

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 63360
FILED BY Blue Nugget Water Company
ON August 27th 1997, TO APPROPRIATE THE
WATERS OF Underground

PROTEST

Comes now U.S. Fish and Wildlife Service
Printed or typed name of protestant

whose post office address is 911 NE 11th Avenue, Portland, Oregon 97232-4181
Street No. or P.O. Box, City, State and Zip Code

whose occupation is Agency of the federal government, and protests the granting

of Application Number 63360, filed on August 27th, 1997

by Blue Nugget Water Company
Printed or typed name of applicant to appropriate the

waters of Underground situated in Lincoln
Underground or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:

Please see Attachment A

THEREFORE the protestant requests that the application be Denied
(Denied, issued subject to prior rights, etc., as the case may be)

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed *[Signature]*
Printed or typed name, if agent

Address U.S. Fish and Wildlife Service
Street No. or P.O. Box No.

911 NE 11th Avenue, Portland, Oregon 97232-4181
City, State and Zip Code No.

Subscribed and sworn to before me this JAN 22 1998 day of 19



Kay Kier-Haggenjos
Notary Public

State of Oregon

County of Multnomah

\$10 FILING FEE MUST ACCOMPANY PROTEST. PROTEST MUST BE FILED IN DUPLICATE.
ALL COPIES MUST CONTAIN ORIGINAL SIGNATURE.

**ADDITIONAL INFORMATION TO SUPPORT THE PROTEST
OF THE U.S. FISH AND WILDLIFE SERVICE
IN THE MATTER OF APPLICATION 63360 THROUGH 63372**

Attachment A

Water Right Application Nos. 63360 through 63372 were filed by the Blue Nugget Water Company on August 27, 1997 requesting a combined diversion rate of 72.0 cubic feet per second and a combined annual duty of 20,400 acre-feet in Basin 209, Pahrangat Valley, Lincoln County, Nevada. The water is to be withdrawn from thirteen groundwater wells and used for irrigation of 4,080 acres, at an annual duty of 5 acre-feet/acre. The proposed place of use includes the W $\frac{1}{2}$, NW $\frac{1}{4}$ of SE $\frac{1}{4}$ Section 1; E $\frac{1}{2}$ Section 2; E $\frac{1}{2}$ Section 11; W $\frac{1}{2}$ of E $\frac{1}{2}$, SE $\frac{1}{4}$ of SE $\frac{1}{4}$, W $\frac{1}{2}$ Section 12; and all of Section 13, 14, 23 & 24; T.6S., R.60E. The proposed points of diversion and place of use coincide. This area is located approximately six to ten miles north and upgradient of the Pahrangat National Wildlife Refuge (Refuge). The U.S. Fish and Wildlife Service (Service) requests that Application Nos. 63360 through 63372 be denied because:

- Granting of this application may cause injury to Service-owned senior water rights for water on the Refuge.
 - Water may not be available to appropriate in the manner described.
 - Granting of this application may threaten or damage habitat for species that depend on the wetland and water resources of the Refuge or for species that are endangered or threatened under the Endangered Species Act and, therefore, may not be in the public interest.
- I. The Service's mission, as defined in the National Wildlife System Improvement Act of 1997, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. The Service manages the Pahrangat National Wildlife Refuge, a 5,000 acre area of spring-fed wetlands, meadows, lakes and upland desert habitat. The Refuge is located at the south end of the Pahrangat Valley (Basin 209) in south-central Nevada. It was established in 1964 to provide a stopping point for waterfowl and other migratory birds and is important for a variety of waterfowl, shorebirds, songbirds, and raptors. At least two species listed under the Endangered Species Act are found on the Refuge: the endangered southwest willow flycatcher (*Empidonax traillii extimis*) and the threatened bald eagle (*Haliaeetus leucocephalus*).
- II. The Pahrangat Valley is part of the White River Flow System, a regional groundwater flow system which extends from Long Valley in the north to Upper Moapa Valley in the south (Eakin, 1966). The valley is underlain by two groundwater aquifers, a large

regional carbonate aquifer and a local basin fill aquifer. The valley functions as an intermediate discharge area for the White River Flow System. Three large springs in the valley (Hiko Spring, Crystal Spring, and Ash Spring) discharge about 25,000 acre-feet from the regional carbonate aquifer (Eakin, 1963). A considerable amount of water (25,000 to 35,000 acre-feet) also underflows the valley through the carbonate aquifer to discharge at Ash Meadows (Basin 230) or Muddy River Springs (Basin 219) (Eakin, 1963; Kirk and Campana, 1990; Burby, 1997).

