



SOUTHERN NEVADA
WATER AUTHORITY

STATE OF NEVADA



COLORADO RIVER COMMISSION
OF NEVADA

September 8, 2020

Via E-Mail (lpp@usbr.gov)
Copy to follow via US Mail

Mr. Rick Baxter, Project Manager
Bureau of Reclamation
302 East Lakeview Parkway
Provo, UT 84606

Re: Comments on the Lake Powell Pipeline Project Draft Environmental Impact Statement/Draft Resource Management Plan Amendment; Coconino and Mohave Counties, Arizona and Washington and Kane Counties, Utah

Dear Mr. Baxter:

The Colorado River Commission of Nevada (CRC) and the Southern Nevada Water Authority (SNWA) submit the following comments in response to the Bureau of Reclamation's (Reclamation) and Bureau of Land Management's (BLM) notice of availability of the Lake Powell Pipeline Project (LPP or Project) Draft Environmental Impact Statement (DEIS) and Draft Resource Management Plan Amendment (Draft RMPA) announced in the Federal Register on June 8, 2020 (FR Doc. 2020-12382, Vol. 85, No. 110, pp. 35108-35109). Collectively, our agencies are responsible for securing, protecting, treating, and delivering Nevada's entitlement of Colorado River water and managing hydropower generated from Colorado River reservoirs. Over 2 million people in Southern Nevada currently benefit from a secure Colorado River water supply. CRC and SNWA previously submitted joint scoping comments to Reclamation identifying significant issues to be addressed in the EIS.

SNWA and CRC submitted the attached letter along with five of the other Colorado River Basin States to Secretary of the Department of Interior on September 8, 2020 ("Six States Letter"). The LPP DEIS states that Utah is addressing certain operational and legal questions with the other Basin States. However, as is made clear by the Six States Letter, those issues remain unresolved. The comments below and in the attached table supplement the Six States Letter and highlight primary areas of concern with the DEIS.

1. The DEIS Impermissibly Ignores Effects on the Virgin River.

The DEIS acknowledges that the Project will result in increased return flows to the Virgin River but fails to analyze the water quality and other effects of those increased flows. No evidence is

provided to support the brief conclusory statements that the Project would not affect water quality on the Virgin River or impact species' habitats. Impacts which failed to be analyzed in the DEIS include increased mobilization of contaminants, increased algal growth and the potential for harmful algal blooms, transport of aquatic invasive species, and impacts on sensitive and listed fish species. These effects may be harmful to downstream water users including the agricultural water uses on the Virgin River in the State of Nevada. Furthermore, the increased risk of harmful algal blooms on the Overton Arm of Lake Mead poses risks to municipal water users taking water from Lake Mead including SNWA. The effects will be exacerbated as temperatures increase and reservoir levels decline.

A hydrologic monitoring program must be developed and included as a requirement of the Project in order to monitor the changes in Virgin River water quality associated with the project. This monitoring program must include collection of baseline data, as well as water quality sampling locations to demonstrate that waste water returns and reuse are not adversely affecting Virgin River water quality. This monitoring program, including identification of monitoring locations, needs to be provided for public review prior to making a decision regarding the Project.

Similarly, the Virgin River Daily Simulation Model assumptions and input data were not provided as part of the DEIS documentation, therefore an evaluation could not be completed to reconcile how the importation of more than 80,000 acre-feet per year (afy) of Colorado River water will not yield increased discharge to the Virgin River while purported conservation during the same period is projected to increase by up to 20 percent. Upon corresponding with Utah, some of these files were eventually shared with SNWA on August 25th, providing insufficient time for our own hydrology and water quality experts to examine this analysis and provide meaningful comments.

2. The Water Needs Assessment Does Not Provide Sufficient Justification for the Lake Powell Pipeline Project.

The water needs assessment presented in Appendix B – and the supporting documentation prepared for the Federal Energy Regulatory Commission, including Attachment C, Water Needs Assessment – does not provide sufficient documentation or rationale for the Project. For instance, there is no clear basis for the decision to apply the projected gallons per capita per day (GPCD), rather than a more progressive GPCD policy. There is no consideration of the effects of population density on GPCD. Additionally, what the Utah Board of Water Resources characterized as extreme conservation efforts and not practicable, such as converting or installing more efficient landscapes and creating incentive programs for water conservation, are actually commonly applied in an efficient and effective manner in many other communities.

The water needs assessment also does not rely on the best available information. Instead, it partly relies on an outdated 2011 Utah Division of Water Resources analysis of potential agricultural land conversion, which shows a significantly lower volume of conserved water from agricultural to municipal and industrial water transfers (10,080 acre-feet [af]). More recent and reliable data suggests a higher volume, almost double the amount indicated in the 2011 analysis (see Olds 2018). Another example is the DEIS does not identify a range of water needs reflective of different potential GPCD scenarios. It uses a single, specific quantity even though a range of water needs would better reflect future uncertainties.

The assumptions used in the water needs assessment are equally questionable. For example, the analysis simultaneously includes an assumption that a 15-year reserve buffer is needed with the assumption that climate change reduces water supply. This ends up overestimating the resulting water need. Accordingly, a 15-year reserve planning buffer results in a projected water demand for 2075 being used as a criteria to determine water needed in 2060. This assumption dramatically increases the demand in 2060 by more than 42,000 af or 30 percent. The DEIS lacks the underlying documentation for the rationale and need for including this reserve buffer requirement in the analysis.

A more detailed examination of Washington County's water needs assessment should be conducted by Reclamation to support the DEIS/Draft RMPA and to more clearly demonstrate if the best available information is used and if the assumptions are reasonable.

3. The DEIS Definition of the Purpose and Need is Impermissibly Narrow and the Agencies Failed to Consider Reasonable Alternatives.

