

ATTACHMENT A
NPS COMMENT RESPONSES
WITH EXTENDED NARRATIVES
MARCH 31, 2017

This document includes extended narratives for all resources, please see the 20170331 Comments Table to determine which narrative applies to a specific resource.

INTRODUCTION AND OVERVIEW

The Utah Division of Water Resources (UDWRe) appreciates the efforts of NPS in participating in the LPP (FERC Project No. 12966) Integrated Licensing Process (ILP) to date. UDWRe is committed to working with NPS and other agencies with land management and/or regulatory responsibilities in fulfilling their obligations in this licensing proceeding. On September 9, 2016 UDWRe received 115 comments from NPS on the Final License Application (FLA) submittal. As discussed in the meeting with NPS on February 1, 2017 in Page, UDWRe is committed to assisting NPS in fulfilling the information needs to help complete the regulatory processes leading for approving the LPP and associated rights-of-way on NPS-administered land. All 115 comments have been assigned an identification number entered into where complete responses are provided for most comments. For those comments that require longer responses or include more extensive revisions to the licensing documents, UDWRe provides those responses in this Extended Narrative document. Responses with **bold** text represent actual revisions made to the License Application filed with FERC. Tables incorporating revisions in response to the NPS comments in this Extended Narrative document are not presented in bold text.

NPS Comment No. 6

Table 3-11 is a new table prepared in response to NPS Comment No. 6. The table presents the wildlife management jurisdiction and authority of each agency on their respective administered lands as requested by the NPS.

Table 3-11 Wildlife Management Jurisdiction and Authority on Federal, State, and Local Lands Involved in the LPP				
Land Identification	Wildlife Management Agency	Agency Status	Jurisdiction	Authority
Water Intake Pump Station Site within GCLA Boundary	NPS	Federal	Reclamation-administered land within GLCA	Organic Act of 1850 (16 United States Code, Section 459f- 5(a))
GLCA	NPS	Federal	NPS-administered land	Organic Act of 1850 (16 United States Code, Section 459f- 5(a))
Arizona State Land	AGFD	State	Authority over wildlife	Arizona Revised Statute Title 17
Private Land in Arizona	NA	NA	NA	NA
SITLA	UDWR	State	Easement for use of state wildlife resource land	Utah Code Title 23 and UAC Title R657
Private Land in Utah	NA	NA	NA	NA
BLM Kanab Field Office	UDWR	State	Authority for wildlife in Utah	Utah Code Title 23 and UAC Title R657, Utah State Code Section 23-14-1
GSENM	UDWR	State	Authority for wildlife in Utah	Utah Code Title 23 and UAC Title R657, Utah State Code Section 23-14-1
BLM Arizona Strip Field Office	AGFD	State	Authority over wildlife	Arizona Revised Statute Title 17
BLM St. George Field Office	UDWR	State	Authority for wildlife in Utah	Utah Code Title 23 and UAC Title R657, Utah State Code Section 23-14-1
Kaibab-Paiute Indian Reservation	Kaibab Band of Paiute Indians	Federal	Authority over wildlife on the Reservation	Tribal Ordinance #08-96
WCWCD	NA	Local	NA	NA
Big Water, UT	NA	Local	NA	NA
Fredonia, AZ	NA	Local	NA	NA
Colorado City, AZ	NA	Local	NA	NA
Hildale City, UT	NA	Local	NA	NA
Apple Valley, UT	NA	Local	NA	NA

Notes:

GLCA = Glen Canyon National Recreation Area
 NPS = National Park Service
 SITLA = Utah School and Institutional Trust Land Administration
 BLM = Bureau of Land Management
 GSENM = Grand Staircase-Escalante National Monument
 WCWCD = Washington County Water Conservancy District
 BIA = Bureau of Indian Affairs
 UDWR = Utah Division of Wildlife Resources
 AGFD = Arizona Game and Fish Department
 NA = Not Applicable

NPS Comment No. 13

Location information for the proposed route to BPS-1 is provided and the text is updated with additional information on and analysis of molluscicide use.

Location information for the proposed BPS-1 access road on NPS-administered land in GLCA is shown in Appendix E, Map Panel 01 in Exhibit E of the License Application. A portion of the proposed access road is shown in Figure 3-8 in Section 3.1.1.2.2, Chapter 3, Exhibit E of the License Application. The access road is adjacent to the existing Arizona Department of Transportation maintenance facility. Figure 3-8a (attached as a PDF file to this response) shows detailed location information for the entire alignment of the proposed BPS-1 access road on NPS-administered land in GLCA. No cultural resource sites are recorded or found along the proposed BPS-1 access road. Two individual plants of the special status species *Phacelia mammalariensis* (GLCA G2 species) were identified within the proposed BPS-1 access road alignment study area. Please see Section 5.3, Exhibit E of the License Application for details on affected environment and environmental effects analyses for resources on NPS-administered land in GLCA. Chapter 5, Exhibit E and Final Study Reports include site-specific studies and analyses performed and documented for special status plant species, special status wildlife species, vegetation communities, wildlife resources, noise, air quality, visual resources, land use, geology and soil resources, paleontological resources, and cultural resources.

1. The third paragraph in Section 3.1.2.1, Exhibit E of the License Application is revised to read: **The dry bulk molluscicide would be stored in the Water Intake Pump Station chemical room, mixed with water, and injected by chemical metering pumps in the Water Intake Pump Station chemical room through pipes leading to dosing equipment in the operating intake tunnels. The mixed molluscicide would be dosed into the tunnel intake water continuously throughout the year immediately downstream from the fish screens at a concentration that would prevent settlement of juvenile and planktonic mussel life stages (veliger life stages).** The fourth paragraph in Section 3.1.2.2, Chapter 3, Exhibit E of the License Application describes how monitoring for invasive mollusks of the genus *Dreissena* would be performed at BPS-1 if the mollusks were detected downstream of the Water Intake Pump Station and how the molluscicide could be stored, mixed and applied to the water in the BPS-1 forebay reservoir.
2. The 45th paragraph (second paragraph on Page 3-83) in Section 3.1.3.1.3, Chapter 3, Exhibit E of the License Application states the following: “UDWRe would prepare an Aquatic Invasive Species Control and Monitoring Plan to prevent transport and spread of aquatic invasive species through the LPP Project facilities, pipelines and penstocks to other waters including the terminal reservoir. The Aquatic Invasive Species Control and Monitoring Plan, specifically targeting mollusks of the genus *Dreissena*, would be implemented through the use of a selective and environmentally compatible molluscicide approved by the EPA in closed systems. The molluscicide would be injected into the Water Intake System at the intake tunnels to control invasive mollusks through all life stages. Monitoring would be performed at the Water Intake Pump Station and booster pump stations in the Water Conveyance System to determine the need for additional invasive mollusk control downstream of the Water Intake System.” This paragraph is amended by adding the following text. **The Aquatic Invasive Species Control and Monitoring Plan will include descriptions of how the use of a molluscicide (considered a pesticide by NPS) on NPS-administered lands will be conducted in accordance with the NPS Management Policies 4.4.5.3, 4.4.5.4, and 4.4.5.5. NPS Management Policy 4.4.5.3 Pesticide Use states: “A pesticide, as defined by the Federal Insecticide, Fungicide and Rodenticide Act, is any substance or mixture that is used in any manner to destroy, repel, or control the growth of any viral, microbial, plant, or animal pest. Except as identified in the next paragraph, all prospective users of pesticides in parks must submit pesticide use requests, which will be reviewed on a case-by-case basis, taking into account environmental effects, cost**

and staffing, and other relevant considerations. The decision to incorporate a chemical, biological, or bioengineered pesticide into a management strategy will be based on a determination by a designated IPM specialist that it is necessary and other available options are either not acceptable or not feasible. Pesticide applications will only be performed by or under the supervision of certified or registered applicators licensed under the procedures of a federal or state certification system.” NPS Management Policy 4.4.5.4 Biological Control Agents and Bioengineered Products states: “The application or release of any bio-control agent or bioengineered product relating to pest management activities must be reviewed by designated IPM specialists in accordance with Director’s Order #77-7 and conform to the exotic species policies in Section 4.4.4.” NPS Management Policy 4.4.5.5 states: “Pesticides must not be stockpiled. No pesticides may be purchased unless they are authorized and expected to be used within one year from the date of purchase. Pesticide storage, transport, and disposal will comply with procedures established by (1) the Environmental Protection Agency; (2) the individual states in which parks are located; and (3) Director’s Order #13B: Solid and Hazardous Waste Management, Director’s Order #77-1: Wetland Protection, and Director’s Order 77-7: Integrated Pest Management.”

3. If the molluscicide is applied to the BPS-1 forebay reservoir to control the spread of invasive *Dreissenid* mollusks, there would be no possibility of the pesticide being released into the environment on NPS-administered lands. The BPS-1 forebay reservoir could overflow to a one-million gallon detention basin on the BPS-1 site that would be used only in the event of an emergency shutdown of the LPP Water Conveyance System. The active ingredient in the molluscicide consists of the dead cells of a strain of the soil bacteria *Pseudomonas fluorescens*, which has been subjected to extensive toxicology studies demonstrating no bacteria-induced mortality or toxicity on non-target aquatic organisms, including fish, native freshwater unionids, ciliates, daphnids, plants, algae, crustaceans, insects and birds. If an emergency shutdown of the LPP Water Conveyance System occurred, any overflow into the detention basin would be contained within the basin, and water containing the molluscicide would evaporate from and infiltrate into the soil in the bottom of the basin. There would be no measurable environmental effects on NPS-administered lands. The text in the first paragraph in Section 5.3.7.2.2.4, Chapter 5, Exhibit E of the License Application addresses the potential effects of controlling aquatic invasive species in the LPP using a combination of molluscicide dosing and filtering at the Water Intake Pump Station.

The 11th sentence in the first paragraph in Section 3.1.1.1.2, Chapter 3, Exhibit E of the License Application is revised to read: **The pump room would house 25-micron self-cleaning filters installed on each pump discharge line to remove eggs and residual parts of aquatic invasive species from the water.**

NPS Comment No. 16

Clarification of whether the transmission line is new or a co-location is provided in revisions to the text of License Application, and an explanation of collaboration with NPS on the location of access routes is also provided. The location of access routes and the ROW application process also was discussed during the February 1, 2017 meeting between NPS and UDWRe.

1. The first sentence in the fourth paragraph in Section 3.1.1.5.1, Chapter 3, Exhibit E of the License Application is revised to read: **The proposed Intake Transmission Line owned and operated by PEU would be a new transmission line and would begin at the Glen Canyon Substation and run parallel to Highway 89 for approximately 2,460 feet to the Intake Switch Station, cross Highway**

89 at the Intake access road intersection, and continue northeast to a new electrical substation on the Intake Pump Station site.

2. The first sentence in the fifth paragraph in Section 3.1.1.5.1, Chapter 3, Exhibit E of the License Application is revised to read: **The proposed BPS-1 Transmission Line owned and operated by PEU would be a new transmission line and would begin at the new PEU switch station located on the south side of Highway 89 and parallel the LPP Water Conveyance System alignment to a new electrical substation on the BPS-1 site west of Highway 89.**
3. The first sentence of the sixth paragraph in Section 3.1.1.5.1, Chapter 3, Exhibit E of the License Application is revised to read: **Garkane Electric Cooperative's (GEC) proposed Glen Canyon to Buckskin Transmission Line would consist of a new 230-kV transmission line on H-towers from the Glen Canyon Substation to the Buckskin Substation, running parallel to the existing Garkane 138-kV transmission line.**

UDWRe submitted a ROW application to NPS for the electrical transmission lines and related facilities. Analysis to date indicates the existing access road for GEC's 138-kV transmission line could provide access to shorter spur roads for constructing and maintaining the proposed 230-kV transmission line that would support the LPP. As part of the preparation of the ROW application and during the subsequent detailed design phase of the project, additional analysis will be undertaken including consultation with NPS to site any new access routes (if necessary), maximize the use of existing NPS roadways, administrative access routes, and routes identified in the Off Road Vehicles Management Plan and Environmental Impact Statement (ORVEIS) to reduce the amount of adverse impacts on park resources within the ROW.

NPS Comment No. 27

A revised noise analysis is incorporated setting a sound volume within GLCA at the IPS and BPS-1 boundary fences of no more than 45dBA, and for BPS-2, BPS-3(Alt.) and BPS-4(Alt.) outside the GCLA, setting the volume at the boundary fence at no more than 60dBA. The second paragraph in Section 3.1.3.1.7, Chapter 3, Exhibit E of the License Application is revised to read: **The Water Intake Pumping Station (IPS) and Booster Pump Station – 1 (BPS-1) proposed for operation on NPS-administered lands would be enclosed and utilize design features (e.g., acoustical louvers, noise absorbing panels and interior baffling) to minimize operational noise levels. The proposed IPS and BPS-1 would be designed with features incorporated to minimize normal operational sound levels with an objective of a sound level of 45 A-weighted decibels (dBA) at each pump station boundary fence. The 45 dBA sound level at the IPS and BPS-1 boundary fences is consistent with the research findings of Blickley, J.L. et al. (2012), which is cited in Shannon, G. et al. (2016).**

The new third paragraph in Section 3.1.3.1.7 is revised to read: **BPS-2, BPS-3 (Alt.), BPS-4 (Alt.) and the hydroelectric generating stations would be enclosed and utilize design features (e.g., acoustical louvers and noise absorbing panels) to minimize operational sound levels. Pressure reducing station valves at the hydroelectric generating stations would be fully enclosed in vaults. Potential facility sound levels would be estimated during facility design, and features would be incorporated to minimize normal operational sound levels with an objective of 60 dBA or less at the boundary of each facility.**

Section 3.7, Chapter 3, Exhibit E of the License Application is revised to include the following two references:

Blickley, J.L., D. Blackwood, and G.L. Patricelli. 2012. Experimental Evidence for the Effects of Chronic Anthropogenic Noise on Abundance of Greater Sage-Grouse at Leks. Conservation Biology 26(3):461-471.

