval prior to any water being pumped from wells under Permits 51841 through 51848, inclusive, with the exception of the 400 gallons per minute previously approved under Permit 51842. This monitoring plan must show what, if any, impacts pumping from the wells under these permits will have on existing rights. This plan must be submitted to the State Engineer within three months after approval of these permits. This monitoring plan must address all conditions of monitoring as stated in The National Parks Service Position with Respect to the Applications for Water in Amargosa Valley by St. Joe Bullfrog, Inc. (Bond Gold) prepared by the Water Resource Division of the National Park Service dated September 16, 1988. Upon approval of this monitoring plan by the State Engineer, the permittee shall submit a report to the State Engineer on a semi-annual basis which contains all surface and groundwater measurements and water use data from each of the permittee's wells.

The State Engineer retains the right to impose future conditions as necessary upon review and evaluation of data submitted as a result of the monitoring program.

The duty under Permits 51841 through 51848, inclusive, is initially limited to 1500 acre-feet for the calendar year 1989. The annual duty of water allowed under Permits 51841 through 51848, inclusive, may be raised to a maximum of 3200 acre-feet per year as approved and authorized by the State Engineer after the review of the monitoring data.

The manner of use of water under this permit is by nature a temporary use and Permits 51841 through 51848, inclusive, will expire at the termination of this project or on January 1, 2000, whichever occurs first.

This permit is further issued subject to the understanding between St. Joe Bullfrog, Inc. (Bond Gold) and the National Park Service dated September 16, 1988, as set forth in the document titled The National Parks Service Position with Respect to the Applications for Water in Amargosa Valley by St. Joe Bullfrog, Inc. (Bond Gold) on file in the State Engineer's office.

This Permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies.

TAB 10

AMENDED
APPLICATION FOR PERMIT

Nº 50701

TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

Date of filing in State Engineer's Office..... MAR 19 1987
Returned to applicant for correction..... MAY 4 1987
Corrected application filed..... JUL 7 1987
Map filed..... JUL 21 1987

The applicant Gary Primm, c/o Whiskey Pete's Casino

P.O. Box 56

Street and No. or P.O. Box No.

of Jean,

City or Town

Nevada 89019

State and Zip Code No.

hereby make application for permission to appropriate the public waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association, give names of members.)

1. The source of the proposed appropriation is from an underground source
Name of stream, lake, spring, underground or other source
2. The amount of water applied for is one (1) second-feet
One second-foot equals 448.83 gals. per min.
(a) If stored in reservoir give number of acre-feet quasi-municipal purposes
3. The water to be used for
Irrigation, power, mining, manufacturing, domestic, or other use. Must limit to one use.
4. If use is for:
 - (a) Irrigation, state number of acres to be irrigated some of the water will be used for landscape irrigation around the casinos, etc.
 - (b) Stockwater, state number and kinds of animals to be watered
 - (c) Other use (describe fully under "No. 12. Remarks")
 - (d) Power:
 - (1) Horsepower developed
 - (2) Point of return of water to stream
5. The water is to be diverted from its source at the following point located in the SE $\frac{1}{4}$ of the NW $\frac{1}{4}$
Describe as being within a 40-acre subdivision of public
Section 10, Township 27 South, Range 59 East M.D.B.M., bearing N02°32'23"W a
survey, and by course and distance to a section corner. If on unsurveyed land, it should be so stated.
distance of 2231.79 feet to the North $\frac{1}{4}$ Corner of said Section 10.
6. Place of use The East one-half (E $\frac{1}{2}$) the Southeast One-quarter (SE $\frac{1}{4}$) of the
Northwest
Describe by legal subdivision. If on unsurveyed land, it should be so stated.
one-quarter (NW $\frac{1}{4}$) the Northeast one-quarter (NE $\frac{1}{4}$) of the Southwest one-quarter
(SW $\frac{1}{4}$) and that portion in the State of Nevada of the Southeast one-quarter (SE $\frac{1}{4}$)
of the Southwest one-quarter (SW $\frac{1}{4}$) of Section 8. Together with the Northwest
one-quarter (NW $\frac{1}{4}$) and the West one-half (W $\frac{1}{2}$) of the Northeast one-quarter (NE $\frac{1}{4}$)
of Section 9. Said sections in Township 27 South, Range 59 East, M.D.B. & M.
7. Use will begin about January 1 and end about December 31, of each year.
Month and Day Month and Day
8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) Drill well, install pumps, pipelines,
State manner in which water is to be diverted, i.e. diversion structure, ditches and
storage tanks, valves, fittings and appurtenances.
flumes, drilled well with pump and motor, etc.
9. Estimated cost of works \$2000,000.00

10. Estimated time required to construct works 3 months
If well completed, describe works.

11. Estimated time required to complete the application of water to beneficial use 1 year

12. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

By s/ Kurt R. Segler
1100 E. Sahara Ave., Suite 206
Las Vegas, NV 89104
Compared pm/se pm/se
Protested

APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit is issued subject to existing rights. It is understood that the amount of water herein granted is only a temporary allowance and that the final water right obtained under this permit will be dependent upon the amount of water actually placed to beneficial use. It is also understood that this right must allow for a reasonable lowering of the static water level. This well shall be equipped with a two (2) inch opening for measuring depth to water. If the well is flowing, a valve must be installed and maintained to prevent waste. A totalizing meter must be installed and maintained in the discharge pipeline near the point of diversion and accurate measurements must be kept of water place to beneficial use. The totalizing meter must be installed before any use of water begins, or before the Proof of Completion of Work is filed. This source is located within an area designated by the State Engineer, pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

This Permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies.
(CONTINUED ON PAGE 2)

The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, and not to exceed 1.0 cubic feet per second, but not to exceed 104.93 million gallons annually.

