



Date: October 19, 2017

To: Office of the State Engineer
Attn: Susan Joseph-Taylor
901 S. Stewart St. Suite 2002
Carson City, NV 89701

RE: Review of State Water Rights Requested by the Southern Nevada Water Authority (“SNWA”) in Spring, Cave, Dry and Delamar Ground Water Basins

Dear Ms. Joseph-Taylor:

I am submitting these written comments on behalf of the Center for Biological Diversity (“Center”), a nationwide nonprofit with over 1.5 million members and supporters including over 12,000 in Nevada. Previously, verbal comments were submitted on the Center’s behalf by Patrick Donnelly at the hearing held on September 29, 2017.

The Center has been actively opposing the SNWA ground water development project (“water grab”) since 2008, and we are a member of the Great Basin Water Network governing Board. Our opposition has ranged across the venues including commenting on the Bureau of Land Management (“BLM”) draft and final environmental impact statements, in federal and state courts, in the legislature and in front of the State Engineer.

1. Introduction

Nevada state water law does not explicitly allow for environmental flows – indeed, the very definition of perennial yield implies that the state considers it permissible to pump groundwater at such a level that it would dry up every spring, wetland, and other surface feature, so long as a human does not have a claim on those features, which is seldom if ever the case.

However, NRS 533.400 does instruct you to consider whether a proposed action is environmentally sound as it relates to the basin from which water is exported. While preparing a full environmental impacts report is not within your purview, you have been spared by the trouble by the lengthy EIS process BLM has undergone. Which I will add was partially defeated in court by my organization and our allies just last month.

There are significant environmental impacts from large-scale interbasin groundwater transfer. The primary issue is the drawdown of aquifer levels in the source basins. Drawing down an aquifer will dry up natural water features such as springs, seeps, wetlands, and creeks. In a state as arid as Nevada, springs and other water features are oases of life in a largely barren landscape, havens for wildlife, birds, fish, and invertebrates. Drying up water features would eliminate habitat for these creatures, create less functional successor plant communities, and fundamentally alter the ecosystem dynamics of Nevada.

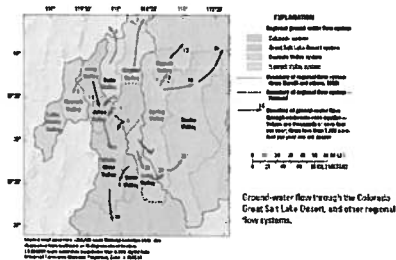
2. Response to Questions from the Honorable Judge Estes Before the State Engineer

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a. *Should Millard and Juab Counties be included in mitigation plans due to effects of pumping from Spring Valley Basin?*

The Center states that yes they should as there are well documented studies that reflect the interbasin ground water flows from Spring Valley Basin across the stateline into Snake Valley Basin in Utah.

The U.S. Geologic Survey BRCAS¹ and other studies² have documented the flows of the Carbonate Ground Water Flow System demonstrating connectivity not only with Snake Valley but also White River Valley, Pahrangat, Lower Meadow and Coyote Valleys and other basin down flow from them. For this reason, not only should the Snake Valley Basin in Utah be included, but also these other interconnected ground water basins as well.



b. *A Recalculation of water available from Spring Valley that Assures the Basin will Reach Equilibrium Between Discharge and Recharge in a Reasonable time.*

Again the Center states yes to a recalculation. And such a recalculation must address the interbasin flows mentioned above, as well as the concerns for “environmental soundness” considering the biological concerns covered in the following section (“c”).

c. *Defining standards, threshold or triggers so that mitigation of unreasonable effects from pumping are neither arbitrary or capricious.*

Such standards, thresholds and triggers must be credible and scientifically based, and must provide for “environmental soundness” including the protection of Nevada’s natural heritage.

Concerns over the efficacy of monitoring and establishing triggers and thresholds

Mitigation based on aquifer monitoring has an inherent problem with its efficacy – aquifer systems don’t have instantaneous response times like a faucet and drain - there are inherent delays in response to cessation of pumping. Bredehoeff and Durbin reported on this well accepted phenomenon in the journal *Ground Water*. They observed that particularly in large aquifer systems there is a delayed response between observation of an impact and its maximum effect, along with a long time lag between changing the stress and observing an impact at a distant location. The result is that the maximum impacts are larger

¹ Welch, A.H., Bright, D.J., and Knochenmus, L.A., eds., 2007, Water resources of the Basin and Range carbonate-rock aquifer system, White Pine County, Nevada, and adjacent areas in Nevada and Utah: U.S. Geological Survey Scientific Investigations Report 2007-5261, 96 p.

² See:

USGS 2014. Hydrology and Numerical Simulation of Groundwater Movement and Heat Transport in Snake Valley and Surrounding Areas, Juab, Millard, and Beaver Counties, Utah, and White Pine and Lincoln Counties, Nevada. USGS Scientific Investigations Report 2014-5103.