Shannon, G., M.F. McKenna, L.M. Angeloni, K.R. Crooks, K.M. Fristrup, E. Brown, K.A. Warner, M.D. Nelson, C. White, C. Briggs, S. McFarland, and G. Wittemyer. 2016. A synthesis of two decades of research documenting the effects of noise on wildlife. Biological Reviews 91:982-1005.

The three paragraphs comprising Section 5.3.18.2.1.3, Chapter 5, Exhibit E of the License Application, are revised to read:

Recent studies of noise effects on wildlife summarized in the literature review by Shannon, G., et al. (2016) indicates 45 dBA is the lowest sound level at which construction noise effects on wildlife are demonstrated to occur in natural rural habitats such as those in GLCA. Construction noise effects for the IPS and BPS-1 would occur over a longer period of time (up to 2 years) than the pipeline construction that would occur over one month per mile of construction. The 45 dBA noise level at the IPS and BPS-1 construction sites is considered an appropriate significance threshold for chronic construction noise in GLCA, based on the research results of Blickley, J.L., et al. (2012). The research results published by Blickley, J.L., et al. (2012) included construction traffic noise, for which wildlife demonstrated a biological response of changes in abundance, distribution and occupancy at and above 45 dBA sound levels in natural rural habitats. The 45 dBA sound level as a significance threshold for pipeline construction is consistent with the American National Standards Institute (ANSI) and Acoustical Society of America (ASA) S12.9 Part 5 (ASA 1998) and ANSI/ASA S12.100-2014 (ASA 2014).

Recent studies of noise effects on wildlife are summarized in a literature review by Shannon, G., et al. (2016), which cites specific research by Blickley, J.L., et al. (2012) demonstrating adverse effects on wildlife occupancy and abundance at chronic anthropogenic noise levels of 45 dBA and above in natural rural habitats. The chronic anthropogenic noise level of 45 dBA is considered appropriate as a significance threshold at and above which adverse effects could occur on wildlife in natural rural habitats within GLCA. The 45 dBA sound level at the boundary of the IPS would decay to GLCA ambient sound levels of 35 to 38 dBA in GLCA within approximately 150 feet. The 45 dBA sound level at the boundary of the BPS-1 would decay to GLCA ambient sound levels of 35 to 38 dBA in GLCA within approximately 200 feet. The 45 dBA sound level at the IPS and BPS-1 boundaries is consistent with the American National Standards Institute (ANSI) and Acoustical Society of America (ASA) S12.9 Part 5 and ANSI/ASA S12.100-2014 (ASA 2014).

Section 5.3.18.6, Chapter 5, Exhibit E of the License Application is revised to include the following four references:

American National Standards Institute (ANSI) and Acoustical Society of America (ASA). 1998. Quantities and Procedures for Description and Measurement of Environmental Sound – Part 5: Sound Level Descriptors for Determination of Compatible Land Use. ANSI/ASA S12.9 – 1998/Part 5. New York, NY.

_____. 2014. Methods to Define and Measure the Residual Sound in Protected Natural and Quiet Residential Areas. ANSI/ASA S12.100-2014. Melville, NY.

Blickley, J.L., D. Blackwood, and G.L. Patricelli. 2012. Experimental Evidence for the Effects of Chronic Anthropogenic Noise on Abundance of Greater Sage-Grouse at Leks. Conservation Biology 26(3):461-471.

Shannon, G., M.F. McKenna, L.M. Angeloni, K.R. Crooks, K.M. Fristrup, E. Brown, K.A. Warner, M.D. Nelson, C. White, C. Briggs, S. McFarland, and G. Wittemyer. 2016. A synthesis of two decades of research documenting the effects of noise on wildlife. *Biological Reviews* 91:982-1005.

NPS Comment No. 31

Text is added specific to NPS-administered lands. The following paragraph is inserted at the end of Section 3.1.3.1.10 Recreation Resources, Chapter 3, Exhibit E of the License Application:

4. **Glen Canyon National Recreation Area (GCNRA) impact mitigation:** Temporary access and/or facilities for non-motorized and all-terrain vehicle (ATV) trail features, possibly including ATV trails, trailer-vehicle parking, and other parking areas, could be implemented and would be coordinated with NPS and replaced. Other mitigation measures may include: 1) Maintaining vehicle access during and after construction through and/or around all LPP development; 2) Developing an ATV trailhead (trailer parking, information kiosk with maps and other interpretation) south of Highway 89. GCNRA recreation mitigation measures would be specifically designed and constructed in coordination with the NPS GCNRA recreation management specialist and other resource specialists as applicable.”

NPS Comment No. 33

Text changes are made as requested. The second paragraph after the bullet list in Section 3.1.3.2.1 General Construction Practices Within Rights-of Way on BLM-Administered Land, NPS-Administered Land, and Reclamation-Administered Land, Chapter 3, Exhibit E of the License Application is revised to read: **All activities directly or indirectly associated with the construction of the project on BLM-, NPS-, or Reclamation-administered land would be identified in the terms of the ROW permit and then conducted within the authorized limits of the ROW grant. Any facility relocation, additional construction area, or other use on BLM- or NPS-administered land that is not in accordance with the ROW grant would not be initiated without prior approval of BLM or NPS. Cross-country vehicular travel outside of the ROW on BLM or NPS administered lands would be prohibited for construction work, unless prior approval is obtained from BLM or NPS.**

The fifth paragraph of Section 3.1.3.2.2 Surveying, Chapter 3, Exhibit E of the License Application is revised to read: **Survey crew vehicles would remain on existing roads or within the previously cleared construction ROW. Within the ROW, single-lane routes would be established which all vehicular travel would adhere to. If, for survey purposes, additional areas would need to be accessed outside of an established single-lane travel route, this should be achieved on foot. If off-road travel within the designated ROW is necessary, updated surveys for sensitive biological resources would be performed, and a biologist would first clear the proposed route. Off-road travel for surveying would be restricted to the ROW, and be the minimum necessary to complete the task. Survey crews traveling on foot must have attended the worker education program, but would not be required to be accompanied by a biologist.**

NPS Comment No. 40

Additional analysis is provided in the revised Section 5.3.11 Wildlife Resources and Section 5.3.12 Special Status Wildlife Species Chapter 5, Exhibit E of the License Application to incorporate the GLCA species list.

Regarding FERC's responsibility to consult on all listed/candidate species under ESA Section 7, a sentence is added to the end of the first paragraph in Section 5.3.10.1.1, Chapter 5, Exhibit E of the License Application, which reads: **FERC will consult on all listed and candidate plant species under Section 7 of the Endangered Species Act (ESA), including species occurring in GLCA.**

The noise generation description for pump station operation on NPS-administered land in GLCA is revised; please see the response to NPS Comment No. 27. The noise analysis in Section 5.3.18, Chapter 5, Exhibit E of the License Application is revised to be consistent with the revised noise generation levels in Chapter 3, Exhibit E of the License Application. Data requested by NPS to be used in effects analyses on GLCA are incorporated into the revised noise analysis in Section 5.3.18, Chapter 5, Exhibit E of the License Application.

The referenced track site near the IPS is situated on sandstone rock that would not be affected in any way by the construction or operation of the intake pump station. Please see LPPAzCo15 on Page D-9 and Map 14, Appendix D, Paleontological Localities Recorded in Utah and Arizona, Final Paleontological Resources Study Report for location of the track site. The track site ranges 300 to 400 feet away from closest construction activity associated with IPS. Construction vibration information associated with IPS construction is provided in the response to Action Item #15 from the February 1, 2017 UDWR and NPS meeting in Page, Arizona. Mitigation measures proposed for avoiding impacts on the track site are incorporated into Section 5.3.21.3, Chapter 5, Exhibit E of the License Application.

The climate change analysis and discussion incorporated into Chapter 5, Exhibit E of the License Application is based upon the *SECURE Water Act Section 9503(c) – Reclamation Climate Change and Water 2011* report, prepared by the U.S. Bureau of Reclamation (Reclamation), which is the U.S. government's expert agency on Lake Powell and climate change in the southwest U.S. The CRSS modeling prepared and updated by Reclamation specifically for the LPP incorporates climate change inflow hydrology into the modeling results, which indicate a 40 percent probability of Lake Powell elevation being below 3,490 feet MSL in March 2059 without the LPP. The probability of Lake Powell elevation being below 3,490 feet MSL in March 2059 with the LPP is 42 percent as projected by Reclamation in the CRSS modeling incorporating climate change inflow hydrology. Please see Appendix 2, Reclamation Colorado River Model Report, in the Final Surface Water Resources Study Report, filed with FERC as part of the License Application.

Drainages within GLCA, including washes near Grenehaven, would be crossed by the LPP upstream of Highway 89. The culvert crossings under Highway 89 act as grade controls for drainage beds that would be crossed by the LPP. Design criteria for the scour depth of drainage crossings by the LPP will be determined during the design process; however, the pipeline crossings would be deep enough to avoid projected scour depths of 6 to 8 feet and below the depth that concrete encasements of the pipe would be exposed during a design storm runoff event. The potential effects of climate change on the LPP are accounted for in the preliminary design described in Chapter 3, Exhibit E of the License Application and in the environmental effects presented in Chapter 5, Exhibit E of the License Application.

NPS Comment No. 47

The requested additional interrelated projects are provided.

The following new sections are added to Chapter 5, Exhibit E of the License Application following Section 5.2.3.10: **Non-Native Quagga Mussel Infestation in Lake Powell.** The presence of non-native quagga mussel (*Dreissena bugensis*) in Lake Powell was first confirmed in 2013 and infestation was documented near Glen Canyon Dam in 2014. Average veliger density in southern Lake Powell ranged from 2 to 38 per liter in 2016, with veliger density at Glen Canyon Dam ranging from 1 to 45 per liter in 2016 (NPS 2017). Section 3.1.1.1.2 in Chapter 3, Exhibit E of the License Application presents that water entering the intake system would be dosed with a molluscicide (operations conducted in compliance with NPS Management Policies for pesticide use – see UDWRe response to NPS Comment No. 13) and passed through a 25-micron self-cleaning filter on the pump discharge line to remove aquatic invasive species parts and eggs. This would remove aquatic invasive species from the LPP and prevent distribution of aquatic invasive species by the LPP, resulting in no environmental effects from non-native species in other waters. Therefore, the LPP would not have potential cumulative effects with non-native quagga mussel infestation in Lake Powell.

Central Arizona Water Pipeline Project. The Bureau of Reclamation (Reclamation) was leading a planning study for a water pipeline from the Colorado River to serve Page, Flagstaff, Coconino County, Navajo Nation and the Hopi Tribe when Congress cut the federal budget in 2014 and the non-federal partners were recommended to fund at least 30 percent of the study. The City of Flagstaff decided to not fund their share of the study and Reclamation put the study completion on hold in 2014. The City of Flagstaff also has no rights to Colorado River water and would have to purchase rights from another entity to receive water from a pipeline diverting water from the Colorado River. Therefore, the proposed project would not be implemented in the reasonably foreseeable future and there would be no cumulative effects with the LPP.

Arizona Department of Transportation (ADOT) Projects. ADOT has three projects planned, under construction, or recently completed near Page involving Highway 89 and Highway 89A. These include the completed landslide repair 25 miles south of Page, culvert extension along Highway 89 near Bitter Springs 25 miles south of Page, and culvert extension along Highway 89A between Marble Canyon and Jacob Lake. These projects would not combine with LPP effects to result in potential cumulative effects on resources. Therefore, there would be no potential cumulative effects resulting from ADOT planned projects in the LPP area.

The following new sections are added to Chapter 5, Exhibit E of the License Application in Section 5.2.3.11.