Work must be prosecuted with reasonable diligence and be completed on or before March 29, 1989

Proof of completion of work shall be filed on or before April 29, 1989

Application of water to beneficial use shall be made on or before March 29, 1992

Proof of the application of water to beneficial use shall be filed on or before April 29, 1992

Map in support of proof of beneficial use shall be filed on or before N/A

Completion of work filed IN TESTIMONY WHEREOF, I, PETER G. MORROS
State Engineer of Nevada, have hereunto set my hand and the seal of

Proof of beneficial use filed my office, this 8th day of December

Cultural map filed A.D. 19 88

Certificate No. Issued
Abrogated By 708945-1.0
State Engineer

(PERMIT TERMS CONTINUED)

This permit is issued under the provisions of NRS 534.120(2) as a preferred use.

The total combined duty of water under Permits 50701, 50808, 51870, 51871, 51872, 51873, 52087 and 52088 shall not exceed 177.92 million gallons annually.

The use of this well site shall cease upon the completion of the well sites authorized under Permits 51870 and 51871.

The permittee shall submit a monitoring plan to show any impact resulting from an increase in groundwater pumping. Upon approval by the State Engineer of such a plan, data will be submitted to the State Engineer on a monthly basis.

Upon further groundwater development a report shall be submitted to the State Engineer to identify the amount of water recharged through the proposed rapid infiltration basins into the groundwater system. Upon review of that data by the State Engineer, the amount of water credited by the recharge program will be determined. The maximum amount to be credited will not exceed 90 percent of the amount recharged.

The total annual withdrawal of water under Permits 50701, 50808, 51870, 51871, 51872, 51873, 52087 and 52088 is initially limited to 177.92 million gallons annually. The total annual withdrawal of water under Permits 50701, 50808, 51870, 51871, 51872, 51873, 52087 and 52088 may be raised in stages up to a maximum of 177.92 million gallons annually in addition to the amount credited for recharge, as approved and authorized by the State Engineer, only after the State Engineer has determined the amount to be credited by the recharge program.

The State Engineer does not waive any authority to require the permittee to comply with the provisions of NRS 534.010 and 534.250 through 534.340, inclusive.

TAB 11

IN THE OFFICE OF THE STATE ENGINEER

IN THE MATTER OF APPLICATION 38309 TO)
APPROPRIATE THE PUBLIC WATERS OF)
JOHNSON SPRING AND CREEK,) APPLICATIONS 44687, 44688, 47615, 47616,) 47617 TO APPROPRIATE THE WATERS OF AN) UNDERGROUND SOURCE AND) APPLICATIONS 49423 AND 49595 TO CHANGE) THE POINT OF DIVERSION OF APPLICATIONS) 47615 AND 47616 RESPECTIVELY, ALL) WITHIN GOSHUTE VALLEY, ELKO COUNTY,) NEVADA.)

RULING

GENERAL

I.

Application 38309 was filed on June 11, 1979, by Unincorporated Town of West Wendover (hereinafter "Wendover") to appropriate 1.0 c.f.s. of water from Johnson Spring and Creek located within the SW1/4 SE1/4 Section 28, T.36N., R.66E., M.D.B.&M.

Applications 44687 was filed on October 26, 1981, by M. E. Clingman to appropriate 0.9 c.f.s. of water from the an underground source located within the SW1/4 SE1/4 Section 35, T.36N., R.67E., M.D.B.&M.

Application 44688 was filed on October 26, 1981, by M.E. Clingman to appropriate 0.9 c.f.s. of water from an underground source located within Lot 3, Section 1, T.35 N., R.67E., M.D.B.&M.

Application 47615 was filed on January 27, 1984, by Wendover to appropriate 2.0 c.f.s. of water from an underground source located within the SE1/4 NE1/4 (Lot 15) Section 6, T.35 N., R.67E., M.D.B.&M.

Application 47616 was filed on January 27, 1984, by Wendover to appropriate 2.0 c.f.s. of water from and underground source within the (NE1/4 NW1/4) Lot 10 Section 6, T.35 N., R.67E., M.D.B.&M.

Application 47617 was filed on January 27, 1984, by Wendover to appropriate 2.0 c.f.s. of water from an underground source within the NW1/4 NW1/4 (Lot 11) Section 6, T.35 N., R.67E., M.D.B.&M.

Application 49423 was filed on October 2, 1985, by Wendover to change the point of diversion of 2.0 c.f.s. of water previously applied for under Application 47615. The new point of diversion is within the NE1/4 NE1/4 Section 13, T.35 N., R.67E., M.D.B.&M.

Application 49595 was filed on December 18, 1985, by Wendover to change the point of diversion of 2.0 c.f.s. of water previously applied for under Application 47616. The new point of diversion is within the NE1/4 NE1/4 Section 18, T.35 N., R.68 E., M.D.B.&M.

II.

Application 38309 was timely protested by Robert J. Beaumont (hereinafter "Beaumont") on July 30, 1980, for the following reasons and on the following grounds, to wit:

Robert J. Beaumont is the present owner of the Big Springs Ranch & water rights appurtenant thereto including Permits Nos. 2210 (Certificate No. 440), 18310 (Certificate No. 5831) & 28587 & 29409. (See also Judgment in Federal District Court, Action No. CIV. R-74-147 BRT, dated May 28, 1975 & on filed in the State Engineer's office). All of the aforesaid water rights relate to the waters of Johnson Spring & Creek. The Protestant has utilized for beneficial purposes all of the waters of Johnson Spring & Creek pursuant to said rights. Thus there is no water available for appropriation from Johnson Spring & Creek.