The Project Proponent's purpose for the LPP is to deliver a reliable annual water yield of approximately 86,000 afy to meet the demands of a growing population in Washington County. The purpose and need of the Federal agencies is necessarily broader and requires consideration of the statutory authority and mandates under which each agency is tasked with its decision. For example, Reclamation must decide whether to enter into a LPP water exchange contract with the Utah Board of Water Resources and whether to issue an easement for the intake and pumping plant at Lake Powell. Yet the DEIS does not disclose (beyond citing the statutory authority for each agencies' jurisdiction) the constraints or factors which the agencies must consider in making their decisions under the Federal Land Policy and Management Act, Reclamation Act, Colorado River Storage Project Act, National Park Service Organic Act, and other statutes and regulations that necessarily guide the agencies' decisions. The DEIS does not describe the Federal agencies' purposes and needs at all. Instead, the Project need is defined solely by Washington County's goal to develop the full 86,000 afy of water supply.

This impermissibly narrow statement of purpose and need conveniently eliminates consideration of other reasonable and partial alternatives. Requiring each alternative to fulfill the entire 86,000 afy of water supply articulated in the purpose essentially forecloses consideration of any alternative other than the preferred one of the Project Proponent. Further, even if 86,000 afy were truly needed, there is no consideration of whether a combination of alternatives could potentially meet that need.

4. The Exchange Contract Needs to be Included for Review.

A significant part of the Federal action is the approval of the exchange contract. While some versions of this contract have been released, it is difficult to evaluate the impacts it may or may not have on other Colorado River water users in relation to the numerous compacts, federal laws, court decisions and decrees, contracts, and regulatory guidelines collectively known as the "Law of the River" without disclosing the most recent version of the contract. This contract should have been made available for public review and comment with the DEIS.

Thank you for the opportunity to provide comments on the LPP DEIS/Draft RMPA. If you have any questions, please contact Colby Pellegrino at (702) 822-3378.

Sincerely,



Sara A. Price, Esq.
Senior Assistant Director
Colorado River Commission of Nevada



Colby N. Pellegrino
Deputy General Manager, Resources
Southern Nevada Water Authority

Attachments

Reference:
Olds, 2018

Lake Powell Pipeline Draft EIS Review Comments

| Comment Number | Volume | Page Number | Section Number | Table / Figure | Comment |
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| 1 | cover | | | | The Title of the document needs to be revised - it should be the Lake Powell Pipeline Project Draft Environmental Impact Statement and Draft Arizona Strip Field Office Resource Management Plan Amendment. RMP Amendments can be combined with an EIS document but, are separately noted in the document title. |
| 2 | DEIS | 8 | 1.2 | Table 1.2-1 | <p>The climate change scenario listed in the table contains a reference to an undisclosed Reclamation 2014 analysis that should be made available to the public. It appears that climate change analysis relies on the same 112 projections used in the Colorado River Basin Water Supply and Demand Study Final Study Report, however, results from that study show that natural flows at Virgin River at Littlefield, AZ subbasin projects a modest increase in streamflow by 2060, rather than a decline (See Colorado River Basin Water Supply & Demand Study, Technical Report B, Figure B-48, p. B-69). This suggests the statement of need is not certain, given the uncertainty in future streamflow in the Virgin River. More information is needed to ascertain why the Lake Powell Pipeline climate change analysis results project a decline in Virgin River streamflow, whereas the data it purported to rely on projects an increase in the subbasin.</p> <p>Please also add the assumed GPCD (or range) used in the calculation for the Water Supply Deficit column.</p> |
| 3 | DEIS | 8-9 | 1.2 | | The Purpose and Need as described in the DEIS is unreasonably narrow. The Project Proponent's objectives are listed in Section 1.2.2, including diversifying regional water supplies, providing reliability, redundancy, and accounting for long-term uncertainty. These objectives are reasonable and appropriate for a local government entity responsible for providing water to the community. However, they do not provide sufficient justification to narrow the DEIS to only consider a project or alternatives that would provide 86,000 acre-feet of water from outside the Virgin River basin. Requiring each alternative fulfil the entire 86,000 afy of water supply articulated in the purpose essentially forecloses consideration of any alternative other than the proponent's preferred one. |
| 4 | DEIS | 8-9 | 1.2 | | The Purpose and Need, as currently described in the DEIS, would also preclude both of the action alternatives. Neither action alternative achieves the reliability and security objectives, because UBWR is not allowed to "call" water from Flaming Gorge according to the terms of the water exchange contract. Reclamation should revise the Purpose and Need and reconsider alternatives that may achieve this revised statement. |

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| 5 | DEIS | 8-11 | 1.2, 1.3 | | The Purpose and Need statement in the DEIS only describes the objectives and desires of the Project Proponent. In accordance with NEPA, the Purpose and Need must describe the purpose and need of the Federal agencies, which is necessarily broader and requires consideration of the statutory authority and mandates under which each agency is tasked. Instead, the Federal actions are relegated to Section 1.3, under Agency Decisions. The Purpose and Need section needs to be re-written to focus on the purpose and need tied to the Federal actions, while acknowledging the Project Proponent's objectives. |
| 6 | DEIS | 9 | 1.2 | | The first sentence on this page states that relying on a single source of water increases vulnerabilities of water supply. This statement is overly simplistic. There are many communities throughout the country which rely predominantly on a single source of water. There are many means of reducing vulnerabilities of a community's water supply which do not require constructing facilities to acquire water from a distant source. Furthermore, Washington County currently obtains its water supply from multiple sources, as noted in Appendix B (Section 4.2.3, p. 8) |
| 7 | DEIS | 9 | 1.2.1 | | The statement of need for 86,000 acre-feet of water is not supported by the more detailed information provided in Appendix B. Rather, the projected need by WCWCD in 2060 (with a 15-year water supply reserve buffer included) was projected to range from 53,625 to 112,997 acre-feet (see Table 7.2-1, p. 15 of App. B). Unreasonably defining the need as exactly 86,000 acre-feet of water falsely implies a level of certainty that does not exist with water demand projections, and results in the elimination of otherwise reasonable alternatives. |
| 8 | DEIS | 9 | 1.2.1 | | Moreover, the EIS should disclose the decisions that have been made by the Project Proponent's governing Board to require a 15-year water supply buffer (as described in Appendix B, Section 3.2.2) and that it is presumably required to be held in local reserves. To the latter point, if a 15- year water supply is required but it is not required to be held locally, than the statement of need may be revised to a lesser volume that would allow for reserves to be held elsewhere (such as Flaming Gorge). Furthermore, the Project Participants goals directly contradict the goals of the Drought Contingency Plan for the Colorado River, seeking to store water within the Colorado River system instead of diverting it outside for storage. |
| 9 | DEIS | 9 | 1.2.2 | | The first item listed for the Project Proponent's Objectives is to provide a second source of water. There is no justification provided in the DEIS, including Appendix B, regarding why a second source is required. Further, Appendix B (p. 8) identifies that water supplies for Washington County come from a combination of groundwater and surface water - thus, the County already has separate sources for their water supply. Since this criteria was used as the basis to eliminate otherwise reasonable alternatives (Section 2.1.3), additional justification is necessary. |

