FILED
JUL 29 1998
STATE ENGINEER'S OFFICE

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

IN THE MATTER OF APPLICATION NUMBER 63872
FILED BY AEROJET – GENERAL CORPORATION
ON FEBRUARY 24, 1998, TO APPROPRIATE THE
WATERS OF UNDERGROUND

PROTEST

Comes now Charles W. Pettee, on behalf of the United States Department of the Interior, National Park Service, whose post office address is 1201 Oak Ridge Drive, Suite 250, Fort Collins, Colorado, 80525, whose occupation is Chief, Water Rights Branch, Water Resources Division, National Park Service, and protests the granting of Application Number 63872 filed on February 24, 1998, by Aerojet – General Corporation to appropriate the waters of Underground, situated in Clark County, State of Nevada, for the following reasons and on the following grounds, to wit:

See Exhibit A attached.

THEREFORE the protestant requests that the application be denied, unless it can be reasonably demonstrated that the proposed appropriation would not affect the ground-water outflow from Coyote Spring Valley to the Muddy River.

Signed Charles W. Pettee
Agent or protestant

Charles W. Pettee
Printed or typed name, if agent

Address 1201 Oak Ridge Drive, Suite 250
Street No. or P.O. Box No.

Fort Collins, CO 80525
City, State and Zip Code No.

Subscribed and sworn to before me this 23rd day of July, 1998.

Diana L Battle
Notary Public

State of Colorado

County of Larimer

My Commission expires 06-28-2001

IN THE MATTER OF APPLICATION 63872
EXHIBIT A

Protest by Charles W. Pettee on behalf of
the United States Department of the Interior,
National Park Service

GENERAL

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.

II. Since 1936, the National Park Service has managed the recreational activities within the Boulder Canyon Project area now known as Lake Mead NRA. Lake Mead NRA was established on October 8, 1964 (78 Stat. 1039) 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.... The Secretary shall permit hunting, fishing, and trapping on the lands and waters under his jurisdiction within the recreation area."

III. 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 Aerojet – General Corporation (Aerojet). These rights have not been judicially quantified.

IV. The Muddy River, which originates from large discharge springs located northwest 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 part 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. The United States has a State appropriative water right to water in the Muddy River, Certificate No. 5126. The point of diversion is located in the NW¼ SE ¼, Sec. 19, T. 16 S., R. 68 E., M.D.B.M.

V. Springs and water-dependent resource attributes are important features of Lake Mead NRA. The 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 could be affected by upgradient diversions.

Springs include Blue Point, Rogers, Corral, and Kelsey's Springs, and other smaller, unnamed springs. Visitation to Blue Point and Rogers Springs has been estimated at 5,000 visitors per year. 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. The relict Las Vegas Valley leopard frog, *Rana onca*, has been found at Rogers, Corral, and Blue Point springs. Current taxonomic studies indicate a high potential for listing of this relict population, previously believed extinct, as protected under the Endangered Species Act.

The United States has State appropriative water rights to two springs near the mouth of the Muddy River, which could be impaired by the appropriation and diversion proposed by this application: Kelsey's Springs, located in the SW¼ NW¼, Sec 20, T.16 S., R.68 E., M.D.B.M., Certificate No. 296; and Rogers Spring, located in SE¼ SE ¼, Sec. 12, T.18 S., R.67 E., M.D.B.M., Certificate No. 4476.

VI. Aerojet filed Applications Nos. 63272 through 63276 to withdraw 36,196 acre-feet per year (afy) of ground water in Coyote Spring Valley.

VII. Aerojet filed Application No. 63872 to withdraw 7,239 acre-feet per year (afy) of ground water in Coyote Spring Valley. Aerojet also filed associated Applications Nos. 63867 through 63871 and 63873 through 63876 to withdraw 65,151 afy of ground water in the valley. Aerojet seeks a total of 72,390.

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

FINDINGS

I. The proposed appropriation is located in Coyote Spring Valley. Eakin (1964) estimated that about 2,000 afy of water from precipitation recharges the ground-water reservoir beneath the valley. Ground-water inflow to Coyote Spring Valley (another form of recharge) is about 35,000 afy and originates in basins upgradient from the valley (Harrill and others, 1988; see also Prudic and others, 1995). Discharge from the valley is primarily by subsurface outflow (about 37,000 afy) to the Muddy River Springs Area and the Muddy River (Burbey, 1997; Harrill and others, 1988; and Eakin, 1964). Thus, the Muddy River and the ground-water reservoir in Coyote Spring Valley are hydraulically connected, and this reservoir is tributary to the Muddy River.

