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

IN THE MATTER OF APPLICATION NUMBER 54019
FILED BY LAS VEGAS VALLEY WATER DISTRICT
ON OCTOBER 17, 1989, TO APPROPRIATE THE
WATERS OF UNDERGROUND

PROTEST

Comes now Owen R. Williams, on behalf of the United States Department of the Interior, National Park Service, whose post office address is 301 S. Howes Street, Room 353, Fort Collins, Colorado, 80521, whose occupation is Chief, Water Rights Branch, Water Resources Division, National Park Service, and protests the granting of Application Number 54019, filed on October 17, 1989, by Las Vegas Valley Water District to appropriate the water of Underground Basin 184, SPRING VALLEY, situated in WHITEPINE County, State of Nevada, for the following reasons and on the following grounds, to wit:

See Exhibits A through B attached.

THEREFORE the protestant requests that the application be **denied** (See Exhibit C, attached).

Signed O. R. Williams
Agent or protestant

Owen R. Williams
Printed or typed name, if agent

Address 301 South Howes St., Room 353
Street No. or P.O. Box No.

Fort Collins, CO 80521
City, State and Zip Code No.

Subscribed and sworn to before me this 5th day of July, 1990.

Notary Public

State of Colorado

County of Larimer

My Commission expires 3/10/91.

IN THE MATTER OF APPLICATION 54019

EXHIBIT A

Protest by Owen R. Williams, on behalf of
the United States Department of the Interior,
National Park Service

I. The mission of the National Park Service (NPS) may be paraphrased from 16 U.S.C. 1 as conserving the scenery, natural and historic objects, and wildlife, and providing for enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations. Great Basin National Park (Great Basin NP) was created by Congressional Act in 1986, "...to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geologic and scenic values...".

Water resources at Great Basin NP include lakes, streams, springs, seeps, and ground water. Associated with these are various water-related resource attributes. Two examples are described. (1) Pine and Ridge Creeks which headwater within Great Basin NP and flow into Spring Valley, provide habitat for the Bonneville Cutthroat trout (Oncorhynthus clarki Utah). This fish species is considered by the U.S. Fish and Wildlife Service as a candidate species for threatened status under the Endangered Species Act, and is listed by the Nevada Department of Wildlife as a state sensitive species. (2) In addition to Lehman Caves, discussed in more detail in II. below, there are approximately 30 known caves within Great Basin NP. There may well be cave systems within Great Basin NP which have not yet been discovered. Ground water is important in maintaining cave features and is thought to play an important role in cave ecology.

The public interest will not be served if water and water-related resources in the nationally important Great Basin NP are diminished or impaired as a result of the appropriation proposed by this application.

II. In the legislation establishing Great Basin NP, Congress explicitly excluded the establishment of any new Federal reserved water right, but stated that the United States was entitled to reserved rights associated with the initial establishment and withdrawal of Humboldt National Forest and Lehman Caves National Monument. The priority dates for these reserved rights are the dates of initial establishment of national forest lands and Lehman Caves National Monument, and are senior to the appropriation sought by this application. These reserved rights have not been judicially quantified.

Ground water plays an important role in maintaining the features of Lehman Caves. The caves contain living limestone formations, such as stalactites, stalagmites, plate-like shields, cave coral, rimstone dams,

curling helictites, flowstone, and draperies. However, little is known about the ecology of the caves and the role played by water.

If the diversion proposed by this application causes ground-water levels in the vicinity of Lehman Caves to drop and/or alters the direction of ground-water movement, ground-water flow in Lehman Caves will be reduced or eliminated. The senior NPS reserved water rights, water resources, and water-related resource attributes will thus be impaired.

III. The NPS holds a water right to Cave Springs (proof 01065), with a priority date of 1890, which was decreed October 1, 1934. By Application Number 20794, Certificate Record No. 7573, the point of diversion, manner and place of use were changed. The point of diversion is within the SW1/4 NE1/4 Sec. 9, T13N R69E, MDBM. This right provides water for the current visitor center, picnic area, maintenance area, trailer dump station, and park housing; and for the watering of lawns and a historic orchard.

If the diversion proposed by this application causes ground-water levels in the vicinity of Cave springs to drop and/or alters the direction of ground-water movement, ground-water flow to Cave Springs will be reduced or eliminated. The senior NPS water right for Cave Springs will thus be impaired.

