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

FILED
JAN 23 1998
STATE ENGINEER'S OFFICE

IN THE MATTER OF APPLICATION NUMBER 63366
FILED BY BLUE NUGGET WATER COMPANY
OF WINNEMUCCA, STATE OF NEVADA
ON AUGUST 27, 1997 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 63366 filed on August 27, 1997, by Blue Nugget Water Company of Winnemucca, State of Nevada, to appropriate the waters of underground, situated in Lincoln 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.

Signed Charles W. Pettee
Agent or protestant

Charles W. Pettee
Printed or typed name, if agent

Address 1201 Oak Ridge Dr., 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 22nd day of January, 1998.

Olga R Lee
Notary Public

State of Colorado

County of Larimer

My Commission expires 5-8-2001.

IN THE MATTER OF APPLICATION 63366
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 Blue Nugget Water Company. 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-related 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. Blue Nugget Water Company filed Application, No. 63366 to withdraw 5.4 cubic feet per second (cfs) of ground water in Pahranagat Valley. Blue Nugget Water Company also filed twelve other applications, nos. 63360 - 63365, and 63367 – 63372, requesting a total annual duty of 20,400 acre-feet per year (afy) of ground water in the valley.

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

FINDINGS

I. The proposed withdrawal is located in Pahranagat Valley. The aquifers underlying the basin are part of a regional ground-water flow system (informally called the White River ground-water flow system[1] as defined by Eakin, 1966) which discharges water through springs in the Muddy River area, supplying the base flow of the Muddy River.[2] In their conceptual evaluation of the regional ground-water flow systems of the carbonate-rock province, Prudic and others (1993) included the White River system within a larger ground-water flow system called the White River subregion and proposed that part of the water discharging from the springs is derived from areas outside of the White River system. Ground-water withdrawals in the subregion can reduce the discharge of the Muddy River Springs, if the ground-water withdrawals are large enough and occur over a sufficiently long period of time.

---

[1] The system includes the following hydrographic areas or basins: Long Valley, Jakes Valley, White River Valley, Cave Valley, Garden Valley, Coal Valley, Pahroc Valley, Dry Lake Valley, Pahranagat Valley, Delamar Valley, Kane Springs Valley, Coyote Springs Valley, and Muddy River Springs Area (Upper Moapa Valley).

[2] See Prudic and other (1993), Harrill and others (1988), and Eakin (1966) for descriptions of the White River ground-water flow system and the regional ground-water flow systems of the Great Basin.

The basin fill and carbonate rock aquifers in Pahranagat Valley appear to be hydraulically connected, which suggests that ground water may be induced to flow from the carbonate aquifers to wells drilled in basin fill (Burbey, 1997). Development of carbonate aquifers beneath the valley could (1) reduce spring charge in the surrounding area, (2) lower the water table in the basin fill, (3) tap the potentially large storage reservoir beneath the valley and, (4) divert throughflow that leaves Pahranagat Valley to downgradient areas such as Moapa Valley (Muddy Springs Area) (Burbey, 1997).

II. The ground-water recharge rate in Pahranagat Valley is about 59,800 afy; about 1,800 afy is derived from precipitation and about 58,000 afy as underflow from adjacent valleys into Pahranagat Valley (Harrill and others, 1988).

According to Eakin (1963), evapotranspiration in Pahranagat Valley is at least 25,000 afy, which is the discharge from springs in the valley. Prudic and others (1993) simulated a loss to evapotranspiration of 34,000 afy, which includes spring discharge (24,000 afy) and evapotranspiration (10,000 afy).

The water emitted from springs in Pahranagat Valley was adjudicated by Court Decree issued October 14, 1929. The decree covered a total of 4,971.62 acres, with a duty of 1 cfs per 100 acres (36,000 afy) (Eakin, 1963). Spring discharge appears to be fully appropriated. Committed ground-water resources is 9,700 afy (Nevada Department of Conservation and Natural Resources, 1992). Spring and ground-water appropriations in Pahranagat Valley are 45,700 afy.

About 35,000 acre-feet per year exits Pahranagat Valley as underflow to and moves as underflow beneath Coyote Spring Valley and is discharged in the Muddy River Springs Area (Harrill and others, 1988; Eakin, 1966). Committed water-resources in Pahranagat Valley (45,700 afy) does not exceed the recharge rate of Pahranagat Valley (59,800 afy). However, it does exceed the discharge rate of the springs and evapotranspiration in the valley (24,000 afy to 34,000 afy). Thus, the discharge of the springs and the underflow from Pahranagat Valley will decrease, given current levels of appropriation.