Protestant Beaumont requests Application 38309 be denied.

Applications 44687 and 44688 were timely protested by David Eddy on June 9, 1982, for the following reasons and on the following grounds, to wit:

1. The subject applications propose to appropriate an additional 1.8 cfs of water over and above an existing collectively permitted flow of 6.0 cfs grant under Permits 41543, 41544 & 41545. These permits were issued for quasi-municipal purposes which can be applied towards commercial consumption.
2. The permitted and certificated water right demands are rapidly approaching the estimated perennial yield of

7,700 acre feet/year within the Goshute Valley Hydrological Basin. Great care should be taken to protect the existing surface water rights that will be effected by large draft underground pumpage. (Refer to ruling dated May 20, 1981).

3. It is essential that underground water rights are not issued at the expense of surface water springs. Priority must be maintained even between surface and underground sources in order to protect existing water rights. The springs at Big Springs Ranch are fundamental to Flying "S" Land and Cattle Co's. ranching operation and a reduction of spring flow would be extremely detrimental.

Therefore, with M.E. Clingman already in possession of 6.0 cfs of permitted underground water, the lack of evidence that underground pumping demands are/are not effecting surface spring flows and the value of the springs at Big Springs Ranch to Flying "S" Land and Cattle Co's. ranching operation, I am requesting that the subject applications be denied.

Applications 44687 and 44688 were timely protested on June 14, 1982, by George R. E. Boucher on behalf of the Elko County Board of County Commissioners, (hereinafter "Elko County") for the following reasons and on the following grounds, to wit:

Application number(s) 44687 and 44688 (are) in the near proximity of Permits No. 29433 and 31192 that are commonly known as Silver Zone Wells No. 1 and 2. Said wells serve as a municipal water source for the towns of West Wendover, Nevada and Wendover, Utah. Protestant believes the above-noted application(s) will have a deleterious affect on the wells under Permits No. 29433 and 31192.

Protestant Elko County requests Applications 44687 and 44688 be denied.

Applications 47615, 47616 and 47617 were timely protested on May 11, 1984, by Toano Development Corporation, and on May 11, 1984, by Ford's, Inc., and on May 14, 1984, by Reed B. Robison, all for the following reasons and on the following grounds, to wit:

To grant (these) application(s) which (propose) to utilize sizeable drafts of underground water sources, would create an over appropriated ground water system and seriously endanger existing water rights. (We), as private landowners, feel we should have a right to a portion of water from the Goshute Valley.

The aforementioned Protestants request Applications 47615, 47616 and 47617 be denied.

Applications 47615, 47616 and 47617 were timely protested on May 22, 1984, by Richard W. Roth for the following reasons and on the following grounds, to wit:

The Unincorporated Town of West Wendover to date has permits to draft 3,612.5 acre feet per year from the Goshute Valley Hydrological Basin. This is 47% of the adjusted perennial yield for the basin. This applications is one of five additional applications that have been filed to draft an additional 7,225 acre feet per year from the basin. These new applications would account for 94% of the adjusted perennial yield of the basin. Thus, Wendover proposes applications to draft 144% of the adjusted perennial yield of the valley. This would have an adverse affect upon the existing water rights in the basin.

These requests for additional water by West Wendover are both speculative and unreasonable. The present duty allotted Wendover from the Goshute Valley is enough to supply a city of 16,125 persons at an average daily per capita use of 200 gallons. This about the average per capita use of five other metered Nevada communities. Wendover, utah also has a supply of water from near Pilot Peak that will supply an additional population. The projected population of the

combined Wendover communities by the year 2,000 is 20,000 persons. The combined duty of the present permits to the two Wendover communities should be adequate to handle this projected population if the water systems were adequately repaired and maintained, and reasonable conservation practices were employed. Population growth to 20,000 is a matter of speculation, and it does not seem consistent with the intent of Nevada Water Law to reserve water on speculation to the degree that these requests attempt.

Flying 'S' Land & Cattle Company thus requests that the requests for additional duty by the applications be denied. Sufficient permitted duty currently exists to supply the needs of the projected population in the year 2,000.

FINDINGS OF FACT

I.

After all of the subject parties had been duly notified as required under NRS 533.365(3), a hearing was held on June 16, 1988, for the filing of evidence and testimony deemed necessary by the State Engineer for a full understanding of the above-referenced applications and protests. A significant amount of testimony and evidence was developed at the subject hearing as all parties were provided a full opportunity to present their respective positions. Post-hearing written briefs were submitted to the State Engineer by the parties that had standing in the proceedings. The State Engineer took administrative notice of certain matters more fully set forth in the transcript of the hearing.¹

II.

Water Resources Bulletin No. 12, "Contributions to the Hydrology of Eastern Nevada", (hereinafter "Bulletin 12") was prepared by the United States Geological Survey in cooperation with the office of the Nevada State Engineer. Bulletin 12 includes a report on the Goshute-Antelope Valley area of Elko County, based on field work

¹ See Exhibit 1, administrative hearing of June 16, 1988.

conducted in May and June, 1948, and describes generally the hydrology and geology of the subject basin. The discharge of Johnson Spring was estimated in Bulletin 12 at 3.3 c.f.s., and has been estimated to range as high as 4.5 c.f.s. in 1988.² Applicant Wendover has the right to appropriate the first 1.0 c.f.s. from Johnson Spring for municipal purposes. Appropriations to divert at least 25 c.f.s. of the remaining flows exist in the name of Protestant Goshute. Unrebutted testimony established the fact that Goshute beneficially uses the remaining flow of Johnson Spring for irrigation purposes and that the period of use is only during the growing season and not during the winter months.³ After consideration of the entire record of evidence, the State Engineer finds the existing rights of Goshute and Wendover to use the waters of Johnson Spring constitute full appropriation of the source.