IV. Located near the town of Baker, in the E1/2 NW1/4 Sec. 9 T13N R70E, MDBM, is an administrative site on public domain land which was withdrawn from entry for use by the United States Forest Service (USFS). The NPS currently uses the site as a ranger station, office and residence, with water supplied by a well developed when the USFS occupied the site.

This site is under consideration for development by the NPS in the General Management Plan for Great Basin NP, a draft of which is scheduled for release in January 1991. The site would likely include administrative offices, a park maintenance facility, and residences for park staff including up to 6 single-family dwellings and an apartment unit housing 30 people. Adequate facilities of this kind are vital to the protection and management of the nationally important Great Basin NP for the benefit and inspiration of the people.

By virtue of the primary USFS withdrawal still in effect for this site, the United States has Federal reserved water rights for the purposes of the withdrawal, which include use as a ranger station with supporting

facilities. The priority dates for the reserved rights are the dates upon which land was withdrawn for use by the USFS. These reserved rights have not been judicially quantified.

The United States also holds a portion of proof 01066, assigned on June 29, 1945. Proof 01066 is a water right decreed on October 1, 1934. The United States entitlement to this right is 0.38 cubic feet per second in summer and 0.13 cubic feet per second in winter.

If the water supply for this administrative site is diminished or impaired as a result of the appropriation proposed by this application, the public interest will not be served and the United States senior Federal reserved and decreed water rights will be impaired.

V. As mentioned in item IV. above, the NPS is preparing a General Management Plan for Great Basin NP, scheduled for release in January 1991. The plan contemplates the construction of a visitor center in Great Basin NP, to be located between Baker and Lehman Creeks, within T14N R69E, MDBM. It is anticipated that the water supply for the new visitor center will be from a well. As the Baker and Lehman Creek stream system is not presently within a designated ground-water basin and the plan has not yet been finalized, the NPS has not applied for a water right permit.

If this application and Las Vegas Valley Water District's (LVVWD) other applications within Snake Valley and Spring Valley Basins are approved, there will be no water available for future appropriations. The new facilities planned for Great Basin NP are for the benefit and inspiration of the people. In addition, the park attracts tourists to the area and is important to the local economy. Thus, it would not be in the public interest to approve this and other applications within Snake Valley and Spring Valley Basins.

VI. The diversion proposed by this application is located in the carbonate-rock province of Nevada. The carbonate-rock province is typified by complex interbasin regional flow systems that include both basin-fill and carbonate-rock aquifers (Harrill, et al., 1988, Sheet 1). Ground water flows along complex pathways through basin-fill aquifers, carbonate-rock aquifers, or both, from one basin to another. Ground-water flow system boundaries, and thus interbasin ground-water flows, are poorly defined for most of the carbonate-rock province (Harrill, et al., 1988, Sheet 1).

The proposed diversion is located in Snake Valley or Spring Valley. Great Basin NP encompasses part of the Snake Range which separates the two valleys. Lehman Caves and the administrative site near Baker, Nevada, are along the eastern flank of the range. Part of the range is composed of carbonate rocks which have been strongly deformed by folding and repetitive faulting. Some water is transmitted through pore space in the carbonate rock. However, connected solution cavities and fractures in the carbonate rock provide conduits for more rapid transmission of ground water.

The basin-fill and carbonate-rock aquifers in Snake, Hamlin, and Spring Valleys are part of a regional ground-water flow system which discharges in the Great Salt Lake Desert (Hood and Rush, 1965; Dettinger, 1989; and Harrill, et al., 1988, Sheet 2). A regional ground-water potential map prepared by Harrill, et al. (1988, Figure 5, Sheet 1), indicates general regional ground-water movement from Spring Valley to Snake Valley.

Rush and Kazmi (1965) estimated that about 4,000 acre-feet of ground water per year flows from Spring Valley to Hamlin Valley through the carbonate rocks in the Snake Range separating these two valleys. Ground water beneath Hamlin Valley is discharged into aquifers beneath Snake Valley (Hood and Rush, 1965, Plate 1; Harrill, et al., 1988, Sheet 2). The quantity of discharge is only a rough estimate, and may be much larger or smaller. Where carbonate rocks separate Spring Valley and Snake Valley, other potential areas for the movement of ground water between Spring and Snake Valleys occur.

Available scientific literature is not adequate to reasonably assure that the ground-water appropriation proposed by this application will not impact water resources and water-related resources of Great Basin NP and the United States senior water rights. Scientific literature does indicate, however, that the aquifers beneath Hamlin, Snake, and Spring Valleys are hydraulically connected. Large diversions, such as that proposed by this application, may impact the water resources of Great Basin NP and the United States water rights in Snake and Spring valleys.

