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

IN THE MATTER OF APPLICATION NUMBER 53967
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 53967, filed on October 17, 1989, by Las Vegas Valley Water District to appropriate the water of Underground Basin 173, RAILROAD VALLEY (NORTHERN PART), situated in NYE County, State of Nevada, for the following reasons and on the following grounds, to wit:

See Exhibits A through D attached.

THEREFORE the protestant requests that the application be **denied** (See Exhibit E, 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 53967**

**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 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. The public interest will not be served if water and water-related resources in the nationally important Death Valley National Monument (Death Valley NM) and Lake Mead National Recreation Area (Lake Mead NRA) are diminished or impaired as a result of the appropriation proposed by this application.

II. Death Valley NM was created by Presidential Proclamation in 1933 to preserve unusual features of scenic, scientific, and educational interest. The proclamation gives warning to unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument. Springs and water-related resources are important features of the Monument. The NPS is entitled to Federal reserved water rights for reserved lands within Death Valley NM. The priority dates for these reserved rights are the dates when the lands were reserved and are senior to the appropriation sought by this application. These rights have not been judicially quantified.

A. In the eastern part of the Monument, Grapevine, Keane Wonder, Nevares, Texas, Travertine and Saratoga Springs provide water for park facilities, domestic use, public campgrounds, resorts, vegetation, wildlife, public enjoyment, scenic value and other related needs. Nevares, Texas, and Travertine Springs collectively discharge about 2,000 gallons per minute (about 3,200 acre-feet per year) and are critical for domestic and commercial use.

Public visitation to Death Valley NM for the past 5 years is approximately as follows:

1985 - 601,000
1986 - 611,000
1987 - 693,000
1988 - 721,000
1989 - 692,000

The Monument supplies water for visitors from the above-named springs. For example, during 1988, water from these springs supported approximately 275,000 overnight campers in Death Valley NM campgrounds, 98,000 people at resorts within the Monument,

200 NPS employees and families (at the height of the season), 410 resort employees, a population of 50 Native Americans, and 32 other residents.

B. The springs mentioned above, in addition to more than 350 others in Death Valley NM, support vegetation and critical wildlife habitat. For example, two species of snails, which are candidates for threatened or endangered species listing, are found within Death Valley NM and live at certain springs. The Badwater snail (Assiminea infima) is found at Travertine and Nevares Springs and the Amargosa tryonia snail (Tryonia variegata) occurs at Saratoga Springs. Six other species of snails are endemic to Death Valley springs and are not found outside the Monument.

Desert bighorn sheep are also dependent upon the springs in Death Valley NM. Approximately 25 herds concentrate around Monument springs during the summer, rarely straying more than two miles away.

If approved, the appropriation and diversion proposed by this application will eventually reduce or eliminate the flows from springs at Death Valley NM which are discharge areas for regional ground-water flow systems. The NPS's senior appropriative and Federal reserved water rights, water resources, and water-related resource attributes will thus be impaired. Such impacts are not in the public interest.

III. A unique and endangered species of pupfish exists in a pool at Devil's Hole, a detached unit of Death Valley NM in Nevada. Ground-water withdrawals near the unit previously caused a decline in the water level of the pool, exposing a rock shelf vital to the spawning of the pupfish (Dudley and Larson, 1976). Subsequently, the U.S. Supreme Court (later refined by the U.S. District Court) determined that a Federal reserved water right exists at Devil's Hole for the purpose of maintaining a water level sufficient to inundate the shelf on which the pupfish spawns (Cappaert v. United States, 1976). In addition, the Endangered Species Act and its amendments impose obligations on Federal agencies to conserve endangered species such as the Devil's Hole pupfish. The appropriation and diversion proposed by this application will, eventually, cause the water level at Devil's Hole to fall, thereby impairing the senior Federal reserved water right for Devil's Hole.

IV. Lake Mead NRA was established in 1964 to be administered for "...general purposes of public recreation, benefit, and use, and in a manner that

will preserve, develop, and enhance, so far as practicable, the recreation potential, and in a manner that will preserve the scenic, historic, scientific, and other important features of the area...". Springs and water-related resource attributes are important features of the National Recreation Area. The NPS is entitled to Federal reserved water rights for reserved lands within Lake Mead NRA. The priority dates for these reserved rights are the dates when the lands were reserved and are senior to the appropriation sought by the Las Vegas Valley Water District (LVVWD). These rights have not been judicially quantified.