5.2.3.11.5 Global Climate Change/Regional Drought Conditions. UDWRe contracted Reclamation to prepare an analysis of climate change effects on the Virgin River basin, incorporating Reclamation's work on the Colorado River Basin Water Supply and Demand Study (Reclamation 2012) and the SECURE Water Act Section 9503(c) Report to Congress (Reclamation 2016). The Virgin River basin report prepared by Reclamation projects a 3 percent decrease in Virgin River streamflow resulting from climate change during the period 2025 through 2054, which translates to a potentially larger decrease in WCWCD water system yield via diversions from the Virgin River (Reclamation 2014). This result demonstrates the vulnerability of diverting existing water supplies from the Virgin River on population in the St. George metropolitan area and the WCWCD need to diversify their water supply with the LPP to make sure future water supplies meet future population demands. The SECURE Water Act Section 9503(c) Report to Congress projects 5 to 7

percent vulnerable years between 2027 and 2060 in the Colorado River Upper Basin (upstream of Glen Canyon Dam) resulting in a shortage exceeding 25 percent of the requested depletion in any one year (Reclamation 2016). These results are incorporated into the CRSS modeling with climate change inflow hydrology performed by Reclamation on the LPP under a contract with UDWR. Therefore, the climate change modeling results presented in Section 5.3.3.2.2.1, Chapter 5, Exhibit E of the License Application and in Final Study Report 18, Surface Water Resources, Section 4.3.1.1 and Appendix 2 Reclamation Colorado River Model Report represent the conditions projected to occur under climate change/regional drought conditions in Lake Powell and the Virgin River basin diversions serving the St. George metropolitan area population. The climate change conditions in Lake Powell could combine with other interrelated actions on the Colorado River and LPP diversions to result in cumulative effects on the following resources:

- Air Quality
- Aquatic Resources
- Archaeological and Historic-Era Resources
- Land Use Plans and Conflicts (Floodplains)
- Special Status Aquatic Species
- Socioeconomic Resources (Energy Resources)
- Surface Water Quality
- Surface Water Resources
- Visual Resources
- Wetlands and Riparian Resources

5.2.3.11.6 Utah Department of Transportation (UDOT) Projects. UDOT has long range plans to widen portions of Highway 89 from the Utah-Arizona state line to Kanab, Utah within the LPP study area. The widening would involve adding one lane in multiple segments to build a 2+1 corridor (two lanes in one direction, one lane in the other direction). Some widened highway segment construction would occur during LPP construction pending available funding, with potential short-term cumulative effects on the following resources:

- Air Quality
- Archaeological and Historic-Era Resources
- Ethnographic Resources
- Noise
- Paleontological Resources
- Recreation Resources (including visitor use and experience)
- Socioeconomics (Energy Resources)
- Special Status Plant Species
- Special Status Wildlife Species
- Transportation
- Vegetative Communities
- Visual Resources
- Wetlands and Riparian Resources
- Wildlife Resources

5.2.3.11.7 GLCA Off-road Vehicle Management Plan. NPS completed an Off-road Vehicle (ORV) Management Plan and Final EIS in 2017 for Glen Canyon National Recreation Area, and a Record of Decision is pending. The plan and FEIS describe five alternatives for managing off-road use and on-road use of off-highway vehicles (OHVs) and street-legal all-terrain vehicles (ATVs) and assesses impacts that could result from continuing current management (the no action alternative) or implementation of any of the action alternatives within Glen Canyon National Recreation Area

(GLCA). Under the NPS preferred alternative involving mixed use, resources would be protected and visitor experience enhanced by identifying and designating specific areas capable of supporting off-road use while prohibiting such uses in areas where resources and values may be at risk. Proposed designated ORV routes and GMP roads that would overlap with LPP construction include routes near Glen Canyon substation, northwest of the Page Port of Entry, south/southwest of Greenhaven, west of Greenhaven, southwest of Stud Horse Point, and south of Blue Pool Wash, all accessed from Highway 89. The following resources potentially affected by the proposed ORV routes and GMP roads have the potential for cumulative effects on resources with the LPP construction:

- Archaeological and Historic-Era Resources
- Geology and Soil Resources
- Ethnographic Resources
- Noise
- Paleontological Resources
- Recreation Resources (including visitor use and experience)
- Socioeconomics
- Special Status Plant Species
- Special Status Wildlife Species
- Vegetative Communities
- Wildlife Resources

5.2.3.11.8 South Central Communications Fiber Optic Project. This recently completed project resulted in placement of a fiber optic cable along the south side of Highway 89 between Kanab and Page. The cable is generally located five feet from the fence line toward Highway 89 and has approximately 40 inches of cover. The cable alignment was adjusted in specific locations to avoid sensitive plant species. The cable has an overhead crossing over one drainage and is buried immediately adjacent to the existing roadway in other locations to cross drainage features. The following resources affected by the fiber optic cable project have the potential for cumulative effects on resources with the LPP:

- Archaeological and Historic-Era Resources
- Ethnographic Resources
- Paleontological Resources
- Special Status Plant Species
- Special Status Wildlife Species
- Vegetative Communities
- Wetlands and Riparian Resources
- Wildlife Resources

NPS Comment No. 51

The requested analysis is provided. A new paragraph is inserted following the fourth paragraph in Section 5.3.3.4.1, Chapter 5, Exhibit E of the License Application: **Reclamation's updated CRSS model of the LPP prepared for UDWRe in 2015 incorporates climate change inflow hydrology. The climate change inflow hydrology simulation results show a 90 percent probability that Lake Powell elevation with LPP full depletion would average 3675.86 ft MSL in any one year between 2049 and 2060, 0.60 ft below the No Action CRSS modeled elevation (corrected for UBWR's full depletion of their 86,249 ac-ft annual water right). The climate change simulation results show a 50 percent**

probability that Lake Powell elevation with LPP full depletion would average 3597.30 ft MSL in any one year between 2049 and 2060, 0.92 ft below the No Action CRSS modeled elevation (corrected for UBWR’s full depletion of their annual water right). The cumulative effects of climate change inflow hydrology and LPP full depletion at the 90th and 50th percentiles would not be significant on Lake Powell elevations and other associated resources. The climate change simulation results show a 10 percent probability that Lake Powell elevation with LPP full depletion would average 3409.72 ft MSL in any one year between 2049 and 2060, 3.04 ft below the LPP No Action CRSS-modeled elevation (corrected for UBWR’s full depletion of their annual water right). The 10th percentile CRSS model runs with climate change inflow hydrology would trigger Drought Response at Upper Basin CRSP reservoirs and Lake Powell elevation below the minimum power pool. These cumulative effects on Lake Powell elevations would be caused by reduced inflow resulting from the most extreme projections of climate change, with 3.04 ft additional elevation decrease resulting from LPP full depletion from the reservoir. This cumulative effect of climate change with LPP full depletion would be significant on Lake Powell elevations and other associated resources.

NPS Comment No. 54

Table 5-35 is revised as requested. Table 5-35 in Section 5.3.4.1.2.2, Chapter 5, Exhibit E of the License Application is revised and shown below:

Table 5-35						
Summary of Historical Water Quality at Paria River Station ID (4951850)						
Page 1 of 2						
Parameter-Units	Numeric Criteria	Min	Max	Ave	Number of Samples	Remarks
Aluminum-µg/L	750	ND ⁽¹⁾	708	131	8	The numeric criterion for aluminum (1 hour average of 750 µg/L) was not exceeded in any sample. Aluminum was detected in 4 samples (50% of samples).
Cadmium-µg/L	2	ND	5	<1	28	The numeric criterion for cadmium (1 hour average of 2 µg/L) was exceeded in one sample (4% of samples). Cadmium was detected in 8 samples (29% of samples).
Chromium(VI)-µg/L	16	ND	25	3	8	The numeric criterion for hexavalent chromium (1 hour average of 16 µg/L) was exceeded in the only sample where chromium was present (13% of samples); all other samples were non-detect.
Copper-µg/L	13	ND	425	26	29	The numeric criterion for copper (1 hour average of 13 µg/L) was exceeded in 10 samples (34% of samples). Copper was detected in 14 samples (48% of samples).

Table 5-35
Summary of Historical Water Quality at Paria River Station ID (4951850)

Page 2 of 2

Parameter-Units	Numeric Criteria	Min	Max	Ave	Number of Samples	Remarks
Iron- $\mu\text{g/L}$	1,000	ND	6,650	742	14	The numeric criterion for iron (1 hour average of 1,000 $\mu\text{g/L}$) was exceeded in 10 samples (71% of samples). Iron was detected in 9 samples (64% of samples).
Lead- $\mu\text{g/L}$	65	ND	250	13	30	The numeric criterion for lead (1 hour average of 65 $\mu\text{g/L}$) was exceeded in five samples (17% of samples). Aluminum was detected in 12 samples (40% of samples).
pH-Standard Units	6.5-9.0	7.0	9.7	8.2	131	The numeric criterion for pH (range of 6.5 – 9.0) was exceeded in four samples (3% of samples).
Solids, Total Dissolved- mg/L	1,200	504	2,744	1,188	73	The numeric criterion for TDS (1,000 mg/L) was exceeded in 56 samples (77% of samples). Approximately 60% of the collected samples had TDS concentrations that ranged from 1,000 mg/L to 1,500 mg/L .
Solids, Total Suspended (TSS)- mg/L	NE ⁽²⁾	12	142,500	7,662	75	Approximately 45% of the samples had TSS concentrations lower than 500 mg/L . Approximately 30% of the samples had concentrations in excess of 1000 mg/L . There were several peaks throughout the sampling period where the TSS concentrations exceeded 10,000 mg/L . Approximately, 10% of the samples had TSS concentrations in excess of 10,000 mg/L .
Specific conductance- umho/cm	NE	255	3,070	1,552	136	Specific conductance measured in over 50% of the collected samples ranged from 1,000 umho/cm to 1,500 umho/cm .
Temperature, water-degrees C	27	0	33	14	66	The numeric criterion for temperature (27°C) was exceeded in 5 samples (8% of samples).
Total Coliform-MPN/100ml ⁽³⁾	206	23	43,000	7,144	9	The numeric criterion for total coliform (206 MPN/100 ml) was exceeded in seven samples (78% of samples).
Turbidity-NTU	10	9	52,208	2,253	66	The numeric criterion is based on an increase as a result of discharge.

Source: Data summarized from EPA's STORET database. Water quality sampling and analysis were completed by the Utah Department of Environmental Quality.

⁽¹⁾ ND – non-detect.

⁽²⁾ Not Established

Most Probable Number (MPN); value shown as “average” represents the geometric mean of the samples.

NPS Comment No. 59

The requested changes regarding cumulative effects are incorporated into Chapter 5, Exhibit E of the License Application.

Please see the response to NPS Comment No. 47 for discussion about infestation of non-native mussels in Lake Powell, the potential future Central Arizona Water Pipeline Project, and ongoing Arizona Department of Transportation (ADOT) road work as interrelated projects for cumulative effects analysis. The following sections in Chapter 5, Exhibit E of the License Application are revised to incorporate cumulative effects of global climate change/regional drought conditions, Utah Department of Transportation (UDOT), GLCA Off-Road Vehicle Management Plan, and South Central Fiber Optic project/ROW with implementation of the LPP.

Please see the response to NPS Comment No. 113 for discussion and changes to Section 5.3.3.4, Chapter 5, Exhibit E of the License Application with regard to cumulative effects of global climate change/regional drought conditions with implementation of LPP depletions combined with other interrelated actions on Lake Powell elevations.

The fourth bullet in the second paragraph in Section 5.3.4.4.1, Chapter 5, Exhibit E of the License Application is revised to read:

- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

A new paragraph is added after the third paragraph in Section 5.3.4.4.1, Chapter 5, Exhibit E of the License Application and reads: **The LPP Proposed Action would have cumulative effects on surface water quality under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the LPP Proposed Action depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of LPP depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow conditions. Cumulative effects on surface water quality in Lake Powell would include increased water temperatures, decreased dissolved oxygen concentrations, and increased TDS concentrations. These cumulative effects would be significant.

The first paragraph in Section 5.3.4.4.5, Chapter 5, Exhibit E in the License Application is revised to read: **The No Action Alternative would have no measurable cumulative effects on surface water quality in Lake Powell and the Colorado River downstream from Glen Canyon Dam under direct natural flow inflow hydrology and 90th percentile and 50th percentile climate change inflow hydrology as modeled by Reclamation, in streams and ephemeral drainages crossed by the LPP action alternatives, and in Sand Hollow Reservoir. The No Action Alternative would have**

cumulative effects on surface water quality under climate change conditions at the 10th percentile when combined with interrelated actions including:

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of UBWR depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of UBWR depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow hydrology conditions. Cumulative effects on surface water quality in Lake Powell would include increased water temperatures, decreased dissolved oxygen concentrations, and increased TDS concentrations. These cumulative effects would be significant.

The first paragraph in Section 5.3(6.4.1, Chapter 5, Exhibit E of the License Application is revised to read: **The Proposed Action would have no measurable long-term effects on aquatic resources and therefore would have no measurable long-term cumulative effects on aquatic resources when combined with past, present and reasonably foreseeable future interrelated actions. The LPP Proposed Action could have short-term cumulative effects on aquatic resources in Lake Powell under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the LPP Proposed Action depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of LPP depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow conditions. Indirect cumulative effects on aquatic resources and their habitat in Lake Powell would include increased water temperatures, decreased dissolved oxygen concentrations, and decreased usable habitat area. These short-term cumulative effects could be significant.

The first paragraph in Section 5.3.6.4.5, Chapter 5, Exhibit E of the License Application is revised to read: **The No Action Alternative would have no measurable long-term effects on aquatic resources and therefore would have no measurable long-term cumulative effects on aquatic resources when combined with past, present and reasonably foreseeable future interrelated actions. The No Action Alternative could have short-term cumulative effects on aquatic resources under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the UBWR depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of UBWR depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow conditions. Indirect cumulative effects on aquatic resources and their habitat in Lake Powell would include increased water temperatures, decreased dissolved oxygen concentrations, and decreased usable habitat area. These short-term cumulative effects could be significant.

The first paragraph in Section 5.3.7.4.1, Chapter 5, Exhibit E of the License Application is revised to read: **The Proposed Action would have no measurable long-term effects on special status aquatic resources and therefore would have no measurable long-term cumulative effects on special status aquatic resources when combined with past, present and reasonably foreseeable future interrelated actions. The LPP Proposed Action could have short-term cumulative effects on special status aquatic resources in Lake Powell under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the LPP Proposed Action depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of LPP depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow conditions. Indirect cumulative effects on special status aquatic resources and their habitat in Lake Powell would include increased water temperatures, decreased dissolved oxygen concentrations, and decreased usable habitat area. These short-term cumulative effects could be significant.

The first paragraph in Section 5.3.7.4.5, Chapter 5, Exhibit E of the License Application is revised to read: **The No Action Alternative would have no measurable long-term effects on special status aquatic resources and therefore would have no measurable long-term cumulative effects on special status aquatic resources when combined with past, present and reasonably foreseeable future interrelated actions. The No Action Alternative could have short-term cumulative effects on aquatic resources under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**

- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the UBWR depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of UBWR depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow conditions. Indirect cumulative effects on special status aquatic resources and their habitat in Lake Powell would include increased water temperatures, decreased dissolved oxygen concentrations, and decreased usable habitat area. These short-term cumulative effects could be significant.