VII. Besides this application, the LVVWD has submitted 18 additional applications to appropriate ground water in Basin 184, SPRING VALLEY (Exhibit B).

A. Diversions proposed by these applications would be about 91282 acre-feet per year.

B. As of December 1988, committed diversions of 35800 acre-feet per year and an estimated perennial yield of 100000 acre-feet per year were reported for Basin 184, SPRING VALLEY (Nevada Department of Conservation and Natural Resources, 1988).

C. The sum of the committed diversions and the diversions proposed by the LVVWD applications in this basin exceeds the estimated recharge of 75000 acre-feet per year (Harrill, et al., 1988, Sheet 2; Eakin et al., 1976) by 52082 acre-feet per year and the estimated perennial yield by 27082 acre-feet per year.

An overdraft of ground-water resources is expected to occur. The overdraft will cause ground-water levels to decline, alter the direction of ground-water flow, dry up playas, reduce or eliminate spring and stream flows, and cause land subsidence and fissuring. The cumulative effects of these diversions in this basin are expected to cause impacts at Great Basin NP and at the administrative site near Baker, Nevada, to occur more quickly and/or to a greater degree than diversions under this application alone. The diversions proposed by LVVWD in this basin exceed the water available for appropriation. The impacts described above are not in the public interest.

VIII. It should be noted also, that the LVVWD has submitted 28 applications which propose the appropriation of 196 cubic feet per second (141994 acre-feet per year) of ground water from the aquifers beneath Snake Valley and Spring Valley Basins (Exhibit B). The diversions proposed by LVVWD in these basins exceed the water available for appropriation. The cumulative effects of these diversions is expected to cause the impacts described in VII. above, to appear more quickly and/or to a greater degree than diversions within the subject ground-water basin, or under this application alone. This conclusion is supported by the following.

A. Harrill, et al. (1988, sheet 2) show an estimated ground-water recharge of 177000 acre-feet per year for the Spring Valley, Hamlin Valley, and Snake Valley Basins. This estimate includes ground-water recharge for Basin 194, Pleasant Valley. Eakin, et al. (1976, Table 8) show an estimated ground-water recharge of 129000 acre-feet per year for these basins.

B. As of December 1988, the latest available estimate of committed diversions for the basins was 41535 acre-feet per year (Nevada Department of Conservation and Natural Resources, 1988).

C. The sum of the committed diversions and the diversion rate proposed by the applications in these basins--183529 acre-feet per year--exceeds the estimated recharge rate shown by Harrill, et al., (1988, Sheet 2) by 6529 acre-feet per year, and the estimated recharge rate shown by Eakin, et al., (1976, Table 8) by 54529 acre-feet per year.

IX. In this application, the point(s) of discharge for return flow (treated effluent) has or have not been specified. However, the possibility exists that the return flow may be discharged into a hydrologic basin other than the basin of origin. This being the case, depletions to ground-water basins tributary to aquifers beneath Snake and Spring valleys, and hence impacts to Great Basin NP (including Lehman Caves) and the water supply for the administrative site, will occur more quickly and/or in greater magnitude if return flow (or treated effluent) is not discharged in the basin of origin.

X. According to NRS 533.060, "Rights to the use of water shall be limited and restricted to so much thereof as may be necessary, when reasonably and economically used for irrigation and other beneficial purposes..." Further, NRS 533.070 states that "The quantity of water from either a surface or underground source which may hereafter be appropriated in this state shall be limited to such water as shall reasonably be required for the beneficial use to be served." Implicit in these statements is a prohibition against waste and unreasonable use of water. It is unclear whether the quantity of water contemplated by this application, individually and in combination with applications 53947 through 54036, 54038 through 54066, 54068 through 54076, 54105, and 54106 by the LVVWD, is necessary and is an amount reasonably required for municipal and domestic purposes. Past open and notorious practices would indicate otherwise.

XI. The application does not clearly indicate the place of use, the description of proposed works, estimated cost of works, number and type of units to be served, or annual consumptive use. Nor, as described in X. above, is it clear that the appropriation sought is necessary and is in an amount reasonably required for the beneficial use to be served. Therefore, the application is defective and should be summarily rejected by the State Engineer.

XII. In sum, the NPS protests the granting of Application Number 54019, submitted by the LVVWD to appropriate and divert ground water, on the following grounds.