A. Numerous springs provide water for vegetation and wildlife habitat and create an environment that many visitors use and enjoy. Most springs are not fed by water from Lake Mead, and will be affected by up-gradient diversions.

   Springs include Blue Point, Rogers, Corral, Kelsey's and Tassi Springs, and other smaller, unnamed springs. Visitation to Blue Point and Rogers Springs has been estimated at 5,000 visitors/year for each spring.

   Desert bighorn sheep are also dependent upon the springs in Lake Mead NRA. A herd of approximately 150 use springs in the northern part of the National Recreation Area, while a herd of nearly 400 sheep use springs in the southern part.

B. Thermal springs are found within Lake Mead NRA. Two of the larger and more frequented--Boy Scout and Nevada Hot Springs--have water temperatures of about 127°F throughout the year. Several smaller thermal springs of recreational and scientific interest also exist within Lake Mead NRA boundaries.

C. The Muddy River, which originates from large discharge springs located northeast of Moapa, Nevada, flows into Lake Mead NRA at the north end of the lake's Overton Arm. The State of Nevada, Department of Wildlife, is leasing a portion of Lake Mead NRA adjoining the Muddy River for the purposes of the Overton Wildlife Management Area. This area supports a variety of waterfowl and vegetation.

If approved, the appropriation and diversion proposed by this application will eventually reduce or eliminate the flows of springs (including thermal springs) and the Muddy River within Lake Mead NRA

which are discharge areas for regional ground-water flow systems. The NPS's senior water rights, water resources, and water-related resource attributes would thus be impaired. Such impacts are not in the public interest.

V. Lake Mead NRA has Nevada State appropriative water rights for the following, which will be impaired by the appropriation and diversion proposed by this application.

| Name | Point of Diversion | Certificate Number |
|---|---|---|
| Kelsey's Springs | SW1/4 NW1/4, Sec 20, T16S, R68E MDBM | 296 |
| Rogers Spring | SE1/4 SE1/4, Sec 12, T18S, R67E MDBM | 4476 |
| Muddy Creek (River) | NW1/4 SE1/4, Sec 19, T16S, R68E MDBM | 5126 |

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 expected to reduce interbasin flows and modify the direction of ground-water movement in adjoining hydraulically connected basins, reduce or eliminate spring and stream flows, and cause land subsidence and fissuring.

A central corridor of the carbonate-rock aquifers in southern Nevada (Dettinger, 1989) occurs within the carbonate-rock province. The corridor consists of a north-south "block" of thick, laterally continuous carbonate rocks and probably contains the principal conduits for regional ground-water flow from east-central Nevada into southern Nevada, with flow ultimately discharging through springs at Ash Meadows (including Devil's Hole), Death Valley, and Lake Mead (Dettinger, 1989, p. 13). Parts of east-central Nevada are a recharge area for the central corridor of the carbonate-rock and basin-fill aquifers in southern Nevada (Dettinger, 1989; Mifflin, 1988).

The major ground-water flow systems of southern and east-central Nevada described by Harrill, et al. (1988, Sheets 1 and 2) include Death Valley, Penoyer Valley, Railroad Valley, Newark Valley, and Colorado.

These ground-water flow systems are within or tributary to the central corridor. The Death Valley flow system of Harrill, et al. (1988), includes the Ash Meadows flow system described by Winograd and Thordarson (1975). The Ash Meadows flow system discharges from springs at Ash Meadows and Death Valley NM and maintains the water level of Devil's Hole. The Colorado flow system of Harrill, et al. (1988) includes the White River flow system described by Eakin (1966). Winograd and Thordarson (1975) indicate that ground water flows from the White River flow system to the Ash Meadows flow system, ultimately discharging from springs at Ash Meadows and Death Valley, and maintaining water levels at Devil's Hole. Harrill, et al. (1988, Sheet 2) also show areas where ground water is transmitted from one flow system to another. Essington (1990) discusses several of the major flow systems mentioned above and their relationships to the water resources of Death Valley NM. The White River flow system discharges from the Muddy River springs and springs at Lake Mead NRA (See Eakin, 1966; Harrill, et al., 1988, Sheet 2; Dettinger, 1989, Figure 6).