Utah Geological Survey. 2014. Hydrogeologic Studies and Groundwater Monitoring in Snake Valley and Adjacent Hydrographic Areas, West-Central Utah and East-Central Nevada. Ed. Hugh Hurlow. Bul. 135, Utah Geological Survey.

USGS. 2011. Potential Effects of Groundwater Pumping on Water Levels, Phreatophytes, and Spring Discharges in Spring and Snake Valleys, White Pine County, Nevada, and Adjacent Areas in Nevada and Utah. USGS Scientific Investigations Report 2011-5032.

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than those observed when pumping is halted, and once halted the recovery to the pre-pumping state occurs very slowly – perhaps over a millennium for large systems.³

This delay in detection means that certain processes will have commenced which cannot be stopped by simply turning off the pumps. Should drawdown occur at surface features like wetlands and springs, by the time mitigation actually took effect, the native wildlife and vegetation all would have died-off. There is no mitigating these impacts. They are the definition of “un-mitigatable.”

SNWA proposes to reduce or cease groundwater withdrawals to avoid adverse unacceptable environmental impacts. Setting aside immense doubt and skepticism that once the pipeline is built that it will ever be allowed to have reduced flows, this mitigation is another case of something that sounds good, but which in fact is unreliable.

For this measure to have any hope of success, very detailed resource-specific thresholds and criteria for curtailing pumping in response to adverse impacts would need to be in place, based on soil and plant water requirements throughout the pumping impact area. In theory, for instance, if soil water needed by native plants is insufficient to sustain their health and vigor, pumping from wells, linked to discrete monitoring sites, would then be shutdown or have pumping reduced. This theoretical mitigation measure, however, runs up against the problem of aquifer response time. Production wells can reduce spring flows and groundwater levels relatively quickly compared to the time needed for the water table to replenish and be able to supply the water needs in question.

There is currently a lack of good, well established a priori biological or physical indicators that would trigger an appropriate reduction or stoppage of groundwater pumping to protect water-dependent ecosystems.

Due to these factors, there could be a considerable delay in response which could imperil species or even drive them to extinction. Any monitoring or triggers should be conservative in nature and in accordance with the precautionary principle.

Concerns for Species

The State of Nevada is blessed with a rich natural heritage that is very appreciated by many of its residents. Naturalists, conservationists, hunter and fishers all delight in the variety of game and non-game wildlife and the variety of vegetation that supports them. They depend on the State to redeem its stewardship responsibilities and only authorize actions that are environmentally sound so as not to degrade the natural heritage for present and future generations. The proposed water rights requested by the SNWA would not be environmentally sound, leading to severe declines, extirpations and even extinctions of native species. I base this comment on the draft (“DEIS”) and final (“FEIS”) environmental impact statements for the pipeline project that would transport the requested ancient ground water from the basin concerned to the Las Vegas Valley. Literally, thousands of pages of review, analysis and disclosure are available from those documents. A recent Federal District Court decision concluded the BLM did an inadequate job of portraying the environmental impacts of the project and how they could be mitigated.⁴ Before any water rights are awarded to the SNWA, a thorough and detailed analysis if impacts and effects must be conducted to rectify the deficiencies in the BLM FEIS.

Of course the BLM analysis was based on specific water withdrawals, that are obsolete and now being determined. Still the qualitative, if not quantitative impacts can guide your determination of environmental impacts and soundness.

³ Bredehoeff, J. and T. Durbin. 2009. Ground Water Development – The Time to Full Capture Problem. Ground Water: 1-9.

⁴ U.S. District Court, Las Vegas, Nevada. 8/23/2017. Case No. 2:14-CV-00226-APG-VCF. Judge Andrew P. Gordon.

For example, the FEIS stated that over 180,000 acres of mule deer habitat would be impacted in these four basins, much of it critical winter habitat. For pronghorn the impacts were similar but much larger – over 559,000 acres of habitat, including 24,800 acres of critical wintering range.

Greater sage grouse, a subject of intensive conservation work by the Nevada Governor, and state and federal agencies faces habitat degradation of over 264,000 acres. Elk, bighorn sheep, Western burrowing owl, pygmy rabbit, dark kangaroo mouse and hundreds of non-game birds and mammals tied to Great Basin Desert ecosystems would also be impacted.

The impacts to these species are largely indirect due to long term changes in vegetation, spring and stream flows due to the lowering of ground water elevations, in some areas in excess of 200 feet over 200 years. For instance, in Spring Valley, acres of wet meadows would be reduced 36%; areas of basin shrublands by 72%; 31% of the springs would be diminished or depleted; and, 19% of existing stream miles would be eliminated.⁵ The FEIS further discloses that 188 terrestrial Species of Management Concern and Special Status Species would be adversely impacted.⁶

Aquatic and riparian species that would be impacted are numerous and include fish, invertebrates, and amphibians. According to disclosures in the BLM FEIS, there are 18 species that would be adversely impacted by the ground water development in the four basins at hand.⁷ Some examples follow to illustrate the impacts.