A new paragraph is inserted after the fourth paragraph in Section 5.3.8.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action would have direct cumulative effects on vegetative communities when combined with the direct effects of UDOT Highway 89 widening projects. Vegetation removed for LPP construction combined with vegetation permanently removed for UDOT Highway 89 widening construction would increase the disturbance of vegetation communities along the parallel corridors. These cumulative effects would not be significant because of the relatively large amount of surrounding vegetation communities that would not be disturbed by the construction activities. These cumulative effects would be long-term because revegetation of the LPP alignment with shrub species could take 20 to 30 years.**

A new paragraph is inserted after the fourth paragraph in Section 5.3.8.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action would have direct cumulative effects on vegetative communities when combined with the direct effects of the South Central Communications Fiber Optic Project in the Highway 89 ROW from Kanab to Page. Vegetation removed for LPP construction combined with vegetation permanently removed for the South Central Communications Fiber Optic Project construction would increase the disturbance of vegetation communities along the parallel corridors. These cumulative effects would not be significant because of the relatively large amount of surrounding vegetation communities that would not be disturbed by the construction activities. These cumulative effects would be long-term because revegetation of the LPP alignment with shrub species could take 20 to 30 years.**

The first paragraph in Section 5.3.9.4.1, Chapter 5, Exhibit E of the License Application is revised to read: **The Proposed Action could have unmeasurable cumulative effects on wetland and riparian resources when combined with past, present and reasonably foreseeable future actions involving operations of Glen Canyon Dam. These potential minor cumulative effects could occur on wetland and riparian resources in Lake Powell and the Colorado River downstream from Glen Canyon Dam. The Proposed Action could have unmeasurable cumulative effects when combined with the effects of climate change and past, present and reasonably foreseeable future actions involving operations of Glen Canyon Dam. These potential minor cumulative effects could occur on wetland and riparian resources in Lake Powell and the Colorado River downstream from Glen Canyon Dam.**

A new paragraph is inserted after the first paragraph in Section 5.3.9.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on riparian resources when combined with the effects of UDOT Highway 89 widening projects. These potential minor cumulative effects could occur on riparian resources along the parallel alignments of Highway 89 and would be short-term if construction occurred during the same periods.**

A new paragraph is inserted after the first paragraph in Section 5.3.9.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on riparian resources when combined with the effects of the South Central Communications Fiber Optic Project. These potential minor cumulative effects could occur on riparian resources along the parallel alignments where the fiber optic cable construction resulted in riparian vegetation removal and would be short-term until removed riparian vegetation is restored to previous functions.**

A new paragraph is inserted after the third paragraph in Section 5.3.10.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on special status plant species when combined with the effects of UDOT Highway 89 widening projects. These potential long-term cumulative effects could occur on special status plant species along the parallel alignments of the LPP and Highway 89 widened segments until the LPP disturbed area is revegetated with the special status plant species.**

A new paragraph is inserted after the third paragraph in Section 5.3.10.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on special status plant species when combined with the effects of the South Central Communications Fiber Optic Project. These potential long-term cumulative effects could occur on special status plant species along the parallel alignments where the fiber optic cable construction resulted in special status plant species removal and would be long-term until removed special status plant species are restored to pre-construction conditions.**

A new paragraph is inserted after the third paragraph in Section 5.3.11.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on wildlife resources when combined with the effects of UDOT Highway 89 widening projects. These potential short-term and long-term cumulative effects could occur on wildlife resources along the parallel alignments of the LPP and Highway 89 widened segments until the LPP disturbed area is revegetated to pre-construction conditions.**

A new paragraph is inserted after the third paragraph in Section 5.3.11.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on wildlife resources when combined with the effects of UDOT Highway 89 widening projects. These potential short-term and long-term cumulative effects could occur on wildlife resources along the parallel alignments of the LPP and Highway 89 widened segments until the LPP disturbed area is revegetated to pre-construction conditions.**

A new paragraph is inserted after the third paragraph in Section 5.3.11.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on wildlife resources when combined with the effects of the GLCA pending Off-Road Vehicle Management Plan and LPP construction. These potential short-term cumulative effects could occur on wildlife resources in the Ferry Swale area during LPP transmission line construction and at the intersection of GLCA GMP roads with the LPP alignment construction. There would be no measurable long-term cumulative effects on wildlife resources from LPP construction and the GLCA pending Off-road Vehicle management plan.**

A new paragraph is inserted after the third paragraph in Section 5.3.11.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on wildlife resources when combined with the effects of the South Central Communications Fiber Optic Project. These potential long-term cumulative effects could occur on wildlife resources along the parallel alignments where the fiber optic cable construction resulted in shrub species removal and would be long-term until shrub species are restored to pre-construction conditions.**

A new paragraph is inserted after the third paragraph in Section 5.3.12.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on special status wildlife species when combined with the effects of UDOT Highway 89 widening projects. These potential short-term and long-term cumulative effects could occur on special status wildlife species along the parallel alignments of the LPP and Highway 89 widened segments until the LPP disturbed area is revegetated to pre-construction conditions.**

A new paragraph is inserted after the third paragraph in Section 5.3.12.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on special status wildlife species when combined with the effects of the GLCA pending Off-Road Vehicle Management Plan and LPP construction. These potential short-term cumulative effects could occur on special status wildlife species in the Ferry Swale area during LPP transmission line construction and at the intersection of GLCA GMP roads with the LPP alignment construction. There would be no measurable long-term cumulative effects on special status wildlife species from LPP construction and the GLCA pending Off-road Vehicle management plan.**

A new paragraph is inserted after the third paragraph in Section 5.3.12.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on special status wildlife species when combined with the effects of the South Central Communications Fiber Optic Project. These potential long-term cumulative effects could occur on special status wildlife species along the parallel alignments where the fiber optic cable construction resulted in special status wildlife species habitat removal and would be long-term until habitats are restored to pre-construction conditions.**

A new paragraph is inserted after the third paragraph in Section 5.3.13.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on recreation resources when combined with the effects of UDOT Highway 89 widening projects. These potential short-term cumulative effects could occur on recreation resources at specific recreation access locations along the parallel alignments of the LPP and Highway 89 widened segments until the LPP construction is completed and access is restored to pre-construction conditions.**

A new paragraph is inserted after the third paragraph in Section 5.3.15.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on transportation when combined with the effects of UDOT Highway 89 widening projects. These potential short-term cumulative effects could occur on Highway 89 traffic and infrastructure in specific locations along the parallel alignments of the LPP and Highway 89 widened segments until the LPP construction is completed. Minor traffic delays could occur on Highway 89 in areas where highway widening and LPP construction traffic are coincident.**

A new paragraph is inserted before the first paragraph in Section 5.3.16.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action would have cumulative effects on visual resources under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the LPP Proposed Action depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of LPP depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow conditions. Cumulative effects on visual resources at Lake Powell would include increased color, line, form and texture contrasts along the exposed shoreline of the reservoir. These cumulative effects would be significant.

A new paragraph is inserted after the new first paragraph in Section 5.3.16.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action would have short-term cumulative effects on visual resources when combined with the effects of UDOT Highway 89 widening projects. These potential short-term cumulative effects of contrasts in color, line, form and texture would occur at coincident construction locations along the parallel alignments of the LPP and Highway 89 widened segments. The potential cumulative effects on visual resources would occur until the LPP coincident construction with Highway 89 widening is completed.**

The first paragraph in Section 5.3.16.4.6, Chapter 5, Exhibit E in the License Application is revised to read: **The No Action Alternative would have cumulative effects on visual resources under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of UBWR depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of UBWR depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow hydrology conditions. Cumulative effects on visual resources at Lake Powell would include increased color, line, form and texture contrasts along the exposed shoreline of the reservoir. These cumulative effects would be significant.

The first paragraph in Section 5.3.17.4.1, Chapter 5, Exhibit E of the License Application is revised to read: **The Proposed Action could have minor cumulative effects on air quality under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the LPP Proposed

Action depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of LPP depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow conditions. Cumulative effects on air quality in Lake Powell could include increased fugitive dust along the exposed shoreline of the reservoir. These minor cumulative effects would not be significant.

A new paragraph is inserted after the new first paragraph in Section 5.3.17.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action could have minor cumulative effects on air quality when combined with the effects of UDOT Highway 89 widening projects. These potential short-term cumulative effects could increase fugitive dust and equipment emissions at coincident construction locations along the parallel alignments of the LPP and Highway 89 widened segments. The potential cumulative effects on air quality could occur until the LPP coincident construction with Highway 89 widening is completed and disturbed soils are revegetated.**

The first paragraph in Section 5.3.17.4.5, Chapter 5, Exhibit E in the License Application is revised to read: **The No Action Alternative could have minor cumulative effects on air quality under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of UBWR depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of UBWR depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow hydrology conditions. Cumulative effects on air quality in Lake Powell could include increased fugitive dust along the exposed shoreline of the reservoir. These minor cumulative effects would not be significant.

A fifth bullet is added to the first paragraph in Section 5.3.19.4, Chapter 5, Exhibit E of the License Application and reads:

- **UDOT Highway 89 Widening Projects**

A new subsection is added to Section 5.3.19.4, Chapter 5, Exhibit E of the License Application and reads: **5.3.19.4.5 UDOT Highway 89 Widening Projects. Highway 89 parallel to the LPP alignment has been widened under past actions and further widening is planned, which would affect previously identified sites and sites determined eligible for NRHP listing. Construction disturbance of cultural resource sites along the LPP alignment and Highway 89 where widening activities would occur would have cumulative effects on cultural resources. These cumulative effects on cultural resource sites would be significant.**

The first paragraph in Section 5.3.20.4.1, Chapter 5, Exhibit E of the License Application is revised to read: **The Proposed Action combined with UDOT Highway 89 Widening Projects would have no known direct cumulative effects on identified sites important to the tribes. The Proposed Action**

combined with UDOT Highway 89 Widening Projects would have long-term indirect cumulative effects on identified sites, cultural landscapes and regions important to tribes throughout the Colorado River basin.

A new paragraph is inserted after the first paragraph in Section 5.3.20.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action combined with GLCA pending Off-road Vehicle Management Plan would have no known direct cumulative effects on identified sites important to the tribes. The Proposed Action combined with GLCA pending Off-road Vehicle Management Plan would have long-term indirect cumulative effects on identified sites, cultural landscapes and regions important to tribes throughout the Colorado River basin.**

A new paragraph is inserted after the first paragraph in Section 5.3.20.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action combined with the South Central Communications Fiber Optic Project would have no known direct cumulative effects on identified sites important to the tribes. The Proposed Action combined with the South Central Communications Fiber Optic Project would have long-term indirect cumulative effects on identified sites, cultural landscapes and regions important to tribes throughout the Colorado River basin.**

A new paragraph is inserted before the first paragraph in Section 5.3.21.4.1, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action combined with UDOT Highway 89 Widening Projects would have no known direct cumulative effects on paleontological sites. The Proposed Action combined with UDOT Highway 89 Widening Projects could have long-term indirect cumulative effects on paleontological sites where coincident construction occurs.**

The fifth bullet in the second paragraph in Section 5.3.22.4, Chapter 5, Exhibit E of the License Application is revised to read:

- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

A new paragraph is added after the third paragraph in Section 5.3.22.4, Chapter 5, Exhibit E of the License Application and reads: **The LPP Proposed Action would have cumulative effects on energy resources under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the LPP Proposed Action depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of LPP depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow conditions. Cumulative effects on energy resources associated with Lake Powell would include suspended hydroelectric generation during the period the reservoir is below the minimum power pool elevation. These cumulative effects on energy resources would be significant.

A new paragraph is added after the third paragraph in Section 5.3.22.4, Chapter 5, Exhibit E of the License Application and reads: **The LPP Proposed Action combined with UDOT Highway 89 Widening Projects would have short-term negligible cumulative effects on energy resources. Construction equipment consumption of fuel during construction of the LPP and Highway 89 would result in negligible cumulative effects on energy resources during the period of coincident construction.**

A new paragraph is added after the third paragraph in Section 5.3.22.4, Chapter 5, Exhibit E of the License Application and reads: **The LPP Proposed Action combined with GLCA pending Off-road Vehicle Management Plan could have short-term minor cumulative effects on socioeconomics. ORV rentals, use of trails and guided tours would be temporarily suspended in the Ferry Swale area during transmission line construction to protect public safety and avoid conflicts in using the same access roads. ORV rentals, use of trails and guided tours involving GLCA GMP roads intersecting with the LPP alignment construction would be temporarily re-routed around active construction areas and could lead to voluntary avoidance of affected roads. These short-term cumulative effects on socioeconomics would not be significant.**

NPS Comment No. 60

Requested changes addressing the comment are incorporated into the text.