Rights to water in the Muddy River were decreed by the Tenth Judicial Court of the State of Nevada in the case entitled *Muddy Valley Irrigation Company vs. Moapa and Salt Lake Produce Company*. According to the January 21, 1920, Order of Determination and the March 11, 1920, Further and Supplemental Order of Determination of the Nevada

State Engineer, there is no water available for appropriation in the Muddy River, its headwaters, sources of supply, and tributaries (Muddy Valley Irrigation Company, 1938).

In Ruling 4542, the Nevada State Engineer found that there is ground water available for appropriation from the carbonate-rock aquifer in Coyote Spring Valley and that this aquifer is tributary to the Muddy River. The ruling noted that the estimated ground-water discharge in the Muddy River Springs Area ranges from about 51,000 to 63,900 afy.

As much as 14,000 afy of this estimated range may originate in the Sheep Range in Coyote Spring Valley (Burbey, 1997).

The recharge rate of Meadow Valley Wash is 12,400 afy, mostly originating as underflow. An additional 7,000 afy of ground-water may be discharged in the Muddy River area from Lower Meadow Valley Wash (see Exhibit 13 submitted by the National Park Service in the matter of the hearing regarding Applications Nos. 55450 and 58269 filed by the Moapa Valley Water District; numbers based on Rush, 1964). Burbey (1997) states that underflow from Lower Meadow Valley Wash may support spring discharge in the Muddy River Springs area.

The rate of ground-water underflow from Coyote Spring Valley to Muddy River Springs Area may be as large as 51,000 afy (37,000 afy plus 14,000 afy). The rate of ground-water underflow to the Muddy River area from Coyote Spring Valley and Lower Meadow Valley Wash may be as large as 58,000 afy.

The origin of the remaining 5,900 afy (63,900 afy less 58,000 afy) is not known to the protestant.

II. Ruling No. 4542 noted that existing water rights in the Muddy River Springs Area are about 45,260 afy (which probably includes some ground- water rights in California Wash.) About 10,005 afy are for ground-water sources and about 35,250 afy for surface-water rights under the Muddy River decree. (See transcripts for hearing regarding Applications Nos. 55450 and 58269 filed by the Moapa Valley Water District.)

Committed ground-water resources are 5,000 afy in Coyote Spring Valley. Permit No. 46777 of the Nevada Power Company (NPC) is the only *permitted* ground-water right in the valley (see Ruling No. 4542).

IN THE MATTER OF APPLICATION 63872
EXHIBIT A - CONTINUED

Protest by Charles W. Pettee on behalf of
the United States Department of the Interior,
National Park Service

Total commited water resources in Coyote Spring Valley and Muddy River Springs Area totals 50,260 afy.

Committed ground-water resources in Lower Meadow Valley Wash are 29,680 afy. (Exhibit 13 submitted by the National Park Service in the matter of the hearing regarding Applications Nos. 55450 and 58269 filed by the Moapa Valley Water District.)

III. Given that ground-water underflow from Coyote Spring Valley to the Muddy River Springs Area is 51,000 afy and that committed water resources total 50,260 afy, there remains only 740 afy available for appropriation. This amount is insufficient water to meet the requested annual duty of Application No. 63872 and/or the other associated Aerojet applications.

Committed ground-water and surface-water resources in the Muddy River Springs Area, Coyote Spring Valley, and Lower Meadow Valley Wash total 79,940 afy which exceeds the recharge rates of the three basins (63,900 afy). Thus, there is no water available for appropriation without overdrafting.

IV. The application by itself, if approved and developed, will reduce the discharge of the Muddy River by 6,499 afy (7,239 afy less 740 afy) and thus impair existing water rights to the Muddy River, including that of the National Park Service.

The ground-water withdrawals proposed by this application and the nine associated applications (72,390 acre-feet per year), if approved and when combined with Applications 63272 through 63276, if approved, will greatly reduce the discharge of the Muddy River, and thus impair existing water rights to the Muddy River, including that of the National Park Service.

V. The Las Vegas Valley Water District (LVVWD) filed numerous applications (senior to Aerojet's applications) to withdraw large quantities of ground-water from Coyote Spring Valley and from several basins upgradient to and tributary to the valley: 5,000 afy in Coyote Spring Valley; 2,000 afy in Cave Valley; 6,000 afy in Coal Valley; 3,000 afy in Delamar Valley; 10,000 afy in Garden Valley; and 5,000 afy in Pahroc Valley , totaling 31,000 afy (Schaefer and Harrill, 1996). These basins are tributary to the Muddy River (see Harrill and others, 1988).

IN THE MATTER OF APPLICATION 63872
EXHIBIT A - CONTINUED

Protest by Charles W. Pettee on behalf of
the United States Department of the Interior,
National Park Service

The ground-water reservoir in Coyote Spring Valley is connected to the ground-water reservoirs in Hidden and Garnet valleys (Burbey, 1997). NPC filed four senior applications (nos. 62996, 62997, 62998, and 62999) to withdraw 16,131 afy from the two valleys. These basins are also tributary to the Muddy River.

