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 District[1] 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.

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[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 NE¼ SE¼ 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 NE¼ NE¼ 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 SE¼ SE¼ 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 SE¼ NW¼ 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 SW¼ SW¼ of Section 1, T.11N., R.66E., M.D.B.&M.[7]

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[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]

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[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 SW¼ SW¼ 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 SW¼ NW¼ 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 NE¼ SW¼ 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 NW¼ SE¼ 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 SE¼ NE¼ of Section 24, T.16N., R.66E., M.D.B.&M.[17]

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[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, Virgina 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 Cowbelles, Kelly Wiedmeyer, Thomas R. Wiedmeyer, Patricia Williams, Paula Williams, Unincorporated Town of Pahrump, 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:

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[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.

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[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 Report[29] 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

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[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 numbers[32] 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

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[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

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[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

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[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]

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[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

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[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

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[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

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[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 SpringValley, 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 map[64] 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

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[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

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[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 regression[75] 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 Tippett 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]

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[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 Creek[78] (1966-2005) and Cleve Creek[79] (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.

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[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 Engineers[81] 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 Handbook[84] 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.

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[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.

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[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 Revise Statute § 533.024. Nevada Revise 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

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[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

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[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,

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[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 it 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

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[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

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[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.

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[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

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[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 3,132[114] 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 then currently reside there in 2004.

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[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.

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[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.

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[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.

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[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.

TRACY TAYLOR, P.E.
State Engineer

Dated this 16th day of
April, 2007.