The first paragraph in Section 5.3.6.1.4, Chapter 5, Exhibit E of the License Application is revised to read: **The aquatic resource analyses is focused on project components that would affect water resources or aquatic resources habitat. Perennial streams provide ecological functions and habitat that support sustained aquatic resources. Ephemeral and intermittent drainages can provide similar ecological and hydrological functions as perennial streams, including moving water, nutrients, and sediment throughout the watershed. Perennial, intermittent, and ephemeral drainages can support diverse populations of invertebrates and macroinvertebrates. Invertebrates can persist in sediments in dry drainages in cyst form or in the hyporheic zone as larva. Many desert aquatic organisms are adapted to temporary aquatic habitat and persist during dry periods in egg or other desiccation-resistant life stages. Organisms in egg stages may be dispersed by the wind to other temporary aquatic habitats. Some aquatic organisms require drying periods as part of their development life cycle. Disturbances related to intermittent flows may increase invertebrate populations (Levick et al. 2008). LPP crossings of dry intermittent drainages and ephemeral channels with particles in the bed are considered aquatic resource habitat. No aquatic resource habitat is expected to be present in the construction ROW at LPP crossings of bedrock drainages and channels with no sediments. The aquatic resources analysis focuses primarily on habitat and aquatic resources in perennial drainages. The definitions of perennial streams, dry intermittent drainages, and ephemeral channels are included in Section 5.3.6.1.**

The first sentence in the sixth paragraph in Section 5.3.6.1.4, Chapter 5, Exhibit E of the License Application is revised to read: **This was a subjective evaluation and may be subject to modification based on additional evidence; however, for this analysis, the perennial drainages considered to have a potential for aquatic resources are limited to the following within the area of potential effect.**

Two sentences are added at the beginning of the first paragraph in Section 5.3.6.2.2, Chapter 5, Exhibit E of the License Application and reads: **The Proposed Action would have temporary effects on aquatic resources and associated habitat during LPP construction of crossings at dry intermittent drainages, ephemeral channels, and perennial streams. LPP construction would temporarily affect**

potential aquatic resource habitat at crossings of dry intermittent drainages and ephemeral channels, which would be restored by replacing the native sediments and particles during crossing site restoration. Potential effects on aquatic resources within these dry intermittent drainages and ephemeral channels would be minor.

The following reference is added to Section 5.3.6.6, Chapter 5, Exhibit E of the License Application:

Levick, L., J. Fonseca, D. Goodrich, M. Hernandez, D. Semmens, J. Stromberg, R. Leidy, M. Scianni, D. P. Guertin, M. Tluczek, and W. Kepner. 2008. The Ecological and Hydrological Significance of Ephemeral and Intermittent Streams in the Arid and Semi-arid American Southwest. U.S. Environmental Protection Agency and USDA/ARS Southwest Watershed Research Center, EPA/600/R-08/134, ARS/233046, 116 pp.

NPS Comment No. 73

The suggested additions have been added to the text.

The last bullet point in the list of BMPs and standard construction procedures following the second paragraph in Section 5.3.9.3, Chapter 5, Exhibit E of the License Application is revised to read: **River and drainage bank restoration plans would be prepared before construction begins within flowing channels and in riparian areas. Restoration plans would focus on restoring riparian vegetation and stream bed conditions to the same condition as before construction. Native riparian vegetation that is destroyed would be replaced at an approximate ratio of 1:1 on NPS-administered land.**

A bullet point is inserted before the last bullet point in the list of BMPs and standard construction procedures following the second paragraph in Section 5.3.9.3, Chapter 5, Exhibit E of the License Application and reads: **In areas disturbed by construction activities, non-native/exotic riparian vegetation would be removed in a manner to prevent regrowth (such as preventing seed dispersal and treating stumps if necessary (with the proper permits)), and the disturbed areas would be replanted with native riparian vegetation cuttings.**

The eleventh bullet point in the list of BMPs and standard construction procedures following the second paragraph in Section 5.3.9.3, Chapter 5, Exhibit E of the License Application is revised to read: **Streambed substrates at the surface of dewatered stream beds would be removed, stockpiled and replaced on the stream bed as part of the construction site restoration. All disturbed area within the dewatered stream beds would be restored with natural sand, gravel, cobble, and/or boulder material to the same condition, as practical, as before construction. Native material would be used for the streambed substrates to prevent the creation of fish barriers.**

The eighth bullet point in the list of BMPs and standard construction procedures following the second paragraph in Section 5.3.9.3, Chapter 5, Exhibit E of the License Application is revised to read: **All construction equipment refueling would be performed on upland areas within spill containment areas at least 1/8 mile from drainage channels to prevent fuel spills from contaminating channel substrates and the dewatered drainage reaches. A spill prevention, control, and containment (SPCC) plan would be prepared which would define protocols to be followed in response to spills. These protocols would most likely include immediate cessation of the transfer of fuel, oil, or other materials, deployment of spill containment booms and the implementation of cleanup and disposal activities. Additional protocols would be defined in the SPCC plan regarding notification**

requirements for local, state, and federal agencies including the EPA, and the appropriate federal land management agency.

The last bullet point in the list of BMPs and standard construction procedures following the second paragraph in Section 5.3.9.3, Chapter 5, Exhibit E of the License Application is revised to read: **River and drainage bank restoration plans would be prepared before construction begins within flowing channels and in riparian areas. Restoration plans would focus on restoring riparian vegetation and drainage bed conditions to the same condition as before construction. Native riparian vegetation that is destroyed would be replaced at an approximate ratio of 1:1 on NPS-administered land. The federal land management agencies would determine whether the requirements of restoration plans on lands managed by their respective agencies have been satisfied.**

NPS Comment No. 86

The requested clarification language has been added. Please note that the text referenced in NPS Comment No. 86 is located in Section 5.3.12.1.2.1, Chapter 5, Exhibit E of the License Application. The first paragraph of Section 5.3.12.1.2.1 is revised to read: **The California condor (*Gymnogyps californianus*) is listed as endangered (32 FR 4001, March 11, 1967) with critical habitat (41 FR 41914, September 24, 1976), except in northern Arizona and southern Utah, where it is designated as nonessential experimental with no critical habitat designation (61 FR 54044, October 16, 1996). The nonessential experimental population will be managed in accordance with the provisions of a Memorandum of Understanding (MOU) among the cooperators (noted in the regulation), an Agreement between the Service and a coalition of county and local governments in the California condor experimental population area, and the final rule. If legal actions or other circumstances compel a change in this nonessential experimental population's legal status to essential, threatened, or endangered, or compel the Service to designate critical habitat for the California condors within the experimental population area defined in the rule, then, unless the parties to the MOU and Agreement existing at that time agree that the birds should remain in the wild, all California condors will be removed from such area and this experimental population rule will be revoked. 61 FR 54044, 54051. By definition, a "nonessential experimental population" is not essential to the continued existence of the species. Therefore, no proposed action affecting this population could lead to a jeopardy determination for the entire species. According to the FWS handbook, a conference is required only when the proposed action is likely to jeopardize the existence of a species. Nevertheless, this report discusses potential consequences to the California condor. Under section 10(j) of the Endangered Species Act, the experimental nonessential population of condors found on NPS-administered lands in the northern Arizona/southern Utah area would be treated as a threatened species.**

It is not anticipated that the temporary pipeline construction activities associated with the LPP would result in adverse effects on the California condor. In addition, UDWRe notes that pursuant to the original rule establishing the nonessential experimental population, FWS “[did] not foresee that any ongoing or future land, water, or air will be restricted due to this reintroduction project.” (61 FR 54053). Further, “[a]s part of the management strategy for this population the FWS will relocate any condor within the experimental population area, including the National Park System, to avoid conflicts with ongoing or proposed activities....” See also: California Condor Experimental Population Area Cooperators Agreement, para. 5. The FWS then continued: “[t]his provision of the Service’s management strategy virtually eliminates any possibility of conflict by allowing the Service or permitted cooperator to remove a condor in order to resolve potential conflict.” This approach, as outlined under FWS Response to Issue 8 under the rule, was consistent with the rule Summary. The Summary provided that “[t]his California condor reintroduction does not conflict with existing or anticipated Federal or State agency actions or

current or future land, water, or air uses on public or private lands.” (61 FR 54044; Cooperators Agreement, para. 8).

NPS Comment No. 87

GLCA special status wildlife species are added to Table 5-108.

Section 5.3.12.1.2, Chapter 5, Exhibit E of the License Application filed with FERC includes the table referenced in NPS Comment No. 87 as Table 5-108. Table 5-108 is revised and the revised portion of the table is shown below:

Table 5-108 Federal, State and Agency Wildlife Species of Concern		
		Page 3 of 4
Common Name	Scientific Name	Status
Mammals		
bighorn sheep, Bighorn Sheep	<i>Ovis canadensis</i>	NPS
Coyote	<i>Canis latrans</i>	NPS
American Badger, badger	<i>Taxidea taxus</i>	NPS
Ringtail	<i>Bassariscus astutus</i>	NPS
pallid bat, Pallid Bat	<i>Antrozous pallidus</i>	NPS
big brown bat, Big Brown Bat	<i>Eptesicus fuscus</i>	NPS
spotted bat, Spotted Bat	<i>Euderma maculatum</i>	NPS
silver-haired bat, Silver-haired Bat	<i>Lasionycteris noctivagans</i>	NPS
little brown bat, little brown myotis, Little Brown Myotis	<i>Myotis lucifugus</i>	NPS
long-legged myotis, Long-legged Myotis	<i>Myotis volans</i>	NPS
Yuma myotis, Yuma Myotis	<i>Myotis yumanensis</i>	NPS
Western Pipistrelle	<i>Pipistrellus hesperus</i>	NPS
Birds		
Cooper's Hawk	<i>Accipiter cooperii</i>	NPS
Sharp-shinned Hawk	<i>Accipiter striatus</i>	NPS
Rough-legged Hawk	<i>Buteo lagopus</i>	NPS
Turkey Vulture	<i>Cathartes aura</i>	NPS
Osprey	<i>Pandion haliaetus</i>	NPS

**Table 5-108
Federal, State and Agency Wildlife Species of Concern**

Page 4 of 4

Common Name	<i>Scientific Name</i>	Status
Birds		
Lesser Scaup	<i>Aythya affinis</i>	NPS
Rufous Hummingbird	<i>Selasphorus rufus</i>	NPS
Calliope Hummingbird	<i>Stellula calliope</i>	NPS
Lesser Nighthawk	<i>Chordeiles acutipennis</i>	NPS
Merlin	<i>Falco columbarius</i>	NPS
Common Loon, Great Northern Diver, Great Northern Loon	<i>Gavia immer</i>	NPS
Brown Creeper	<i>Certhia americana</i>	NPS
Lincoln's Sparrow	<i>Melospiza lincolnii</i>	NPS
Brewer's Sparrow	<i>Spizella breweri</i>	NPS
Red Crossbill	<i>Loxia curvirostra</i>	NPS
Bank Swallow	<i>Riparia riparia</i>	NPS
Violet-green Swallow	<i>Tachycineta bicolor</i>	NPS
Yellow-breasted Chat	<i>Icteria virens</i>	NPS
MacGillvray's Warbler	<i>Oporornis tolmiei</i>	NPS
Wilson's Warbler	<i>Wilsonia pusilla</i>	NPS
Phainopepla	<i>Phainopepla nitens</i>	NPS
Western Bluebird	<i>Sialia mexicana</i>	NPS
Olive-sided Flycatcher	<i>Contopus cooperi</i>	NPS
Willow Flycatcher	<i>Empidonax traillii</i>	NPS
Gray Vireo	<i>Vireo vicinior</i>	NPS
Great Blue Heron	<i>Ardea herodias</i>	NPS
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	NPS
American White Pelican	<i>Pelecanus erythrorhynchos</i>	NPS
White-faced Ibis	<i>Plegadis chihi</i>	NPS
Downy Woodpecker	<i>Picoides pubescens</i>	NPS
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	NPS
Long-eared Owl	<i>Asio otus</i>	NPS
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	NPS
Reptiles		
Arizona glossy snake	<i>Arizona elegans</i>	NPS
Desert night lizard	<i>Xantusia vigilis</i>	NPS
Long-nosed Leopard Lizard	<i>Gambelia wislizenii</i>	NPS

NPS Comment 89

Table 5-109 in Section 5.3.12.1.3.1 is revised to remove desert night lizard as a species without LPP nexus:

Table 5-109			
Sensitive Species and Wildlife Species of Concern			
Page 5 of 5			
Species Name	Status^a	Habitat Requirements	Potential for Presence in Project Area
Reptiles			
Desert iguana <i>Dipsosaurus dorsalis</i>	USPC	The desert iguana occurs in southeastern California, southern Nevada, southwestern Utah, and western and south-central Arizona. The range of the desert iguana is largely contained within the range of creosotebush. The distribution in Nevada is the Amargosa Desert and the vicinity of the Virgin River and Colorado River. This lizard is most common in dry, sandy areas dominated by creosotebush. It can also be found in rocky streambeds up to 4000 feet.	Project area is outside species known range
Mojave rattlesnake <i>Crotalus scutulatus</i>	USPC	In Utah this rattlesnake is only found on the Beaver Dam Slope in Washington County. In Arizona, it occurs south and west of the Mogollon Rim.	No
Speckled rattlesnake <i>Crotalus mitchellii</i>	USPC	This species is generally associated with rocky washes, outcrops, hills and mountain slopes. In Utah, it is found west of Castle Rock on the Beaver Dam Slope, including Beaver Dam Wash. In Arizona, it occurs eastward to the Phoenix area in the Salt River basin.	No
Amphibians			
Western toad <i>Bufo boreas</i>	USPC	The western toad inhabits high montane habitats. However, GAP analysis mapping does not show any predicted habitat in the LPP Project area.	No
Notes: ^a USPC = Utah Species of Concern; CS = Species with Conservation Agreements; AGFD – WSC = Arizona Fish and Game Department Wildlife Species of Concern; BLM-S = BLM Sensitive Species; BCC = USFWS Birds of Conservation Concern; PIF = Partners in Flight Watch List; FWS = Fish and Wildlife Service; NPS = National Park Service Sources: Utah Conservation Data Center; Bureau of Land Management, Instruction Memorandum No. AZ-2011-005, issued December 22, 2010; USFWS Birds of Conservation Concern, 2002; Arizona Game and Fish Department Natural Heritage Program and Comprehensive Wildlife Conservation Strategy; Partners in Flight (PIF 2008); US Fish and Wildlife Service.			

