BLM_NV_NVSO_GWProjects

From: Amelia Nuding <amelia.nuding@westernresources.org>
Sent: Tuesday, October 11, 2011 3:14 PM
To: BLM_NV_NVSO_GWProjects
Cc: Bart Miller; Drew Beckwith; Robert Harris; Stacy Tellinghuisen
Subject: Comment Submission -DEIS for the Clark, Lincoln, and White Pine Counties Groundwater Development Project
Attachments: WRA GDP DEIS Comments_ 10 11 11.pdf

Dear Ms. Woods:
Please find attached Western Resource Advocate's comments on the Draft Environmental Impact Statement for the Clark, Lincoln, and White Pine Counties Groundwater Development Project.

Thank you,
Amelia Nuding

Amelia Nuding | Western Resource Advocates

Water/Energy Analyst
2260 Baseline Road, Suite 200 | Boulder, CO 80302
phone: 303.444.1188 x249 | fax: 303.786.8054
email: amelia.nuding@westernresources.org
www.westernresourceadvocates.org

WESTERN RESOURCE
ADVOCATES

October 11, 2011

Sent via e-mail (nvgwprojects@blm.gov)
Penny Woods
Project Manager
BLM Nevada Groundwater Projects Office
P.O. Box 12000
Reno, NV 89520

Re: Comments on Draft Environmental Impact Statement for the Clark, Lincoln, and White Pine Counties Groundwater Development Project

Dear Ms. Woods:
The purpose of this letter is to provide written comments on the Bureau of Land Management's ("BLM") Draft Environmental Impact Statement ("DEIS") for Clark, Lincoln, and White Pine Counties Groundwater Development Project ("GDP"). The GDP DEIS was issued on June 12, 2011. We request that BLM adopt an alternative that minimizes groundwater withdrawals and adverse impacts to the climate, consistent with the following comments.

1. **GDP pipeline operations should balance increased water conservation with flexible withdrawals primarily aimed at covering periods of shortage in the Colorado River Basin.**

We agree with the Southern Nevada Water Authority ("SNWA") that having a "back-up plan" for providing water to southern Nevada communities represents prudent planning, particularly in light of the significant threat of water shortages in the Lower Colorado River Basin due to increased demand for water and reductions in river flows caused climate change.[1] However, we believe that water conservation should play a greater role in preserving the GDP's vital role as a back-up plan, rather than merely providing for the next municipal growth increment. Flexible groundwater withdrawals, in a manner consistent with DEIS Alternative C, could meet this vital back-up role, while minimizing the environmental impacts of the GDP, including emissions of pollutants associated with powering the GDP with fossil fuels.

[1] *Pat Mulroy, So. Nev. Water Auth.* (KNPR radio broadcast Sept. 29, 2011), *available at* http://www.knpr.org/son/archive/detail2.cfm?SegmentID=8221&ProgramID=2333; *see also* Stephanie Tavares, *Q&A: Pat Mulroy, Gen. Mgr. of So. Nev. Water Auth.*, LAS VEGAS SUN, May 1, 2009, *available at* http://www.lasvegassun.com/news/2009/may/01/pat-mulroy/.

SNWA has made significant strides in water conservation. Community use has decreased from 344 GPCD in 1991 to 248 GPCD in 2008, a reduction of 1.6% per year from 1991 levels. Going forward, SNWA's conservation goals are also substantial, as it aims to reach 199 GPCD by 2035 (DEIS 1.6.1), a reduction of 0.75% per year from 2008 levels. While the rate of water use reductions is consistent with many other Western cities, SNWA's target GPCD level in 2035 is still higher than other, similarly arid regions today (Figure 1). While GPCD is not a perfect metric for comparison, it does provide some perspective on the potential for additional water conservation opportunities in the Las Vegas area.

