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STATE ENGINEER'S OFFICE

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

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IN THE MATTER OF APPLICATION NUMBER 79355
FILED BY Southern Nevada Water Authority
ON January 28, 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 79355, filed on January 28, 2010, by Southern Nevada Water Authority to appropriate water, 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.

FLORA B. ROMERO NOTARY PUBLIC STATE OF COLORADO

Signed: _____
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

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

_____
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 79355
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 NPS 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 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 proposed appropriation. 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 Lake Mead'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. Several of these springs are fed by the regional carbonate-rock groundwater flow system and could be affected by upgradient 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 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.

VI. 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.

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

FINDINGS

I. With Application No. 79355, the Southern Nevada Water Authority (SNWA) proposes to withdraw 10 cubic feet per second (cfs), or up to 7,240 acre-feet per year (afy), of water from an underground source in Hidden Valley (North) Hydrographic Basin (#217), to be used for municipal and domestic purposes within Clark County, Lincoln County, Nye County, and White Pine County.

II. Rush (1968) estimated that 400 afy of water recharges Hidden Valley (North) from local mountain ranges. The Nevada Department of Conservation and Natural Resources (2010): (1) reports that the perennial yield for Hidden Valley (North) is 200 afy; and (2) estimates that currently there are 2,200 afy of committed groundwater resources in the valley. Therefore, the proposed withdrawal would exceed both the estimated recharge and perennial yield of the basin. Thus, there is no groundwater available for appropriation in Hidden Valley (North).

III. Under natural conditions, it is estimated that approximately 400 afy of ground water flows from Hidden Valley (North) to Garnet Valley. Ground water flows eastward from

Garnet Valley to California Wash (about 800 acre-feet per year) and eventually to the Muddy River (Rush, 1968; Prudic and others, 1995).[1]

IV. 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).

V. This application, if approved and developed, could eventually reduce the discharge of the Muddy River and thus impair existing water rights to the Muddy River, including that of the NPS, because it would capture water tributary to the Muddy River.

VI. Eakin (1964) stated that the perennial yield of a groundwater system "...is limited ultimately by the amount of natural discharge of suitable quality that can be salvaged for beneficial use from the ground-water system." DeMeo (2008) provided "estimates of annual discharge from ground- and surface-water evapotranspiration" by hydrographic basin, which in many areas of Nevada is the principal natural discharge considered by Eakin (1964). DeMeo (2008) listed the estimates for Coyote Spring Valley, Kane Springs Valley, Hidden Valley (North), and Garnet Valley all as zero. Therefore, there is no natural discharge from the regional aquifer system to be captured in Hidden Valley (North) or Garnet Valley. Instead, groundwater withdrawals from Hidden Valley (North) will take water from aquifer storage at first, and then will eventually capture groundwater that naturally discharges as evapotranspiration or surface-water flow at other discharge locations within the regional groundwater flow system, such as at the Muddy River Springs, along the Muddy River, and/or at Rogers, Blue Point, and associated springs in Lake Mead NRA.

VII. A summary of existing committed groundwater resources and a comparison with estimates of the renewable groundwater resources (as indicated by the groundwater recharge and by estimates of the perennial yield) for other nearby hydrographic areas that

[1] See Burbey (1997) for further detail regarding the geology and hydrology of Hidden and Garnet valleys and Prudic and others (1995) for a description of the regional ground-water flow system.

are tributary to the Muddy River shows that for each valley, the total of committed ground-water appropriations exceeds the local recharge. Groundwater withdrawals larger than the recharge rate to these valleys would come from storage and constitute groundwater mining, or would induce surface water in the fully appropriated Muddy River to be withdrawn. Therefore, there is no water available for appropriation in these nearby basins either that could be captured by the subject application.

VIII. Rush (1968) postulated that groundwater flows from California Wash northeastward towards the Muddy River and southeastward towards Lake Mead NRA. Groundwater flow beneath California Wash may contribute to spring discharge at Rogers, Blue Point, Corral, and Kelsey's Springs within Lake Mead NRA. The withdrawal proposed by this application would divert flow that could eventually contribute to spring flow at Rogers, Blue Point, Corral and Kelsey's Springs.

IX. Page and others (2005) developed a geologic map for this area, and Page and others (2006) constructed several generally west-to-east geologic cross sections, including two sections through areas just to the north and just to the south of Hidden Valley (North). These geologic cross sections show that there is a potential continuous flow path in carbonate rocks of Paleozoic Age from the general area of Hidden Valley (North); beneath fine-grained, basin-fill deposits in California Wash; all the way to the Paleozoic rocks that comprise the Muddy Mountains and from which Rogers and Blue Point Springs in Lake Mead NRA emanate.

X. Van Liew (2006) showed a potentiometric-surface map of the regional carbonate-rock aquifer that indicates that Rogers and Blue Point Springs are down-gradient from Hidden Valley (North) along the potential hydrogeologic flow path delineated by Page and others (2006). Further, Van Liew (2008) summarized the characteristics of Rogers, Blue Point, and associated springs in Lake Mead NRA that lead to the conclusion that much of their flow emanates from the regional carbonate-rock aquifer system, and that they likely are the terminal discharge from the regional groundwater flow system that also supplies the Muddy River Springs and is likely hydraulically continuous with the aquifer beneath Hidden Valley (North). Thus, groundwater withdrawals from Hidden Valley (North) have the potential to not only deplete the Muddy River, but also will lower the hydraulic head in the regional carbonate-rock aquifer, from which Rogers, Blue Point, and associated warm springs within Lake Mead NRA emanate. In combination with existing committed resources in Hidden Valley (North) and nearby basins, these withdrawals will

likely cause depletion of the discharge of these springs, if pumping continues for a long time.

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

IN THE MATTER OF APPLICATION 79355
EXHIBIT A - CONTINUED

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

CONCLUSIONS

I. There is no water available for appropriation because the total of existing committed resources alone exceeds both the perennial yield and the ground water recharge rate for Hidden Valley (North).

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

A. The proposed appropriation will 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, if approved and developed, in combination with existing appropriations and other proposed groundwater appropriations in the regional, carbonate-rock groundwater flow system, could reduce the discharge of Lake Mead NRA springs. The cumulative drawdown caused by large withdrawal volumes would extend to capture or re-direct groundwater that naturally discharges from the springs.

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 79355
EXHIBIT A - CONTINUED

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

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