Please see the response to NPS Comment No. 87 in this Extended Narrative document for the requested two species additions to Table 5-108 in Section 5.3.12.1.3. The following paragraphs are added after the 51st paragraph in Section 5.3.12.1.3.2, Chapter 5, Exhibit E of the License Application:

Arizona Glossy Snake

Glossy snake is carnivorous, with about half its diet being composed of lizards and snake, and the remainder including small mammals such as mice, kangaroo rats, moles, and small birds. Glossy snake habitat includes semi-arid grasslands, barren, sandy deserts and scrub, and rocky washes, with preference for open areas and sandy or loamy soil. The species is nocturnal, hiding in burrows during the day. Arizona glossy snake preyed upon by owls, mammals, and other snakes. The species is not considered threatened but has been negatively impacted by agricultural development and urbanization (Animal Diversity Web 2017). Arizona glossy snake is a NPS special status species on GLCA and occurs within the LPP alignment in GLCA.

Desert Night Lizard

Desert night lizard is a Utah Species of Concern and a NPS special status species. The desert night lizard range includes western Arizona, southern California, southern Nevada, and Utah. It occurs in desert scrub, chaparral, and pinyon pine/juniper habitats. Prey includes termites, beetles and other small invertebrates. The desert night lizard is active during the day, but not frequently seen because it shelters beneath dead and fallen vegetation or in rock crevices and boulders. Potential threats include removal of sheltering habitat (Bab 2008). This species may occur in GLCA.

Section 5.3.12.6, Chapter 5, Exhibit E of the License Application is revised to include the following two references:

Animal Diversity Web. 2017. Arizona elegans. Available on-line at:

http://animaldiversity.org/accounts/Arizona_elegans/

Bab, Randall D. 2008. Desert Night Lizard. Wildlife Field Notes. Arizona Wildlife View, July–August 2008. Available on-line at:

http://www.azgfd.gov/i_e/ee/resources/field_notes/rep/night_lizard.pdf

NPS Comment 90

Additional analysis of noise impacts is provided and the noise effects analysis in resource sections of Chapter 5, Exhibit E of the License Application is revised to be consistent throughout the document.

The sound levels at pump station boundary fences in GLCA would be not more than 45 dBA, as described in the revisions to Section 3.1.3.1.7, Chapter 3, Exhibit E of the License Application made in the response to NPS Comment No. 27. Please note that Section 5.3.12.2.2 and Section 5.3.12.2.2.1, Chapter 5 in the PLP were removed and are not included in Section 5.3.12.2 Environmental Effects, Chapter 5, Exhibit E of the License Application.

Chapter 5, Exhibit E of the License Application is revised as follows:

The sixth sentence in the first paragraph in Section 5.3.13.2.1.2, is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The sixth sentence in the first paragraph in Section 5.3.13.2.1.3, is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The sixth sentence in the first paragraph in Section 5.3.13.2.1.4, is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment and at facility locations.**

The sixth sentence in the third paragraph in Section 5.3.13.1.2.4, is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 3,000 feet of the BPS-3 Alt. and BPS-4 Alt. sites and would affect recreational experiences of users in the south and west portions of the WSA.**

The sixth sentence in the fifth paragraph in Section 5.3.13.1.2.4, is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 3,000 feet of the pipeline alignment and BPS-3 Alt. site, and would affect recreational experiences of users in Unit 13 of the WSA.**

The sixth sentence in the 11th paragraph in Section 5.3.13.1.2.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The sixth sentence in the 13th paragraph in Section 5.3.13.1.2.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The third sentence in the 15th paragraph in Section 5.3.13.1.2.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The sixth sentence in the 17th paragraph in Section 5.3.13.1.2.4, is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The third sentence in the 19th paragraph in Section 5.3.13.1.2.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The second sentence in the 22nd paragraph in Section 5.3.13.1.2.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The third sentence in the 24th paragraph in Section 5.3.13.1.2.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The sixth sentence in the 26th paragraph in Section 5.3.13.1.2.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment and at facility locations.**

The sixth sentence in the 28th paragraph in Section 5.3.13.1.2.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline/penstock alignment.**

The second sentence in the third paragraph in Section 5.3.13.1.2.5 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 800 feet of the sources along the pipeline/penstock alignments.**

The sixth sentence in the first paragraph in Section 5.3.13.1.2.6 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient noise levels within 800 feet of the sources along the pipeline alignment.**

The fourth sentence in the fifth paragraph in Section 5.3.13.1.2.6 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 3,000 feet of the pipeline, HS-2 South, and HS-3 sites.**

The second sentence in the tenth paragraph in Section 5.3.13.1.2.6 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 feet of the penstock alignment and facility sites and would affect recreational experiences of historic trail users.**

The second sentence in the 13th paragraph in Section 5.3.13.1.2.6 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient noise levels within 800 feet of the sources along the pipeline/penstock alignment.**

The fifth sentence in the 15th paragraph in Section 5.3.13.1.2.6 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient noise levels within 800 feet of the sources along the pipeline/penstock alignment.**

The fourth sentence in the 17th paragraph in Section 5.3.13.1.2.6 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 feet of the penstock alignment and facility sites and would affect recreational experiences of pull-off users.**

The second sentence in the second paragraph in Section 5.3.13.1.2.9 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 to 1,600 feet of the pipeline alignment and facility sites and would affect recreational experiences of OHV and trail users.**

The second sentence in the sixth paragraph in Section 5.3.13.1.2.9 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 to 1,600 feet of the penstock alignment and afterbay site and would affect recreational experiences of SRMA users.**

The second sentence in the second paragraph in Section 5.3.13.1.2.10 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 to 1,600 feet of the pipeline alignment and Sand Hollow Hydro Station.**

The second sentence in the second paragraph in Section 5.3.13.1.2.11 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The third sentence in the fourth paragraph in Section 5.3.13.1.2.11 is revised to read: **Construction noise would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The third sentence in the sixth paragraph in Section 5.3.13.1.2.11 is revised to read: **Construction noise would attenuate to ambient levels within 800 feet of the sources along the penstock alignment.**

The second sentence in the tenth paragraph in Section 5.3.13.1.2.11 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 to 1,600 feet of the penstock alignment and Sand Hollow Hydro Station.**

The second sentence in the second paragraph in Section 5.3.13.2.2.1 is revised to read: **Construction noise would attenuate to ambient levels within 800 feet of the sources along the pipeline/penstock alignments.**

The second sentence in the second paragraph in Section 5.3.13.2.2.2 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient noise levels within 800 feet of the sources along the penstock alignment.**

The fifth sentence in the fourth paragraph in Section 5.3.13.2.2.2 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 3,000 feet of the pipeline, HS-2 Highway, and HS-3 sites.**

The second sentence in the seventh paragraph in Section 5.3.13.2.2.2 is revised to read: **Construction noise would attenuate to ambient levels within 800 feet of the sources along the pipeline alignment.**

The third sentence in the tenth paragraph in Section 5.3.13.2.2.2 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 feet of the pipeline alignment and facility sites.**

The fifth sentence in the 12th paragraph in Section 5.3.13.2.2.2 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient noise levels within 800 feet of the sources along the pipeline/penstock alignments.**

The fifth sentence in the 14th paragraph in Section 5.3.13.2.2.2 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient noise levels within 800 feet of the sources along the pipeline/penstock alignments.**

The fourth sentence in the 16th paragraph in Section 5.3.13.2.2.2 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 feet of the penstock alignment and facility sites and would affect recreational experiences of pull-off users.**

The second sentence in the second paragraph in Section 5.3.13.2.2.3 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient noise levels within 800 feet of the sources along the penstock alignment.**

The fifth sentence in the fourth paragraph in Section 5.3.13.2.2.3 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 feet of the penstock alignment and facility sites and would affect recreational experiences of historic trail users.**

The fifth sentence in the first paragraph in Section 5.3.13.2.2.4 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 feet of the penstock alignment and facility sites and would affect recreational experiences of historic trail users.**

The fifth sentence in the first paragraph in Section 5.3.13.2.3.1 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 800 feet of the penstock alignment.**

The third sentence in the third paragraph in Section 5.3.13.2.4.1 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of Glen Canyon substation upgrade.**

The fifth sentence in the fifth paragraph in Section 5.3.13.2.4.1 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the transmission line ROW.**

The third sentence in the ninth paragraph in Section 5.3.13.2.4.1 is revised to read: **Construction noise would attenuate to ambient levels within 1,600 feet of Glen Canyon substation.**

The third sentence in the first paragraph in Section 5.3.13.2.4.2 is revised to read: **Peak noise levels would attenuate to ambient sound levels within 1,600 feet of the sources.**

The third sentence in the first paragraph in Section 5.3.13.2.4.3 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 1,600 feet of the heavy equipment sources along the transmission line alignments.**

The third sentence in the first paragraph in Section 5.3.13.2.4.4 is revised to read: **Noise would attenuate to ambient levels within 1,600 feet of the sources along the transmission line alignments.**

The third sentence in the third paragraph in Section 5.3.13.2.4.4 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the BPS-3 Alt. and BPS-4 Alt. transmission lines and would temporarily affect recreational experiences of users in the south and west portions of the WSA.**

The third sentence in the fifth paragraph in Section 5.3.13.2.4.4 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the transmission line ROW and would affect recreational experiences of WSA users.**

The third sentence in the seventh paragraph in Section 5.3.13.2.4.4 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the transmission line alignments.**

The fourth sentence in the 11th paragraph in Section 5.3.13.2.4.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 1,600 feet of the sources along the transmission line ROWs.**

The fourth sentence in the 13th paragraph in Section 5.3.13.2.4.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 1,600 feet of the heavy equipment sources along the transmission line alignments.**

The fourth sentence in the 15th paragraph in Section 5.3.13.2.4.4 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the transmission line ROW.**

The fourth sentence in the 17th paragraph in Section 5.3.13.2.4.4 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 1,600 feet of the heavy equipment sources along the transmission line alignments.**

The third sentence in the 19th paragraph in Section 5.3.13.2.4.4 is revised to read: **Noise would attenuate to ambient levels within 1,600 feet of the sources along the transmission line ROW.**

The third sentence in the first paragraph in Section 5.3.13.2.4.5 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the transmission alignment and would affect recreational experiences of historic trail users.**

The second sentence in the third paragraph in Section 5.3.13.2.4.5 is revised to read: **Construction noise would attenuate to ambient levels within 1,600 feet of the sources along the transmission line ROWs.**

The third sentence in the fifth paragraph in Section 5.3.13.2.4.5 is revised to read: **Noise would attenuate to ambient levels within 1,600 feet of the sources along the transmission line ROWs.**

The fifth sentence in the first paragraph in Section 5.3.13.2.4.6 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the transmission line ROW and would affect recreational experiences of OHV and trail users.**

The second sentence in the fourth paragraph in Section 5.3.13.2.4.6 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the transmission line ROWs and would affect recreational experiences of SRMA users.**

The fourth sentence in the sixth paragraph in Section 5.3.13.2.4.6 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the transmission lines.**

The second sentence in the ninth paragraph in Section 5.3.13.2.4.6 is revised to read: **Noise generated during transmission line construction activities would attenuate to ambient levels within 1,600 feet of the transmission line ROW and would affect recreational experiences of trail users.**

The second sentence in the 12th paragraph in Section 5.3.13.2.4.6 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the transmission line.**

The second sentence in the second paragraph in Section 5.3.13.2.4.7 is revised to read: **Noise generated during transmission line construction activities would attenuate to ambient levels within 1,600 feet of the transmission line ROWs.**

The fourth sentence in the first paragraph in Section 5.3.13.2.4.8 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 1,600 feet of the sources along the transmission line ROW.**

The second sentence in the second paragraph in Section 5.3.13.2.5.1 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the transmission line ROW and would affect recreational experiences of OHV and trail users.**

The second sentence in the fifth paragraph in Section 5.3.13.2.5.1 is revised to read: **Noise generated during construction activities would attenuate to ambient levels within 1,600 feet of the heavy equipment construction sources and would affect recreational experiences of SRMA users.**

The second sentence in the second paragraph in Section 5.3.13.2.5.2 is revised to read: **Construction noise resulting in indirect effects would attenuate to ambient levels within 1,600 feet of the sources, which would be more than one mile away from the resort.**

NPS Comment No. 96

UDWRe acknowledges receipt of the visitor use information provided by the NPS from the February 1, 2017 meeting. Based on the NPS visitor use statistics on the NPS website (<https://irma.nps.gov/Stats/Reports/Park/GLC>) the information requested by NPS is updated as shown below.

1. The second sentence in the third paragraph in Section 5.3.13.1.1.1, Chapter 5, Exhibit E of the License Application is revised to read: **In 2015, there were 2.5 million visitors and more than 1.4 million overnight stays.**
2. The following sentence is inserted after the third sentence in the third paragraph in Section 5.3.13.1.1.1, Chapter 5, Exhibit E of the License Application and reads: **An Off-road Vehicle Management Plan to address issues related to off-road vehicle use is pending the issuance of a Record of Decision.**
3. The following sentence is added to the end of the 13th paragraph (third paragraph on Page 5-512) in Section 5.3.13.1.1.1, Chapter 5, Exhibit E of the License Application and reads: **Ranger programs at the Hanging Gardens have recently been conducted as visitor numbers have increased.**
4. The 14th paragraph (fourth paragraph on Page 5-512) in Section 5.3.13.1.1.1, Chapter 5, Exhibit E of the License Application is revised – along with the updated number of visitors – to read:

Wahweap District Developed Area

The Wahweap District Developed Area can be reached from Highway 89 via a south access road (Lakeshore Drive) or via a north access road (Wahweap Drive) (Figure 5-157). These access roads are paved (asphalt). Pay stations are located along both access roads in the vicinity of Highway 89. Lakeshore Drive receives more use than does Wahweap Drive, as it is located closer to the city of Page and provides easier access to Phoenix (Hughes 2009). The Wahweap District Developed Area is heavily developed and heavily used. Facilities at this location include:

- **Lake Powell Resort (lodge, restaurant, boat tours, gift shop)**
- **Boat Rentals and Repairs**
- **Boat Launches and Marina**
- **Fuel Pumps and Docks**
- **Stores, Showers, Laundry Facilities**
- **Picnic Area**
- **Campground**
- **Amphitheater**
- **Ranger Station**

- **Fishing, Swimming, and Hiking Areas**

NPS staff reported about 2.5 million visitors at the Wahweap District Developed Area for the 2016 calendar year (NPS 2017).

