

Comment #	Original Comment	UDWRe Response	resource
NPS Cmt 10	The NPS requests data and information on how deep the water conveyance will be buried, to include when crossing dry washes, intermittent streams, and canyons in GLCA.	<p>Language is added to the License Application as described below that generally the pipeline will be buried below scour depth and further explanation is also included below on the timing for when specific depth information will be available. More detailed information on the depth to which the pipeline will be buried in specific stream crossings and washes will be provided at a later date. FERC required that a ROW application be submitted to NPS concurrent with the submission of the Final License Application (FLA) to FERC. UDWRe understands that additional information is required to enable NPS to process the submitted ROW application and will provide the information NPS requires to process the ROW permit. Determinations regarding depth of cover of the conveyance along the entire alignment and particularly through dry washes, intermittent streams, and canyons will be made when more detailed design information is available and submitted to the NPS.</p> <p>The ephemeral stream crossings proposed for the LPP on NPS administered land would be situated upstream of nearby Highway 89, for which the culvert or bridge crossing acts as a grade control. The pipeline would be buried below the drainage bed scour depth and therefore would not interfere with natural stream bed function or cause a fish barrier during a period of potential fish passage. Please see the 16th paragraph in Section 3.1.3.2.7, Chapter 3, Exhibit E of the License Application, which is revised to read: Desert washes and ephemeral drainages would be restored to pre-existing conditions. Soils would be compacted, with additional stabilization measures such as rock rip-rap as required to protect the buried pipeline and prevent increased erosion in the wash. An updated POD would be submitted for BLM approval and an updated ROW application submitted to NPS for approval if calculations performed during detailed design for identified streams show that armoring of the channel crossing with rock rip-rap or reinforced concrete is necessary because of high erosion potential or bed scour depths down to eight feet.</p> <p>In addition, the following is added to the end of the second paragraph in Section 5.3.3.3.1, Chapter 5, Exhibit E of the License Application: Preliminary scour analysis indicates the typical depth of scour in drainage channels would be six to eight feet and pipeline crossings would be located below the scour depth. The LPP would cross these drainages on the upstream side of locations where the drainages flow under Highway 89 through hardened culvert structures. These existing structures act as grade controls and limit the scour and sediment transport in the drainages upstream from them. Prior to construction, a stream crossing plan would be prepared to address each stream crossing to ensure the pipeline is buried below scour depth.</p>	water res

