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

FILED
APR 19 2010
STATE ENGINEER'S OFFICE

IN THE MATTER OF APPLICATION NUMBER 79375
FILED BY Virgin Valley Water District
ON February 1, 2010
TO APPROPRIATE WATER

PROTEST

Comes now Charles 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 79375, filed on February 1, 2010, by Virgin Valley Water District to appropriate water, 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.

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Signed: _____
Agent or protestant

Charles W. Pettee
Printed or typed name, if agent

FLORA B. ROMERO
NOTARY
PUBLIC
STATE OF COLORADO

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

Fort Collins, CO 80525
City, State and Zip Code

Subscribed and sworn to before me this 8th day of April, 2010.

Flora B. Romero
Notary Public

State of Colorado
County of Larimer

Flora B. Romero, Notary Public
State of Colorado
My Commission Expires 7/31/2010

My Commission expires _____.

IN THE MATTER OF APPLICATION 79375
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 National Recreation Area (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 water-related resource attributes and recreational activities associated with springs and the Virgin River are important features of the Lake Mead NRA. 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 applicant. These rights have not been judicially quantified.

IV. Numerous springs in Lake Mead NRA provide water for vegetation and wildlife habitat and create an environment that many visitors use and enjoy. Many springs are fed by groundwater from the regional carbonate-rock aquifer and could be affected by upgradient groundwater diversions.

Springs include Rogers, Blue Point, Corral, and Kelsey's springs, and other smaller, unnamed springs. Visitation to Rogers and Blue Point 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 park.

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.

V. The Virgin River flows into Lake Mead NRA at the north end of the Overton Arm of Lake Mead. The State of Nevada, Department of Wildlife, is leasing part of Lake Mead NRA adjoining the Virgin River for the purposes of the Overton Wildlife Management Area. Flow of the Virgin River also provides nutrients important for sustaining a recreational fishery in Lake Mead NRA.

VI. Lake Mead NRA has State appropriative water rights for the following springs, which could be impaired by the appropriation and diversion of groundwater proposed by this application and associated applications, in combination with existing groundwater appropriations:

Name of spring	Point of diversion	Certificate number
Kelsey's	SW¼ NW¼ , Sec 20, T16S, R68E MDBM	296
Rogers	SE¼ SE¼, Sec. 12, T18S, R67E MDBM	4476

VII. The Virgin Valley Water District (VVWD) proposes to withdraw groundwater at an instantaneous rate of 6 cubic feet per second (cfs) for domestic and quasi-municipal purposes in the Tule Desert under Application No. 79375. In total, VVWD filed three applications (Nos. 79372, 79374 and 79375) to withdraw groundwater for domestic and quasi-municipal purposes in the Tule Desert. Each application proposes to withdraw 6 cfs. The total diversion rate sought for all three applications is 18 cfs or up to 13,040 acre-feet per year (afy).

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

IN THE MATTER OF APPLICATION 79375
EXHIBIT A - (CONTINUED)

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

FINDINGS

I. The proposed appropriation is within the Tule Desert (Hydrographic Area 221). The aquifers underlying the Tule Desert are part of a regional groundwater flow system. The initial estimate of the groundwater recharge rate of the Tule Desert was approximately 2,100 afy, most of which occurs as precipitation infiltrating within the Tule Desert hydrographic area [Glancy and Van Denburgh, 1969, and Harrill and others, 1988]. Natural discharge of groundwater by evapotranspiration (ET) has not been observed to occur in the Tule Desert [Glancy and Van Denburgh, 1969, and DeMeo and others, 2008]. As a result, groundwater discharge from these aquifers is believed to exit the Tule Desert as subsurface outflow to the Virgin River Valley (Hydrographic Area 222), potentially providing a component of groundwater recharge to the Virgin River Valley [Harrill and others, 1988, and Van Liew, 2006]. Consequently, groundwater withdrawals in the Tule Desert may reduce or capture the natural subsurface outflow from this area, thereby reducing or eliminating a component of groundwater recharge to the Virgin River Valley. This could reduce the discharge of the Virgin River and/or springs at Lake Mead NRA.

II. The groundwater perennial yield of the Tule Desert is currently recognized to be 2,100 afy (Nevada Department of Conservation and Natural Resources, 2010), which is consistent with the perennial yield and in-basin recharge estimates originally proposed in Reconnaissance Report No. 51 (Glancy and Van Denburgh, 1969). The committed groundwater resources are currently reported to be about 2,103 afy in the State Engineer's database (Nevada Department of Conservation and Natural Resources, 2010), which is slightly greater than the original estimates of perennial yield and recharge for this basin. Based on these estimates, there is no groundwater available for appropriation in the Tule Desert. The proposed appropriation by VVWD, in combination with their other associated applications in the Tule Desert, if approved, would put the basin into a condition of substantial over-appropriation.

III. In 2002, the Nevada State Engineer issued Ruling 5181 regarding two previous water-rights applications by Lincoln County Water District and Vidler Water Company (LCWD and Vidler) for 10 cfs (up to 7,240 afy) each, for a total of 20 cfs (up to 14,480 afy). The Ruling granted LCWD and Vidler 2,100 afy of water on the first application, equal to the annual in-basin recharge estimated by the USGS for this basin. The balance of the first application was denied, and the second application was held in abeyance. The State Engineer ruled that unless LCWD and Vidler can show that the annual water budget is

greater than the earlier USGS estimate, and the new estimate is confirmed by the USGS, no more water rights will be granted in this basin.