The diversion proposed by this application is located within a basin which may be part of the central corridor, the recharge area for the central corridor and/or other parts of regional ground-water flow systems which discharge in the Ash Meadows, Death Valley and Lake Mead areas (Harrill, et al., 1988, Sheet 1, Figure 5; and Sheet 2). Thus, the diversion is expected to reduce the flow from springs at Death Valley NM and Lake Mead NRA and/or cause the water level at Devil's Hole to decline.

Some zones within the central corridor are highly transmissive, and act as large-scale drains which ultimately transmit much of the flow that discharges from large springs such as those at Ash Meadows, Death Valley NM and Lake Mead NRA. It has been hypothesized (Dettinger, 1989, p. 16) that the highly transmissive zones may stay highly transmissive only if large volumes of water continue to flow through them. Otherwise, openings in the rocks gradually fill with minerals and the rocks resolidify. The appropriation and diversion proposed by this application is expected to reduce the volume and velocity of ground water flowing through the drains which could begin the process of closing connected fractures and solution cavities, substantially impairing the capacity of the aquifer to transmit water.

Available scientific literature is not adequate to reasonably assure that the ground-water appropriation and diversion proposed by this application will not impact the senior water rights, water resources and

water-related resources of Death Valley NM and Lake Mead NRA, and thereby impair the senior NPS water rights. Scientific literature indicates that Devil's Hole, and springs within Death Valley NM and Lake Mead NRA are hydraulically connected to regional ground-water flow systems and can be affected by an up-gradient ground-water diversion.

VII. Besides this application, the LVVWD has submitted 17 additional applications to appropriate ground water in Basin 173, RAILROAD VALLEY (NORTHERN PART) (Exhibit B).

A. Diversions proposed by these applications, if developed, would be about 95629 acre-feet per year (Exhibit C and D).

B. As of December 1988, committed diversions of 24575 acre-feet per year and an estimated perennial yield of 75000 acre-feet per year were reported for Basin 173, RAILROAD VALLEY (NORTHERN PART) (Nevada Department of Conservation and Natural Resources, 1988; Exhibit C).

C. The sum of the committed diversions and the diversions proposed by the LVVWD applications in this basin exceeds the estimated recharge of 46000 acre feet per year by 74204 acre-feet per year (Exhibit D) and the estimated perennial yield by 45204 acre-feet per year (Exhibit C).

A substantial overdraft of ground-water resources is expected to occur. The overdraft will cause ground-water levels to decline, alter the directions of ground-water flow, dry up playas, reduce or eliminate spring flows, and cause land subsidence and fissuring. The cumulative effects of these diversions in this basin are expected to cause impacts at Death Valley NM and Lake Mead NRA more quickly and/or to a greater degree than diversions under this application alone and thereby impair the senior NPS water rights. 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 a total of 102 applications which propose the appropriation of 824 cubic feet per second (596690 acre-feet per year) of ground water from the central corridor of the carbonate-rock aquifer or a basin hydraulically connected to the central corridor (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 thandiversions 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) have estimated an annual ground-water recharge of 221400 acre-feet for basins with proposed diversions as listed in Exhibit B (Exhibit D).

B. The cumulative diversion proposed by these applications, when developed, will be approximately 596960 acre-feet per year (Exhibit D). This diversion rate exceeds the estimated cumulative recharge rate in the basins by 375560 acre-feet per year. A substantial overdraft of ground-water resources will occur as a result.

C. As of December 1988, the latest available estimate of committed diversions and perennial yield were 203884 and 343750 acre-feet per year, respectively, for these basins (Nevada Department of Conservation and Natural Resources, 1988; Exhibit C).

D. The sum of the committed diversions and the diversion rate proposed by these applications exceeds the estimated perennial yield by 457094 acre-feet per year (Exhibit C) and the estimated recharge rate in the basins by 579444 acre-feet per year (Exhibit D).

IX. In this application, the points of discharge for return flow (treated effluent) have not been specified. 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 springs in Death Valley NM and Lake Mead NRA and a drop in the water level at Devil's Hole would occur more quickly and in greater magnitude than if treated effluent were returned to 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 uses applied for. 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 53967, submitted by the LVVWD to appropriate and divert ground water, on the following grounds.

A. The public interest will not be served if water and water-related resources in the nationally important Death Valley NM including Devil's Hole, and Lake Mead NRA, are diminished or impaired as a result of the diversion proposed by this application.