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NPS Cmt 44	The text states that the pipeline is to cross under tributary streams paralleling US 89. The NPS requests additional analysis regarding the effects of flash flooding on the buried pipeline and natural hydrological process (large storm induced flash-flood events at times sediment away, and at others, deposit a lot of sediment.)	Additional analysis of the flash flood effects of scour on the pipeline at stream crossings is provided. Section 5.3 Chapter 3, Exhibit E of the License Application is the appropriate location to include such analysis. The following is added to the end of the second paragraph in Section 5.3.3.3.1, Chapter 5, Exhibit E of the License Application: Preliminary scour analysis indicates the typical depth of scour in drainage channels would be six to eight feet and pipeline crossings would be located below the scour depth. The LPP would cross these drainages on the upstream side of locations where the drainages flow under Highway 89 through hardened culvert structures. These existing structures act as grade controls and limit the scour and sediment transport in the drainages upstream from them. Prior to construction, a stream crossing plan would be prepared to address each stream crossing to ensure the pipeline is buried below scour depth.	water res
NPS Cmt 45	The NPS requests additional analysis on the effects of burying a pipeline in a natural streambed as it relates to the natural functioning of the streambed and preventing the creation of "fish barriers" in a silty environments.	The ephemeral stream crossings proposed for the LPP on NPS administered land would be situated upstream of nearby Highway 89, for which the culvert or bridge crossing acts as a grade control. The pipeline would be buried below the drainage bed scour depth and therefore would not interfere with natural stream bed function or cause a fish barrier during a period of potential fish passage. Please see the 16th paragraph in Section 3.1.3.2.7, Chapter 3, Exhibit E of the License Application, which is revised to read: Desert washes and ephemeral drainages would be restored to pre-existing conditions. Soils would be compacted, with additional stabilization measures such as rock rip-rap as required to protect the buried pipeline and prevent increased erosion in the wash. An updated POD would be submitted for BLM approval and an updated ROW application submitted to NPS for approval if calculations performed during detailed design for identified streams show that armoring of the channel crossing with rock rip-rap or reinforced concrete is necessary because of high erosion potential or bed scour depths down to eight feet.	water res
NPS Cmt 48	Figure 5-54 does not show intermittent stream crossings. Please show these crossings.	The scale of Figure 5-54 does not allow for the meaningful depiction of intermittent stream crossings. Figure 1-3 (attached to NPS Comment No. 48) shows the locations of intermittent stream crossings on NPS-administered land in GLCA are included as part of the US Army Corps of Engineers Section 404 Nationwide Permit application submitted as part of the License Application filed with FERC. The intermittent drainage channels on NPS-administered land in GLCA are designated on Figure 1-3 as S002 through S019.	water res
NPS Cmt 49	Exposed pipes may not always be recovered during falling limb of the peak flow hydrograph; eventually they will be dug out. The NPS requests additional analysis on sedimentation and erosional processes in terms of exposing buried pipeline in intermittent wash crossings.	Please see the response to NPS Comment No. 44.	water res
NPS Cmt 50	The NPS request that the text (and supporting data) indicate that stream crossing precautions will be adequate given that streams can excavate and refill their beds up to 6-8 feet during major storm events.	Please see the response to NPS Comment No. 44.	water res
NPS Cmt 51	The NPS requests that global climate change be analyzed for cumulative impacts to surface water as global climate change (regional drought) would have a cumulative impact on surface water levels when considered with additional water withdrawals from Lake Powell.	Please see the Extended Narrative document for the response to NPS Comment No. 51.	water res

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NPS Cmt 52	<p>The NPS requests that in addition to identifying adverse impacts to the St. George area water resources, a section discuss the "no Lake Powell Water" alternative would have beneficial impacts to Lake Powell by helping maintain higher lake elevations without the extra withdrawals.</p>	<p>UBWR water rights totaling 86,249 ac-ft per year that would be diverted from Lake Powell under the LPP would not revert back to the U.S. government under the No Lake Powell Water Alternative. UBWR would divert their water rights totaling 86,249 ac-ft per year and put this water to another, different future use in Utah. Therefore, there would be no long-term beneficial effects in Lake Powell by helping maintain higher lake levels without the LPP diversion.</p> <p>Section 5.3.3.5.4, Chapter 5, Exhibit E of the License Application covers unavoidable adverse effects of the No Lake Powell Water Alternative, and using the UBWR water rights for another future use would not be an unavoidable adverse effect of this alternative. A new paragraph is added following Table 5-25 in Section 5.3.3.2.3.1, Chapter 5, Exhibit E of the License Application, which reads: Under the No Lake Powell Water Alternative, UBWR water rights totaling 86,249 ac-ft per year would be diverted for another, different future use of the water in Utah. The UBWR water rights totaling 86,249 ac-ft per year would not remain in Lake Powell under the No Lake Powell Water Alternative.</p>	water res
NPS Cmt 72	<p>The NPS requests additional analysis on scour in the washes. Single scour examples, especially west of Blue Pools, will not indicate potential scour depth during large storm events thus pipe encasement could be exposed during heaving scour at some of the washed during big (100+ yr.) storm events.</p>	<p>Please see the response to comment NPS No. 44.</p>	water res