III.

The Goshute Valley Groundwater Basin was designated by the State Engineer on April 30, 1984, as an area in need of additional administration as provided in NRS 534.030, et seq., and municipal, quasi-municipal and domestic uses of underground water were declared preferred uses within the northern part of Goshute Valley, pursuant to NRS 534.120(2).⁴

IV.

Applications 44687, 44688, 47615, 47616, 47617, 49423 and 49595 all propose to divert underground water and/or change the point of diversion of underground water under existing rights for various beneficial uses from the Goshute Valley (northern part) Groundwater Basin, Elko County, Nevada.

V.

Protestants Toano Development Corporation, Ford's, Inc. and Reed Robison did not appear at the hearing and their protests have been considered by the State Engineer

² See Bulletin 12, pp. 21-28 and Johnson Spring discharge records in the office of the State Engineer.

³ Transcript of hearing of June 16, 1988, pp. 70-74, (hereinafter "Tr. , (pages)"); Tr., pp. 84-88.

⁴ State Engineer's Order No. 842, (Exhibit 32).

on their own merit.⁵ Protestant Elko County offered no additional evidence in support of the protest to Applications 44687 and 44688, and Protestant Goshute withdrew the protests to Applications 44687 and 44688 since the subject applications represent a non-consumptive (geothermal) commercial use.⁶ Applications 44687 and 44688 propose only to extract heat from the underground water and do not constitute consumption of groundwater. The State Engineer finds no evidence that the proposed use under 44687 and 44688 will adversely effect existing rights.

VI.

Water Resources - Reconnaissance Series Report 56, "Water-Resources Appraisal of the Pilot Creek Valley Area, Elko and White Pine Counties, Nevada", (hereinafter "Report 56") was prepared by the United States Geological Survey in cooperation with the Nevada Department of Conservation and Natural Resources. Report 56 overlaps a portion (Antelope Valley) of the Bulletin 12 study area and utilized newer mapping techniques and scientific estimation factors. Both Bulletin 12 and Report 56 are reconnaissance level compilations of hydrologic data, from which preliminary estimates were made regarding the amount of underground water that may be available on a safe or perennial yield basis. The State Engineer has closely evaluated the estimates made in Bulletin 12 for two purposes.

1. To isolate Goshute Valley as separate and distinct from the Goshute-Antelope Valley area encompassed in the study, and
2. To utilize the newer estimation factors that were used in Report 56 so that an assessment of the now isolated Goshute Valley would be consistent with the accepted methods in Report 56.

The scientific estimation factors used in Report 56 on a hydrologic basin adjacent to Goshute Valley are likely more accurate and reflect many more years of experience than those used in Bulletin 12. In fact, the present method itself for estimating recharge to a

⁵ Tr., pp. 5-6; p.30.

⁶ Tr., pp. 26-30, Exhibit 4 and Exhibit 7.

groundwater basin from precipitation was first published in Bulletin 12 (1951), was used throughout the series of Reconnaissance Series Reports including Report 56 (1971) and is still used today by the U.S. Geological Survey. The recharge estimation factors however have evolved over the years.

Bulletin 12 estimated the annual recharge from precipitation to the Goshute-Antelope Valley groundwater basin at 10,400 acre-feet. Using the updated (Report 56) recharge estimation factors the groundwater recharge from precipitation is estimated at 15,800 acre-feet. From this value the estimated natural recharge value (3,200 acre-feet) computed in Report 56 for the (overlapping) Antelope Valley area is subtracted to yield an estimated 12,600 acre-feet annually that recharges the Goshute Valley groundwater basin.

A similar analysis for natural discharge from Goshute Valley produces a value of nearly 13,700 acre-feet. The State Engineer typically accepts an average value produced by the USGS estimates of natural recharge and discharge as the amount of underground water that may be available for appropriation on a perennial yield basis. This perennial yield is the amount of underground water of suitable chemical quality that is estimated to be available within a groundwater basin for withdrawal on a long-term average annual basis. The evidence supports the findings that the perennial yield for the Goshute Valley Basin is 13,000 acre-feet.⁷

VII.

Protestant Goshute claimed there is insufficient recharge in the area of Wendover's proposed and existing well field, but nowhere adequately defined the "area" or why it is the sole source of recharge to the well field.⁸ Protestant Goshute further claimed the pumpage from the applicants' wells will somehow lower the (basin-wide) water table and thereby diminish the flow of Johnson Spring, but failed to support this assertion with credible evidence in this record. The water table elevation in the vicinity of the applicants' wells is one hundred forty feet higher than the elevation of the Johnson

⁷ Nevada Division of Water Resources office memorandum prepared by Groundwater Section staff, dated January 23, 1989.

⁸ Tr., pp. 50-55, Exhibit "F".

Spring.⁹ Groundwater recharge occurring in the Pequop Range on the west side of Goshute Valley moves easterly to the lowest (water table) elevation in the central valley floor (Hardy Creek)¹⁰ area. Similarly, recharge occurring on the east side (Toano Range) moves westerly and down gradient toward the same low point in the groundwater basin. Based on the record of evidence the State Engineer finds there exists a groundwater divide in this central valley floor area, across which there is no flow. These facts together with the entire record developed in this matter, support the finding that the granting of Applications 47615, 47616 and 47617 will not interfere with existing rights of Protestant Goshute.

VIII.

Wendover's Applications 49423 and 49595 to change the points of diversion of Applications 47615 and 47616, if granted simultaneously with the granting of protested Applications 47615 and 47616, would move the proposed well locations to over eight miles away from Johnson Spring and would therefore not conflict with the existing rights of Protestant Goshute.