B. The diversion proposed by this application will reduce or eliminate the flows of springs in Death Valley NM which are discharge areas for regional ground-water flow systems, thereby impairing the senior NPS water rights.

C. The diversion proposed by this application will cause the water level at Devil's Hole to fall, thereby impairing the senior Federal reserved water right for Devil's Hole.

D. If approved, the appropriation and diversion proposed by this application will eventually reduce or eliminate the flows of springs and the Muddy River within Lake Mead NRA which are discharge areas for regional ground-water flow systems. The NPS's senior water rights, water resources, and water-related resource attributes would thus be impaired. Such impacts are not in the public interest.

E. Lake Mead NRA has Nevada State appropriative water rights for Kelsey's Springs, Roger's Spring, and Muddy Creek (River) which

will be impaired by the appropriation and diversion proposed by this application.

F. Available scientific literature is not adequate to reasonably assure that the ground-water appropriation and diversion proposed by this application will not impact the senior water rights of Death Valley NM and Lake Mead NRA. 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 Death Valley NM and Lake Mead NRA more quickly and/or to a greater degree than the diversion under this application alone. The diversions proposed by LVVWD in this basin exceed the water available for appropriation.

H. The cumulative effects of the diversion proposed by this application and other applications within the regional ground-water flow systems (Exhibit B) will impair the senior water rights of Death Valley NM and Lake Mead NRA more quickly and/or to a greater degree than diversions in 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 regional ground-water flow systems, and hence springs in Death Valley NM and Lake Mead NRA, and a drop in the water level at Devil's Hole 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 diversion sought is necessary and in an amount reasonably required for the beneficial uses applied for.

**IN THE MATTER OF APPLICATION 53967**

**EXHIBIT A (Continued)**

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

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 53967**

**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 within the central corridor, the recharge area for the central corridor, and/or other parts of the regional flow system (Nevada Division of Water Resources, 1990).

| Application no. | Basin no. | Basin Name | Proposed diversion rate, $ft^3/s$ |
|---|---|---|---|
| 54060 | 168 | THREE LAKES VALLEY (NORTHERN PART) | 6 |
| 54061 | 168 | THREE LAKES VALLEY (NORTHERN PART) | 10 |
| 54068 | 168 | THREE LAKES VALLEY (NORTHERN PART) | 6 |
| 54069 | 168 | THREE LAKES VALLEY (NORTHERN PART) | 10 |
| 53947 | 169A | TICKAPOO VALLEY (NORTHERN PART) | 6 |
| 53948 | 169A | TICKAPOO VALLEY (NORTHERN PART) | 10 |
| 53949 | 169A | TICKAPOO VALLEY (NORTHERN PART) | 10 |
| 53950 | 169B | TICKAPOO VALLEY (SOUTHERN PART) | 6 |
| 53951 | 169B | TICKAPOO VALLEY (SOUTHERN PART) | 10 |
| 53952 | 169B | TICKAPOO VALLEY (SOUTHERN PART) | 10 |
| 54062 | 211 | THREE LAKES VALLEY (SOUTHERN PART) | 6 |
| 54063 | 211 | THREE LAKES VALLEY (SOUTHERN PART) | 6 |
| 54064 | 211 | THREE LAKES VALLEY (SOUTHERN PART) | 10 |
| 54065 | 211 | THREE LAKES VALLEY (SOUTHERN PART) | 10 |
| 54066 | 211 | THREE LAKES VALLEY (SOUTHERN PART) | 10 |
| 54106 | 211 | THREE LAKES VALLEY (SOUTHERN PART) | 10 |
| 53953 | 170 | PENOYER VALLEY | 6 |
| 53954 | 170 | PENOYER VALLEY | 10 |
| 53955 | 170 | PENOYER VALLEY | 10 |
| 53956 | 171 | COAL VALLEY | 6 |
| 53957 | 171 | COAL VALLEY | 6 |
| 53958 | 171 | COAL VALLEY | 10 |
| 53959 | 171 | COAL VALLEY | 10 |
| 53960 | 172 | GARDEN VALLEY | 6 |
| 53961 | 172 | GARDEN VALLEY | 6 |
| 53962 | 172 | GARDEN VALLEY | 6 |
| 53963 | 172 | GARDEN VALLEY | 10 |
| 53964 | 172 | GARDEN VALLEY | 10 |
| 53981 | 173A | RAILROAD VALLEY (SOUTHERN PART) | 6 |
| 53982 | 173A | RAILROAD VALLEY (SOUTHERN PART) | 6 |
| 53983 | 173A | RAILROAD VALLEY (SOUTHERN PART) | 10 |
| 53984 | 156 | HOT CREEK VALLEY | 10 |