III. 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 rate of ground-water underflow from Coyote Springs Valley to Muddy River Springs Area may be as large as 51,000 afy, which includes 35,000 afy underflow from Pahranagat Valley, 2,000 afy recharge from precipitation in Coyote Valley (Eakin, 1964), and 14,000 afy from the Sheep Range.

The recharge rate of Meadow Valley Wash is 12,400 afy, mostly originating as underflow. An additional 10,900 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 supports spring discharge in the Muddy River Springs area. The rate of ground-water underflow to the Muddy River area from Coyote Spring Valley and Lower Meadow Valley Wash combined may be as large as 61,900 afy.

The origin of the remaining 2,000 afy of recharge (63,900 afy less 61,900 afy) is not known to the protestant.

The recharge rate for Lower Meadow Valley Wash, Pahranagat Valley, and Coyote Springs Valley is 88,200 afy (59,800 in Pahrangat Valley, 14,000 from Sheep Range in Coyote Springs Valley, 2,000 from other sources in Coyote Springs Valley, and 12,400 afy in Lower Meadow Valley Wash).

IV. 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).

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

Committed ground-water resources in Lower Meadow Valley Wash are 29,680 afy (Nevada Department of Conservation and Natural Resources, 1992). This figure does not include surface-water sources. Committed water resources in Pahranagat Valley, Coyote Springs Valley, Muddy River Springs area, and Lower Meadow Valley Wash are at least 125,540 afy.

Because committed water resources for Pahranagat Valley, Coyote Springs Valley, and Lower Meadow Valley Wash (125,540 afy) exceed the recharge rate of 88,200 afy for the valleys, there is no water available for appropriation.

V. The Las Vegas Valley Water District (LVVWD) filed numerous applications (senior to Blue Nugget Water Company's applications) to withdraw large quantities of ground-water from several basins within the White River subregion: 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).

Aerojet filed Applications Nos. 63272, 63273, 63274, 63275, and 63276 to withdraw a total of 36,196 afy from Coyote Valley.

The ground-water reservoir of Coyote Spring Valley is connected to the ground-water reservoir 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.

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, NPC and Aerojet), will capture ground water that naturally

discharges into the Muddy River and thus will reduce the discharge of the river, impairing existing water rights.

VI. The springs within Lake Mead NRA are discharge points for regional ground-water flow systems and may be affected by the proposed appropriation. The Desert Research Institute, for the National Park Service, completed an investigation to determine where water issuing from the springs originates. (Final report will be released in 1998.) The water issuing from the springs is not derived from the Muddy River Springs Area. This water originates in easternmost part of Lower Meadow Valley Wash and the Virgin River Valley.

However, the National Park Service is concerned that the ground-water withdrawals proposed by Blue Nugget Water Company, LVVWD, NPC and Aerojet, as well as existing ground-water uses in the Muddy River area, if developed, will reduce or eliminate the discharge of the springs within Lake Mead NRA by capturing water destined for the springs, given that pumping occurs over a long period of time.

VII. Ground-water withdrawal rates larger than the recharge rate of Pahranagat Valley (59,800 afy) would come from storage and constitute ground-water mining. Existing committed water resources are 45,700 afy. The appropriation, with associated Blue Nugget Water Company applications (20,400 afy), if approved and developed, will mine ground water.

VIII. In Ruling No. 4548, the State Engineer concluded "...that it is not in the public interest to approve applications for use on lands where the applicant does not control both the proposed well locations and the proposed places of use." The proposed point of diversion and place of use of the application appear to be located on land controlled by the Bureau of Land Management (see surface-management map of the State of Nevada prepared by the Bureau of Land Management, 1990).

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

CONCLUSIONS

I. There is no water available for appropriation because committed water resources exceed ground-water recharge.

IN THE MATTER OF APPLICATION 63366
EXHIBIT A - CONTINUED

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

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

A. The appropriations and withdrawals proposed by Blue Nugget Water Company (Applications 63360 through 63372) will further reduce the discharge of the Muddy River. The United States' senior water right and other existing rights to the Muddy River would be impaired, 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, NPC and Aerojet), if approved and developed, could 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, NPC and Aeroject), 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 Pahranagat Valley, a replenishable resource, would be mined.

B. The water and water-related 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.

IN THE MATTER OF APPLICATION 63366
EXHIBIT A - CONTINUED

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

Eakin, T.E., 1963, Ground-water appraisal of Pahranagat and Pahroc Valleys, Lincoln and Nye Counties, Nevada: Nevada Department of Conservation and Natural Resources Ground-Water Resources-Reconnaissance Series Report 21, 36 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.

Eakin, T.E., 1966, A regional basin ground-water system in the White River area, Southeastern Nevada: Nevada Department of Conservation and Natural Resources Water Resources Bulletin No. 33.

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.

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.