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| 10 | DEIS | 10, 28-29 | 1.3.2, 2.3.2.13 | | A portion of the BLM decision is described as "whether to amend the RMP". Three sub-alternatives are described for amending the RMP for the Southern Alternative. However, the environmental impacts of the potential RMP amendments are not fully analyzed in this document. If this document is to serve as the draft RMP Amendment, it must identify and evaluate all of the potential impacts which could result from that amendment, not just those directly associated with the Lake Powell Pipeline. This includes the environmental impacts associated with allowing new land use authorizations within the Kanab Creek ACEC. For example, there is no discussion nor analysis of the potential effects of the proposed RMP amendment under Section 3.3 (Noise), 3.11 (Vegetation), 3.13 (Special Status Plants), 3.14 (Sensitive Species Fish and Wildlife), or Section 3.15 (for federally listed plant species). |
| 11 | DEIS | 11 | 1.3.6 | Table 1.3-1 | While the USFWS may not have to issue a decision under NEPA, it will have to complete a review, analysis, and decision under ESA, including determining whether the federal actions will jeopardize the continued existence of threatened and endangered species. The table should reflect the USFWS decision or, clarify that the decisions listed only apply to those which require NEPA analysis. |
| 12 | DEIS | 13-16 | 2.1.3.1 | | This section describes two alternatives which were developed during the FERC application process. Both alternatives were eliminated from further consideration because they would not fully meet the purpose and need. However, the basis used to eliminate both alternatives is based upon the Project Proponent's objectives, which is not the same as federal agencies' purpose and need. Federal courts have identified that agencies may not eliminate alternatives simply because they do not provide a complete solution to a problem. Thus, excluding otherwise reasonable alternatives just because they would not fully provide the Project Proponent's requested 86,000 acre-feet is not permissible. |
| 13 | DEIS | 13-16 | 2.1.3.1 | | Both the Local Waters and the No Lake Powell alternatives were eliminated in part due to alleged impacts to the culture and aesthetics of Washington County from converting agricultural water uses to municipal uses. Such a change in culture was described as reducing the desirability of the area. But this is the very phenomenon driving the need for the Proposed Project in the first place. Thus, rather than serving a reason why these alternatives ought to be dismissed, the change in aesthetics possibly leading to decreased desirability of the area is a reason why the alternatives should be considered in detail. These issues were discussed in detail in the Colorado River Basin Study Moving Forward Effort (jointly funded by Reclamation and the Seven Colorado River Basin States) and these statements are contradictory to the findings. |
| 14 | DEIS | 14 | 2.1.3.1 | | The No Lake Powell Water Alternative is described as possibly not being feasible, due to challenges associated with implementing increased conservation, cost of RO treatment, and acquisition of private water rights. None of these factors are sufficient justification to eliminate this alternative from detailed analysis. First, as noted in Appendix B (Section 7.2.1), there is a range of projected need by Washington County, thus this alternative could be scaled to meet some of the need. Secondly, cost alone is not a basis to eliminate an alternative from consideration. Third, while WCWCD may not have authority to condemn land or require xeriscape, they are not precluded from implementing incentive programs which could achieve the desired results (for example, see SNWA's success with water conservation in the Las Vegas Valley). See also the Colorado River Basin Study Moving Forward Effort. |

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| 15 | DEIS | 15, 16 | 2.1.3.1 | | The Local Waters Alternative is described as being eliminated because it would not "fully meet the need". As noted in Appendix B (Section 7.2.1), there is a range of projected need by Washington County, thus this alternative could meet some or all of the projected water need. As noted in earlier comments, a reasonable alternative may not be eliminated simply because it is a partial solution. |
| 16 | DEIS | 15, 16 | 2.1.3.1 | | The Local Waters Alternative was also eliminated due to challenges associated with constructing new infrastructure, increasing water conservation, acquisition of agricultural water rights, and increasing wastewater reuse capacity. None of these factors are sufficient justification to eliminate this alternative from detailed analysis. First, construction of substantial new infrastructure is part of the Proposed Project, thus the construction of new treatment plant, pump stations and other distribution facilities is not dissimilar to the alternatives considered in this DEIS. Second, while WCWCD may not have the authority to require xeriscape or conversion of private agricultural water rights, they are not precluded from implementing incentive programs which could achieve the desired results (for example, see SNWA's success with water conservation and water right acquisition). The rationale that this alternative "compel[s] Washington County residents to modify, change or curtail their current culture, lifestyle or social expectations" is unsubstantiated. Lastly, it is not clear why increasing projected reuse is a basis for eliminating this alternative; as noted in Appendix C-25 (p. 27), the St. George Wastewater Reuse facility could be expanded to its design capacity, which is 2/3rds of the reuse quantity listed for this alternative; this expansion to design capacity would also occur under the No Action alternative (Section 2.3.1, p. 20). |
| 17 | DEIS | 16-18 | 2.1.3.2 | | Almost all of these other pipeline alternatives were determined impracticable due to higher construction and operating costs. It is not sufficient to simply state these alternatives have higher cost, without providing some substantiating information for those statements. That information is not provided in the DEIS or appendices. |
| 18 | DEIS | 26 | 2.3.2.8 | | This section describes the potential for radio antennas as high as 20 feet. Potential impacts of these antennas, for example on migratory birds or increasing raven predation on desert tortoise, is not discussed anywhere in the DEIS or appendices. |
| 19 | DEIS | 27-28 178 | 2.3.2.12 3.15.1.1 | | The DEIS describes that the proposed water exchange contract would contribute to meeting ESA requirements of the Upper Colorado River Recovery Implementation Program. Analyses should be provided to support this conclusion given that the hydrologic modeling analysis (Appendix C-10) demonstrates annual releases from Flaming Gorge would be unchanged by implementation of the water exchange contract. Appendix C-10 further demonstrates that the Proposed Project will result in discharges to the Virgin River. Analysis should also be provided for whether the contract or the Proposed Project would have any effect on ESA-listed species in Lake Mead or the ESA compliance of the Lower Colorado River Multi-Species Conservation Program, which provides ESA Sections 7 and 10 coverage for actions on the lower Colorado River. |
| 20 | DEIS | 28 | 2.3.2.12 | | The statement that the water exchange contract would provide UBWR with a more reliable water supply for Washington County does not seem appropriate in this subsection. See also earlier comments regarding the purpose and need. Additional justification is necessary to support how the water exchange contract results in a more reliable supply. |