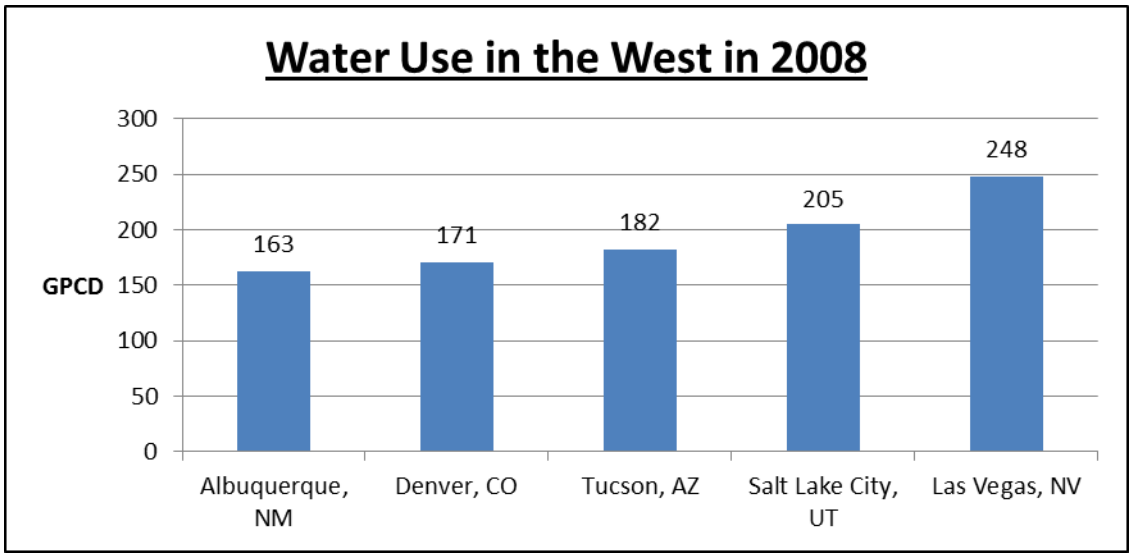

Figure 1. A comparison of water use, measured in gallons per capita per day (GPCD), in five western cities in 2008.

The Proposed Action would deliver 176,655 AF/yr of newly developed water to Clark County. Based on the Clark County population forecast, which SNWA relies on for its water resource demand forecast, we calculate that the Proposed Action would provide about 43 GPCD 2035. If this amount of water was gained through conservation instead, SNWA would need to reduce their 2035 water target from 199 GPCD to 156 GPCD. This lower level of water use would be just below Albuquerque's water use *today*, and SNWA would have nearly 25 years to implement conservation measures that achieve this stronger goal.

To date SNWA has focused most of its conservation efforts on outdoor water use, which accounts for the majority of consumptive use in the region. However there is still room for additional outdoor and indoor water conservation.

Importantly, every gallon of water saved saves energy. Energy savings are always achieved when hot water is conserved in the home (hot water often accounts for 20% of a home's energy use), and a significant amount of energy is used by SNWA to pump Colorado River water 930 vertical feet up from Lake Mead into the urban area.

Increased water conservation efforts and flexible groundwater withdrawals, in a manner consistent with Alternative C, will provide southern Nevadans with needed water security, reduce the greenhouse gas emissions associated with the GDP, and minimize the environmental impacts of the project. Thus, BLM should adopt an alternative incorporating a flexible schedule of groundwater withdrawals, consistent with Alternative C.

2. The GDP Should Minimize Electrical Energy Demands and Associated Greenhouse Gas Emissions.

Under any action alternative, the power requirements for this project are substantial and the environmental implications of the associated greenhouse gas emissions are significant. *See* Table 3.1-24. Particularly because this project was proposed in part to address the uncertainties of water supply associated with climate change, the alternative selected by BLM should ensure that the GDP contributes as little as possible to problem of climate change.

Project Energy Requirements

The DEIS states that the Proposed Action will convey 217,655 AF/yr to Clark and Lincoln Counties, and will require 97 MW of power to first bring water up from 1,000-2,000 feet underground, and then pump it through the primary conveyance facilities. Assuming the pumps operate 85% of the year, the project will consume about 722,260 MWh of electricity annually. Thus, the energy intensity of the water, or the energy embedded in each unit of water, is 3.3 MWh/AF. This is very high, nearly the energy intensity of desalinating seawater, which is typically in the range of 3.7 to 4.6 MWh/AF.