IN THE MATTER OF APPLICATION 54019

EXHIBIT A (Continued)

Protest by Owen R. Williams, on behalf of
the United States Department of the Interior,
National Park Service

A. The public interest will not be served if water and water-related resources in the nationally important Great Basin NP are diminished or impaired as a result of the appropriation proposed by this application.

B. If the diversion proposed by this application causes ground-water levels in the vicinity of Lehman Caves to drop and/or alters the direction of ground-water movement, ground-water flow in Lehman Caves will be reduced or eliminated. The senior NPS reserved water rights will thus be impaired.

C. If the diversion proposed by this application causes ground-water levels in the vicinity of Cave springs to drop and/or alters the direction of ground-water movement, ground-water flow to Cave Springs will be reduced or eliminated. The senior NPS water rights for Cave Springs will thus be impaired.

D. If the water supply for the administrative site near Baker, Nevada, is diminished or impaired as a result of the appropriation proposed by this application, the public interest will not be served and the United States senior Federal reserved and decreed water rights will be impaired.

E. If this application and LVVWD's other applications within Snake Valley and Spring Valley Basins are approved, there may be no water available for future appropriations. Facilities at Great Basin NP for the benefit and inspiration of the people will not be possible without a dependable water supply. It is not in the public interest to approve this and other applications within Snake Valley and Spring Valley Basins.

F. Available scientific literature is not adequate to reasonably assure that the ground-water diversion proposed by this application will not impact the senior water rights of the United States at Great Basin NP and the administrative site near Baker, Nevada. The State Engineer will, therefore, be unable to make a determination that injury will not be manifest upon other water users, including the NPS.

G. The cumulative effects of the diversion proposed by this application and other applications within this basin (Exhibit B) will impair the senior water rights of the United States more quickly and/or to a greater degree than diversions under this

application alone. The diversions proposed by LVVWD in this basin exceed the water available for appropriation. These impacts are not in the public interest.

H. The cumulative effects of the diversion proposed by this application and other applications in Basins 184 and 196 will impair the senior water rights of the United States more quickly and/or to a greater degree than diversions within the subject ground-water basin, or under this application alone. The diversions proposed by LVVWD in these basins exceed the water available for appropriation.

I. Depletions to ground-water basins tributary to aquifers beneath Snake and Spring valleys, and hence impacts to Great Basin NP (including Lehman Caves) and the water supply for the administrative site, will occur more quickly and/or in greater magnitude if return flow (or treated effluent) is not discharged in the basin of origin.

J. It is unclear whether the quantity of water claimed by this application, individually and in combination with applications 53947 through 54036, 54038 through 54066, 54068 through 54076, 54105, and 54106, is necessary and is an amount reasonably required for municipal and domestic purposes.

K. The application does not clearly indicate the place of use, the description of proposed works, estimated cost of works, number and type of units to be served or annual consumptive use. Nor is it clear that the appropriation sought is necessary and is in an amount reasonably required for the beneficial use to be served. Therefore the application is defective and should be summarily rejected by the State Engineer.

XIII. The NPS reserves the right to amend this exhibit as more information becomes available.

IN THE MATTER OF APPLICATION 54019

EXHIBIT B

Protest by Owen R. Williams on behalf of
the United States Department of the Interior,
National Park Service

The following applications were submitted by the Las Vegas Valley Water District for appropriations in Basins 184 and 195 (Nevada Division of Water Resources, 1990).

Application no.	Basin no.	Basin Name	Proposed diversion rate, ft^3/s
54003	184	SPRING VALLEY	6
54004	184	SPRING VALLEY	6
54005	184	SPRING VALLEY	6
54006	184	SPRING VALLEY	6
54007	184	SPRING VALLEY	6
54008	184	SPRING VALLEY	6
54009	184	SPRING VALLEY	6
54010	184	SPRING VALLEY	6
54011	184	SPRING VALLEY	6
54012	184	SPRING VALLEY	6
54013	184	SPRING VALLEY	6
54014	184	SPRING VALLEY	6
54015	184	SPRING VALLEY	6
54016	184	SPRING VALLEY	6
54017	184	SPRING VALLEY	6
54018	184	SPRING VALLEY	6
54019	184	SPRING VALLEY	10
54020	184	SPRING VALLEY	10
54021	184	SPRING VALLEY	10
54022	195	SNAKE VALLEY	6
54023	195	SNAKE VALLEY	6
54024	195	SNAKE VALLEY	6
54025	195	SNAKE VALLEY	6
54026	195	SNAKE VALLEY	10
54027	195	SNAKE VALLEY	10
54028	195	SNAKE VALLEY	10
54029	195	SNAKE VALLEY	10
54030	195	SNAKE VALLEY	6
		Total	196

IN THE MATTER OF APPLICATION 54019

EXHIBIT C

Protest by Owen R. Williams, on behalf of
the United States Department of Interior,
National Park Service

The National Park Service (NPS) requests that the application be denied. Further, none of the information which follows should be construed to indicate that the NPS asks for anything less than denial of the application.