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| 21 | DEIS | 365 | 3.1ES-5 | Table 3.1-1 | This discussion does not identify the rationale for eliminating these resources from further study as it relates to the proposed RMP amendment. These resources may be significantly impacted by the RMP amendments, and thus need to be included in the detailed analysis. For example, while the Lake Powell Pipeline may include measures to minimize project effects on general fish and wildlife, unless those measures become RMP commitments and thus apply to all future projects as well, there is the potential for the RMP amendments to result in significant impact. Reclamation stated that four resources were considered but eliminated from an analysis of environmental consequences largely contingent on the implementation of environmental protection measures (EPM). NEPA requires Reclamation to analyze the effects of proposed actions and their significance but does not allow Reclamation to avoid a resource analysis because a proposed mitigation measure (i.e., EPM) could reduce the significance of the potential impact. Reclamation should make their justification for eliminating resource analyses more consistent with their requirements under NEPA. |
| 22 | DEIS | 47 | 3.2.1.4 | | Section on soil crusts overstates the exclusive importance of gypsum soils in soil crust formation and understates the prolonged impact of disturbing these crusts. Crusts are vital to soil stability and can require years/decades to establish. Soil disturbances in the project area may contribute to the problem of dust on snow in the headwater mountains of the Colorado River, leading to earlier peak flows, increased evapotranspiration, and reductions in total runoff. The EIS should analyze these potential impacts. |
| 23 | DEIS | 71, 72, 152 | 3.4.2.2, 3.12.2.2 | | The Land Use analysis describes that the RMP amendments would make "this and future projects in conformance with the RMP" and describes the effects of Sub-alternative 1 as "allowing...potential future land uses to be located within the utility corridor in the ACEC" and of Sub-alternative 2 as "potential for new land use authorizations could increase". The Wetland and Riparian description further states that the proposed RMP amendment has "no specific provisions for mitigation from new land use authorizations." If the RMP amendment would allow additional land use authorizations to occur, and no additional mitigation requirements are being implemented under the amendment, the potential environmental effects must be fully identified and analyzed in this document. See earlier comments regarding resource categories which did not discuss or analyze the effects of the proposed RMP amendments. |
| 24 | DEIS, App C-9 | 99-113, 27 | 3.7, 2.2 | | The recreation section and appendix do not address the restriction or loss of recreation in Lake Powell near the intake structure, which is likely necessary for safety and security associated with the project. |

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| 25 | | 113-115 | 3.8 | | <p>The Hydrology analysis places too much reliance on the complete natural flow record, and in doing so overstates future flows. In addition, while the DEIS looks at a 112-year natural flow, Reclamation's own data, updated on July 10, 2020, states:</p> <ul style="list-style-type: none"> • During the 20-year period 2000 to 2019, however, the unregulated inflow to Lake Powell, which is a good measure of hydrologic conditions in the Colorado River Basin, was above average in only 4 out of the past 19 years. The period 2000-2019 is the lowest 20-year period since the closure of Glen Canyon Dam in 1963, with an average unregulated inflow of 8.76 maf, or 81 percent of the 30-year average (1981-2010). • The unregulated inflow during the 2000-2019 period has ranged from a low of 2.64 maf (24 percent of average) in water year 2002 to a high of 15.97 maf (147 percent of average) in water year 2011. In water year 2018 unregulated inflow volume to Lake Powell was 4.6 maf (43 percent of average), the third driest year on record above 2002 and 1977. Under the current most probable forecast, the total water year 2020 unregulated inflow to Lake Powell is projected to be 6.59 maf (61 percent of average). <p>These types of analyses are absent in the DEIS leading the reader to believe future flows are likely to look like the natural flow record despite significant evidence the future will be drier and hotter.</p> <p>Finally, Utah and the Navajo Nation appear to have reached a water rights settlement that has passed the U.S. Senate that would devote over 81,000 afa to the Nation. This project and the Green River Block Exchange have not been included in the hydrological analysis and in the cumulative effects.</p> |
| 26 | DEIS | 113 | 3.8 | | <p>Additional language should be added to the first paragraph of Section 3.8 that describes the sensitivity analysis and how it is used for NEPA compliance. This would also help a reader understand the purpose of the demand scenario sensitivity columns shown in Table 3.8-1.</p> |
| 27 | DEIS | 113 | 3.8.1.1 | Table 3.8-1 | <p>Although Table 3.8.1 provides a nice visual representation of the demand assumptions it lacks key details. Some discussion should be added to the text describing the differences in demand assumptions or at minimum a citation to salient pages in Appendix C.</p> |
| 28 | DEIS | 114 | 3.8.1.1 | Table 3.8-1 | <p>The last row in Table 3.8.1 seems to indicate that the LPP Depletions were included in the No Action alternative, which is inconsistent with the language discussing the demand assumptions used in CRSS provided in Appendix C.</p> |
| 29 | DEIS | 115 | 3.8.1.3 | | <p>The annual average Direct Natural Flow (DNF) was computed for the period 1906 to 2010. Recompute the average annual DNF at Lees Ferry to coincide with the hydrology used for the CRSS simulations. (1906-2018)</p> |

