

FILED
FEB 23 2004
STATE ENGINEER'S OFFICE

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

IN THE MATTER OF APPLICATION NUMBER 70663
FILED BY BAKER WATER AND SEWER GENERAL
IMPROVEMENT DISTRICT ON NOVEMBER 25, 2003,
TO APPROPRIATE THE WATERS OF UNDERGROUND

PROTEST

Comes now William R. Hansen, on behalf of the United States Department of the Interior, National Park Service, whose post office address is 1201 Oakridge Dr., Suite 250, Fort Collins, CO 80525, whose occupation is Acting Chief, Water Rights Branch, Water Resources Division, National Park Service, and protests the granting of Application Number 70663 filed on November 25, 2003, by Baker Water and Sewer General Improvement District to appropriate the waters of underground, situated in White Pine County, State of Nevada, for the following reasons and on the following grounds, to wit:

See Exhibit A attached.

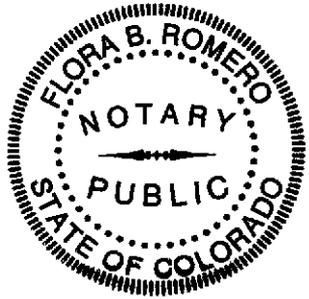
THEREFORE the protestant requests that the application be denied

Signed William R. Hansen
Agent or protestant

William R. Hansen
Printed or typed name, if agent

Address 1201 Oakridge 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 20th day of February, 2004.

Flora B. Romero
Notary Public

State of Colorado

County of Larimer

My Commission expires _____
Flora B. Romero, Notary Public
State of Colorado
My Commission Expires 7/31/2006

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and

**IN THE MATTER OF APPLICATION 70663
EXHIBIT A**

Protest by William R. Hansen
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 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 (NP) was created by Congressional Act in 1986, to preserve a segment of the Great Basin possessing outstanding resources and significant geologic and scenic values for the benefit and inspiration of the people.
- 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. These reserved rights have not been judicially quantified.
- III. Water resources at Great Basin NP include lakes, streams, springs, seeps, and ground water. Ground water is thought to play an important role in maintaining the features and ecology of Lehman Caves. The caves contain living limestone formations, such as stalactites, stalagmites, plate-like shields, cave coral, rimstone dykes, curling helictites, flowstone, and draperies. However, little is known about the ecology of the caves and the role played by water. There may be additional caves and cave systems within Great Basin NP that have not yet been discovered.
- IV. 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 SW $\frac{1}{4}$ NE $\frac{1}{4}$ 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 an historic orchard.
- V. Baker Water and Sewer General Improvement District filed Application No. 70663 to withdraw ground water for municipal purposes. The location of the proposed diversion is within $\frac{1}{4}$ mile of the Great Basin NP boundary. The application requests an instantaneous diversion of 0.06 cubic feet per second (27 gallons/minute). No annual withdrawal is provided on the application; however, if pumping were to occur

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EXHIBIT A - CONTINUED**

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continuously at the instantaneous diversion rate, 43 acre-feet would be withdrawn per year.

FINDINGS

- I. The appropriation proposed by Application 70663 is located in Snake Valley hydrographic basin, 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 and others, 1988, Sheet 1). Ground water flows along complex pathways through basin-fill aquifers, carbonate-rock aquifers, or both. Great Basin NP encompasses part of the Snake Range that separates Snake and Spring valleys. Lehman Caves are positioned along the eastern flank of the range in Snake Valley. Part of the range is composed of carbonate rocks that have been strongly deformed by folding and repetitive faulting. Connected solution cavities and fractures caused by the folding and faulting in the carbonate rock provide conduits for the transmission of ground water.
- II. The proposed point of diversion (POD) for application 70663 is located approximately 0.23 mile from the boundary of Great Basin National Park, and about 0.25 mile from Rowland Spring, which is most likely a discharge point from the Paleozoic carbonate rocks associated with the cave-forming processes of Lehman Caves and associated caves. The proposed POD is slightly less than 1 mile from the main entrance to Lehman Caves at the park visitor center. The proposed POD is approximately 200 feet north of Lehman Creek downstream of the park boundary.
- III. The generalized hydrogeology at the location of the proposed well, from top to bottom, is likely as follows (David Prudic, USGS, verbal communication, Feb. 2004):
- | <u>GEOLOGIC STRATA</u> | <u>HYDROLOGIC UNIT</u> |
|---|--------------------------------------|
| Alluvium & Glacial Till (clay, silt, sand, gravel) | Leaky confining layer; local aquifer |
| Glacial Outwash (gravels) | Aquifer |
| Tertiary Rocks (siltstone, sandstone, and conglomerate) | Leaky confining layer |
| Paleozoic Carbonate Rocks | Aquifer |
- IV. The application for the proposed appropriation states that "The source of the proposed appropriation is underground." It does not specify whether the proposed appropriation will withdraw water from the unconsolidated basin-fill aquifer or from the underlying carbonate-rock aquifer.
- V. Synoptic discharge-measurement runs conducted by the U.S. Geological Survey (USGS) on Lehman Creek during July (high flow) and October (low-flow) of 2003 show that

- VI. Lehman Creek is a gaining stream from the park boundary downstream (Dave Beck, USGS, written communication, Dec. 2003).
- VII. If the proposed well is completed in the glacial outwash gravels, and does not penetrate the underlying Tertiary rock, the principal source of water to the well will be from capture of water in the Lehman Creek alluvial aquifer system downstream of the park. If, however, the proposed well penetrates the Tertiary rock and is completed in or near the carbonate rocks, then over time it will most likely cause depletion of Rowland Spring and will eventually affect the cave-forming processes of the Lehman Caves cave system at Great Basin National Park.
- VIII. The USGS is currently conducting a hydrologic investigation on behalf of the National Park Service entitled, "Susceptibility of Water Resources in Great Basin National Park to Ground-Water Withdrawals in Adjacent Basins." The final report from this investigation will include a map showing areas of the park where the park water resources are "susceptible". According to David Prudic, senior USGS ground-water hydrologist associated with this study (verbal communication, Feb. 2004), the area of the park along Lehman Creek near the park's eastern boundary and near Rowland Spring (where the proposed withdrawal is located) will most likely be mapped by the USGS as an area that is "susceptible to ground-water withdrawals in adjacent basins."
- IX. The appropriation proposed by Application 70663 will: (1) reduce ground-water levels in adjacent aquifers; (2) reduce spring and stream discharge in the vicinity; and (3) may affect the water rights, water resources, and water-related resources of Great Basin National Park, including the cave-forming processes of the Lehman Caves cave system.
- IX. The water and water-related resources of Great Basin NP are locally and nationally important.

CONCLUSIONS

- I. The approval and development of the appropriation proposed by Application 70663 will impair the senior water rights of the United States, because the appropriation will eventually deplete the ground-water resources of the Lehman Caves cave system within Great Basin NP. The depletion will occur through the lowering of ground-water levels and/or alterations in the directions of ground-water movement. The United States' state appropriative and Federally reserved water rights, water resources, and water-related resources will be impaired.
- II. The public interest would not be served by granting a permit to this application, because the water and water-related resources in the nationally important Great Basin NP would be diminished or impaired as a result, reducing the aesthetic value of the park for the visitor and thus contributions to the local economy.

**IN THE MATTER OF APPLICATION 70663
EXHIBIT A - CONTINUED**

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SELECTED REFERENCES

- 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.
- 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, 1992, Hydrographic Basin Statistical Summary: Division of Water Planning, Carson City, Nevada.
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- 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, p. D1-D102.
- 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.
- Schaefer, D.E., 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