



State of Utah

GARY R. HERBERT  
*Governor*

GREG BELL  
*Lieutenant Governor*

Office of the Governor  
PUBLIC LANDS POLICY COORDINATION

JOHN HARJA  
*Director*

REC'D - BLM - NSO  
9:00 OCT 13 2011  
A.M.

October 11, 2011

Penny Woods, Project Manager  
Bureau of Land Management  
Nevada Groundwater Projects Office  
Nevada State Office (NV-910-2)  
P.O. Box 12000  
Reno, Nevada 89520-0006

Subject: The Clark, Lincoln, and White Pine Counties Groundwater Development Project  
Right-of-Way Project Draft EIS  
F.R. 34072, Vol. 76, No. 112

Dear Ms. Woods,

The State of Utah appreciates the opportunity to work with the Bureau of Land Management as a Cooperating Agency in the preparation of the Draft Programmatic Environmental Impact Statement ("DPEIS") for Groundwater Development in Clark, Lincoln, and White Pine Counties (the "Project"), and to provide these comments on the Draft. The Project is a request by Southern Nevada Water Authority ("SNWA") for a right-of-way to construct and operate a buried pipeline that would convey groundwater from central-eastern Nevada to the Las Vegas area. The State of Utah recognizes that groundwater pumping is presently occurring in both Utah and Nevada. The existing, ongoing pumping, as well as the proposed Project, reflect the fact that water is a vital and scarce resource in the arid west and that western states seek to develop water resources to the maximum extent possible while also protecting environmental qualities.

C1

The source of the state's concern about the Project is the potential for groundwater pumping, conducted solely in Nevada but from a basin shared by both states, to have effects on the environment and existing water users in Utah. For this reason, the state has been negotiating an agreement with the State of Nevada. This agreement, required by Public Law 108-424 would allocate water in the Snake Valley Basin between Nevada and Utah and would provide for a process to protect existing water users, protect wildlife species, and avoid increases in the generation of dust that would, in all likelihood, be transported to the populated areas of Utah.

C2 To that end, the State of Utah prefers that groundwater pumping for the Project occur at locations sufficiently removed from the border, as envisioned by Alternative E. However, recognizing the ability of the State of Nevada to determine water allocations within its own boundaries, the State of Utah provides the following comments on the DPEIS, should another alternative be chosen by the BLM.

C3 Fundamentally, the State of Utah's review of the DPEIS demonstrates that this Project – from the Proposed Action to the most limited of the Project's six alternatives – has great potential to impose negative impacts on the state's air quality, water quality, wildlife, economy, and health of Utah's citizens. The State of Utah requests the BLM impose stipulations and conditions upon the Project no less effective than those contained in the draft Agreement between Utah and Nevada for the Snake Valley Basin.

#### General Comments

C4 The State of Utah recognizes that much of BLM's analysis regarding air and water pollution is based on models that contain a measure of scientific uncertainty. In fact, the BLM admits its models are "highly uncertain." (ES-55). The BLM also acknowledges that its information on the groundwater systems is "limited," particularly for Snake Valley (Chapter 2, pg. 2-89) and that its groundwater models contain "major sources of uncertainty." (Chapter 3, pg. 3.3-85). Further, the hydrological model fails to incorporate any variation in average precipitation rate and pattern over the 245-year simulation period and provides that "the calibrated model should not be considered an accurate or precise predictor of future conditions because it does not account for variations in future climate conditions that cannot be accurately forecasted at this time." (3.3-86). The state also recognizes that not all of the BLM's decisions concerning the Project are within its control. For example, the Nevada Water Engineer has the authority to grant the water right applications of SNWA, and the BLM must generally align its decision with that of the Water Engineer. However, despite the uncertainty and the limitations of authority, the BLM must not allow conditions to occur which may cause harm elsewhere, such as might occur with the following issues raised by the State of Utah.

C5 Therefore, given the nature of the proposed Project, the uncertainties within the models presented, and the lack of sufficient specificity about actual proposed pumping locations, schedules, and amounts, the State of Utah believes that a Programmatic Environmental Impact Statement ("PEIS") may not be the proper tool for evaluation of the effects of the Project.

C6 From the state's perspective, for example, the uncertainty in the predictions concerning the amount of particulate matter ("PM") that will enter Utah as a result of the Project, and uncertainty in the study of effects caused by the BLM's failure to even consider the effect of drawdown of groundwater of less than ten feet, (*see, e.g.,* ES-39),

C6 cont'd the DPEIS is not an adequate or complete evaluation of effects as required by the National Environmental Policy Act. The state requests clarity from the BLM concerning when these issues will be addressed. In addition to these shortfalls, the DPEIS is neither well organized nor clearly written.

C7 The state does, however, welcome the opportunity to provide the comments below, which are fully consistent with state and federal policy regarding air and water quality and which reflect the state's obligation to safeguard the health and economic welfare of its citizens, wildlife, and environment.

The State of Utah has identified the following six areas requiring further attention of the BLM.

### 1. Air Quality

C8 The State of Utah believes the Project and its alternatives have great potential to cause increased PM<sub>10</sub> and PM<sub>2.5</sub><sup>1</sup> particulate levels in the Salt Lake Valley, Davis County, and northern area of Utah County (referred to as "Wasatch Front"). The additional particulate emissions will also likely lead to violations of National Ambient Air Quality Standards ("NAAQS") established under the Clean Air Act ("CAA"), resulting in further violations of the EPA's 24-hour PM<sub>10</sub> standard. This result may have negative effects upon the state's economy.

The State of Utah requests the BLM study further and create stipulations and conditions for the Project which result in no economic impacts to the State of Utah or its citizens as a result of impacts to air quality.

#### A. The Project Has Potential to Increase PM Emissions in the State of Utah.

C9 The CAA establishes National Ambient Air Quality Standards which every state must meet. Among the requirements are particulate matter standards, or PM standards. The 24-hour PM<sub>10</sub> standard, for example, requires the State of Utah to comply with the PM<sub>10</sub> standard during each 24-hour day. If a region of the state exceeds the 24-hour PM<sub>10</sub> standard once per year for a 3-year averaging period (four exceedances within a 3-year period), the region falls into the "non-attainment" category, which status carries several consequences, some of which are discussed in detail below.

---

<sup>1</sup> The State of Utah is currently working on completing a PM<sub>2.5</sub> SIP, in which it will address the standards for PM<sub>2.5</sub> emissions in Utah. With respect to the standards that will ultimately be set forth in the PM<sub>2.5</sub> SIP, the State of Utah requests the BLM to require that the Project does not exceed those standards or cause Utah to exceed them.

C10

Areas of the State of Utah are currently in non-attainment for PM. To resolve the non-attainment, the State of Utah has adopted, and the EPA has approved, two State Implementation Plans ("SIP"): (1) the PM<sub>10</sub> State Implementation Plan referenced in the DPEIS, covering the Wasatch Front (specifically, the Salt Lake Valley, Southern Davis County, and Utah County) ("PM<sub>10</sub> SIP"); and (2) the Regional Haze SIP. In these SIPs, the state has imposed control measures for industries, including smelters, refineries and power plants, regarding coal burning restrictions, and the state can also impose automobile emissions standards on the general public.<sup>2</sup>

As a result of the successful implementation of its PM<sub>10</sub> SIP, PM<sub>10</sub> levels along the Wasatch Front average between 20-40 µg/m<sup>3</sup>, well below the EPA's 150 µg/m<sup>3</sup> 24-hour concentration standard. In fact, the only time the Wasatch Front currently exceeds the PM<sub>10</sub> standard during a 24-hour period is during seasonal wind storms originating in the southwest desert. The southwest desert is, in fact, a major source of entrained dust that is transported by wind events into the Wasatch Front, as shown in Figures 1 and 2 below. However, these events are from natural events, as opposed to anthropogenically created, which distinction will be discussed below.