**IN THE MATTER OF APPLICATION 53967**

**EXHIBIT B (Continued)**

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

| Application no. | Basin no. | Basin Name | Proposed diversion rate, $ft^3/s$ |
|---|---|---|---|
| 53965 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53966 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53967 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53968 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53969 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53970 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53971 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53972 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53973 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53974 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53975 | 173B | RAILROAD VALLEY (NORTHERN PART) | 10 |
| 53976 | 173B | RAILROAD VALLEY (NORTHERN PART) | 10 |
| 53977 | 173B | RAILROAD VALLEY (NORTHERN PART) | 10 |
| 53978 | 173B | RAILROAD VALLEY (NORTHERN PART) | 10 |
| 53979 | 173B | RAILROAD VALLEY (NORTHERN PART) | 10 |
| 53980 | 173B | RAILROAD VALLEY (NORTHERN PART) | 10 |
| 53985 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53986 | 173B | RAILROAD VALLEY (NORTHERN PART) | 6 |
| 53998 | 174 | JAKES VALLEY | 6 |
| 53999 | 174 | JAKES VALLEY | 6 |
| 54000 | 174 | JAKES VALLEY | 6 |
| 54001 | 174 | JAKES VALLEY | 10 |
| 54002 | 174 | JAKES VALLEY | 10 |
| 53987 | 180 | CAVE VALLEY | 6 |
| 53988 | 180 | CAVE VALLEY | 10 |
| 53989 | 181 | DRY LAKE VALLEY | 6 |
| 53990 | 181 | DRY LAKE VALLEY | 10 |
| 53991 | 182 | DELAMAR VALLEY | 6 |
| 53992 | 182 | DELAMAR VALLEY | 10 |
| 53993 | 183 | LAKE VALLEY | 6 |
| 53994 | 183 | LAKE VALLEY | 6 |
| 53995 | 183 | LAKE VALLEY | 6 |
| 53996 | 183 | LAKE VALLEY | 10 |
| 53997 | 183 | LAKE VALLEY | 10 |
| 54038 | 207 | WHITE RIVER VALLEY | 6 |
| 54039 | 207 | WHITE RIVER VALLEY | 6 |
| 54040 | 207 | WHITE RIVER VALLEY | 6 |

**IN THE MATTER OF APPLICATION 53967**

**EXHIBIT B (Continued)**

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

| Application no. | Basin no. | Basin Name | Proposed diversion rate, $ft^3/s$ |
|---|---|---|---|
| 54041 | 207 | WHITE RIVER VALLEY | 10 |
| 54042 | 207 | WHITE RIVER VALLEY | 10 |
| 54031 | 202 | PATTERSON VALLEY | 6 |
| 54032 | 202 | PATTERSON VALLEY | 6 |
| 54033 | 202 | PATTERSON VALLEY | 10 |
| 54034 | 202 | PATTERSON VALLEY | 10 |
| 54035 | 205 | LOWER MEADOW VALLEY WASH | 6 |
| 54105 | 205 | LOWER MEADOW VALLEY WASH | 10 |
| 54043 | 208 | PAHROC VALLEY | 6 |
| 54044 | 208 | PAHROC VALLEY | 6 |
| 54045 | 208 | PAHROC VALLEY | 10 |
| 54046 | 208 | PAHROC VALLEY | 10 |
| 54047 | 208 | PAHROC VALLEY | 10 |
| 54048 | 208 | PAHROC VALLEY | 10 |
| 54049 | 208 | PAHROC VALLEY | 10 |
| 54050 | 209 | PAHRANAGAT VALLEY | 6 |
| 54051 | 209 | PAHRANAGAT VALLEY | 6 |
| 54052 | 209 | PAHRANAGAT VALLEY | 6 |
| 54053 | 209 | PAHRANAGAT VALLEY | 10 |
| 54054 | 209 | PAHRANAGAT VALLEY | 10 |
| 54055 | 210 | COYOTE SPRINGS VALLEY | 6 |
| 54056 | 210 | COYOTE SPRINGS VALLEY | 6 |
| 54057 | 210 | COYOTE SPRINGS VALLEY | 6 |
| 54058 | 210 | COYOTE SPRINGS VALLEY | 10 |
| 54059 | 210 | COYOTE SPRINGS VALLEY | 10 |
| 54070 | 212 | LAS VEGAS VALLEY | 10 |
| 54071 | 212 | LAS VEGAS VALLEY | 10 |
| 54072 | 212 | LAS VEGAS VALLEY | 10 |
| 54073 | 216 | GARNET VALLEY | 10 |
| 54074 | 217 | HIDDEN VALLEY (NORTH) | 10 |
| 54075 | 218 | CALIFORNIA WASH | 10 |
| 54076 | 218 | CALIFORNIA WASH | 10 |
| 54036 | 220 | LOWER MOAPA VALLEY | 10 |
| | | Total | 824 |