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| 30 | DEIS | 116 | 3.8.1.3 | | The blanket statement that spring and early summer Colorado River inflow enter as an overflow is simplistic and it discounts the significance of the water quality effects that come from different inflow positions in the other parts of the year. Changes in the inflow position within the water column could impose significant water quality constraints on Lake Powell, the LPP water, and downstream Colorado River water. |
| 31 | DEIS | 118 | 3.8.2.2 | | The first line of page 118 references a heading called Virgin River in Section 3.8.2.3, but there is no Virgin River heading in on Section 3.8.2.3. There is a VRDSM Model Results heading on page 122. |
| 32 | DEIS | 118 | 3.8.2.3 | | SNWA and CRC support Reclamation's commitment to using the best available depletion schedules in the analysis of effects if they are available within the timeline for the Final EIS and ROD. |
| 33 | DEIS | 118-121 | 3.8.2.3 | | CRSS modeling results for Lake Powell elevations are discussed in the DEIS, but downstream impacts to Lake Mead are not included. CRSS modeling results for elevations should be included for Lake Mead in the DEIS. |
| 34 | DEIS App B | 122 8 | 3.8.2.3 4.2.2 | | The Virgin River Daily Simulation Model assumptions and input data were not provided as part of the DEIS documentation, therefore an evaluation could not be completed to reconcile how the importation of more than 80,000 afy of Colorado River water will not yield increased discharge to the Virgin River while purported conservation during the same period is projected to increase by up to 20 percent. Upon corresponding with Utah, some of these files were eventually shared with SNWA on August 25th, providing insufficient time for our own hydrology and water quality experts to examine this analysis and provide meaningful comments. |
| 35 | DEIS | 122 | 3.8.2.3 | | The second paragraph references Table 2.3-2 in Appendix C-10, which does not exist in Appendix C-10. The table citation should be for Table 2.3-1. |
| 36 | DEIS | 122-135 | 3.9 | | <p>The DEIS acknowledges that the Proposed Project will result in increased return flows to the Virgin River but, fails to analyze the water quality effects of those increased flows. Specifically:</p> <p>1) The increased mobilization of contaminants and resulting increasing contaminant concentrations in the Virgin River. Data in Appendix C-11, Table 1.4-20 shows historical Virgin River water quality conditions. Analytes with 25 to 75% exceedances of water quality standards are arsenic, barium, boron, copper, iron, selenium, and temperature. Analytes with greater than 75% exceedances are Total Dissolved Solids and fecal coliforms. Additional water flowing through geologic formations may only make the arsenic, barium, boron, copper, iron, selenium, and total dissolved solids worse.</p> <p>2) Currently the Overton Arm of Lake Mead is maintained at a relatively low level of algal growth due to the relatively low load of phosphorus from the Virgin and Muddy Rivers. The increased load associated with the increased wastewater discharges due to the project are not described.</p> |

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| 37 | DEIS | 122-135 | 3.9 | | A hydrologic monitoring program must be developed and included as a requirement of the Proposed Project. This monitoring program must include collection of baseline data, as well as water quality sampling locations to prove the increase return flows would not adversely affect Virgin River water quality. This monitoring program, including identification of monitoring locations, needs to be provided for public review prior to making a decision regarding the Proposed Project. |
| 38 | DEIS | 122-135 | 3.9 | | The DEIS does not address impacts on or from the project associated with changes in Lake Powell water quality. For example, there have been decadal patterns in specific conductance/salinity in Lake Powell, which could change the quality of the water introduced into the pipeline and thereby influence the suitability of the water for designated purposes. |
| 39 | DEIS | 135-140 | 3.10 | | The discussion of aquatic invasive species is limited to quagga mussels (the most prominent current threat). It does not contemplate risks from other invasive species, zooplankton or fish in particular. There are likely future invaders that could/should be contemplated. For example, CAP has had significant issues related to organisms found in conjunction with quagga mussels (but not the mussels themselves) clogging cooling infrastructure for their pumps. |
| 40 | DEIS | 135-140 | 3.10 | | While this section is directly related to aquatic invasive species, the project will also transport other problematic aquatic organisms that are not traditionally included under the aquatic invasive species umbrella. In particular, algae are drivers of harmful algal blooms, and one of these species is known to occur in the area proposed for the Lake Powell forebay. The project would likely transport both the algal cells and intra/extracellular toxins throughout the system, resulting in impacts to Lake Mead. This issue was not discussed or analyzed in the DEIS. |
| 41 | DEIS | 135-140 | 3.10 | | The potential expansion of invasive fish species on the Virgin River, due to increased flows in the river associated with increased return flows from St. George, was not analyzed in the DEIS. In particular, flow augmentation has been implicated in the upstream expansion of red shiner, a non-native species that poses a major threat to the listed native fish species (USFWS, 2008, p. 33). This effect was not analyzed in the DEIS. |
| 42 | DEIS | 135 | 3.10.1 | | The first sentence describes the need to control and monitor aquatic invasive species in Utah and Arizona. The affected environment also needs to include the Virgin River and Lake Mead, due to discharges from Sand Hollow and Quail Creek reservoirs. |
| 43 | DEIS | 137 | 3.10.1.2 | | The EPM for aquatic invasive species is vague and does not demonstrate how this measure will ensure quagga mussels are not spread through the project. Stating "preventive measures could be installed" is not a commitment. Stating the "best available technology will be evaluated" does not demonstrate how currently known and implementable technology will eliminate this impact. An EIS must demonstrate that a mitigation measure will be effective to claim that it will eliminate the impact. |