Figure 1

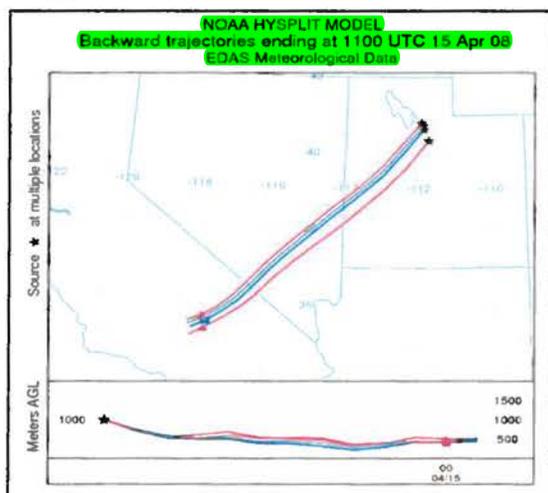
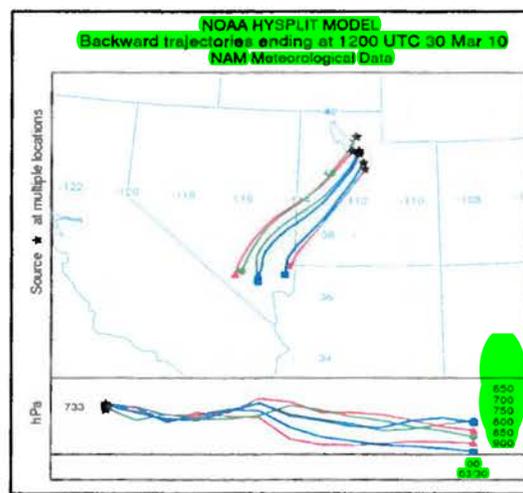


Figure 2



Figures 1 and 2 above demonstrate that PM<sub>10</sub> concentrations originate in the Project study area and are transported by wind events to the Wasatch Front.

<sup>2</sup> When the PM<sub>10</sub> standard was first established, Utah was unable to satisfy it. The 1991 State Implementation Plans for Utah and Salt Lake Counties added control measures for industries including smelters, refineries, and power plants, and some industries were required to burn natural gas instead of coal during the winter inversion season. A wood-burning restriction program also was added at that time and improvements were made in the vehicle emissions inspection and maintenance program. EPA approved those SIPs in 1994, and both areas have been in compliance with the NAAQS during the winter inversion months since 1996. In 2005, Utah completed PM<sub>10</sub> maintenance plans for all areas showing that the State of Utah expects to remain in compliance for the next 10 years; the Plans have been submitted to EPA.

C10 cont'd

Figure 3

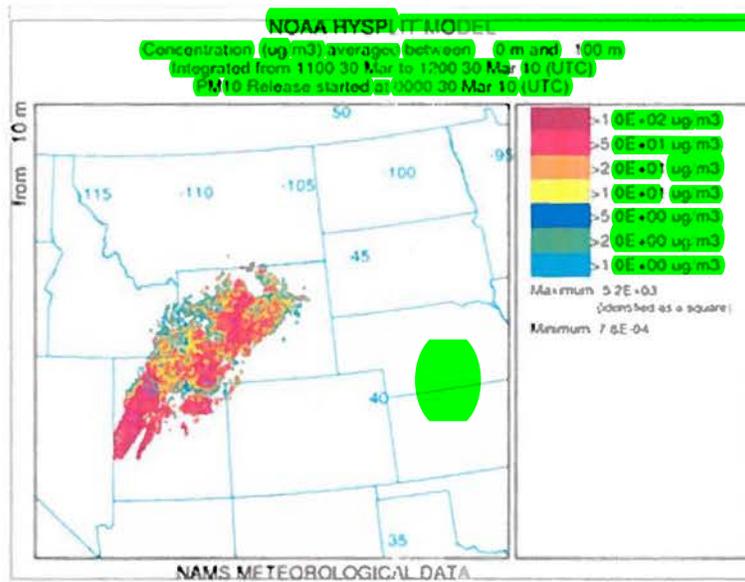


Figure 3. As shown above, particle trace modeling for the trajectory in Figure 2 demonstrates that PM<sub>10</sub> concentrations transported from the southwestern desert to the Wasatch Front are significant during wind events.

Given the above-shown wind trajectories and trace modeling, there is great potential the Project would create an uncontrolled anthropogenically-derived source of fugitive dust that will be transported to the Wasatch Front and will, as a result, increase the particulate matter emissions in the Wasatch Front region beyond what is acceptable in Utah's PM<sub>10</sub> SIP.<sup>3</sup>

C11

More specifically, according to the DPEIS, groundwater pumping will cause permanent large scale damage to crustal soils, resulting in increased soil-wind erosion. This is based on estimates in the DPEIS that increases in windblown dust will result primarily from bare soil and sparse vegetation and phreatophytic vegetation evapotranspiration units in the Project area as a result of a ten-foot drawdown, or more, of groundwater during pumping. This drawdown will also slow or impede revegetation in the area, prolonging the period of soil-wind erosion. The BLM admits that "groundwater drawdown would likely result in windblown dust emissions due to drying hydric soils and reduction of basin shrubland

<sup>3</sup> The DPEIS distinguishes between two types of dust: anthropogenically-derived sources of dust (1) released during construction; and (2) resulting from groundwater pumping. While fugitive dust released during construction is covered under permits and mitigation plans associated with the Project, it is unclear what mitigation or other control measures may affect dust which may result from groundwater pumping. Any such uncontrolled anthropogenic source of dust is unacceptable and could jeopardize the State of Utah's attainment and maintenance of the PM<sub>10</sub> standard.

C11 cont'd vegetation.” (ES-55). The BLM adds that “(t)he level and extent of these predicted dust increases are highly uncertain due to the assumptions involving dust increases from changes in vegetation.” (ES-55). Changes to vegetative composition from basin shrubland to annual grasses could also increase the chance of wildfires, which would further exacerbate PM emissions from the Project area. (Chapter 3, pg. 3.5-75).

C12 The cumulative impact of the Proposed Action following full build-out plus 75 years will result in 33,152 tons per year<sup>4</sup> of annual PM<sub>10</sub> fugitive dust emissions. Given the wind trajectory graphs shown above and the fact that the Wasatch Front is currently a non-attainment area for 24-hour PM<sub>10</sub> emissions during storm events from the southwestern desert area, even the results of Alternative D—11,306 tons per year of annual PM<sub>10</sub> fugitive dust—would be unacceptable under the State’s PM<sub>10</sub> SIP.<sup>5</sup> In short, groundwater pumping will increase arid soils, decrease revegetation, and create thousands of tons of additional particulate matter per year which, during a wind event, will be transported to the Wasatch Front.

C13 Dust caused by the Project is different from dust caused by natural events due to the Exceptional Events Rule, by which Congress specifically differentiated between a "natural event" in which human activity "plays little or no part" and the circumstances under which "recurring emissions [result] from a source [that] should be considered anthropogenic." (40 CFR Parts 50 and 51) (FR Vol. 72, No.55, Thursday, March 22, 2007, IV (D)). Project dust would constitute an uncontrolled source of anthropogenic dust, and any such source is not only unacceptable under the state’s PM<sub>10</sub> SIP, but would result in non-attainment of the PM<sub>10</sub> standard. Non-attainment, in turn, has negative consequences for the State of Utah.

Project dust has the potential to cause the State of Utah to bear the sole burden of the increase PM emissions in the Wasatch Front region. Specifically, the State of Utah cannot address the source of the anthropogenic dust storms in its PM<sub>10</sub> SIP because that SIP is Utah-centric and can affect only its own citizens and industry. The State of Utah has no jurisdiction to directly affect the source in Nevada.