## IN THE MATTER OF APPLICATION 53967

## EXHIBIT C

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

Committed diversions, perennial yields, and available and proposed diversions for basins within the central corridor, the recharge area for the central corridor, and/or other parts of regional flow systems (Nevada Division of Water Resources, 1990; Nevada Department of Conservation and Natural Resources, 1988).

| Basin No. | Basin Name | Committed Diversions, A-ft/yr | Estimated Perennial Yield, A-ft/yr | Available Diversion, A-ft/yr | No. of LVVWD Appli-cations | Proposed LVVWD Diversion Rate, A-ft/yr | Available Diversion Less Proposed Diversion, A-ft/yr |
|---|---|---|---|---|---|---|---|
| 156 | HOT CREEK VALLEY | 1890 | 5500 | 3610 | 1 | 7245 | -3635 |
| 168 | THREE LAKES VALLEY (NORTHERN PART) | 0 | 4000 | 4000 | 4 | 23183 | -19183 |
| 169A | TICKAPOO VALLEY (NORTHERN PART) | 0 | 2600 | 2600 | 3 | 18836 | -16236 |
| 169B | TICKAPOO VALLEY (SOUTHERN PART) | 0 | 3400 | 3400 | 3 | 18836 | -15436 |
| 170 | PENOYER VALLEY | 5670 | 4000 | -1670 | 3 | 18836 | -20506 |
| 171 | COAL VALLEY | 45 | 6000 | 5955 | 4 | 23183 | -17228 |
| 172 | GARDEN VALLEY | 377 | 6000 | 5623 | 5 | 27530 | -21907 |
| 173A | RAILROAD VALLEY (SOUTHERN PART) | 5188 | 2800 | -2388 | 3 | 15938 | -18326 |
| 173B | RAILROAD VALLEY (NORTHERN PART) | 24575 | 75000 | 50425 | 18 | 95629 | -45204 |
| 174 | JAKES VALLEY | 32 | 12000 | 11968 | 5 | 27530 | -15562 |
| 180 | CAVE VALLEY | 31 | 14000 | 13969 | 2 | 11591 | 2378 |
| 181 | DRY LAKE VALLEY | 175 | 2500 | 2325 | 2 | 11591 | -9266 |
| 182 | DELAMAR VALLEY | 120 | 1000 | 880 | 2 | 11591 | -10711 |
| 183 | LAKE VALLEY | 22656 | 12000 | -10656 | 5 | 27530 | -38186 |
| 202 | PATTERSON VALLEY | 1216 | 4500 | 3284 | 4 | 23183 | -19899 |
| 205 | LOWER MEADOW VALLEY WASH | 22915 | 5000 | -17915 | 2 | 11591 | -29506 |
| 207 | WHITE RIVER VALLEY | 21183 | 37000 | 15817 | 5 | 27530 | -11713 |
| 208 | PAHROC VALLEY | 19 | 2000 | 1981 | 7 | 44917 | -42936 |
| 209 | PAHRANAGAT VALLEY | 6678 | 25000 | 18322 | 5 | 27530 | -9208 |
| 210 | COYOTE SPRINGS VALLEY | 0 | 18000 | 18000 | 5 | 27530 | -9530 |
| 211 | THREE LAKES VALLEY (SOUTHERN PART) | 256 | 5000 | 4744 | 6 | 37672 | -32928 |
| 212 | LAS VEGAS VALLEY | 81773 | 25000 | -56773 | 3 | 21734 | -78507 |
| 216 | GARNET VALLEY | 1651 | 400 | -1251 | 1 | 7245 | -8496 |
| 217 | HIDDEN VALLEY (NORTH) | 18 | 50 | 32 | 1 | 7245 | -7213 |
| 218 | CALIFORNIA WASH | 510 | 36000 | 35490 | 2 | 14489 | 21001 |
| 220 | LOWER MOAPA VALLEY | 6906 | 35000 | 28094 | 1 | 7245 | 20849 |
| | Totals | 203884 | 343750 | 139866 | 102 | 596960 | -457094 |