If the application is approved, the NPS requests the following.

I. The NPS does not wish to impede any legitimate ground-water development in the State of Nevada, which will not impair the senior water rights, water resources and water-related resource attributes of Great Basin National Park (Great Basin NP) and the administrative site near Baker, Nevada. However, reports by Hood and Rush (1965), Rush and Kazmi (1965), Harrill, et al. (1988, Sheet 1), and Dettinger (1989) indicate that Basins 184, 185, 195, and 196 are hydraulically connected. Therefore, the NPS requests that the State Engineer establish the above-listed ground-water basins as one designated ground-water basin.

The designation would assist in protecting the interests of the NPS, the Las Vegas Valley Water District (LVVWD), the people of the United States, and the people of the State of Nevada. If this request is denied, the NPS requests that the State Engineer establish the above-mentioned basins as separate designated ground-water basins.

II. The NPS further requests that, if the application is approved, the permit be conditioned by the following.

A. The LVVWD shall conduct a scientific ground-water investigation of basin-fill, volcanic, and carbonate-rock aquifers to determine the hydrologic relationship between Basin 184, SPRING VALLEY, and the water resources of Great Basin NP and the administrative site near Baker, Nevada.

B. The LVVWD shall establish and operate a long-term monitoring program designed to detect any potential impacts to water resources of Great Basin NP and the administrative site near Baker, Nevada, directly or indirectly incident to the appropriation described by the application.

C. The LVVWD plans for monitoring and investigating ground-water resources shall be subject to the approval of the NPS and the State Engineer and shall include quality assurance protocol acceptable to the above-mentioned parties.

IN THE MATTER OF APPLICATION 54019

EXHIBIT C (Continued)

Protest by Owen R. Williams, on behalf of
the United States Department of the Interior,
National Park Service

D. The LVVWD shall quarterly, or at another mutually acceptable frequency, provide all data collected and analyses completed to the NPS and the State Engineer.

E. The LVVWD shall cease pumping ground water, or reduce the level of pumping to the no impact level, in the event that analyses by the NPS or the State Engineer create a reasonable expectation that the senior water rights of the United States at Great Basin NP and/or the administrative site near Baker, Nevada, will be impaired by pumping permitted under this application.

III. The NPS reserves the right to amend this exhibit as more information becomes available.

IN THE MATTER OF APPLICATION 54019

REFERENCES CITED

Protest by Owen R. Williams, on behalf of
the United States Department of Interior,
National Park Service

Dettinger, M.D., 1989. Distribution of carbonate-rock aquifers in southern Nevada and the potential for their development, Summary of Findings, 1985-88: Program for the Study and Testing of Carbonate-Rock Aquifers in Eastern and Southern Nevada Summary Report No. 1, 37 p.

Eakin, T.E., Price, D., and Harrill, J.R., 1976. Summary of the Nation's Ground-water Resources-Great Basin Region. U.S. Geological Survey Professional Paper 813-G, pp. G1-G37.

Harrill, J.R., Gates, J.S., and Thomas, J.M., 1988. Major ground-water flow systems in the Great Basin region of Nevada, Utah, and adjacent states: U.S. Geological Survey Hydrologic Investigations Atlas HA-694-C, 2 sheets.

Hood, J.W., and Rush, F.E., 1965. Water-resources appraisal of the Snake Valley area, Utah and Nevada: Utah State Engineer Technical Publication 14, 43 p.

Nevada Department of Conservation and Natural Resources, 1988. Hydrographic Basin Statistical Summary, Ground Water Basins 001-232: unpublished report, Division of Water Resources and Water Planning, Carson City, Nevada.

Nevada Division of Water Resources, 1990. Abstract of Filings of Las Vegas Valley Water District, dated May 9, 1990.

Rush, F.E., and Kazmi, S.A.T., 1965. Water resources appraisal of Spring Valley, White Pine, and Lincoln Counties, Nevada: Nevada Department of Conservation and Natural Resources Water Resources Reconnaissance Series Report 33, 36 p.