C14 However, Project-caused PM non-attainment along the Wasatch Front may have consequences to the State of Nevada. The Clean Air Act requires that every state SIP contain adequate provisions prohibiting the emission of air pollutants in amounts that contribute significantly to non-attainment in, or interference with, or maintenance by any other state with respect to NAAQS or interference with measures required to be included in the SIP for any other state to prevent significant deterioration. Section 110(a)(2)(D)(i). If Nevada were

---

<sup>4</sup> It is difficult to identify precise projected emissions because Sections 3.1.2.9 and 3.1.2.15 contain different projected emissions: 24,122 tons/year vs. 5,000 tons/year.

<sup>5</sup> According to the DPEIS, increases in PM<sub>2.5</sub> emissions will follow the same pattern.

C14 cont'd the cause of the State of Utah's non-attainment, Nevada would be required to address this impact in its own SIP.<sup>6</sup>

C15 A further consequence of non-attainment is the impacts to the health of Utah's citizens. PM<sub>10</sub> and PM<sub>2.5</sub> have serious health consequences, particularly to vulnerable populations in the state. These fine particles lodge deeply in the lungs and can cause, aggravate, or increase the incidence of asthma, bronchitis, and other lung diseases.

C16 Finally, nonattainment negatively impacts the State's economy as discussed in detail below and in Section 5 of this letter.

**B. The Project Has Potential to Result in Negative Economic Impacts to the State of Utah.**

C17 **Cost to Industry and the Public.** If the Project forces the State of Utah into anthropogenically-caused non-attainment for the 24-hour PM<sub>10</sub> standard, as the State of Utah believes possible, the state will be required to develop a new PM<sub>10</sub> SIP to reduce PM<sub>10</sub> from all sources, resulting in significant cost to the state's economy. For example, the State of Utah may be required to implement new, expensive technologies to track the PM emissions from the Project as well as create and impose new PM emission-reduction requirements on industry and the general public. The State of Utah, its industry, and the public will bear those costs alone.

C18 **EPA Penalties.** Additionally, given the increased PM<sub>10</sub> emissions likely to result from the Project, the state's best efforts at reducing PM<sub>10</sub> may fall short, resulting in fiscal penalties from the EPA. That is, even if the State of Utah is able to create significant reductions from point and area sources of particulate matter along the Wasatch Front to compensate for increased PM<sub>10</sub> from the Project, the impacts of a wind storm from the Project area would very likely overwhelm any reductions made. Simply stated, the State of Utah may expend considerable monies in an effort to comply with the PM standards of the NAAQS and still be unable to meet the 24-hour standard during a wind event which brings

---

<sup>6</sup> Under section 110(a)(2)(D) of the Clean Air Act, Nevada's SIP is required to "contain adequate provisions (i) prohibiting consistent with the provisions of this title, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other state with respect to any such national primary or secondary ambient air quality standard, or (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C to prevent significant deterioration of air quality or to protect visibility." Utah would need to work directly with Nevada to address the dust emissions. If this approach was not successful, Utah could approach the EPA to make a finding that Nevada is not meeting the "Good Neighbor" provisions of the Clean Air Act, and EPA could then require Nevada to take action to address the problem. If Utah is not able to attain or maintain the NAAQS due to anthropogenic dust in the west desert, EPA would be required to develop a federal plan to solve the problem. EPA has jurisdiction nationwide and would have authority to take action in Nevada to address an air quality problem in Utah. In addition, the Governor of Utah could petition the EPA to create an Interstate Transport Region under the CAA (CAA 176A; 7506a), which would create additional restrictions on dust emissions transported from Nevada to Utah.

**C18 cont'd** anthropogenically-created dust from the southwest desert. And if the State of Utah is unable to meet the 24-hour PM<sub>10</sub> standard, the EPA could impose penalties, including, as an example, withholding federal highway funds from the state.

**C19** **Cost to Tourism.** Utah's Regional Haze SIP also could be affected by dust storms carrying anthropogenically derived PM from the Project study area, ultimately resulting in decreased tourism dollars.

EPA's Regional Haze Rule addresses air pollution in the form of haze that travels long distances and reduces visibility in scenic areas, including National Parks. The Regional Haze Rule requires states to develop plans that show improvement in visibility for the most impaired days and also ensures no degradation in visibility for the least impaired days. Section 169A of the Clean Air Act establishes as a national goal the prevention of any future and the remedying of any existing impairment of visibility in mandatory Class I federal areas along the Colorado Plateau, including Capital Reef and Bryce Canyon National Parks where the impairment results from anthropogenic air pollution. While the State of Utah has successfully implemented a Regional Haze SIP to address the Regional Haze Rule, dust storms with entrained anthropogenic PM from the southwest desert will undermine the visibility improvement on the most impaired days, an improvement that has been made over the last 20 years in Utah's Class I areas, as shown below in Figures 4 and 5 below.

Figure 4

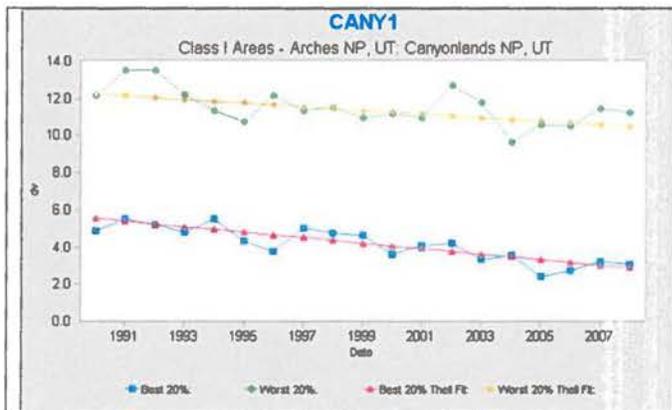
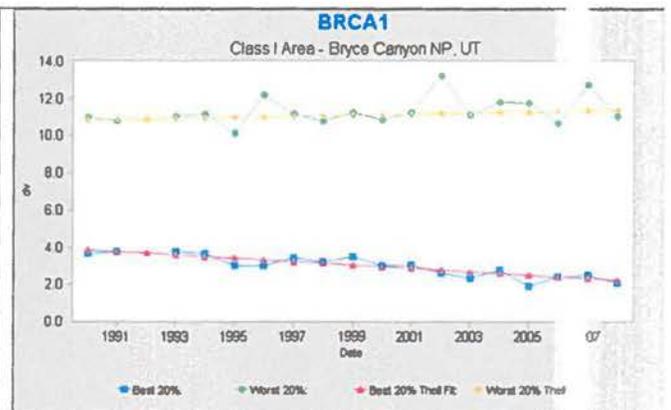


Figure 5



Figures 4 and 5 above show the improvement in visibility at Canyonlands and Bryce Canyon (measured in deciviews) since 1990 on the 20% best days and the 20% worst days for each year. The improvements are not as apparent on the 20% worst days because these days are dominated by wildfire emissions that are not feasible to control.

C20

Section XX.C of the state's Regional Haze SIP identifies a Clean Air Corridor which includes most of Nevada and the western portion of Utah as the geographic region that contributes clean air to the Class I areas along the Colorado Plateau, including Capital Reef and Bryce Canyon National Parks, as shown in the blue areas in Figure 6 below. Even with the Regional Haze SIP strategies in place, the State of Utah may be unable to show reasonable progress in the current and future planning period, as required by the Regional Haze Rule, if the Project is not properly controlled.