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NPS Cmt 114	<p>Based on NPS calculations, diversion to the LPP may account for 1-2 ft drop in head at Lake Powell, which could dramatically affect hydropower production. This in turn, may trigger basin-wide drought contingency plans that release water from other upstream reservoirs to maintain minimum pool elevations in Lake Powell. Thus, the effects of diversion through the LPP could potentially affect reservoir elevations at, and releases from, Flaming Gorge, Navajo, and Aspinall. Please ensure analyses models extended drought conditions and reports the effects to Lake Powell elevations and the frequency and duration that Lake Powell is at or below minimum power pool. Per NPS comments dated July 5, 2012; we encourage additional analyses that include possible severe future hydrologic conditions within the Colorado River watershed (extremely low inflow and low lake level conditions.)</p> <p>NPS Comment Disposition - The modeling, analysis, and discussion of the effects of the LPP withdrawals on LP elevations is incomplete. The current modeling effort only evaluated 3 years of LPP withdrawals with the 2007 Interim Guidelines in effect (modeled LPP depletions began in 2024, the 2007 Interim Guideline expire in 2026). LPP depletions in 2024 were only 15,468 AF (and not much greater by 2026); full build-out (86,249 AF) was not until 2048/2049. So, the LPP at full build-out, under the current operating regime (i.e., the 2007 Interim Guideline), was never modeled or analyzed. BOR report states that the effects of the LPP will be greatest at full build-out.</p> <p>Recent modeling by Colorado West Slope water users suggested that small differences in LPP elevations in critical years could cause (or increase the frequency ad duration) LP to fall below minimum power pool elevation because either the inflow hydrology coupled with the antecedent reservoir content was insufficient to maintain LP elevations above minimum power pool in that year, or because a slightly lower elevation triggered a different Operating Tier under the Interim Guidelines and the subsequent releases under the new tier causes LP to drop below power pool. Thus, a 1-2 foot drop in LP elevation associated with the LPP withdrawals (esp. at full build-out) could trigger a different Operating Tier under the Interim Guidelines, cause LP to fall below minimum power pool when otherwise it may not have (or at least not fo as long or as often) and thus trigger Drought Response at Upper Basin CRSPA reservoirs. [BOR held all demands (except reasonably foreseeable project) constant at 2015 levels in order to model just the effects of the LPP. If these (increasing) demands were included, the likelihood of LP falling below minimum power pool may be even greater, even without the LPP.]</p>	Please see the Extended Narrative document for the response to NPS Comment No. 114.	water res

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NPS Cmt 115	<p>Refer to the following Document: Attachment 4 PLP Lake Powell Pipeline Project, Responses to Participant Comments on PLP and Draft Study Reports</p> <p>NPS Comment Disposition - Comparing the effects of the LPP on annual and monthly mean flows (especially in the context of USGS gage accuracy), or annual flow duration curves is misleading. Just because annual flow duration curves are "nearly identical" with or without LPP, or because annual and monthly mean flows are within gage accuracy doesn't necessarily mean there is no effect on flow; rather, it may suggest that the wrong metrics are being used to evaluate the effects of the project. The condition, trend, abundance, and diversity of biotic resources (e.g., fisheries, aquatic macroinvertebrates, food web dynamics, riparian/wetland vegetation, available/useable habitat) and abiotic resources (e.g., thermal loading, channel and sediment dynamics, number or duration of zero-flow or low-flow days) are often determined by daily flow, not annual or monthly mean flows. Table 4-3 and figure 4-6 (Study Report 18) show that there is consistently less water in the system (in terms of monthly mean flow) March through June (and generally more in the remaining months) with the LPP than without. If these patterns hold, they would likely be more pronounced for daily flows. What are the effects of these consistent, and presumably long-term, changes in flow patterns? The USGS gage data for the Virgin River near St. George, UT, (Appendix 1, Page 1; Study 18), states that there is "[N]o flow at time in some years." Here too, the duration and frequency of no-flow (and even extreme low-flow) events are not adequately reflected or captured by annual and monthly means, and annual flow duration curves; nor should they be ignored because of gage accuracy. From the data and analyses provided, it is not possible to determine if the project would alter the frequency or duration of no-flow or extreme low flow event</p>	<p>Please see the Extended Narrative document for the response to NPS Comment No. 115.</p>	<p>water res</p>