5. Item 5 of NPC Comment No. 96 is addressed as part of the response to NPS Comment No. 95.

NPS Comment No. 101

Please note that Table 5-132 in the PLP is now Table 5-128 in Section 5.3.15.1.3.4, Chapter 5, Exhibit E of the License Application. An analysis was conducted to review the necessity to construct new access roads or improve existing roadways and reduce new administrative access roads to the extent possible to minimize disturbance on NPS-administered lands. The revised analysis assumes that spur roads would be constructed from the existing access road along the existing 230 kV transmission line south of the proposed 230 kV transmission line and also from existing or proposed Off-road Vehicle routes as designated in the GCLA General Management Plan or the Off-road Vehicle Management Plan/FEIS (ROD pending). Continued coordination with GLCA would occur to assist in identifying access routes and would consider the Off-Road Vehicle EIS ROD. Table 5-128 in Section 5.3.15.1.3.4, Chapter 5, Exhibit E of the License Application is revised and shown below with the changes highlighted in **boldface**.

Table 5-128 Road Construction and Improvement Lengths		
Location/Description	Road Construction (miles)	Road Improvement (miles)
IPS-1 (Intake) to Access Road	0.3	
BPS-1 to Access Road	0.7	
BPS-2 to Highway 89	0.2	
Cottonwood Canyon Road (BPS-3 (Alt.) Transmission Line to Highway 89) and BPS-3 (Alt.)		5.9
BPS-4 (Alt.) to Highway 89	0.1	
High Point Regulating Tank-2	0.1	
HS-1 to Highway 89	0.1	
LPP to Highway 89 (8 mile Gap Road)		8.7
LPP to ASR-389 (Mt. Trumbull Road)		5.8
ASR-239 (Yellowstone Road)		4.6
Hydro-HS-2 (South)	0.1	
Hydro-HS-2 (Highway)	0.1	
Hydro-HS-3	0.1	
Hydro-HS-4 (Alt.)	0.1	
Hurricane Cliffs Hydro Station	0.1	
Sand Hollow Hydro Station		0.5
Along transmission line from Glen Canyon Substation to Buckskin Substation on Non-NPS ROW		34.9

Table 5-128 Road Construction and Improvement Lengths		
Location/Description	Road Construction (miles)	Road Improvement (miles)
Along transmission line from Glen Canyon Substation to Buckskin Substation on NPS ROW (17 spur roads @ variable lengths)	1.1	
BPS-2 transmission line		7.0
Access spur roads to Pipeline along Highway 89 (10 @ 500 ft each)	0.9	
Along Penstock from Highway 89 SW to Navajo-McCullough transmission line (near White Sage Wash)	11.3	
Spurs to Penstock from Highway 89A to Hwy 239 (5 @ 200 ft each)	0.2	
Along Penstock from Highway 89 SW to near Fredonia		4.8
Along Pipeline W of HS-3	9.5	
Access spur roads from Hurricane Cliffs Hydro to Sand Hollow Hydro	0.2	
Along transmission lines E of Sand Hollow Reservoir	13.2	
Total	38.4	72.2
Notes:		
<ol style="list-style-type: none"> Road Construction – Work includes installing new access roadways to facilities, pipelines, penstocks and transmission lines. The work would include clearing, grubbing, grading and installing gravel to allow safe access by trucks, other vehicles and maintenance equipment. The new access roads to each listed feature would be gravel. Road Improvements – Work includes minor clearing and grading and possible installation of gravel to existing unimproved roads as needed to allow access to the new facilities, pipelines, penstocks and transmission lines. 		

NPS Comment No. 102

A footnote is added to Table 5-137 in Section 5.3.16.2.2, Chapter 5, Exhibit E of the License Application to clarify that the former McDonald’s parking lot is not within the park. Please note that Table 5-142 in the PLP is now Table 5-137 in the License Application, which replaces the PLP. The revised table is shown following:

Table 5-137 List of Visual Simulation for the Proposed Action by KOP		
KOP No.	Simulation Name/Subject	Corresponding VAU Number and Name
2	Former McDonalds Parking Lot*	1- Lake Powell / Glen Canyon Unit
3	Gravel Pullout near Bridge	1- Lake Powell / Glen Canyon Unit
4	Chains Day Use Area	1- Lake Powell / Glen Canyon Unit
5	Lake Powell Lake Surface	1- Lake Powell / Glen Canyon Unit
6	Wahweap Overlook	2- Wahweap Unit
9	Grand Staircase-Escalante National Monument Visitor Center*	3- Big Water Unit
10	BPS-2 from Highway 89 Eastbound*	3- Big Water Unit
10	BPS-2 from Highway 89 Westbound*	3- Big Water Unit
11b	BPS-3(Alt) from Highway89*	4- East Clark Bench Unit

Table 5-137
List of Visual Simulation for the Proposed Action by KOP

12b	BPS-3 (Alt)from Cottonwood Road*	4- East Clark Bench Unit
13	Highway 89 near Toadstools Trailhead*	5- Rimrocks / Paria River Valley Unit
14	Toadstools Trailhead*	5- Rimrocks / Paria River Valley Unit
18	BPS-4 (Alt) from Eastbound Highway 89 (tangential view)*	7- Fivemile Valley Unit
20	Hydro Station 1 from Highway 89*	8- Telegraph Flat Unit
21	High Point Regulation Tank 2 from Great Western Trailhead*	8- Telegraph Flat Unit
24	Highway 89 near Pioneer Gap*	9- Kanab / Vermilion Cliffs Unit
26	Shinarump Cliffs Overlook*	10- Whitesage Wash Unit
28	Kanab Creek (Kanab Creek ACEC)*	12- Jacob Canyon / Kanab Creek / Pipe Valley Unit
29	Bitter Seeps Wash (Kanab Creek ACEC)*	12- Jacob Canyon / Kanab Creek / Pipe Valley Unit
30	Mount Trumbull Road*	12- Jacob Canyon / Kanab Creek / Pipe Valley Unit
33	Hydro Station 2 South from Co. Rd 239*	14- Cottonwood Wash Unit
34	Hydro Station 3 from Uzona Avenue*	15- Colorado City / Hildale Unit
35	Uzona Avenue/Canaan Wash*	16- Uzona / Canaan Wash Unit
37	Little Creek Overlook*	18- Frog Hollow Unit
38	Hydro Station 4 (Alt) from Frog Hollow Road*	18- Frog Hollow Unit
39	Hurricane Cliffs Road (view to south)*	19- Hurricane Cliffs Road Unit
40	Hurricane Cliffs – Unnamed Off-Highway-Vehicle Road*	19- Hurricane Cliffs Road Unit

Source: Logan Simpson Design Inc.

Notes:

ACEC = area of critical environmental concern; BPS = booster pump station; KOP = key observation point; VAU = visual assessment unit

***KOP is not within GLCA**

NPS Comment No. 106

The fourth paragraph and Table 5-156 in Section 5.3.18.1.2, Chapter 5, Exhibit E of the License Application are revised to read: **Table 5-156 shows Ldn noise levels for different types of areas along the LPP. Ldn is the average day versus night sound level and is defined as the 24-hour A-weighted sound level. It includes approximately 10 percent decibel reduction in nighttime levels to account for more sensitive receptors to nighttime noises.**

Table 5-156 Typical Day-Night Noise Levels for Various Areas		
Description	Typical Range, L_{dn} (dBA)	Average L_{dn} (dBA)
Natural Ambient Sound in GLCA near IPS and BPS-1	24 to 25	24
Existing Ambient Sound in GLCA near IPS and BPS-1	35 to 38	36
Quiet Suburban Residential	48 to 52	50
Normal Suburban Residential	53 to 57	55
Urban Residential	58 to 62	60
Noisy Urban Residential	63 to 67	65
Very Noisy Urban Residential	68 to 72	70
Source: (FHWA 2011; CUWCD 2004; NPS 2017)		

NPS Comment No. 107

The first paragraph and Table 5-157 in Section 5.3.18.1.2.1, Chapter 5, Exhibit E of the License Application are revised to read: **A field investigation was performed to collect existing ambient sound level data along the LPP alternative alignments in July 2009. Recorded peak sound levels were generally below 70 dBA except at roadways with vehicular traffic, which were as high as 79 dBA. Field-measured existing ambient sound levels were typically at or below 52 dBA except near roadways or waterways. Table 5-157 details the existing ambient sound level field data gathered in the region. The approximate locations of field data measurements collected along the LPP area of potential effect are shown in Figures 5-210 (Water Conveyance System Decibel Contours), 5-211 (Hydro System Decibel Contours), 5-212 (Water Conveyance System Transmission Decibel Contours), and 5-213 (Hydro System Transmission Decibel Contours). Additionally, NPS provided existing ambient sound level data for NPS-administered land at locations shown in Table 5-157.** Peak level attributes to wind would be evaluated to make sure the dominant noise source is not microphone flow-induced noise (wind turbulence) and the requirements of ANSI 12.9-2013 Part 3, section 6.3 (b) maximum wind velocity are met.

Table 5-157 LPP Existing Ambient Sound Level Measurement Field Data			
Page 1 of 2			
Location	Existing Ambient Level (dBA)	Peak Level (dBA)	Comments
Water Conveyance System (see Figures 5-210, 5-212 and 5-213a for sound level measurement locations)			
LPP Water Intake Pump Station Site	36 ^a	66	Vehicle traffic on Highway 89, wind
LPP BPS-1 Site	35 ^a	66	Vehicle traffic on Highway 89, wind
Unnamed wash east of Blue Pool Wash at LPP crossing	31 ^a	54	Vehicle traffic on Highway 89, wind
Blue Pool Wash at LPP crossing	31 ^a	62	Vehicle traffic on Highway 89, wind
"Wetland" West of Blue Pool Wash at LPP crossing	30 ^a	54	Vehicle traffic on Highway 89, wind
2nd wash east of Big Water at LPP crossing	32 ^a	64	Vehicle traffic on Highway 89, wind
Unnamed wash at GSENM trailhead east of Paria River at LPP crossing	<50	68	Vehicle traffic on Highway 89, wind
Paria River south side at LPP crossing alternative	54	70	Vehicle traffic on Highway 89, wind
Hydro System (see Figures 5-211 and 5-213 for sound level measurement locations)			
Johnson Canyon Wash at LPP crossing	51	64	Vehicle traffic on Highway 89, wind
White Sage Wash access road in AZ	<50	64	Sound caused by wind
Jacob Canyon at LPP crossing on Southeast Corner Alternative	51	79	Sound caused by wind
Jacob Canyon at LPP crossing on SE corner Kaibab-Paiute Indian Reservation – Proposed Action	<50	51	Slight sound caused by wind
Jacob Canyon at confluence with Kanab Creek at LPP crossing – Proposed Action	<50	64	Sound caused by wind
Bitter Seeps Wash at LPP crossing for Proposed Action	<50	<50	No wind

Table 5-157			
LPP Existing Ambient Sound Level Sound Level Measurement Field Data			
Page 2 of 2			
Location	Existing Ambient Level (dBA)	Peak Level (dBA)	Comments
Kanab Creek at LPP crossing of Existing Highway Alternative	<50	<50	No wind
Cottonwood Creek at LPP crossing on Kaibab-Paiute Indian Reservation - Existing Highway Alternative	<50	68	Vehicle traffic on Highway 389
Two-Mile Wash at LPP crossing on Kaibab-Paiute Indian Reservation - Existing Highway Alternative	<50	59	Vehicle traffic on Highway 389
Two-Mile Wash at Toroweap Road crossing	<50	60	Sound caused by wind
Unnamed wash E. of Two-Mile Wash at LPP crossing on Kaibab-Paiute Indian Reservation - Existing Highway Alternative	51	89	Vehicle traffic on Highway 389; sound caused by wind
Unnamed wash west of Pipe Springs at LPP crossing on Kaibab-Paiute Indian Reservation - Existing Highway Alternative	<50	78	Vehicle traffic on Highway 389
Short Creek at LPP crossing in Colorado City	52	64	Proximity to Highway 389 traffic influenced sound levels
Short Creek at LPP crossing in Canaan Gap area (East Crossing)	<50	62	Measureable sound caused by wind
Short Creek at LPP crossing in Canaan Gap area (West Crossing)	<50	51	Slight sound caused by wind
Hydro System (see Figures 5-211 and 5-213 for sound level measurement locations)			
Unnamed wash south of Hurricane Cliffs forebay site at LPP crossing	<50	53	Slight sound caused by wind
Gould Wash at TL crossing	<50	50	Slight sound caused by wind
Sand Hollow Reservoir West Dam	66	72	Measureable sound caused by wind
Hurricane West substation site	68	77	Measureable sound caused by wind
Notes:			
^a NPS geospatial existing ambient model used to estimate existing ambient sound levels in GLCA, available at: https://irma.nps.gov/DataStore/Reference/Profile/2217356			
1. All sound level measurements recorded on a Realistic Sound Level Meter. All sound level measurements recorded in dBA.			
2. Vehicle traffic sounds are generated by mobile sources. Sound generated by wind is considered temporary.			
3. Existing ambient sound levels were recorded over a 30-second period.			
4. Peak sound levels recorded represent maximum sound generated over the 30-second period of measurement.			
5. Data collected on 7/23/2009 and 7/24/2009 (MWH 2009).			
6. TL = Transmission Line			

NPS Comment No. 108

The requested changes in the noise analysis are provided.