Figure 6



Figure 6. The Regional Haze Rule, 40 CFR 51.309(d)(3) requires the State of Utah to track emissions in the Clean Air Corridor to ensure that visibility does not degrade on the least impaired days at any of the Class I areas along the Colorado Plateau. Title 40 CFR 51.309(d)(3)(iv) requires the State of Utah implement additional measures where necessary to address increased emissions in the Clean Air Corridor. This provision could require emission reductions from urban areas, power plants, and other industrial sources to counteract a significant increase in anthropogenic dust emissions in the Clean Air Corridor.

C21

Given that the Regional Haze SIP requirements are directly related to the quality of air at Utah's National Parks, the impact on visitors to those parks must be considered. The vistas in Utah's National Parks are an important part of the experience of visitors to the parks, and the possibility that enhanced dust storms resulting from the Project will obscure tourist views, will potentially affect the tourism industry in Utah. Hence, the effect on the state's tourism as a result of potential increased regional haze from the Project must be considered.

**C. BLM's Mitigation Measures Must Be Sufficient to Address Air Quality Impacts.**

C22

Despite the evidence that the Project has high potential to result in non-attainment for the  $PM_{10}$  standard and have concomitant economic impacts, BLM's position appears to be that no such result is likely. This position is deeply concerning to the State of Utah. BLM estimates in the DPEIS, for example, that only slight amounts of dust may reach the Wasatch Front as a result of the Project or its alternatives. This conclusion, however, is inaccurate because the BLM used outdated  $PM_{10}$  SIP information where  $PM_{10}$  at one time contributed to Wasatch Front wintertime inversions, concluding that the vast majority (75%) of  $PM_{10}$  emissions at that time were due to stationary sources. (Appendix F3.1 p. F3.1-4). Successful implementation of the  $PM_{10}$  SIP eliminated the  $PM_{10}$  winter time contribution. As previously stated and demonstrated by modeling, today,  $PM_{10}$  levels along the Wasatch Front average 20-40  $\mu g/m^3$ . Utah's  $PM_{10}$  exceedances are strictly related to entrained dust during spring/summer wind storms carrying dust from the southwest desert.

C23

The State of Utah also is seriously concerned with BLM's statement that "only a very small fraction of wind erosion emissions from the cumulative project area will be expected to be transported into Salt Lake County, Utah." (Chapter 3, p 3-160). The State of Utah finds no support for such a statement, and indeed, the state's evidence, including Figures 1, 2 and 3 in the discussion above, show the opposite is both possible and probable—that PM emissions from wind erosion are very likely to be transported to the Wasatch Front.

C24

Though BLM offers to mitigate any impacts from wind erosion emissions by implementing air monitoring stations, the State of Utah is concerned not only with the proposed locations of those monitoring sites but also with the length of time that BLM proposes to conduct monitoring. Modifications to the air monitoring program will be required if BLM selects a pumping alternative. Specifically, the DPEIS (Appendix B) provides for at least one air monitoring station in Utah (representative of the Snake Valley airshed) and one air monitoring station upwind of the Project area. The Snake Valley monitoring station would be located over 150 miles away from the Wasatch Front, a distance that would make it difficult, if not impossible, to accurately quantify the impact of the study area on the Wasatch Front. Therefore, any pumping scenario must include a minimum of two monitoring stations in Utah, with the second station located in the Delta, Utah region.<sup>7</sup> Additionally, in order to provide accurate information, data collected from all air monitoring stations associated with the Project should be available in real time and include meteorological data. That data must be collected for a minimum of five years before Project

---

<sup>7</sup> This area was selected because it represents the northern reach of the southwestern desert, separates the desert region from central Utah sources, and lies within the common wind trajectory.

C24 cont'd initiation as well as throughout the life of the Project. In this way, the State of Utah can properly identify dust impacts from the Project to the Wasatch Front.

#### D. Air Quality Conclusion

C25 The State of Utah believes the Project has high potential to result in increased PM emissions in the State of Utah, resulting in non-attainment of the PM<sub>10</sub> standard and creating economic impacts to the state, its industry, and its citizens. The State of Utah intends to work with BLM and the State of Nevada to prevent these consequences. To that end, the State of Utah requests BLM devise and implement sufficient mitigation conditions that will prevent particulate matter from generation and movement, including implementing air monitoring stations, at minimum, in the number and with data collection specifications as outlined above.

## 2. Water Resources

C26 The State of Utah understands that the Project requires groundwater pumping and that pumping results in groundwater drawdown. While the DPEIS addresses the effects of groundwater drawdown of greater than ten feet on water quality or aquatic species, it does not address those same effects for drawdown of less than ten feet. The State of Utah not only believes that groundwater drawdown of less than ten feet will indeed impact water quality and aquatic and other species, but that the impact will be so great as to lead to the likely endangerment of some of those aquatic species. Therefore, the State of Utah requests the BLM to (A) protect the water quality and water users of the state; and (B) adequately study the effects of groundwater drawdown of less than ten feet on natural springs, aquatic species<sup>8</sup>—with a goal of protecting species that may become endangered—and vegetation.

#### A. Water Quality and Water Users Must Be Protected.

C27 The State of Utah is concerned that any groundwater pumping likely will affect the quality of the state's water supply. Accordingly, the State of Utah requests that the BLM protect the state's water, its citizens, and provide options for its citizens in the event that Utah's water sources are impacted by the Project or its alternatives.

First, though the DPEIS does not address it, the State of Utah believes it is possible that any lowering of any aquifer may result in elevated TDS, Arsenic, or any other chemical due to the density-stratified nature of ground water. If an increase in TDS or arsenic is detected—or any other impact on water quality occurs as a result of the Project—the State of

---

<sup>8</sup> The State of Utah is focused on aquatic species as the best indicator of the health of the overall ecosystem: if the aquatic ecosystem is healthy, the terrestrial wildlife also will remain healthy.

**C28** Utah requests that water users be held harmless and be given options. For example, water users must be given the option of having their existing well shut down and a new well drilled, or the existing well deepened. Also, because there is insufficient data to ascertain any meaningful quantitative prediction on groundwater quality, the State of Utah requests BLM collect baseline data on existing water quality. BLM must understand the current state of the aquifers so that it can confirm and track water quality impacts as they occur.<sup>9</sup>

**C29** Second, also not addressed in the DPEIS, with respect to the density interactions which normally occur in flowing groundwater systems with waters of different qualities, a fresh water/salt water interface often develops such that water on the fresh water side is predominantly high quality water while poorer quality water of a consistent character dominates the salt water side. In other words, the condition is less a mixing of all the waters resulting in a particular water quality and more distinct types of water with an interface based on density differences and flow rate which divides the two. This is the current state of water quality in Snake Valley, particularly at the north end of the valley. However, the state also recognizes that it is possible—particularly if a scenario is selected that reverses the flow gradient (i.e., pumping exceeds recharge)—that more of a mixing reaction will occur. Any alternatives that approach such a condition induce much greater potential for irreversible impact. In other words, movement of the freshwater interface could cause a shift that yields poor quality water from wells that previously provided good quality water.

**C30** **B. BLM Must Study the Effect of Groundwater Drawdown of Less Than Ten Feet to Determine the (1) Impact to the Natural Springs; (2) Impact to Aquatic Species, Including Listing as Endangered Species; and (3) Impact to Vegetation.**

The DPEIS indicates that natural springs represent the vast majority of reliable surface water resources in the Snake Valley region. The DPEIS further indicates that, based on modeling, there will be impacts to many or all of the springs and perennial streams in the Snake Valley. The DPEIS lists the Snake Valley as having 217.8 miles of perennial stream reaches with eleven (11) springs, nine (9) of which have flows of 200 gallons per minute (gpm) or greater. Perennial surface water is supported by groundwater discharge in the Snake Valley. At full build-out plus 75 years, the model indicates moderate to high impacts to surface water flows on which 145 water rights are filed. Cumulative effects of the Proposed Alternative demonstrate the far reaching impacts possible from groundwater drawdown, including (1) 65 inventoried springs with moderate or high risk of flow

---

<sup>9</sup> The modeling efforts predict change in groundwater levels from build-out plus 75 years for drawdown ranging from 50'-100'. There is insufficient data to predict a point where the groundwater quality would be impacted such that it would require additional treatment in order for it to remain a viable resource in the future.