IX.

Existing permits and certificates to appropriate underground water from the Goshute Valley Designated Groundwater Basin total 10,600 acre feet annually. As set forth above in Finding VI. there is 13,000 acre feet available on a perennial yield basis and therefore there is unappropriated water in the proposed source of supply.

X.

Pursuant to the authority in NRS Chapter 534, the State Engineer finds it in the public interest to require Applicant Wendover to establish a groundwater monitoring network, that will document actual groundwater conditions and response to pumpage from the existing and proposed well field. Applicant Wendover has agreed in principal to this directive in this record.

⁹ See Preliminary Water Level Data for Goshute Valley compiled by the U.S. Geological Survey and available in the office of the State Engineer.

¹⁰ Tr., pp. 185-189.

CONCLUSIONS

I.

As provided under NRS 533.370, the State Engineer shall approve an application submitted in proper form which contemplates the application of water to beneficial use unless (NRS 533.370(3)):

1. There is no unappropriated water in the proposed source of supply,
2. The proposed use conflicts with existing rights, or
3. The proposed use threatens to prove detrimental to the public interest.

II.

NRS 534.110(4) provides, as an express condition of each appropriation of groundwater acquired pursuant to Chapters 533 and 534, that the right of the appropriator shall relate to a specific quantity of water and that such right must allow for a reasonable lowering of the static water level at the appropriator's point of diversion.

III.

NRS 534.110(5) authorizes the State Engineer to issue permits in (designated) areas to applicants later in time, even when such later appropriations may cause the water level to be lowered at the point of diversion of the prior appropriator, so long as the rights of holders of existing appropriations can be satisfied under such express conditions. The proposed new appropriations under Applications 47615, 47616, and 47617 will not cause an unreasonable lowering of the static water table in the senior appropriators points of diversion such that the rights of the holders of the senior appropriations cannot be satisfied.

IV.

The issuance of the subject permits, with proper monitoring requirements through development stages, up to and including full scale operations will not tend to conflict with existing rights to the extent they cannot be satisfied.

V.

Protestant Goshute claimed there is insufficient recharge in the area of Wendover's proposed and existing well field, but nowhere adequately defined the "area" or why it is the sole source of recharge to the well field. Protestant Goshute further claimed the pumpage from the applicants' wells will somehow lower the (basin-wide) water table and thereby diminish the flow of Johnson Spring, but failed to support this assertion with credible evidence in this record. The water table elevation in the vicinity of the applicants' wells is one hundred forty feet higher than the elevation of the Johnson Spring. Groundwater recharge occurring in the Pequop Range on the west side of Goshute Valley moves easterly to the lowest (water table) elevation in the central valley floor (Hardy Creek) area. Similarly, recharge occurring on the east side (Toano Range) moves westerly and down gradient toward the same low point in the groundwater basin. Based on the record of evidence the State Engineer concludes there exists a groundwater divide in this central valley floor area, across which there is no flow. These facts together with the entire record developed in this matter further support the conclusion that the granting of Applications 47615, 47616 and 47617 will not interfere with existing rights of Protestant Goshute.

RULING

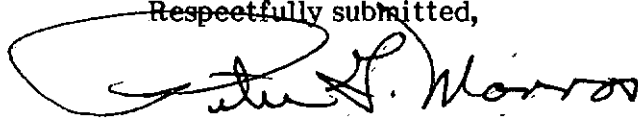
The protests to the granting of Application 38309 are herewith upheld and Application 38309 is denied on the grounds there is no unappropriated water in the proposed source of supply.

The protests to the granting of Applications 44687 and 44688 are herewith overruled on the grounds the proposed appropriations do not constitute a consumptive use of groundwater and will not conflict with existing rights. Permits will be issued upon receipt of statutory fees.

The protest to the granting of Applications 47615, 47616 and 47617 are herewith overruled on the grounds there is unappropriated water in the proposed source of supply and the proposed appropriations will not conflict with existing rights nor prove detrimental to the public interest. A monitoring plan for the Northern Goshute Valley

area must be submitted to the State Engineer for approval no later than 90 days from the date of this Ruling. Permits will be issued upon receipt of statutory fees. The State Engineer does not waive the right to regulate the withdrawals herein granted at any and all times.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Peter G. Morros", is written over a large, loopy circular flourish.

PETER G. MORROS
State Engineer

PGM/TG/bk

Dated this 26th day of
January, 1989.

TAB 12

**APPLICATION FOR PERMIT
TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA**

Date of filing in State Engineer's Office MAY 8 1981
 Returned to applicant for correction JUL 30 1981
 Corrected application filed AUG 18 1981
 Map filed AUG 31 1981

The applicant Carson City
1711 N. Roop St., of Carson City,
Street and No. or P.O. Box No. City or Town
Nevada 89701, hereby make^s application for permission to appropriate the public
State and Zip Code No.
 waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association, give names of members.) Carson City is a Consolidated
Municipality