The FEIS only discloses impacts on a very few of the springs and aquatic resources of concern. It does disclose that in Spring Valley, Keegan and South Millick Springs would go dry after approximately 75 years and North Millick Spring flows would be reduced by about 60%. These springs provide habitat for northern leopard frog, and relict dace. Other similar springs provide habitat for springsnails and rainbow trout. Overall in Spring Valley basin, 20 streams with aquatic biological resources would be impacted, including 25 miles of game fish streams. In addition over 15 springs with game fish or Special Status Species would be adversely impacted.⁸

State Natural Heritage and Federal Agency Special Status Species

The Nevada Natural Heritage Program (NNHP) systematically collects information on Nevada's at risk, rare, endangered, and threatened species, providing the best single source of information on Nevada's imperiled biodiversity. These species generally are ranked S1-S3, typically have federal or other state agency status, and are considered at highest risk of extirpation or extinction.

Nevada's health and economic well-being depend upon its biodiversity and wise land stewardship. This challenge increases as population and land-use pressures continue to grow. Nevada is among the top 10 states in the nation for both the diversity and the vulnerability of its living heritage. With early planning and responsible development, economic growth and our biological resources can exist side by side. NNHP is a central source for information critical to achieving this balance. Management priorities for the state's imperiled biodiversity are continually assessed, providing opportunities to prevent population losses or elevations to endangered or threatened legal status through conservation actions.⁹

⁵ FEIS, Table F-3.6-19. 2012. Note: *BLM removed deis and feis documents from its websites and I can only report on documents I saved to my personal files, hence the data is incomplete by still revealing.*

⁶ FEIS, Table F3.6-1. 2012.

⁷ FEIS Table F3.7-11. 2012. Plus Hardy pyrg (Cave) and bifid duct pyrg (Spring Valley) left off the table but disclosed in Table F3.7-13C.

⁸ FEIS, Table F3.7-44. 2012.

⁹ See materials contained at: <http://heritage.nv.gov/>

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Additionally, federal land managing agencies also track species status through Special Status Species programs and lists. This direction establishes that agencies shall designate sensitive species and implement measures to conserve these species and their habitats, including Endangered Species Act (“ESA”) proposed critical habitat, to promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA.¹⁰

For the four ground water basins in question, there are many affected species that are on the Nevada Heritage “At Risk Tracking List” and federal agency Sensitive Species lists. In addition, there are many more when down-gradient basins are also considered.

For instance, there are at least 91 terrestrial species present and likely to be adversely impacted on these lists, ranging across the spectrum from greater sage grouse, yellow-billed cuckoo, western burrowing owl, and Le Conte’s thrasher, to pronghorn, mule deer, dark kangaroo mouse, kit fox and at least 15 species of bats, to the Mojave desert tortoise (protected by the ESA), Great Basin horned lizard, banded gila monster, and desert horned lizard.¹¹

Regarding aquatic species, there are 13 aquatic species present and likely to be adversely impacted on these lists, ranging across the spectrum from relict dace, Utah chub and Bonneville cutthroat trout to Hardy and bifid duct pyrags, to northern leopard frog.¹²

The State Engineer must redeem his responsibilities under the State Natural Heritage Program, the ESA, and the federal Special Status Species programs of agencies impacted by the award of water right decision. BLM’s EIS leaves absolutely no question – SNWA’s proposed action would cause an ecological massacre across the landscape of Eastern Nevada- the wholesale destruction of natural communities. Springs and wetlands would dry up. Endemic and federally protected fish would go extinct. Migratory and resident bird populations would crash. Big game numbers and their obligate predator species would be impacted. In short, this project would result in permanent and irreparable harm to the environment, and obviously falls far from the standard of environmental soundness.

d. Recalculation of the appropriations to avoid over appropriation or conflicts with down-gradient, existing water rights.

Again, such recalculations must consider the interbasin transfers and flows covered in “a” above and the impacts of Nevada’s natural heritage covered in “c”.

3. In Closing

You are not obligated to give the SNWA these water rights. You have the discretion to say there are unmitigatable and thus unacceptable impacts to the environment and existing rights holders, and thus no water rights will be awarded. And should those rights be awarded, you can expect the Center to fiercely oppose it in future actions.

Sincerely,



Rob Mfowka
Senior Scientist, Center for Biological Diversity

¹⁰ For the U.S. Forest Service, FSM 2670.32; for the BLM, Manual 6840.2.

¹¹ FEIS, Table F3.6-1.

¹² FEIS Table F3.7-1.

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