## IN THE MATTER OF APPLICATION 53967

## EXHIBIT D

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

Committed diversions and recharge rates for basins within the central corridor, the recharge area for the central corridor, and/or other parts of the regional flow systems (Nevada Division of Water Resources, 1990; Harrill, et al., 1988; and Nevada Department of Conservation and Natural Resources, 1988).

| Basin No. | Basin Name | Committed Diversions, A-ft/yr | Proposed LVVWD Diversions, A-ft/yr | Total Diversion, A-ft/yr | Estimated Recharge Rate, A-ft/yr | Recharge Less Total Diversion, A-ft/yr |
|---|---|---|---|---|---|---|
| 156 | HOT CREEK VALLEY | 1890 | 7245 | 9135 | 7000 | -2135 |
| 168 | THREE LAKES VALLEY (NORTHERN PART) | 0 | 23183 | 23183 | 2000 | -21183 |
| 169A | TICKAPOO VALLEY (NORTHERN PART) | 0 | 18836 | 18836 | 2600 | -16236 |
| 169B | TICKAPOO VALLEY (SOUTHERN PART) | 0 | 18836 | 18836 | 3400 | -15436 |
| 170 | PENOYER VALLEY | 5670 | 18836 | 24506 | 4300 | -20206 |
| 171 | COAL VALLEY | 45 | 23183 | 23228 | 2000 | -21228 |
| 172 | GARDEN VALLEY | 377 | 27530 | 27907 | 10000 | -17907 |
| 173A | RAILROAD VALLEY (SOUTHERN PART) | 5188 | 15938 | 21126 | 5500 | -15626 |
| 173B | RAILROAD VALLEY (NORTHERN PART) | 24575 | 95629 | 120204 | 46000 | -74204 |
| 174 | JAKES VALLEY | 32 | 27530 | 27562 | 17000 | -10562 |
| 180 | CAVE VALLEY | 31 | 11591 | 11622 | 14000 | 2378 |
| 181 | DRY LAKE VALLEY | 175 | 11591 | 11766 | 5000 | -6766 |
| 182 | DELAMAR VALLEY | 120 | 11591 | 11711 | 1000 | -10711 |
| 183 | LAKE VALLEY | 22656 | 27530 | 50186 | 13000 | -37186 |
| 202 | PATTERSON VALLEY | 1216 | 23183 | 24399 | 6000 | -18399 |
| 205 | LOWER MEADOW VALLEY WASH | 22915 | 11591 | 34506 | 1500 | -33006 |
| 207 | WHITE RIVER VALLEY | 21183 | 27530 | 48713 | 38000 | -10713 |
| 208 | PAHROC VALLEY | 19 | 44917 | 44936 | 2200 | -42736 |
| 209 | PAHRANAGAT VALLEY | 6678 | 27530 | 34208 | 1800 | -32408 |
| 210 | COYOTE SPRINGS VALLEY | 0 | 27530 | 27530 | 2100 | -25430 |
| 211 | THREE LAKES VALLEY (SOUTHERN PART) | 256 | 37672 | 37928 | 6000 | -31928 |
| 212 | LAS VEGAS VALLEY | 81773 | 21734 | 103507 | 30000 | -73507 |
| 216 | GARNET VALLEY | 1651 | 7245 | 8896 | 400 | -8496 |
| 217 | HIDDEN VALLEY (NORTH) | 18 | 7245 | 7263 | 400 | -6863 |
| 218 | CALIFORNIA WASH | 510 | 14489 | 14999 | 100 | -14899 |
| 220 | LOWER MOAPA VALLEY | 6906 | 7245 | 14151 | 100 | -14051 |
| | Totals | 203884 | 596960 | 800844 | 221400 | -579444 |

**IN THE MATTER OF APPLICATION 53967**

**EXHIBIT E**

Protest by Owen R. Williams, on behalf of
the United States Department of the 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 water resources and water-related attributes of Death Valley National Monument (Death Valley NM) and Lake Mead National Recreation Area (Lake Mead NRA). However, available scientific literature (Eakin, 1966; Mifflin, 1988; Winograd and Thordarson, 1975; Harrill et al., 1988; Dettinger, 1989; and Essington, 1990) indicates that major ground-water flow systems transmit ground water to Death Valley NM and Lake Mead NRA.