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| 44 | DEIS | 138 | 3.10.1.2 | | The DEIS states " A secondary control system, if needed would be chemical treatment using chlorine at the Lake Powell pumping station..." The DEIS should address whether there is a potential for disinfection-by-product production. |
| 45 | DEIS | 137-138 | 3.10.2 | | The proposed aquatic invasive species mitigation schemes impose a significant filtration demand on the system. This will produce a concentrated waste stream of quagga mussel veligers (juveniles) at some times of the year, which was not discussed or analyzed in the DEIS. |
| 46 | DEIS | 138-139 | 3.10.2 | | This section is missing discussion of the potential to spread quagga mussels to the Virgin River, which was identified elsewhere in the DEIS (p. 265, App C-18 p. 30). |
| 47 | DEIS | 139 | 3.10.2.2 | | Adding potassium chloride as an open-water treatment of Sand Hollow and Quail Creek reservoirs has the potential to increase the total dissolved solids concentration of the water. The total dissolved solids concentration in the Virgin River already exceeds the water quality standard 75% of the time. |
| 48 | DEIS | 140 | 3.10.2.4 | | Whether the Proposed Project poses lower risk of spreading quagga mussels than recreational boaters is irrelevant. What is relevant is whether the risk posed by the Proposed Project is significant. |
| 49 | DEIS | 172-177 | 3.14.2 | | This section is missing description and analysis of the effects of the proposed RMP amendments on sensitive species. As noted in other comments, other environmental impacts associated with the proposed RMP amendments, such as increased land use authorizations and increased motorized vehicles and public access in the ACEC, will likely also have impacts on sensitive species. |
| 50 | DEIS App C-17 C-18 | 173-174, 190-191 30, 74 | 3.14.2.2, 3.15.2.2 2.2, 2.2 | | The analysis of potential impacts on sensitive and listed fish species or their critical habitat from increased return flows to the Virgin River is not adequately addressed in the DEIS. Simply stating increased flows would improve habitat, without providing any analysis or evidence for such statement, is not sufficient. While increased flows during certain times of the year in certain reaches could provide benefits for some species, water quality, temperature, substrate habitat, and other potential changes must be considered. |
| 51 | DEIS App C-18 | 190, 74 | 3.15.2.2 2.2 | | The DEIS statement "the modeling shows increases to Virgin River summer and fall streamflows, which would provide a beneficial effect to flow stability, temperatures, and turbidity for the [listed fish] species" is not supported by the referenced citation (USFWS, 2008). There is neither modeling in that citation, nor statements that increased streamflows would have those beneficial effects. Further, that citation also noted flow augmentation has also been implicated in the upstream expansion of red shiner, a non-native species that poses a major threat to the listed native fish species (USFWS, 2008 p. 33). This effect was not analyzed in the DEIS. |

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| 52 | DEIS App C-18 | 190-194, 73-74 | 3.15.2.2 2.2 | | The U.S. Fish and Wildlife Service's 2008 status review of Virgin River fishes (cited in Section 3.15 and Appendix C-18) identifies potential impacts associated with the Project. Specifically: "Potential effects to the Virgin River fish associated with a trans-drainage diversion and the inter-related population growth include: increased urban runoff; more infrastructure (increased encroachment on river and floodplain for transportation and utility conveyance); more recreational activity in the floodplain; potential introduction of non-native species." (USFWS, 2008, p. 36) None of these impacts on the Virgin River were analyzed in the DEIS. |
| 53 | DEIS App C-18 | 191, 74 | 3.15.2.2 2.2 | | The DEIS states that other than increased flows, the Project would not affect water quality on the Virgin River. No evidence or analysis is provided for this conclusion. For example, current selenium concentrations appear to exceed the new water quality standard, and the Proposed Project could increase the concentrations which can have direct negative impacts on aquatic life. Arsenic, barium, boron, copper, iron, and total dissolved solids could also increase in concentration due to mobilization from increased return flows. In addition, the analysis does not include the effect of increased urban runoff and landscape irrigation returns to the river, which are high in salts, inorganic nutrients, pesticides and herbicides, and bacteria. |
| 54 | DEIS | 193 | 3.15.2.3 | | The second sentence under the RMPA Sub-alternative 1 heading is incomplete. |
| 55 | DEIS | 193 | 3.15.2.3 | | The potential effects on the southwestern willow flycatcher from the proposed RMP amendments are insufficiently analyzed. Potential effects from additional projects which may be authorized under the proposed amendments are pushed to future analyses, and there is no discussion of potential indirect effects due to other impacts identified within this document - for example, RMPA Sub-alternative 2 is described as resulting in increased motorized access by the public (p. 110), yet there is no analysis of the potential effects of that increased motorized traffic on T&E species. |
| 56 | DEIS | 225 | 3.18.1.1 | | The draft Programmatic Agreement was not included in the Draft EIS for public review. Without identification of the Programmatic Agreement measures, it is not possible to determine the accuracy of the Draft EIS statements that the Programmatic Agreement will mitigate adverse effects of the Proposed Project. The EIS should also identify if the Programmatic Agreement includes the measures identified by the Kaibab Tribe for mitigation and avoidance. |
| 57 | DEIS | 227-232 | 3.18.2 | | Reclamation acknowledges that the action alternatives will have adverse effects on ethnographic resources including sacred sites, TCPs, and a TCD. In the case of sacred sites, Reclamation should disclose how they will comply with the EO 13007 requirement to avoid adversely affecting the physical integrity of such sacred sites. In addition, Reclamation states that they would mitigate adverse effects to the Colorado River as a TCP and the Take Out Point/Colorado River as a TCP and they would mitigate one prehistoric site. These mitigation commitments should be disclosed in the EIS. |
| 58 | DEIS | 263-265 | 5.5.7.2 5.5.8.2 | | The document states, "The Proposed Project would contribute to increased flows in the lower reaches of the Virgin River that were modeled in the VRDSM. This may offset other cumulative projects that reduce flows in those same stretches." Why were the impacts to water quality from contaminants that are known to exceed the water quality standards not included? |