C30 cont'd

reductions; (2) 131 miles of perennial streams with moderate or higher risk of flow reductions; and (3) 305 surface water rights with moderate or high risk of flow reductions.

C31

Given that the springs comprise the vast majority of reliable surface water resources in the region, springs provide habitat for a variety of fish, invertebrates, and amphibian species. The importance of a stream's flow regime for sustaining the biodiversity and ecological integrity of the aquatic environment is well established. Modeling results listed in the DPEIS point to significant decreases in springs and streams in Snake Valley as a result of the Project. Specifically, all indicators from the Project and its alternatives regarding water resources point to reduced spring and surface flows, impairments to habitat, and adverse effects on aquatic resources. Such results may not allow for surface waters to meet their designated beneficial uses and water quality standards in the future.

C32

**Failure to Consider Drawdown of Less than 10 Feet.** The BLM fails to address in the DPEIS any effects of groundwater drawdowns of less than ten feet. The State of Utah believes that these effects must be considered because they will have significant adverse impacts on water quality and aquatic life: spring flow will be reduced or eliminated and, as a result, certain species may be listed as endangered by the USFWS, imposing economic hardship on the State of Utah. Indeed, the State of Utah is aware that the USFWS initiated a status review and 90-day petition finding for listing certain springsnail species as threatened or endangered as a result of groundwater development. The USFWS has found that there is "substantial information in the petition and [USFWS] files to indicate that listing the *bifid duct pyrg* may be warranted due to threats from groundwater development." (FR Vol 76, No. 177, 56627). As of October, 2011, the petition is under review.

**1) Impacts to Natural Springs by Groundwater Drawdowns of Less than Ten Feet Must be Studied.**

Addressing only groundwater drawdowns of greater than ten feet is grossly inadequate to protect the spring habitats and organisms that depend upon them. In the DPEIS, BLM does not address how the extent and quality of surface water may be affected by a drawdown of less than ten feet. Similarly, there is no discussion of potential impacts to springs with flows under 200 gpm. The project area includes several spring systems comprised of many small springs that individually do not qualify for consideration under the guidelines of this DPEIS. In several places in the project area, however, clusters of small springs form spring systems having cumulative discharge of 200 gpm or greater, for example Gandy Salt Marsh, a BLM Area of Critical Environmental concern. The biological importance of these smaller systems is significant and must be included and analyzed in the DPEIS if its data is to be considered accurate and reliable in determining the impact to Utah's

C32 cont'd

aquatic ecosystems. The BLM admits that “a complete loss of habitat and species could occur in small springs and larger springs where all or most of the flow input is affected.” (ES-57).

C33

For example, surface discharge from Needle Point Springs ceased due to a groundwater-level decline of only 5.4 feet, presumably as a result of groundwater withdrawal for agriculture. (See example within the DPEIS 3.3-21). Numerous other small-discharge springs in the Project area presumably will be impacted, but the DPEIS does not indicate how, when, or what that impact will be. (See Figure 3.3.1-16). Clearly, drawdowns of less than ten feet significantly impact groundwater and associated springs. Those impacts are, however, unknown.

C34

**2) Impacts to Aquatic Species of Less Than a 10-Foot Drawdown Must be Studied.**

It stands to reason—and indeed has been shown—that where springs are likely to be impacted by less than ten-foot drawdowns, sensitive species and/or federal candidate species that rely on those springs also will be significantly impacted. These species include, among others, the Least Chub and Springsnail. The BLM, however, has failed to study or even address those species or their possibility of being listed under the provisions of the ESA.

**Least Chub.** Any changes in spring outflow at the above-mentioned springs can significantly alter water quality and subsequently impact numerous species. For example, several sites occupied by the Least Chub are dependent upon a consistent spring recharge (high turnover rates) to prevent salinization of suitable habitat. The water quality balance for many of these sites is already tenuous and minor alterations in spring outflow may create conditions not suitable for Least Chub and other sensitive species. The DPEIS concedes potential impacts may occur (3.3-107) as “perennial water sources that are hydraulically connected to the groundwater system impacted by pumping and within the drawdown area would likely experience a reduction in baseflow.” However, the section fails to adequately address how minor reductions in baseflow could significantly alter water quality and wildlife. The State of Utah requests the BLM require the Project proponent to determine the relationship between spring outflow and water quality by installing additional monitoring wells within the Snake Valley below the predicted drawdown area.

C35

Additionally, many wetland complexes within the study area experience seasonal variations in aquatic habitat caused by natural (precipitation, temperature) and anthropogenic (e.g., water diversion, local drawdown) conditions. Such habitat contractions currently isolate local fish communities into a few key spring sites with a minimum of discharge maintaining barely suitable conditions. Any change in

C35 cont'd

groundwater levels and/or spring discharge could significantly impact the sensitive balance of these habitats resulting in a further contraction of available habitat. Negative impacts to these systems could lead to the federal listing of Least Chub under the Endangered Species Act ("ESA"). The State of Utah requests the BLM provide stipulations or conditions which prevent this possibility.

C36

**The Springsnail.** Springsnails, specifically the *bifid duct pyrg* and the *longitudinal gland pyrg* inhabit Big Springs, which is estimated to undergo a 100% flow reduction within 75 years of build-out of this Project. The springsnails in question have very limited distribution and the dewatering of Big Springs will lead to the destruction of a substantial portion of their range and significantly increase the chance of these species being listed under the ESA. Such a listing will also impact private property rights within the Project area, and should therefore be included for analysis in the DPEIS.

Additionally, Clay Spring, located southeast of Garrison, Utah, is a small spring within the high-risk area for groundwater drawdown and supports an environmentally sensitive species of snail. Decreased discharge from this spring due to groundwater pumping by the proposed Project would almost certainly eliminate flow from this spring and trigger Federal listing of the snail species. This is a significant environmental consequence, but occurs to a spring and associated ecology that are too small to consider at the level of detail appropriate to the groundwater model employed in the DPEIS. Use of the ten-foot drawdown contour to delineate areas of impact risk is probably appropriate considering the model resolution and uncertainty, but the spatial uncertainty of the position of this contour is unclear. Use of this contour and of the methods for assessing what features are at risk seem reasonable, but significant environmental and economic damage can occur due to less than ten feet of drawdown, for example by reduced flow to springs, and at features that are too small to be included in this DPEIS.

C37

**Cumulative Impacts to Streams and Species of Less Than a 10-Foot Drawdown Must be Studied.** Cumulative impacts from changes in hydraulic head and flow rates to springs outside of the predicted ten-foot drawdown areas similarly are not addressed adequately in the DPEIS. For example, several figures identify springs impacted by groundwater withdrawal within Snake Valley, but very little discussion is provided concerning the potential impacts to spring outflows located within areas downstream of the ten-foot impact contour areas. (See, for example, Figures 3.3.2-4). Numerous springs, including Miller, Gandy, and Leland Harris Springs, containing state sensitive and Federal candidate species are located northeast of the Snake Valley pumping sites. Based on information within the DPEIS, these sites are located downstream of the proposed pumping

C37 cont'd

area within the general valley flow terminating in the Great Salt Lake and should therefore be included in the cumulative impact analysis.