Based on this information, the NPS, requests that the State Engineer establish the following ground-water basins as one designated ground-water basin.

| Basin No. | Basin Name |
|---|---|
| 157 | KAWICH VALLEY |
| 158A | EMIGRANT VALLEY (GROOM LAKE VALLEY) |
| 158B | EMIGRANT VALLEY (PAPOOSE LAKE VALLEY) |
| 159 | YUCCA FLAT |
| 160 | FRENCHMAN FLAT |
| 161 | INDIAN SPRINGS VALLEY |
| 162 | PAHRUMP VALLEY |
| 168 | THREE LAKES VALLEY (NORTHERN PART) |
| 169A | TICKAPOO VALLEY (NORTHERN PART) |
| 169B | TICKAPOO VALLEY (SOUTHERN PART) |
| 173A | RAILROAD VALLEY (SOUTHERN PART) |
| 211 | THREE LAKES VALLEY (SOUTHERN PART) |
| 225 | MERCURY VALLEY |
| 226 | ROCK VALLEY |
| 227A | FORTYMILE CANYON (JACKSON FLATS) |
| 227B | FORTYMILE CANYON (BUCKBOARD MESA) |
| 230 | AMARGOSA DESERT |
| 150 | LITTLE FISH LAKE VALLEY |
| 155C | LITTLE SMOKY VALLEY (SOUTHERN PART) |
| 156 | HOT CREEK VALLEY |
| 173B | RAILROAD VALLEY (NORTHERN PART) |

**IN THE MATTER OF APPLICATION 53967**

**EXHIBIT E (Continued)**

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

| Basin No. | Basin Name |
|---|---|
| 170 | PENOYER VALLEY |
| 171 | COAL VALLEY |
| 172 | GARDEN VALLEY |
| 174 | JAKES VALLEY |
| 175 | LONG VALLEY |
| 180 | CAVE VALLEY |
| 181 | DRY LAKE VALLEY |
| 182 | DELAMAR VALLEY |
| 183 | LAKE VALLEY |
| 198 | DRY VALLEY |
| 199 | ROSE VALLEY |
| 200 | EAGLE VALLEY |
| 201 | SPRING VALLEY |
| 202 | PATTERSON VALLEY |
| 203 | PANACA VALLEY |
| 204 | CLOVER VALLEY |
| 205 | LOWER MEADOW VALLEY WASH |
| 206 | KANE SPRINGS VALLEY |
| 207 | WHITE RIVER VALLEY |
| 208 | PAHROC VALLEY |
| 209 | PAHRANAGAT VALLEY |
| 210 | COYOTE SPRINGS VALLEY |
| 212 | LAS VEGAS VALLEY |
| 215 | BLACK MOUNTAINS AREA |
| 216 | GARNET VALLEY |
| 217 | HIDDEN VALLEY (NORTH) |
| 218 | CALIFORNIA WASH |
| 219 | MUDDY RIVER SPRINGS AREA |
| 220 | LOWER MOAPA VALLEY |
| 154 | NEWARK VALLEY |
| 155A | LITTLE SMOKY VALLEY (NORTHERN PART) |
| 155B | LITTLE SMOKY VALLEY (CENTRAL PART) |

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.

**IN THE MATTER OF APPLICATION 53967**

**EXHIBIT E (Continued)**

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

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 in east-central and southern Nevada to determine the hydrologic relationship between Basin 173, RAILROAD VALLEY (NORTHERN PART), and the water resources of Death Valley NM and Lake Mead NRA.

B. The LVVWD shall establish and operate a long-term monitoring program designed to detect any potential impacts to the water resources of Death Valley NM and Lake Mead NRA, directly or indirectly incident to the appropriation sought 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.

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 Death Valley NM and/or Lake Mead NRA will be impaired by pumping under the permit issued under this application.

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

**IN THE MATTER OF APPLICATION 53967**

**REFERENCES CITED**

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


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