- III. The Service has certificated water rights for 5,044 acre-feet from surface water (spring discharge) and 1,686 acre-feet from groundwater on the Refuge. About 4,250 acre-feet of the surface water rights are from two of the three regional springs, Ash Spring and Crystal Spring. In addition, the Service has three pending applications for small springs on the Refuge and two pending applications for additional flow from Ash Spring and Crystal Spring. The annual duty is undefined on all of the pending applications.
- IV. The local basin fill aquifer and the regional carbonate aquifer are in good hydraulic communication in the Pahrnagat Valley, as evidenced by the coincidence of the potentiometric surface in the carbonate aquifer and the water table level in the overlying aquifer (Thomas et al., 1986). This suggests that groundwater may be induced to flow from the carbonate aquifer to wells drilled in the basin fill (Burby, 1997). The carbonate aquifer is the source of the regional springs in the valley.
- V. According to Burby (1997), large groundwater withdrawals from either the carbonate aquifer or the basin fill aquifer could (1) reduce spring discharge in the area, affecting senior water rights to these springs, (2) lower the water table in the basin fill aquifer, and (3) divert throughflow that leaves Pahrnagat Valley to downgradient areas such as Ash Meadows (Basin 230) and the Muddy River Springs (Basin 219), ultimately impacting spring discharge and senior water rights at these areas. Spring discharge at these downgradient areas is fully appropriated. The degree to which these impacts will occur depends in part on the volume of water withdrawn by the wells.
- VI. Model simulations using the U.S. Geological Survey's regional groundwater model developed for the Great Basin (Prudic et al., 1993; Schaefer and Harrill, 1995) suggest that there would be an impact on spring discharge from the proposed withdrawals. The model indicates that both the discharge at Ash Spring and the combined total discharge at the regional springs would eventually be decreased significantly by continued pumping. Because of the large scale of the model and the lack of detailed hydrogeologic information in Pahrnagat Valley, the model results can only be used to approximate probable impacts. Nonetheless, the results corroborate the potential impacts from groundwater development in the Pahrnagat Valley discussed by Burby (1997).
- VII. The locations of the proposed wells as stated in the applications are to be located one to three miles west of Pahrnagat Creek, which serves as the distribution system for regional

spring discharge reaching the Refuge. The creek is also crucial habitat for the endangered Pahrnagat roundtail chub (*Gila robusta jordani*). It is highly likely that pumping in the basin fill aquifer adjacent to the creek will induce recharge from the creek into the aquifer, depleting streamflow and intercepting some of the spring discharge needed by the Refuge. This might also adversely impact the roundtail chub.

- VIII. The regional spring discharge reaching the Refuge is fully appropriated by the Service for Refuge purposes, either with certificated rights or pending applications. The average annual flow reaching the Refuge has declined from 9,000 acre-feet/year in the 1960s to 6,500 acre-feet/year in the 1990s. This is less water than the Refuge estimates that it needs. The fact that all of the discharge reaching the Refuge from the regional springs is used and appropriated by the Service (in certificated rights or pending applications) means that there is no water available in this area. The fact that annual flow reaching the Refuge has declined over time implies that the spring discharge may already be overappropriated, especially when the Service's pending applications are included.
- IX. In assessing the proposed applications, it must be noted that the perennial yield of the Pahrnagat Valley (Basin 209), determined to be 25,000 acre-feet by Eakin (1963), is equal to the natural discharge of the regional springs. Any water pumped from the system will be supplied from a combination of both aquifer storage and reduced natural discharge, including spring discharge and evapotranspiration. Since the spring discharge is already fully appropriated and used beneficially, such action would injure senior water right holders. Based on the review of all pertinent information, it is the Service's view that there is no water available for appropriation in the Pahrnagat Valley for the proposed groundwater withdrawal. Eakin recognized as much in 1963 when he summarized in his reconnaissance report to the State Engineer on the Pahrnagat Valley (Eakin, 1963) that "Present development of ground water in Pahrnagat Valley is using nearly all of the natural spring discharge of about 25,000 acre-feet per year."
- X. Numerous species of concern to the Service are present throughout the Pahrnagat Valley including three endangered fish species: Pahrnagat roundtail chub (*Gila robusta jordani*), Hiko White River springfish (*Crenichthys baileyi grandis*), and White River springfish (*Crenichthys baileyi grandis*). Pahrnagat roundtail chub occur only in 2.2 miles of Pahrnagat Creek and in 1.6 miles of the main irrigation ditch in the Valley. White River springfish are restricted to Ash Spring, and fewer than 125 Hiko White River springfish are found only in Crystal Spring. Reducing spring discharge could adversely impact these species and would be detrimental to the public interest.

Literature Cited

- Burby, 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 Report 95-4168.
- Eakin, T. E., 1963. Ground-water appraisal of Pahranaagat and Pahroc Valleys, Lincoln and Nye Counties, Nevada. Nevada Department of Conservation and Natural Resources, Ground-Water Resources Reconnaissance Report 21.
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- Kirk, S. T. and Campana, M. E., 1990. A deuterium calibrated groundwater flow model of a regional carbonate-alluvial system. *Journal of Hydrology*, v. 119, p. 357-388.
- Prudic, D. E., Harrill, J. R., and Burby, T. J., 1993. 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 Open-File Report 93-170.
- Schaefer, D. H. and Harrill, J. R., 1995. Simulated effects of proposed ground-water pumping in 17 basins of East-Central and Southern Nevada. U.S. Geological Survey Water Resources Investigations Report 95-4173.
- Thomas, J. M., Mason, J. L., and Crabtree, J. D., 1986. Ground-water levels in the Great Basin region of Nevada, Utah, and adjacent states. U.S. Geological Survey Hydrogeologic Investigations Atlas HA-694-B, 2 sheets.