C38

**Problems with Model Resolution in DPEIS Must be Resolved.** An example of the problem of the model resolution in the DPEIS is the agricultural operations around the town of Eskdale, Utah (p. 3.3-45). The wells used for irrigation in Eskdale are just outside the predicted ten-foot drawdown contour for most time frames in the Proposed Action and six alternatives (appendix F.3.14). Therefore, they are not considered at risk in the context of this DPEIS. However, if this contour line is extended a few miles, (in other words, about two 1 km by 1 km grid cells in the groundwater flow model) to the northeast, not unreasonable considering the model resolution, the Eskdale agricultural operations likely would be considered at risk, and the overall assessment of potential environmental consequences to Snake Valley would become worse. This demonstrates the inherent problem with the model used in the DPEIS—a problem that must be addressed.

C39

**Other Limitations of Models Used in the DPEIS Must be Resolved.** There are other limitations on the models used to predict drawdown impacts—these variations in results must be resolved. Specifically, the predictive groundwater outflow models on Table 3.3.1-14 present significantly different results. Such variation highlights the level of uncertainty in accurately predicting inflow/outflow and subsequent drawdown impacts. Numerous other sections within the DPEIS discuss the limitation of the model to predict drawdown values. For example, on page 3.3-86, the report provides that “the model does not have the level of accuracy required to predict absolute values at specific points in time” and that “there is a lack of reliable information regarding the hydraulic properties of faults included within the model.” Given these admitted weaknesses, the model’s predictions of a drawdown should be treated with limited confidence, resulting in consideration and analysis of impacts occurring from less than a ten-foot drawdown.

C40

**Impacts to Vegetation of Less Than 10-Foot Drawdown Must be Studied.**

Very little information is provided to support the conclusion that “an index drawdown contour of ten feet is assumed to be a reasonable estimate of the point at which long-term changes in plant community vigor and composition would begin to appear.” (Pg. 39, para. 1). Moreover, most of the references in the document did not focus on wetland species, such as *Eleocharis sp.* and *Carex sp.*, but included citations on phreatophytic plants which have much deeper root systems. Also, the next paragraph proceeds to highlight the importance of a shallow water table (groundwater within 1 to 3 meters of the soil surface) to wetland vegetative communities. (Chapter 3, p. 3.5-39 and ES 56). The DPEIS anticipates that “groundwater drawdown of 10 feet or more would result in drying out, and the conversion of

C41 wetland/meadow cover types to upland shrub-dominated areas.” (ES-56). Given these statements, it is reasonable to assume that drawdowns of less than 10 feet will heavily impact wetland areas. The State of Utah therefore requests the BLM clarify how the ten-foot drawdown area was determined in light of these contra-indicated deductions and without using the correct wetland plant species in the analysis.

C42 **C. Water Quality Conclusion.**

The State of Utah requests the BLM assist in protecting the water sources of Utah and their users by creating a baseline of data on current water quality and, should the event arise where water quality is comprised, holding Utah’s citizens harmless. Additionally, the State of Utah strongly requests that the BLM undertake a serious study of the effects of drawdown of less than ten feet on the natural springs, aquatic life, vegetation, and any other organisms that are affected by such a drawdown. The State requests that the BLM focus on organisms that are in danger of becoming listed as endangered—a result that costs the State and its citizens a great deal of resources, the burden of which the State and its people should not be required to bear alone.

### 3. Mitigation

C43 The State of Utah believes the BLM has not effectively addressed mitigation, either in preventing or mitigating environmental impacts. Specifically, the BLM has not adequately addressed mitigation with respect to determining early warning thresholds for preventing loss of habitat or for addressing whether mitigation is adequate to remediate environmental impacts from groundwater pumping. The State of Utah requests the BLM provide sufficient mitigation measures which are no less effective than those in the State of Utah’s own monitoring and mitigation plan as set forth in the Utah-Nevada Agreement discussed in detail in Section 4 of this letter.

First, as an example of the lack of proper mitigation, the discussion of *Applicant Committed Adaptive Plan and Measures* (pg. 3.3-116) fails to clarify a process for the determination of early warning thresholds. In addition, the DPEIS does not provide explanation of how the Project proponent plans to implement and assess the proposed *Adaptive Management Measures*. For example, one of the proposed measures is to conduct recharge projects to offset local groundwater drawdown (ACM C.2.21), and another example is the implementation of cloud seeding programs. Both of these proposed mitigation and management measures are not well detailed and may be extremely difficult to implement following significant water withdrawal impacts. The State of Utah believes that, at a minimum, the BLM should provide peer-reviewed literature and examples of how these measures have been effectively utilized in other areas or circumstances.

**C44** Additionally, it is unclear whether the mitigation measures that are addressed by the BLM will adequately remediate environmental impacts from groundwater development. Given the high uncertainty of the scope of these impacts, the state would like to engage in a serious developmental effort to design mitigation measures to successfully address these impacts. In the case of PM<sub>10</sub> fugitive dust emissions, for example, mitigation measures would need to eliminate all anthropogenic sources of PM<sub>10</sub> that risk putting the Wasatch Front into nonattainment of PM<sub>10</sub> NAAQS, a violation of the Clean Air Act. *See, e.g.,* Section 1. Activities that endanger the viability of sensitive species could trigger ESA restrictions or even result in extirpation of the affected species. *See, e.g.,* Section 2. These extremely serious and perhaps irreversible effects from groundwater development require greater attention and investigation than is given in the DPEIS.

**C45** The BLM's monitoring, management, and mitigation plans ("3M Plan") set forth in the DPEIS rely heavily on monitoring as a remedy for the environmental impacts of groundwater pumping. The 3M Plan "provides a process for mitigating impacts" yet provides few details of the actual methods for mitigation or the reasonably probable efficacy of mitigation measures proposed. (Appendix B, pg. B-1). In fact, the BLM and SNWA are careful to caution that "not all impacts would be avoided by . . . mitigation measure (s)." (Appendix B, pg. B-3). SNWA's Conceptual Plan of Development outlines the process for using Adaptive Management Practices (Figure C-2, Appendix A, A-53) and provides a laundry list of possible Operational Practices (Appendix A, C.2.1, A-55) and Biological Measures (Appendix A, C.2.2, pg. A55-57) that could be used to mitigate impacts.

**C46** The DPEIS looks at the long-term environmental effects of pumping through its programmatic analysis. Yet the admitted uncertainty of models, predictions, and impacts requires a more comprehensive ("harder" in NEPA jargon) look than the BLM has currently applied. The State of Utah therefore requests, as part of the Project's approval, that the BLM adopt mitigation efforts that are no less effective than those in the Utah-Nevada Agreement, and which do the following:

- Identify trigger points, using the best available scientific data;
- Complete vigorous scientific analysis of any data gaps or inconclusive data;
- Verify that proposed mitigation measures are effective for the climate and conditions of the project area; and
- Provide for a process that can quickly respond to environmental changes and implement effective mitigation measures, including reduction or cessation of pumping.

#### 4. **Utah-Nevada Agreement**

C47

The Utah-Nevada Agreement was drafted for the purpose of resolving pressing issues related to groundwater withdrawal in the Snake Valley Groundwater Basin. It was the result of Public Law 108-424, requiring that Utah and Nevada reach an agreement regarding the use and allocation of groundwater resources in Snake Valley. In full, the law provides:

*Prior to any transbasin diversion from ground-water basins located within both the State of Nevada and the State of Utah, the State of Nevada and the State of Utah shall reach an agreement regarding the division of water resources of those interstate ground-water flow system(s) from which water will be diverted and used by the project. The agreement shall allow for the maximum sustainable beneficial use of the water resources and protect existing water rights.*

Public Law 108-424. The Agreement has been drafted and provides, in part, that Utah and Nevada agree to work cooperatively to “(d) minimize environmental impacts and prevent the need for listing additional species under the Endangered Species Act.” (pg. 6). The states also agree that with regard to the Available Groundwater Supply, the “maximization of sustainable Beneficial Use of the water resources . . . prohibits . . . (2) the degradation of water quality; and (3) the diminishment of the physical integrity of the Groundwater basin.”