1. The source of the proposed appropriation is underground
Name of stream, lake or other source.
2. The amount of water applied for is 6.0 second-feet
One second-foot equals 448.83 gals. per min.
 (a) If stored in reservoir give number of acre-feet _____ acre-feet
3. The water to be used for Municipal purposes
Irrigation, power, mining, manufacturing, domestic, or other use. Must limit to one use.
4. If use is for:
 - (a) Irrigation (state number of acres to be irrigated) _____
 - (b) Stockwater (state number and kinds of animals to be watered) _____
 - (c) Other use (describe fully under "No. 12. Remarks") _____
 - (d) Power:
 - (1) Horsepower developed _____
 - (2) Point of return of water to stream _____
5. The water is to be diverted from its source at the following point: NW1/4 NW1/4 Section 9, T.14N., R.20E., M.D.B.&M., or at a point which bears N.30°W. a distance of
Describe as being within a 40-acre subdivision of public survey, and by course and distance to a section corner. If on unsurveyed land, 200 feet to the NW corner of said Section 9 it should be stated.
200 feet to the NW corner of said Section 9
6. Place of use All of T.15N., R.20E., M.D.B.&M., E1/2 of T.15N., R.19E.,
Describe by legal subdivision, if on unsurveyed land it should be so stated.
M.D.B.&M., Sections 2,3,4,E1/2 5, and that portion of the N1/2 of the NE1/4 of Section 6 which lies within Carson City Limits, T.14N., R.20E., M.D.B.&M., Sections 31, 32, 33, 34, 35, W1/2 36 and those portions of the E1/2 of Section 36 which lie within Carson City limits T.16N., R.20E., M.D.B.&M., the S1/2 of Sections 34, 35, and 36, NE1/4 36, and those portions of the SW1/4, NW1/4 36 and the S1/2 NE1/4 35 which lie within the Carson City limits T.16N., R.19E., M.D.B.&M.
7. Use will begin about January 1 and end about December 31, of each year.
Month and Day Month and Day
8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) Well, pump, motor and pipeline to connect to Carson City Municipal Water System
State manner in which water is to be diverted, i.e. diversion structure, ditches and flumes, drilled well with pump and motor, etc.

9. Estimated cost of works. \$50,000
10. Estimated time required to construct works. 3 years
If well completed, describe works.
11. Estimated time required to complete the application to beneficial use. 5 years
12. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

This water will be used in the Carson City municipal water system.

CARSON CITY
By s/James P. Haddan
Signature, applicant or agent

Compared bl/js bp/se James P. Haddan, P.E.
1711 N. Roop St.
Carson City, NV 89701

APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit is issued subject to existing rights. It is understood that the amount of water herein granted is only a temporary allowance and that the final water right obtained under this permit will be dependent upon the amount of water actually placed to beneficial use. It is also understood that this right must allow for a reasonable lowering of the static water level. This well shall be equipped with a two (2) inch opening for measuring depth to water. If the well is flowing, a valve must be installed and maintained to prevent waste. A totalizing meter must be installed and maintained in the discharge pipeline near the point of diversion and accurate measurements must be kept of water placed to beneficial use. The totalizing meter must be installed before any use of water begins, or before the Proof of Completion of Work is filed. This source is located within an area designated by the State Engineer, pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

This Permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies.

This permit is issued under the provisions of NRS 534.120(2) as a preferred use.

The annual duty of water under this permit is initially limited to 500 acre-feet. At least 4 ground water monitoring wells are to be located or installed within the general area of the production well under this permit at
(CONTINUED ON PAGE 2)

The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, and not to exceed 6.0 cubic feet per second, but not to exceed 1000 acre feet annually.

Actual construction work shall begin on or before

Proof of commencement of work shall be filed before

Work must be prosecuted with reasonable diligence and be completed on or before March 29, 1992

Proof of completion of work shall be filed before April 29, 1992

Application of water to beneficial use shall be made on or before March 29, 1995

Proof of the application of water to beneficial use shall be filed on or before April 29, 1995

Map in support of proof of beneficial use shall be filed on or before N/A

Commencement of work filed IN TESTIMONY WHEREOF, I R. MICHAEL TURNIPSEED, P.E.
Completion of work filed State Engineer of Nevada, have hereunto set my hand and the seal of
Proof of beneficial use filed my office, this 29th day of March
Cultural map filed
Certificate No. Issued A.D. 19 90

Abrogated By 54865-T 1.0 cfs
218 (Rev. 9-80) Temp.
Abrogated By 54865
R. Michael Turnipseed P.E.
State Engineer

(PERMIT TERMS CONTINUED)

locations approved by the State Engineer. These monitoring wells must be installed prior to any diversion of ground water allowed by this permit. The monitoring wells must penetrate at least 75 feet below the existing water table. The annual duty of water allowed by this permit may be raised to a maximum of 1000 acre-feet in stages and as approved and authorized by the State Engineer only after the State Engineer has determined that the additional withdrawal will not adversely affect existing rights or the ground water resource. The permittee will maintain pumping records on the amounts of water withdrawn and submit copies of these records to the State Engineer on a monthly basis. Water level measurements will be maintained on the monitoring wells and copies of these records will be submitted to the State Engineer on a monthly basis.

TAB 13

AMENDED

**APPLICATION FOR PERMIT
TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA**

Date of filing in State Engineer's Office AUG-1-8-1982 NEW PRIORITY DATE: JAN. 04. 2001
Returned to applicant for correction SEP 2 8 1982
Corrected application filed NOV 2 4 1982
Map filed NOV 2 4 1982 under 46027

The applicant Alfred A. Wiesner
1998 Green Oaks Drive, of Littleton,
Street and No. or P.O. Box No. City or Town
Colorado (80121), hereby make application for permission to appropriate the public
State and Zip Code No.
waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association, give names of members.)