VI. The ground-water withdrawal proposed by this application and associated applications, if approved and developed, in combination with existing permits and pending applications (including those of LVVWD and NPC), will capture ground water that naturally discharges into the Muddy River and thus greatly reduce the discharge of the river, injuring existing water rights.

VII. The springs within Lake Mead NRA are discharge points for regional ground-water flow systems and may be affected by the proposed appropriation. The water issuing from the springs is not derived from the Muddy River Springs Area or Coyote Spring Valley. This water originates in easternmost part of Lower Meadow Valley Wash and the Virgin River Valley (Pohlmann and others, 1998).

Given that pumping, and its effect, occurs over a long period of time, the National Park Service is nevertheless concerned that the large ground-water withdrawals proposed by Aerojet, LVVWD, and NPC, if developed, as well as existing ground-water uses in the Muddy River area, will reduce or eliminate the discharge of the springs within Lake Mead NRA by capturing water destined to the springs.

VIII. Ground-water withdrawal rates larger than the recharge rate of Coyote Spring Valley would come from storage and constitute ground-water mining. The proposed appropriation, if approved and developed, will mine ground water.

IX The water and water-dependent resources of Lake Mead NRA are locally and nationally important.

CONCLUSIONS

I. There is no water available for appropriation in Coyote Spring Valley or Muddy River area, because committed water resources exceed ground-water recharge.

II. The approval and development of the appropriation proposed by this application will impair the water rights of the United States, because:

IN THE MATTER OF APPLICATION 63872
EXHIBIT A - CONTINUED

Protest by Charles W. Pettee on behalf of
the United States Department of the Interior,
National Park Service

A. The appropriations and withdrawals proposed by Aerojet (Applications 63867 through 63876) will greatly reduce the discharge of the Muddy River. The United States' senior water right and other existing rights to the Muddy River would be injured, if the appropriation is approved and developed.

B. The proposed appropriation, in combination with existing appropriations and pending applications in the Muddy River area (including those of LVVWD and NPC), if approved and developed, could greatly reduce the discharge of Lake Mead NRA springs, because of the large potential withdrawal rate. The drawdown caused by such large withdrawals would extend to capture ground water that naturally discharges through the springs.

C. The effects of the appropriation proposed by this application, when combined with other existing and proposed appropriations (including those of LVVWD and NPC), could impair the senior water rights of Lake Mead NRA more quickly and/or to a degree greater than the withdrawal proposed under this application alone.

III. The public interest would not be served by granting this application, because:

A. The ground-water reservoir in the Coyote Spring Valley, a replenishable resource, would be mined.

B. The water and dependent resources in the nationally important Lake Mead NRA would be diminished or impaired, as a result of the appropriation proposed by this application.

LITERATURE CITED

Burbey, T.J., 1997, Hydrogeology and potential for ground-water development, carbonate-rock aquifers, southern Nevada and southeastern California: U.S. Geological Survey Water-Resources Investigations 95-4168, 65 p.

Eakin, T.E., 1964, Ground-water appraisal of Coyote Spring and Kane Springs valleys and Muddy River Springs area, Lincoln and Clark Counties, Nevada: Nevada Department of

Conservation and Natural Resources Ground-Water Resources-Reconnaissance Series Report 25, 40 p.

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.

Muddy Valley Irrigation Company, 1938, Protest of the Muddy Valley Irrigation Company in the Matter of Application No. 10188 by the United States Department of Agriculture, Bureau of Biological Survey, for Permission to Appropriate Water From Muddy Creek, Filed March 9, 1938: Nevada State Engineer's Office, Carson City, Nevada, 2 p.

Pohlmann, K.F., Campagna, D.J., Chapman, J.B., and Earman, S., 1998, Investigation of the Origin of Springs in the Lake Mead National Recreation Area: University and Community College System of Nevada, Desert Research Institute, Water Resources Center, Pulication No. 41161, 51 p. and three appendices.

Prudic, D.E., Harrill, J.R., and Burbey, T.J., 1995, Conceptual evaluation of regional ground-water flow in the carbonate-rock province of the Great Basin, Nevada, Utah, and adjacent states: U.S. Geological Survey Professional Paper 1409-D, pp. D1-D102.

Rush, F.E., 1964, Ground-water appraisal of the Meadow Valley area, Lincoln and Clark Counties, Nevada: Nevada Department of Conservation and Natural Resources Ground-Water Resources-Reconnaissance Series Report 27, 43 p.

Schaefer, D.H., and Harrill, J.R., 1995, Simulated effects of proposed pumping in 17 basins of east-central and southern Nevada: U.S. Geological Survey Water-Resources Investigations Report 95-4173, 71 p.