In recognition of the need for more hydrologic, biologic, and other data, Nevada agreed to hold SNWA’s Snake Valley applications in abeyance until 2019 to allow for further data gathering. (Pg.10). Further, Utah and SNWA agreed to establish monitoring plans for hydrologic, biologic, and air resources in Utah that might be affected by groundwater withdrawal, which included “reasoned and effective management response mechanisms to counter the effects through, initially, avoiding the actions leading to the effect, secondly, minimizing the effect, or thirdly, mitigating the effect.” (Appendix C, pg. 2). The SNWA-Utah Monitoring and Mitigation plan agreed to use an assortment of tools to address these concerns, including a Biological Monitoring Plan, a Management Response and Operation Plan, and an Air Quality Protection Plan.

Though the draft Agreement has been available for public comment, it has not yet been signed. It is, however, required before the Project can proceed. Given the intense negotiations and thoughtful consideration given to the environmental impacts of the Project which are addressed in the Agreement, the State of Utah requests the BLM to look to the Environmental section of the Agreement and to adopt and implement no less effective measures than those set forth in the Agreement with respect to mitigation and all other environmental impacts resulting from the Project. Indeed, the State of Utah looks forward to the BLM adopting whatever measures are proposed in the final, signed Agreement.

## 5. Social and Economic Impacts to Millard and Juab Counties

C48

The State of Utah is concerned about the potential economic impacts to Millard and Juab Counties from groundwater development as proposed in the Project and its alternatives. According to the BLM, nearly half of the farms and ranches in the study area are located in Millard County.

**Growth of Farms and Ranches in Millard and Juab.** Both Millard and Juab have seen a considerable increase in the number of farms and ranches during the five-year study period, (from 2002-2007), with the greatest net acreage gain occurring in Millard County. (Chapter 3, pg. 3.18-13.) Millard and Juab Counties have over 820,000 acres of farmland, providing an important livelihood for county residents and tax revenues for county governments. Despite the growth in farms and ranches in Millard County, that county has been experiencing significant out-migration in recent years.

C49

**Income Figures from Millard and Juab.** In 2007, Millard County registered more than \$160 million in cash receipts from farm products. (Chapter 3, pg. 3.18-14). Farmers and ranchers collected a net income of \$48 million that year. (*Id.*) Irrigated farmland is critical for these farmers and ranchers, who rely on irrigation to raise cash crops and grow winter feed for their herds. The Eskdale dairy in Eskdale, Utah, for example, is the primary source of income for the town's residents. Additionally, senior water rights associated with large ranches make them attractive to buyers outside the community, the sales of which could disrupt the local social structure and threaten the junior water rights of residents who continue to farm in the area. While most farming families supplement their income with other endeavors, farming and ranching are the societal and economic anchors for these rural communities. (Chapter 3, pg. 3.18-14). Maintaining agriculture productivity, particularly in western Millard and Juab counties, is important to the economic viability of these rural counties.

Although BLM minimizes the potential impacts to these counties in its analysis by citing the long development period anticipated for groundwater drawdown, it acknowledges that "[c]umulative drawdown effects could result in reduced agricultural production and higher farm operating costs." (Chapter 3, pg. 3.18-108-109). With the unemployment rate in Juab and Millard County ranging between 6% and 9.9% and significant out-migration occurring in Millard County, any additional stresses on these rural communities could lead to further economic and societal hardships.

C50

The State of Utah urges the BLM to give greater consideration to these social and economic impacts, given the serious consequences that could result from groundwater drawdown in these Utah communities.

## 6. NEPA Process

C51

After careful review and consideration of the substance and structure of the DPEIS, the State of Utah believes the NEPA process used by the BLM to prepare this document does not meet the regulatory requirements for informed agency decision-making. At a general level, the NEPA process is intended to address the environmental consequences of actions with a federal nexus, with the intent that federal weight can be used to guide the consideration of the proposal and its viable alternatives to produce the best possible result. In this instance, however, that goal is not met and cannot be met, in part, because Congress itself set up the conundrum: it dictated the specific right-of-way that would be granted—a decision normally arrived at as the *result* of properly-performed NEPA analysis—while at the same time suggesting NEPA would be observed in considering which right-of-way would be selected.

C52

The programmatic nature of the EIS further undermines the validity of the DPEIS at issue. While CEQ regulations do not define the term “Programmatic EIS,” the BLM has used PEISs in recent years to evaluate the impact of broad agency actions, including, for example, the development of solar, wind, and oil shale resources over large geographical areas. PEISs compile data and provide analysis for the adoption of official policy, plans, and agency programs. They “emphasize cumulative impacts, policy level alternatives, program level mitigation and BMPS, and do not define...specific sites.” (See Amending Land Use Plans with Programmatic EISs, BLM 2009 National Land Use Planning Conference). In this case, however, the site is already defined and BLM has combined a site specific, pre-determined Project with a broad programmatic analysis. The result is a document that not only has substantive deficiencies but is a complex, convoluted document that does not provide the decision-making platform necessary to satisfy the “hard look” requirement of NEPA. See *Natural Resources Defense Council v. Morton*, 458 F.2d 827, 838 (D.C. Cir. 1972).

C53

First, the NEPA process is so segmented in the DPEIS that the entire Project is never truly considered as a whole. Additionally, the NEPA process assembles six alternatives, none of which have equivalence in meeting Project purposes and therefore thwart comparison.

C54

A second major shortcoming of the PEIS analysis in this instance lies in its attempts to predict future impacts. Using models that often contain a high degree of uncertainty, whether from data gaps, the long modeling time frame, disagreements over interpretation of data, or the limitations of the models themselves, many of its assumptions of necessity will be broad and conceptual. The BLM admits that the groundwater development project will be the “dominant contributor of cumulative effects” on water resources and water dependent resources in the project area. (ES-71). However, it is far from clear what the true extent of

C55 these cumulative impacts will be on the affected area. For example, groundwater drawdown could have far-reaching impacts on air, water, wildlife and economic resources in Utah. The PEIS is unable to address those specific impacts because of its programmatic nature. Instead, the implication is that the BLM will review and address specific impacts at a later time, during future site-specific NEPA analyses. This implication is precisely the opposite of how a procedurally sufficient NEPA analysis is to occur. Indeed, it is imperative that the PEIS not simply “pass the buck” to future site-specific NEPA analyses, which this PEIS does with frequency. (See Understanding the Differences between Programmatic and Project-level NEPA, Eugene District). Because the DPEIS will serve as the foundation for future decision-making, it requires thoroughness, clarity, and the best scientific information available. In its current form, it provides none of these.

C56 Third, the scope of the groundwater development project is dependent on a pending ruling by the Nevada State Engineer on SNWA’s water rights applications. In order to satisfy NEPA’s requirements for determining scope for an EIS, the BLM needs to consider whether the action “(c)annot or will not proceed unless other actions are taken previously or simultaneously” (40 CFR § 1508.25 (a) (1) (ii)). The Project cannot proceed until SNWA has been granted water rights. Moreover, the extent of those water rights has not yet been determined.

C57 In addition to the above-noted substantive deficiencies of the PEIS, the voluminous DPEIS is not well-organized or clear, making it difficult to read, digest, and comment on. According to CEQ regulations, “(s)tatements shall be concise, clear, and to the point” because the PEIS “shall be used by Federal officials . . . to plan actions and make decisions.” (40 CFR § 1502.1). Here, the DPEIS is unwieldy and, at times, confusing. For example, the potential impacts from groundwater drawdown span a broad spectrum of environmental resources, and the analysis in the DPEIS is both site specific and general; therefore, critical information is dispersed under different headings throughout the document, making it difficult for any user to find and reference it. This difficulty is particularly problematic for cooperating agencies and members of the public preparing comments for this document, which the BLM has recognized as a key component in the process: “[p]ublic comment is a vital part of the NEPA process . . . comments help the decision maker . . . make a decision that is consistent with laws and regulations affecting land management and environmental resource protection, as well as public concerns.” (ES-1). Given that the comments are an important component of effective decision-making, it follows that to generate useful comments, the agency document must be intelligible, transparent, and well-organized. It is not.