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| 59 | DEIS | 264-265 268-269 269-270 | 5.5.8 5.5.13 5.5.14 | | The DEIS fails to assess the cumulative impacts of increased wastewater flows and return flows on the Virgin River, and the associated effects on water quality and sensitive and listed species. |
| 60 | App B | 4 13 16 | 3.2.26.2.27. 2.3 | | WCWCD's policy for applying a 15-year reserve buffer indicates that, "it is not possible to pinpoint the exact amount of water supply that will be necessary at a specific point in time." This is a diligent policy to account for long-term uncertainty and WCWCD recognizes that this policy intended to capture "both water supply and demand from climate change, rates of growth and the use of emerging technologies." However, the analysis simultaneously applies the 15-year reserve buffer and climate change impacts on water supply. This compounds the impact of climate change in the analysis of WCWCD's future water need. While it is appropriate to apply these factors, these factors should be applied independently when assessing the future need, rather than being applied simultaneously. At a minimum, they should bracket a range of water demand needs from the project. Furthermore, the 15-year reserve planning buffer essentially results in projected water demand for 2075 being used as a criteria to determine water demands need in 2060. The increases the demand in 2060 by more than 42,000 acre-feet or 30%. |
| 61 | App B | 4 14 | 3.2.2 6.2.2 | Table 6.2-1 | The forecast of WCWCD water demands applies a system loss factor of 15.4 percent. WCWD's "average system loss is 9 percent – well below AWWA's 15 percent acceptable standard for unaccounted water in utilities". WCWCD cites maintaining system loss at current levels in the future, these barriers warrant consideration. WCWCD and its members should work collaboratively to maintain current system loss rates reported as 9 percent (WCWCD, 2015) and consider this in the future water requirements for WCWCD. Similarly, decreasing loss rates further is achievable and would decrease the volume of water needed from the project. |
| 62 | App B | 8 | 4.2.2 | | It's not clear what operation and delivery systems listed in Section 4.2.1 are included in the Virgin River Daily Simulation Model. Consider reconciling the names used in Section 4.2.1 with names shown in paragraph one of Section 4.2.2. |
| 63 | App B App C-10 | 8 8 | 4.2.2 1.3.1 | | Please provide source information for the gage data used for Ash Creek, LaVerkin Creek, Quail Creek, Leeds Creek and Santa Clara River VRDSM inflows, similar to what was done for the Virgin River at Virgin USGS gage. |
| 64 | App B | 12 | 5.2 | 5.2-2 | It is stated that the GPCD assumption of "240 GPCD is in line with the regional goal and is used in this purpose and need." The Utah Division of Water Resources Department (UDWR) report "Utah's Regional M&I Water Conservation Goals" documents a GPCD goal for the area served by the WCWCD for the year 2030. The analysis in Table 6-2.1 shows a WCWCD GPCD of 271 in 2030 as compared to the UDWR goal of 262 GPCD goal for the region. UDWR presented multiple GPCD figures for the area served by WCWCD in 2065, including a projected GPCD of 237 and an all aggressive policies GPCD of 222. There is no clear documentation of the rationale for the decision to apply the projected GPCD, rather than the all aggressive policies GPCD. Given the significant costs associated with the project a thorough analysis should be conducted to assess the project need applying the projected 2065 GPCD and the all aggressive policies GPCD. |

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| 65 | App B | 14 | 6.2.2 | Table 6.2-1 | The GPCD and system loss applied in Table 6.2-1 cites Applied Analysis, but there are no references provided for the Applied Analysis contributions to the assessment of future water requirements. The analysis should document the Applied Analysis contributions and explain the rationale behind the application of the contributions in determining the future water requirements. |
| 66 | App C-10 | 5 | 1.2.3.2 | | Please provide details on the projected manner of future uses (i.e., agricultural, municipal, industrial, etc.) and how those demands would be met with future resources under the No Action and Project alternatives. According to the text in Appendix C describing the CRSS assumptions used to develop the depletion schedules, the local demands will be met by the LPP supply through 2049. What reasonably foreseeable future supplies will be used to meet the 2050-2060 water demands? |
| 67 | App C-10 | 8 | 1.3.1 | | The last sentence in the second paragraph references a schematic that is not included in the report. |
| 68 | APP C-10 | 11 | 2.1.3.2 | | Since Lake Powell and Lake Mead are operated in coordination Appendix C-10 should include downstream impacts to Lake Mead including modeling results for Lake Mead elevation and operating tiers impacts between the alternatives. |
| 69 | APP C-10 | 26 | 2.1.3.2 | Figure 2.3-9 | Lake Powell water year releases are charted for different percentiles from 2020 to 2060. Could a table be included in APP C-10 that summarizes the total cumulative difference in Lake Powell outflow for the different percentiles during the simulation. |
| 70 | App C-10 | 30 | 2.3.1.2 | | It would be helpful if there was a brief discussion added to the text describing the huge drop in Flaming Gorge elevation shown on the 10th percentile line of Figure 2.3.11b. Anyone unfamiliar with Colorado River operations would have no idea that the drop is likely attributed to the delivery of FG water to protect Powell's power pool as part of the UB DCP ops. |
| 71 | App C-10 | 43 | 2.3.2 | | From a comparison of the 10th, 50th and 90th monthly streamflow percentiles generated from VRDSM simulations, it was concluded that the absolute differences from the NA to the project alternative were indistinguishable from the USGS stream gage measurement error. This is partially true for four of the five stream reaches for which model results were presented, where the one outlier is the model node below the outfall from the St George WWTP. This model node would pick up wastewater returns to the Virgin River from indoor water use supplied by the WCWCD including the additional water from the LPP or any other future supplies needed to meet demands. The DEIS should have acknowledged that most of the months show an increase greater than the gage error for the model node below the St George WWTP. Additionally, a gains/loss analysis between the model nodes above and below the WWTP would show there is an effect of increased wastewater discharge to the river from the project alternative and therefore should be included in the effects analysis. |