1. The source of the proposed appropriation is Underground Well 2
Name of stream, lake, spring, underground or other source
2. The amount of water applied for is 5.0 second-feet
One second-foot equals 448.83 gals. per min.
(a) If stored in reservoir give number of acre-feet
3. The water to be used for Quasi-Municipal and Domestic
Irrigation, power, mining, manufacturing, domestic, or other use. Must limit to one use.
4. If use is for:
 - (a) Irrigation, state number of acres to be irrigated: 1,000
 - (b) Stockwater, state number and kinds of animals to be watered:
 - (c) Other use (describe fully under "No. 12. Remarks")
 - (d) Power:
 - (1) Horsepower developed
 - (2) Point of return of water to stream
5. The water is to be diverted from its source at the following point: within the NE $\frac{1}{4}$ NW $\frac{1}{4}$, Section 23,
Describe as being within a 40-acre subdivision of public
T21S, R63E, MDM, or at a point from which the West one-quarter corner of said
survey, and by course and distance to a section corner. If on unsurveyed land, it should be so stated.
Section 23 bears, S 42° 00' 58" W a distance of 3036.46 feet.
6. Place of use SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, W $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$, W $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$,
Describe by legal subdivision. If on unsurveyed land, it should be so stated.
W $\frac{1}{2}$, W $\frac{1}{2}$ SE $\frac{1}{4}$, W $\frac{1}{2}$ W $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$, All in Section 14, All Section 15, N $\frac{1}{2}$, N $\frac{1}{2}$ S $\frac{1}{2}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$,
S $\frac{1}{2}$ SE $\frac{1}{4}$, All in Section 22, W $\frac{1}{2}$ E $\frac{1}{2}$, W $\frac{1}{2}$, Section 23, T21S, R63E, MDM.
7. Use will begin about January 1 and end about December 31, of each year.
Month and Day Month and Day
8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) Drilled and cased well, submersible pump,
State manner in which water is to be diverted, i.e. diversion structure, ditches and
motor, storage reservoirs and distribution system.
flumes, drilled well with pump and motor, etc.
9. Estimated cost of works \$200,000

10. Estimated time required to construct works Five Years
If well completed, describe works.

11. Estimated time required to complete the application of water to beneficial use Ten Years

12. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

Plans are not yet final, but a maximum of 2,000 units may be constructed.

The applicant is within the Las Vegas Valley Water District service area,

so, therefore, this application is filed as a temporary permit pursuant

to NRS 534.120(3).

By s/Richard W. Arden Agent
950 Industrial Way
Sparks, Nevada (89431)

Compared js/bl bp/se

Protested 1/21/83 by Colorado River Commission W/D 3/16/90

APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit is issued subject to existing rights. It is understood that the amount of water herein granted is only a temporary allowance and that the final water right obtained under this permit will be dependent upon the amount of water actually placed to beneficial use. It is also understood that this right must allow for a reasonable lowering of the static water level. This well shall be equipped with a two (2) inch opening for measuring depth to water. If the well is flowing, a valve must be installed and maintained to prevent waste. A totalizing meter must be installed and maintained in the discharge pipeline near the point of diversion and accurate measurements must be kept of water placed to beneficial use. The totalizing meter must be installed before any use of water begins, or before the Proof of Completion of Work is filed. This source is located within an area designated by the State Engineer, pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

This Permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies.

(CONTINUED ON PAGE 2)

The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, and not to exceed 5.0 cubic feet per second, but not to exceed 2200 acre feet annually.

Work must be prosecuted with reasonable diligence and be completed on or before August 30, 1992

Proof of completion of work shall be filed before September 30, 1992

Application of water to beneficial use shall be made on or before August 30, 1995

Proof of the application of water to beneficial use shall be filed on or before September 30, 1995

Map in support of proof of beneficial use shall be filed on or before N/A

Completion of work filed IN TESTIMONY WHEREOF, I R. MICHAEL TURNIPSEED, P.E.
State Engineer of Nevada, have hereunto set my hand and the seal of

Proof of beneficial use filed my office, this 30th day of August

Cultural map filed A.D. 19 90

Certificate No. Issued

 218 (Rev.)

~~CANCELLED DEC 14 2000 BECAUSE OF FAILURE
 OF APPLICANT TO COMPLY WITH THE PROVISIONS OF PERMIT~~

~~Turnipseed, P.E. STATE ENGINEER~~

Can. Recd. 9-19-01

(PERMIT TERMS CONTINUED)

This permit is issued under the provisions of NRS 534.120(2) as a preferred use.

The total combined duty of water under permits 46029, 46030, 53704, 53829, 53830 and 53831 is initially limited to 2200 acre-feet. At least four groundwater monitoring wells are to be located or installed within the general area of the production well under this permit at locations approved by the State Engineer. These monitoring wells must be installed prior to any diversion of groundwater allowed by this permit. The monitoring wells must penetrate at least 75 feet below the existing water table. The total combined duty of water allowed under permits 46029, 46030, 53704, 53829, 53830 and 53831 may be raised to a maximum of 4400 acre-feet in stages and as approved and authorized by the State Engineer only after the State Engineer has determined that the additional withdrawal will not adversely affect existing rights or the groundwater resource, and upon showing that the withdrawal of water is developed in the Horse Springs formation. The permittee will maintain pumping records on the amounts of water withdrawn and submit copies of these records to the State Engineer on a monthly basis. Water level measurements will be maintained on the monitoring wells and copies of these records will be submitted to the State Engineer on a monthly basis.

All of the applicant's permanent wells that are located within a quarter mile of the Las Vegas Wash and/or penetrate shallow portions of the Muddy Creek Formation will be constructed with a minimum of 100 feet of cemented casing below the elevation of the adjacent wash.

All of the applicant's permanent wells must be constructed so that they draw only upon the Horse Springs Formation as a source for groundwater appropriation.

This permit is issued subject to the State Engineer's ruling dated July 12, 1990.