Calculating the energy intensity of water for Alternatives A-E shows that the alternatives have similar energy intensities as the Proposed Action (Table 1). However, the total energy consumed annually (MWh/yr) is highest under the Proposed Action and Alternative B. It is lowest under Alternative C, in which the smallest volume of water would be developed.

	MWh/AF	MWh/yr
Proposed Action	3.3	722,262
Alternative A	3.5	551,004
Alternative B	3.3	772,262
Alternative C – 12,000 AF/yr developed	3.5	187,495
Alternative C – 114,775 AF/yr developed	3.5	551,004
Alternative D	3.4	402,084
Alternative E	3.5	409,530

Table 1. A comparison of the energy intensities and the annual energy requirements for the Proposed Action and each of the Alternatives. The energy calculation for the two versions of Alternative C were based on the data

provided in the DEIS for the higher volume of water, and calculated as a ratio for the lower volume of water, since no energy value was provided.

SNWA is already Nevada's largest user of energy, and consumes 1,000,000 MWh of energy annually.[2] The estimates provided in Table 1 indicate that this project would increase SNWA's entire energy portfolio by roughly 40% to 70%.

The power requirements, energy sources, and greenhouse gas emissions must be clearly articulated in the DEIS, as the energy use associated with the pumping stations and the pipeline has important implications for air quality and climate change. The DEIS is not explicit about the power source of the pumps. According to the DEIS, pumping stations would rely on electricity and would be responsible for greenhouse gas emissions (and other pollutants) at a rate comparable to emissions from a natural gas plant (Air Resources 3.1.2.8 and Appendix E). Appendix E suggests the Silverhawk combined cycle gas plant could be used to power the pumping stations. However since the average carbon intensity of electricity in Nevada is higher than the carbon intensity of a combined cycle natural gas plant,[3] identification of the actual energy source is important. The DEIS should clarify the sources of energy for both the groundwater pumps and the pipeline.

Full articulation of the GDP's power demands and associated greenhouse gas emissions will promote informed decision-making by BLM. To this end, BLM should also provide its own calculation of the low-end energy demand and greenhouse gas emissions of Alternative C. WRA urges BLM to select an alternative that minimizes the GDP's energy demands and associated greenhouse gas emissions.

Groundwater Pumping Energy Requirements

Under the Proposed Action, the energy intensity of pumping groundwater only is estimated to be about 2.2 MWh/AF for groundwater depths ranging from 1000 – 2000 ft. Based on our review of 21 water-energy studies reporting groundwater pumping energy requirements (see Figure 2), this estimate seems reasonable for depths of 1000 ft., but is considerably lower than expected for depths of 2000 ft. The estimated energy for pumping groundwater accounts for approximately 50% of the energy demands of the Proposed Action (Chapter 2), and so the actual energy demands of groundwater pumping could have a significant impact on the project's total energy demands. The DEIS must clarify the energy required for pumping groundwater.

[2] Southern Nevada Water Authority, 2010 Annual Report.
[3] EPA, eGRID2010 Version 1.1 State File (Year 2007 Data). Available at http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html.