C58

Given the above-noted substantive and document-based deficiencies, the State of Utah believes that the BLM needs to modify the documentation to provide specific and detailed analysis which considers the following, at a minimum:

- The location of each proposed well; and
- The completion of specific modeling, including effects of groundwater drawdown of less than 10 feet.
- Further discussion of the economic and social impacts of the Project within Utah.
- Resolution of all other issues raised in these comments.

C59

In sum, the State of Utah does not believe the document in its current form fulfills the requirements of NEPA. The DPEIS is both substantively and structurally deficient. The State of Utah therefore urges the BLM to address the state's concerns, focusing future NEPA documentation on addressing cumulative impacts, filling data gaps, and reducing uncertainty through use of best available data and models.

Thank you again for the opportunity to comment. Further technical comments are attached. Please call me at (801) 537-9802 with any questions or concerns.

Sincerely,



John Harja  
Director

### Technical Comments

- C60** One glaring absence is the description of the Satellite Springs in Snake Valley, which are on the east banks of Lake Creek a short distance east of the Nevada-Utah border. Table 3.3.1-2 lists the discharge as 3,663 gpm (about 8 cfs). The UGS has established a surface-flow gauging system here (we refer to this spring group as Dearden Springs for their location at the Dearden Ranch in Utah), and spring flow is measured as the difference between flow upstream of the springs and the flow in the two channels downstream of the springs. Records show that spring discharge varied between 6 and 8 ft<sup>3</sup>/sec over the past two years ([http://geology.utah.gov/databases/groundwater/site.php?site\\_id=36](http://geology.utah.gov/databases/groundwater/site.php?site_id=36)). This flow is slightly less than that of Big Springs and therefore warrants similar attention. Big Springs and Stateline Springs together support a complex groundwater-surface water system that includes Big Springs and other nearby springs, Big Springs Creek, Lake Creek, Stateline (Dearden) Springs, and Pruess Lake. This hydrologic system supports riparian vegetation and groundwater that sustains local economic activity and provides habitat for environmentally sensitive species. Adequately characterizing this system will take significant work but is important to document the affected environment.
- C61**

- C62** Another problem of scope arises along the eastern model boundary, where the groundwater flow model predicts subsurface flow of groundwater out of the model boundaries (Numerical Model Report, plates 2 and 3). The Predictive Simulation model (p. 4-16 to 4-19) indicates that flow out of the northeastern and eastern model boundaries—in other words, interbasin flow into adjacent groundwater basins that are not in the EIS area of study—will be reduced, by varying amounts according to location and pumping scenario. This reduction in interbasin flow represents reduced recharge to the groundwater systems of adjacent basins, which will be manifested by lower groundwater levels or decreased spring discharge. This is another example of potential environmental consequences in Utah that are outside the scope of the model and EIS but which will occur anyway.

### Specific Comments for Chapter 3

- C63** *Section 3.3*
- Page 87, 1<sup>st</sup> paragraph: The model and corresponding figures only identify areas impacted by a drawdown of 10 feet or greater. It is unknown whether additional areas would be impacted by a drawdown of 10 feet or less which may impact numerous aquatic biological resources, including sensitive and/or federal candidate species.
- C64**
- Page 98, 1<sup>st</sup> paragraph: The following statement is misleading and should be clarified” “The well distribution developed by SNWA for this model scenario distributes the simulated production well spatially within the groundwater development areas in an effort to minimize pumping effects.” As each well creates a localized cone of

C64 cont'd

depression contributing to a regional drawdown, the spatial distribution may not minimize pumping effects but may only distribute them over a larger spatial area. This impact is especially localized within the Snake Valley, where all the production wells are clustered adjacent to the Utah- Nevada border. (Figure 3.3.2-2).

- C65 • Page 106, Table 3.3.2-6: The table indicates that there will be a 28% and 33% reduction in Snake Valley evapotranspiration and spring discharge within a 75-year and 200-year build-out of the project, respectively. It should be noted that these reductions will have significant impacts upon aquatic biological resources by reducing and potentially eliminating available habitat for sensitive species.
- C66 • Page 108, Table 3.3.2-7: The table indicates that reduction of flows in Big Springs will be 100% by 75 years after full build-out of this project. This will eliminate habitats and species including the *longitudinal gland pyrg*, *bifid duct pyrg*, and Californian floater in Pruess Lake. The *longitudinal gland pyrg* is endemic to the Big Springs drainage and occurs nowhere else. These species need to be included in the impact analysis and mitigation plan.

### Section 3.7

- C67 • Page 46, 3<sup>rd</sup> paragraph: This section indicates that flow reductions would have a negative impact upon Least Chub within Fish Springs but fails to mention potential impacts to other important habitats, specifically Leland Harris and Miller Springs. If flow reductions can occur within Fish Springs towards the end of the valley flow gradient, it is logical to infer that similar or more significant impacts would occur in closer proximity to the pumping area within the same basin. These potential impacts should be discussed within this section. Columbia spotted frogs are also found within Leland Harris and Miller Springs and impact analysis to this species should be included.
- C68 • Page 46, 4<sup>th</sup> paragraph: Only four species are analyzed within the *Compliance with Management Objectives* section, however, implementation of the proposed action and subsequent groundwater drawdown/spring discharge reduction will likely affect several other species. The Least Chub and Columbia spotted frog should be included in this section.
- C69 • Page 48, 2<sup>nd</sup> bullet: The *Adaptive Management Measure* to "Conduct habitat enhancement for springsnails in Snake Valley by restoring natural fluvial morphology of spring flow systems" is an unrealistic and potentially misleading statement. It will likely be impossible to restore the natural fluvial morphology of the system after the impacts of drawdown occur unless the applicant is prepared to fully cease all pumping

- C69 cont'd within the basin. Even if the applicant ceases groundwater withdrawal, the natural fluvial morphology of the system may not return to equilibrium for several years.
- C70 • Page 48, 1<sup>st</sup> paragraph: As the *Adaptive Management Measures* within this section are intended to extend to all areas impacted by the project, the Utah Division of Wildlife Resources requests to be included as a cooperator along with the already named agencies of DOI and NDOW.
- C71 • Page 48, 3<sup>rd</sup> paragraph: This section needs substantial discussion, examples, and/or citations of how effective these measures have been in previous projects.
- C72 • Page 16, Table 3.7: The BLM is a signatory on the *Conservation Agreement and Strategy for the Least Chub in the State of Utah* and the *Conservation Agreement and Strategy for the Columbia Spotted Frog (*Rana lutreventris*) in the State of Utah*, which are listed on pages 18 and 19 under the heading *BLM Sensitive Fish Species*. This designation should be included within the table under *Status*, as they are considered BLM sensitive species.
- C73 • Page 18, 1<sup>st</sup> paragraph: Least Chub are now a U.S. Fish and Wildlife Service Candidate Species and should be included under the section *Federally Listed Species*.

*Other*

- C74 • Springsnails, specifically the *bifid duct pyrg* and the *longitudinal gland pyrg*, are currently under review to possibly become listed as endangered under ESA. These springsnails inhabit Big Springs, which is estimated to undergo a 100% flow reduction within 75 years of build-out of this project. The springsnails in question have very limited distribution and the dewatering of Big Springs will lead to the destruction of a substantial portion of their range and significantly increase the chance of these species being listed under the ESA. Such a listing has biological ramifications and will also impact private property rights within the project area, and should therefore be included for analysis in the EIS.