TAB 14

**APPLICATION FOR PERMISSION TO CHANGE POINT OF DIVERSION, MANNER
OF USE AND PLACE OF USE OF THE PUBLIC WATERS OF THE
STATE OF NEVADA HERETOFORE APPROPRIATED**

Date of filing in State Engineer's Office MAY 24 1990

Returned to applicant for correction _____

Corrected application filed _____ Map filed JUN 13 1990 under 54865-TThe applicant Carson City, c/o Carson City Water Division3300 Butti Way, No. 9 of Carson City
Street and No. or P.O. Box No. City or TownNevada 89701 hereby make S application for permission to change the
State and Zip Code No.Point of Diversion
Point of diversion, manner of use, and/or place of useof water heretofore appropriated under Permit 43699
Identify existing right by Permit, Certificate, Proof or Claim Nos. If Decreed, give title of Decree and identify right in Decree.1. The source of water is Underground
Name of stream, lake, underground spring or other source.2. The amount of water to be changed 6.0 c.f.s., 1000 AFA
Second feet, acre feet. One second foot equals 448.83 gallons per minute.3. The water to be used for Municipal
Irrigation, power, mining, industrial, etc. If for stock state number and kind of animals.4. The water heretofore permitted for Municipal
Irrigation, power, mining, industrial, etc. If for stock state number and kind of animals.5. The water is to be diverted at the following point SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 33, T.15N., R.20E.,
Describe as being within a 40-acre subdivision of public survey and by course and distance to a section corner. If on unsurveyed land, it should be stated.MDB&M, or at a point from which the SW corner of said Section 33 bears South
85° 16' West, 1586 feet6. The existing permitted point of diversion is located within NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 9, T.14N., R.20E.,
If point of diversion is not changed, do not answer.MDB&M, or at a point from which the NW corner of said Section 9 bears North
30° West, 200 feet7. Proposed place of use See Attached
Describe by legal subdivisions. If for irrigation state number of acres to be irrigated.8. Existing place of use See Attached
Describe by legal subdivisions. If permit is for irrigation, state number of acres irrigated. If changing place of use and/or manner of use of irrigation permit, describe acreage to be removed from irrigation.9. Use will be from January 1 to December 31 of each year.
Month and Day Month and Day10. Use was permitted from January 1 to December 31 of each year.
Month and Day Month and Day11. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) well, submersible pump and motor, and
State manner in which water is to be diverted, i.e. diversion structure,
distribution system
ditches, pipes and flumes, or drilled well, etc.12. Estimated cost of works \$50,000.0013. Estimated time required to construct works 1 year

14. Estimated time required to complete the application of water to beneficial use..... 5 years.....

15. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use:

Please use map on file at the Division of Water Resources under Application

43699 to support the existing and proposed place of use. An application for a

Temporary Permit is being filed concurrently with this application. See letter to the State Engineer dated May 24, 1990.

Bys/Bruce R. Scott

Bruce R. Scott, Resource Concepts, Inc.
340 North Minnesota Street
Carson City, Nevada 89703

Compared bc/ pm am/vjw

Protested.....

..... APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit to change the point of diversion of the waters of an underground source as heretofore granted under Permit 43699 is issued subject to the terms and conditions imposed in said Permit 43699 and with the understanding that no other rights on the source will be affected by the change proposed herein. The well shall be equipped with a 2-inch opening and a totalizing meter must be installed and maintained in the discharge pipeline near the point of diversion and accurate measurements must be kept of water placed to beneficial use. The totalizing meter must be installed before any use of the water begins or before the proof of completion of work is filed. If the well is flowing, a valve must be installed and maintained to prevent waste. This source is located within an area designated by the State Engineer pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

This Permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies.

This permit is issued under the provisions of NRS 534.120(2) as a preferred use.
(CONTINUED ON PAGE 2)

The amount of water to be changed shall be limited to the amount which can be applied to beneficial use, and not to exceed 6.0 cubic feet per second, but not to exceed 1000 acre-feet annually.

Work must be prosecuted with reasonable diligence and be completed on or before March 29, 1991

Proof of completion of work shall be filed before April 29, 1991

Application of water to beneficial use shall be made on or before March 29, 1995

Proof of the application of water to beneficial use shall be filed on or before April 29, 1995

Map in support of proof of beneficial use shall be filed on or before N/A

Completion of work filed MAY 28 1991

Proof of beneficial use filed.....

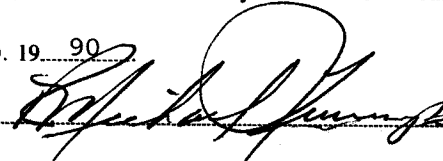
Cultural map filed.....

Certificate No. Issued.....

IN TESTIMONY WHEREOF, I, R. MICHAEL TURNIPSEED, P.E.
State Engineer of Nevada, have hereunto set my hand and the seal of my

office, this 6th day of November,

A.D. 19 90


State Engineer

Abrogated By 59085T EXP 2-1-93
60206T 0.49249-01.45

(PERMIT TERMS CONTINUED)

The annual duty of water under this permit is initially limited to 500 acre-feet. At least 4 ground water monitoring wells are to be located or installed within the general area of the production well under this permit at locations approved by the State Engineer. These monitoring wells must be installed prior to any diversion of ground water allowed by this permit. The monitoring wells must penetrate at least 75 feet below the existing water table. The annual duty of water allowed by this permit may be raised to a maximum of 1000 acre-feet in stages and as approved and authorized by the State Engineer only after the State Engineer has determined that the additional withdrawal will not adversely affect existing rights or the ground water resource. The permittee will maintain pumping records on the amounts of water withdrawn and submit copies of these records to the State Engineer on a monthly basis. Water level measurements will be maintained on the monitoring wells and copies of these records will be submitted to the State Engineer on a monthly basis.