IV. In 2009, the Nevada State Engineer issued Ruling 5986 regarding the second water-rights application by LCWD and Vidler for 10 cfs (up to 7,240 afy) that was held in abeyance under Ruling 5181. Ruling 5986 granted LCWD and Vidler 396 afy of water on the second application, with the balance of the second application being denied. In the second ruling, the Nevada State Engineer effectively revised the perennial yield and committed groundwater resources of the Tule Desert to 2,500 afy. As a result of this ruling, the basin continues to be fully appropriated and there is still no groundwater available for appropriation in the Tule Desert.

V. The groundwater perennial yield of the Virgin River Valley is recognized by the Nevada State Engineer to be 3,600 afy (Nevada Department of Conservation and Natural Resources, 2010), which is consistent with the perennial yield and in-basin recharge estimates originally proposed in Reconnaissance Report No. 51 (Glancy and Van Denburgh, 1969). Committed groundwater resources in the Virgin River Valley are estimated by the NPS to be about 12,812 afy (Nevada Department of Conservation and Natural Resources, 2010). The committed groundwater resources in this basin already exceed the perennial yield by 9,212 afy. Given no water budget accounting evidence to the contrary, a reasonable conclusion is that as much as 2,500 afy of this exceedance total represents a full allocation of the most recent estimate of subsurface outflow discharging from Tule Desert into the Virgin River Valley (see Ruling 5986). Assuming Tule Desert is fully appropriated and no additional subsurface outflow exists, the granting of this application or any of VVWD's associated water-rights applications, potentially constitutes a second allocation or "double accounting" of the subsurface outflow from Tule Desert. As a result, any additional rights granted in the Tule Desert Basin, combined with committed and pending applications for surface water and groundwater resources in the Virgin River Valley system will reduce the discharge of the Virgin River.

VI. The aquifers underlying the Tule Desert are part of a regional groundwater flow system that discharges a portion of its water through carbonate rocks from several warm springs in Lake Mead NRA, including Rogers, Blue Point, Corral, and Kelsey's Springs (see Prudic and others, 1995; and Pohlmann and others, 1998). These springs, located in the Overton Arm area of Lake Mead NRA, discharge at or near the contact of local carbonate rocks and basin fill sediments. If this application and VVWD's associated applications in

the Tule Desert are approved and developed, the groundwater that would be withdrawn by VVWD, in combination with withdrawals associated with existing appropriations and those proposed by others in adjacent basins, could affect the discharge of the subject springs in Lake Mead NRA, if pumping is large enough and occurs over a long period of time.

VII. 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 the perennial yield for Tule Desert is fully committed. If approved and developed, VVWD's water-rights application or any of their associated water-rights applications in Tule Desert, potentially constitutes a second allocation or "double accounting" of the subsurface outflow from Tule Desert.

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 VVWD (Applications 79372, 79374 and 79375), if approved and developed in combination with existing appropriations in the regional groundwater flow system, could reduce the discharge of warm springs within Lake Mead NRA, if pumping continues long enough at the large rates proposed. The drawdown caused by such large withdrawals would extend to capture or re-direct groundwater that naturally discharges from the springs.

B. The appropriations and withdrawals proposed by VVWD in Tule Desert, if approved and developed in combination with existing groundwater and surface water appropriations in the Tule Desert and the Virgin River Valley, and proposed surface water appropriations by SNWA in the Virgin River Valley, will eventually reduce the flow of the Virgin River.

III. The public interest would not be served by granting this application, because the water rights 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.

IN THE MATTER OF APPLICATION 79375
EXHIBIT A - (CONTINUED)

Protest by Charles W. Pettee
on behalf of the United States, Department of the Interior
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LITERATURE CITED

DeMeo, G.A., Smith, J.L., Damar, N.A., and Darnell, J., 2008, Quantifying Ground-Water and Surface-Water Discharge from Evapotranspiration Processes in 12 Hydrographic Areas of the Colorado Regional Ground-Water Flow System, Nevada, Utah, and Arizona: U.S. Geological Survey Scientific Investigations Report 2008-5116, 22 p. and 1 plate.

Glancy, P.A., and Van Denburgh, A.S., 1969, Water-resources appraisal of the lower Virgin River valley area, Nevada, Arizona, and Utah: Nevada Department of Conservation and Natural Resources, Division of Water Resources, Water Resources – Reconnaissance Series Report 51, 87 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.

Nevada Division of Water Resources, 2010, Water Rights Database, Hydrographic Area Abstract, and Summary, Hydrographic Area 221: Online at <http://water.nv.gov/water> as of April 2010.

Pohlmann, K.F., Campagna, D.J., Chapman, J.B., and Earman, S., 1998, Investigation of the origins of springs in the Lake Mead National Recreation Area: Written report prepared for the National Park Service, Desert Research Institute, Water Resources Center, Las Vegas, Nevada, 51 p., plus 3 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, pg. D1-D102.

Van Liew, W.P., 2006, Hydrogeology of Kane Springs Wash, Coyote Spring Valley, the Muddy River Springs Area, and Vicinity: National Park Service, Water Resources Division, Fort Collins, CO. Expert-witness evidentiary submittal to the Nevada State Engineer on behalf of Lake Mead National Recreation Area in an administrative hearing regarding water-rights applications by Lincoln County Water District and Vidler Water Company in Kane Springs Valley Hydrographic Area, March 16, 2006, 16 figures, 4 tables.