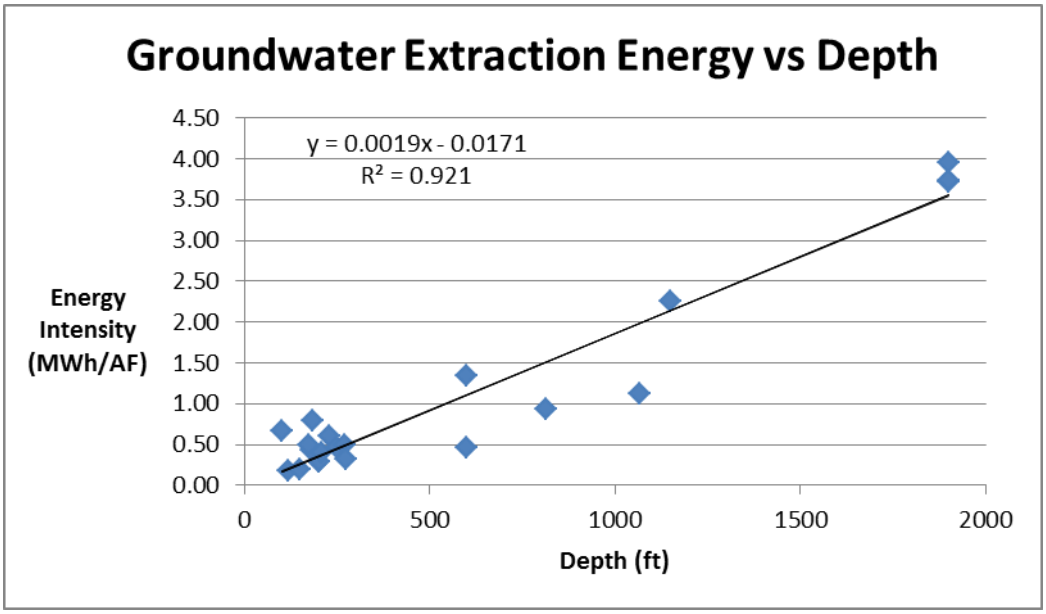

Figure 2. Relationship between groundwater extraction energy and depth to ground water, as reported in 21 publications.

Renewable Energy

SNWA has made substantial commitments to improving its environmental performance, including the voluntary commitment to have renewable energy provide 25% of its energy needs by 2025, in keeping with the State Renewable Portfolio Standard. According to SNWA's 2010 Annual Report, renewables currently comprise 13% of its energy. In order to achieve a 25% renewable energy supply in 2025, SNWA would have to power just over 30% of the pumping needs in the Proposed Action with renewables, assuming their other energy demands do not change substantially.

According to the DEIS, SNWA proposes to offset 40% of the pipeline's energy demands with hydroelectricity, but the data is inconsistent and not well explained, which calls into question how carefully this option has been analyzed. Appendix E estimates that hydropower could provide up to 40 MW under the Proposed Action, which would be about 40% under that scenario. However, the DEIS claims that hydroelectricity can supply up to 40% of the power requirements for each the Proposed Action and Alternatives despite the fact that the power requirements vary (i.e., they are half as much for Alternatives D and E). Presumably, the hydroelectric generation is proportional to the volume of water flowing through the main pipelines. The potential electricity generation should be more clearly presented in the DEIS.

The potential for hydropower generation appears significant for this project, but the quantification of this potential lacks important details and should be more explicitly integrated into the power supply plans for this project. Solar power is also briefly

mentioned as a power supply option for the air monitoring stations, but this is not quantified. The potential for solar power to meet some or all of the pumping stations' energy demands and reduce emissions of critical pollutants should also be quantified. Importantly, the costs of all energy sources—fossil and renewables—should be included in the cost-benefit analysis of this project. The cost of natural gas and other fossil fuels can be volatile, and potential regulation of GHG emissions could add additional costs. In contrast, the operating costs of renewable energy sources are not prone to volatile fuel price fluctuations and are relatively fixed. We encourage SNWA to continue to aggressively pursue renewables as the primary source of energy for this project, should it go forward. This will help to mitigate some of the negative air quality impacts, as well as help SNWA achieve its goal of having 25% renewable energy sources by 2025.

Conclusion

We appreciate the opportunity to provide comments on the DEIS for the Groundwater Development Project. For the reasons noted above, we urge BLM to revise the DEIS consistent with these comments. Thank you for your attention to our concerns.

Sincerely,

s/ Bart Miller

Bart Miller, Water Program Director
Drew Beckwith, Water Policy Manager
Robert Harris, Staff Attorney
Amelia Nuding, Water-Energy Analyst
Stacy Tellinghuisen, Senior Water-Energy Analyst
Western Resources Advocates