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| 72 | App C-11 | 66 | 2.2.5 | | Reclamation relies on an old analysis provided by UBWR in 2016 to conclude that return flows from the Proposed Project to the Virgin River would be within the measurement accuracy of the USGS gages on the Virgin River and changes in river flows would not be measurable. This conclusion contradicts the results found in EIS section 3.8.2.3 (p. 122) and Table 2.3-1 on page 41 of Appendix C-10 which clearly show increasing flows in the Virgin from the Project. This contradiction should be resolved and the analysis of effects requested elsewhere in these comments should be provided. |
| 73 | App C-11 | 2638 | 1.4.41.4.5 | Table 1.4-6 Table 1.4-14 | The dissolved oxygen and Total Dissolved Solids units are incorrect. It should be mg/L. |
| <p><i>The following comments are provided on the January 18, 2019 - Attachment C, Water Needs Assessment Update. This document was submitted when FERC was the lead federal agency. Comments are provided below as this material was described in relation to the DEIS as " In so far as the information remains relevant, it will be used for the current proposed project."</i></p> | | | | | |
| 74 | 20190118 ATT-C | | | | The analysis of need is incomplete, as it does not provide a comprehensive assessment of the impact of the projected population and land development on current agricultural lands and an independent assessment of the viable volume of transfers of current agricultural water to municipal and industrial use in the WCWCD service area. It also does not provide an assessment of the impact of projected increases in population density on GPCD and the project need. |
| 75 | 20190118 ATT-C | 10 | 5 | | WCWCD indicates that "Costs of implementing extreme conservation measures are also higher than more balanced approaches to meeting water demands." Conservation efforts characterized by WCWCD as extreme are commonly applied in an efficient manner in other communities and offer the potential for greater conservation of outdoor water use. The analysis should evaluate the opportunity for programs to convert landscapes or install more efficient landscapes, as the present a significant opportunity for water conservation. Any cost comparisons among water conservation activities like "extreme conservation" should be evaluated on par with other alternatives. In particular, comparisons of the cost of water conservation measures and other alternatives should consider both capital and operating costs of those alternatives. Furthermore, the Colorado River Basin Study Moving Forward effort analyzed many of these conservation measures in detail and the analysis should be updated to reflect the findings from the Moving Forward Effort. |
| 76 | 20190118 ATT-C | 10 | 5 | | Medians are not a functional use of turf and should not be included with the functional recreational examples given. |

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| 77 | 20190118 ATT-C | 12 | 6 | | The analysis includes agricultural conversion to supply 10,080 acre-feet/year to meet demands; however, WCWCD recognizes the potential for an additional 23,000 acre-feet of agricultural acquisitions. The analysis should assess the potential influence of the conversion of this full amount on the CACWD's projected water need given the cost of the project. |
| 78 | 20190118 ATT-C | 13 | 6 | | The assessment of need does not clearly document whether universal metering will be implemented across all systems (e.g. culinary and secondary) in the WCWCD service area during the planning horizon. The assessment should evaluate and apply universal metering, as WCWCD and the State of Utah recognizes the importance of universal metering as an effective conservation measure. |
| 79 | 20190118 ATT-C | Att A, p. 18 | | | The assessment does not clearly document whether rates for secondary water systems apply incentive conservation pricing. The rates for secondary systems should evaluate and apply potable rates (e.g. tiered) to convey the value of water and encourage conservation similar to potable rates. |
| 80 | 20190118 ATT-C | Att A, p. 25 | | | Secondary systems meet a significant portion of current and projected water demands. While WCWCD and its members appear to have made investments in improving secondary system operating efficiency through conversion to pressurized pipes or canal linings. The analysis does not document the current state of all existing and planned secondary systems and the associated conservation savings. |
| 81 | 20190118 ATT-C | Att A, p. 19 | | | While the Districts may have time-of-day ordinances, and this may save some water with judicious irrigation practices, those provisions are more related to avoiding waste by evaporation before the water infiltrates into the soil. Day-of-week watering restrictions provisions are not mentioned. In Southern Nevada, seasonal watering schedules have also provided significant decreases in water use. |

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| 82 | 20190118 ATT-C | Att A, p. 19 | | | Turf provision such as limiting turf installation in new development has been proven in other agencies to be the single most effective tool in conserving water. Enacting such provisions in addition to existing impact fee provisions should be evaluated further, as it would provide a lasting policy to save water as the community grows. |
| 83 | 20190118 ATT-C | Att A, p. 29 | | Table 6-2 | Landscape conversion program (what the Conservation Plan calls Turf Removal) was considered, it was decided it would not be implemented (Table 6-2) and characterized as extreme. The analysis should consider the following: - A majority of the water used in the WCWCD service area is used for irrigation. - There is no scientific evidence presented to support the assessment of environmental "impacts" or the socioeconomic "impacts". In our service area a slight increase in valuation of properties associated with water efficient landscapes was noted in two separate investigations by UNLV. The likely reason for this, determined in one of those studies, was that people tend to inherently associate having water efficient landscaping with new or well-maintained development. - Landscape conversion incentive programs and limitations of turf in new development are now widely used across the Southwest and are becoming common in other areas across the nation and these programs have not seen an outpouring of concern regarding a decrease in the quality of life. - The 2019 water needs assessment indicates permanent water restrictions would cost \$1.281 billion. This cost estimate should be further evaluated to consider the following: 1) Are turf removal rebates represented as a credit toward the household costs; 2) Do cost estimates consider reduced operating costs associated with pumping, treating and delivering water due reduced water deliveries to the customers; and 3) Conduct an assessment of the cost of conversion based on experiences at water utilities with programs of this nature. - There is no scientific consensus that water efficient landscaping increases urban heat island effect. This is more of a function of tree canopy cover and most if not all initiatives to decrease turf include canopy coverage requirements. While cooling does occur with grass due to the physical process of evapotranspiration, significantly more cooling is achieved with living plants that can also provide shade. - Hardscapes are not rock mulch. These are different things with rock mulch allowing for infiltration. While we value it here because it helps lock in precipitation (be it rain or artificial) from evaporative losses, this is not even necessarily a specification of all water efficient landscapes. |