

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.<sup>(1)</sup><sup>(2)</sup> 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.<sup>(2)</sup>

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.<sup>(3)</sup><sup>(4)</sup> 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.<sup>(4)</sup>

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<sup>1</sup> Public record in the State Engineer's office under Application 47127.

<sup>2</sup> Public record in the State Engineer's office under Permit 35147.

<sup>3</sup> Public record in the State Engineer's office under Application 47128.

<sup>4</sup> 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.<sup>(5)</sup><sup>(6)</sup> 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.<sup>(6)</sup>

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.<sup>(7)</sup><sup>(8)</sup> 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.<sup>(8)</sup>

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.<sup>(9)</sup><sup>(10)</sup> The proposed point of diversion is described as being within the SE1/4 SW1/4 Section 18, T.17N.,

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<sup>5</sup> Public record in the State Engineer's office under Application 47129.

<sup>6</sup> Public record in the State Engineer's office under Permit 35149.

<sup>7</sup> Public record in the State Engineer's office under Application 47130.

<sup>8</sup> Public record in the State Engineer's office under Permit 35150.

<sup>9</sup> Public record in the State Engineer's office under Application 47131.

<sup>10</sup> 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

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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

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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.<sup>(16)</sup> 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.<sup>(20)(15)(16)</sup> 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.<sup>(16)</sup> 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.<sup>(21)(15)(16)</sup> 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.<sup>(16)</sup> 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.<sup>(15)</sup>

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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)

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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

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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

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 therby 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 overviation 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."

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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:<sup>(31)</sup>

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:<sup>(32)</sup>

"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

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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)

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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: <sup>(34)</sup>

"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: <sup>(35)</sup>

"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."

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<sup>34</sup> Public record in the State Engineer's office under Application 47138.

<sup>35</sup> 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

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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 overviation 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: <sup>(31)</sup>

"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.<sup>(37)</sup> 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.<sup>(38)</sup> 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<sup>(39)</sup>. Additionally, extensive testimony was received by experts and witnesses representing applicants or protestants who had standing in this matter.<sup>(40)</sup>

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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.<sup>(41)</sup> 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.<sup>(42)</sup> 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).<sup>(43)</sup>

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.<sup>(44)</sup> The Galena Creek

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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).<sup>(45)</sup> 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.<sup>(46)</sup>

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.<sup>(47)</sup>

## 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.<sup>(48)</sup> 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

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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

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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.<sup>(58)</sup> 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.<sup>(59)</sup>

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.<sup>(60)</sup> 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.<sup>(61)</sup> Secondary ground water recharge therefore cannot be considered a long term reliable source of ground water recharge or perennial yield.

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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.

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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.<sup>(66)</sup> 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.<sup>(67)</sup> 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

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

<sup>67</sup> 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.<sup>(68)</sup> <sup>(69)</sup>

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.<sup>(70)</sup> 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.<sup>(71)</sup> 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.<sup>(72)</sup> 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.<sup>72</sup> 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.<sup>(73)</sup> 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.<sup>(74)(75)</sup> 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.<sup>(76)</sup> 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.<sup>(77)</sup> 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

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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.<sup>(78)</sup> 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.<sup>(79)</sup>

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."

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

<sup>79</sup> 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.<sup>(80)</sup> 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.

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<sup>80</sup> 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.<sup>(81)</sup> 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.<sup>(82)</sup>

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.<sup>(83)</sup> 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.<sup>(84)</sup> The granting of

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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.<sup>(85)</sup>

II.

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

- 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.<sup>(87)</sup>

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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

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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.

APPENDIX OF REFERENCES

Land Subsidence in Las Vegas Valley, 1935-63, Information Series No. 5 U.S.G.S.

State of Nevada, Department of Highways, Report on Land Subsidence in Las Vegas Valley.

Evaluation of the Water Resources of Lemmon Valley with Emphasis on Effects of Ground-Water Development to 1971, J.R. Harrill, Water Resources Bulletin No. 42, United States Geological Survey and State of Nevada, State Engineer's Office, Division of Water Resources, Department of Conservation and Natural Resources, 1972.

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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.