Please see the response to NPS Comment No. 27 in this Extended Narrative document for the revised LPP noise effect threshold of 45 dBA and references to noise effects research demonstrating documented

noise effects on wildlife at 45 dBA and above in habitats similar to where the LPP would affect GLCA. Additionally, the response to NPS Comment No. 27 references the sound level standards in ANSI/ASA S12.9 Part 5 and ANSI/ASA S12.100-2014.

The third bullet in the first paragraph in Section 5.3.18.2.2.2, Chapter 5, Exhibit E of the License Application is revised to read: **Operation and maintenance of facilities was eliminated from further analysis as it relates to effects on humans and wildlife because of the infrequent nature of the maintenance and the likelihood the noise would include vehicle noise only and the inclusion of sound attenuation enclosures in the facility designs. Sound levels at the boundary fences of the IPS and BPS-1 would be 45 dBA, which would be the lowest sound level at which construction noise effects on wildlife are demonstrated to occur in natural rural habitats such as those in GLCA (Shannon et al. 2016 and Blickley et al. 2012).**

A new paragraph is inserted following the first paragraph in Section 5.3.18.2.3.1, Chapter 5, Exhibit E of the License Application and reads: **Pump station operation sound levels on NPS-administered lands in GLCA at the boundary fences of the IPS and BPS-1 would be 45 dBA, and there would be no measurable effects on wildlife outside of these boundary fences. Sound levels generated by the IPS would decay to GLCA ambient sound levels of 35 to 38 dBA in GLCA within approximately 150 feet of the boundary fence. Sound levels generated by BPS-1 would decay to GLCA ambient sound levels of 35 to 38 dBA in GLCA within approximately 200 feet of the boundary fence. Figure 5-213a shows the revised sound levels with 6 dBA decay by doubling of distance from the IPS and BPS-1.**

A new paragraph is inserted following the third paragraph in Section 5.3.18.4.1, Chapter 5, Exhibit E of the License Application and reads: **The cumulative effects of the LPP with the UDOT projects along Highway 89 would be temporary during LPP construction that is coincident with UDOT projects. The UDOT peak highway construction noise level (95 dBA) combined with the LPP peak construction noise (92 dBA) would be 97 dBA 50 feet from the source per the decibel combination rule (FHWA 2011). This temporary peak noise level would decay to the wildlife effect threshold of 45 dBA within 4.4 miles. These potential temporary cumulative effects on wildlife and humans would be significant for periods of time not exceeding 15 minutes per episode, with up to three episodes per day for two weeks.**

A new paragraph is inserted following the third paragraph in Section 5.3.18.4.1, Chapter 5, Exhibit E of the License Application and reads: **The cumulative effects of the LPP with the pending GLCA Off-road Vehicle Management Plan would be temporary during construction at specific points where ORV trails and roads would intersect LPP construction activities. Temporary cumulative effects on peak sound levels at ORV roads in the Ferry Swale area could occur from the LPP construction activities of the transmission line towers (93 dBA helicopter flyover) combined with the average composite ORV sound level (Lmax of 80.1 dBA at a distance of 20 feet from the source), resulting in a combined sound level of 93 dBA per the decibel combination rule (FWHA 2011). The temporary cumulative effects of peak sound levels on wildlife would decay to the wildlife effect threshold of 45 dBA within 2.4 miles. These potential temporary cumulative effects on wildlife would be significant for periods of time not exceeding 15 minutes per episode, with up to three episodes per day for two days. Average composite sound levels of 80.1 dBA at 20 feet from the source resulting from ORV use of GLCA General Management Plan (GMP) roads under the pending GLCA ORV Vehicle Management Plan intersecting the proposed LPP alignment construction peak sound levels of 94 dBA could have temporary cumulative effects on wildlife and humans, resulting in a combined sound level of 94 dBA per the decibel combination rule (FWHA 2011). The temporary cumulative effects of peak sound levels on wildlife would decay to the wildlife effect threshold of 45 dBA within 2.6 miles. These potential temporary cumulative effects on wildlife would be significant for periods of time not exceeding 15 minutes per episode, with up to three episodes per day for two days.**

NPS Comment No. 110

Further explanation on how noise from highways compare with access roads is provided as requested. The first bullet in the first paragraph in Section 5.3.18.2.2, Chapter 5, Exhibit E of the License Application is revised to read: **Existing traffic noise is 85 dBA along much of the LPP alignment, including Highway 89 through Glen Canyon National Recreation Area and Grand Staircase-Escalante National Monument. The noise created from LPP temporary construction access road use parallel to the highways would be inconsequential relative to the highway noise. The LPP alignment construction access road parallel to Highway 89 in GLCA would be within 40 to 70 feet of the existing pavement edge. Average annual daily traffic (AADT) at the Utah/Arizona state line is 3,130 comprised primarily of semi-trucks with trailers, over-sized recreational vehicles, and tour buses. The LPP construction traffic would be approximately 28 AADT consisting of pickup trucks (average 75 dBA), pipeline delivery trucks (average 76 dBA), water trucks (average 76 dBA), and service trucks (average 76 dBA). LPP temporary construction access road traffic noise would have lower sound levels than the Highway 89 traffic. Therefore, LPP temporary access road traffic noise is not analyzed further.**

NPS Comment No. 111

The requested analysis on indoor noise effects is provided.

The first sentence in the first paragraph in Section 5.3.18.2.3.1, Chapter 5, Exhibit E of the License Application is revised to read: **The Proposed Action alignment is routed near several residential areas, and outdoor sound levels could possibly affect human and wildlife receptors temporarily during construction.**

Two new paragraphs are inserted after the first paragraph in Section 5.3.18.2.3.1, Chapter 5, Exhibit E of the License Application and read: **The Proposed Action construction would temporarily generate peak sound levels of 90 dBA at the source. Indoor sound levels and potential effects on speech interference would vary with distance from the temporary construction activities. The EPA quantifies the typical sound level reduction of buildings (with windows closed) in warm climate as 24 dB from outdoor sound levels to indoor sound levels (EPA 1978). Typical sound level reduction of buildings with windows open in warm climate is 12 dB from outdoor sound levels to indoor sound levels. NPS uses a raised-voice speech interference threshold of 52 dBA for outdoor interpretive sites (EPA 1974). GLCA uses a Peak indoor sound levels at NPS structures in GCLA resulting from LPP temporary construction activities would be at the following levels and would have the noted effects on indoor speech interference:**

- | | | |
|--|--------|---------------------------|
| • Carl Hayden Visitor Center (Reclamation) | 40 dBA | No speech interference |
| • NPS South Wahweap Entrance (windows open) | 58 dBA | Minor speech interference |
| • NPS Wahweap Overlook (outdoor structure) | 56 dBA | Minor speech interference |
| • NPS Wahweap Area Office (windows closed) | 33 dBA | No speech interference |
| • NPS Lone Rock Area structures (windows closed) | 26 dBA | No speech interference |

The following peak indoor sound levels would occur from LPP temporary construction activities at the closest indoor locations to the pipeline alignment on private lands:

- | | | |
|----------------------------------|--------|---------------------------|
| • Lake Powell Mart (Greenehaven) | 55 dBA | Minor speech interference |
| • Lower Big Water homes | 60 dBA | Minor speech interference |

- **Upper Big Water BLM Visitor Center 60 dBA Minor speech interference**

The following references are added to Section 5.3.18.6, Chapter 5, Exhibit E of the License Application:

EPA. 1978. Protective Noise Levels. EPA 555/9-79-100. Office of Noise Abatement and Control, Washington D.C. 28 pp.

_____. 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Safety Margin. Office of Noise Abatement and Control, Washington, D.C. March 1974.

NPS Comment No. 113

The text changes in the response address the comments made in NPS Comment No. 113.

Section 5.3.20.1.3 is part of the Affected Environment description of archaeological and historic-era resources. NPS Comment No. 113 requests further analysis regarding withdrawals from Lake Powell and how the LPP withdrawals would affect reservoir levels and the cultural resources along the reservoir shoreline. The effects analysis for archaeological and historic-era resources is presented in Section 5.3.20.2, Chapter 5, Exhibit E of the License Application, which discusses the effects of the Proposed Action and alternatives. In order to understand the LPP effects on reservoir elevations and associated resources, it is important to first review the hydrological modeling performed by Reclamation on Lake Powell. Reclamation's report is included as Appendix 2, Reclamation Colorado River Modeling Report, in the Final Surface Water Resources Study Report, which summarizes the Colorado River System Simulation (CRSS) modeling of Lake Powell and Glen Canyon Dam releases.

Section 5.3.3.2.3.1, Chapter 5, Exhibit E of the License Application describes the effects of the LPP diversions from Lake Powell on reservoir elevations and reports the results using direct natural inflow hydrology at the 90th percentile, 50th percentile, and 10th percentile of 105 simulations or "traces" with the graph in Figure 5-91 showing the difference between LPP diversions (pipeline) and no LPP diversions (no action) at the selected percentiles. The 90th percentile represents a 90 percent probability that the reservoir elevations would be an average difference of 0.20 ft in any one year from 2015 through 2060 between the LPP and No Action. The maximum reservoir elevation difference at the 90th percentile is simulated at 0.54 ft in 2059; however, the CRSS model runs assume under No Action that the LPP water is not diverted and remains in Lake Powell, with all other reasonably foreseeable diversions held constant at 2015 quantities, which causes the LPP water to gradually increase in storage volume within the reservoir. Please see the response to NPS Comment No. 52 for an explanation that UBWR would utilize their water rights totaling 86,249 ac-ft per year and would not leave their water in Lake Powell. The 90th percentile average difference in reservoir levels between LPP and No Action, corrected for UBWR diverting their water rights out of Lake Powell, is estimated at 0.57 ft at the full diversion in any one year from 2048 through 2060. Applying the same corrections for UBWR not leaving their water rights totaling 86,249 ac-ft per year in Lake Powell, the 50th percentile average difference in reservoir levels between LPP and No Action in any one year from 2048 to 2060 is estimated at 0.74 ft at the full diversion. Applying the same corrections for UBWR not leaving their water rights totaling 86,249 ac-ft per year in Lake Powell, the 10th percentile average difference in reservoir levels between LPP and No Action in any one year from 2048 to 2060 is estimated at 1.09 ft at the full diversion volume. At the 10th, 50th, and 90th probabilities, the average difference in reservoir levels (corrected for UBWR diverting their water rights totaling 86,249 ac-ft per year out of Lake Powell) in any one year from 2015 through 2047 would be much less than 1.09 ft, 0.74 ft, and 0.57 ft, respectively. The 10 percent probability reservoir elevation of 1.00 ft (corrected for UBWR diverting their water rights out of Lake Powell) difference between LPP and

No Action has a higher value than the 50th percent and 90th percent probability values because the simulated water elevation would be lower and the corresponding storage volume difference with the LPP at lower reservoir elevations would be a higher proportion of the total storage volume. The 50th percentile or 50 percent probability is the median value of the 105 “traces” and with the corrections to remove UBWR’s water rights from Lake Powell, the 0.74 ft median value is within the maximum and minimum reservoir elevations under normal operations in any month, well within the reservoir elevation differences resulting from equalizing releases made by Reclamation to transfer water to Lake Mead, well within the reservoir elevation differences that occur when high flow releases from Glen Canyon Dam have been made during two to three day periods for sediment management downstream of Glen Canyon Dam, and well within annual reservoir operation elevation differences. Therefore, the LPP diversions (withdrawals) would have negligible effects on cultural resources along the reservoir shoreline because reservoir elevations would be within the normal operations elevations.

A new sentence is added to the first paragraph in Section 5.3.20.2.1, Chapter 5, Exhibit E of the License Application and reads: **Potential effects of the LPP diversion from Lake Powell on cultural resources along the reservoir shoreline would be negligible, and resulting reservoir elevations would be within the monthly normal operations elevations.**

A new sentence is added to the first paragraph in Section 5.3.20.2.2, Chapter 5, Exhibit E of the License Application and reads: **Potential effects of the LPP diversion from Lake Powell on cultural resources along the reservoir shoreline would be negligible, and resulting reservoir elevations would be within the monthly normal operations elevations.**

Reclamation’s CRSS model of the LPP effects on Lake Powell elevations takes into account reasonably foreseeable diversions from the upstream basin, as described in Appendix 2, Reclamation Colorado River Modeling Report. A key assumption in this modeling is that all future upper basin depletions *except* for the Lake Powell Pipeline and other future depletions assumed to be reasonably foreseeable are modeled as constant at the 2015 depletion levels for the entire model run. In this context, a reasonably foreseeable future depletion is one which has state legislation, or a tribal resolution or Federal Indian water settlement, or a Federal finding of no significant impact (FONSI) or record of decision (ROD). The reasonably foreseeable future depletions as of 2015 are listed in Attachment A: Reasonably Foreseeable Depletion Nodes to Appendix 2 for specific CRSS model depletion nodes. Therefore, all reasonably foreseeable withdrawals are incorporated into the CRSS model and the corrected reservoir elevation results isolate the projected difference between LPP diversion and the No Action alternative, both of which involve UBWR taking their 86,249 ac-ft per year out of Lake Powell.

The projected effects of climate change on Lake Powell reservoir elevations are modeled by Reclamation and included in Appendix 2, Reclamation Colorado River Modeling Report, in the Water Resources Final Study Report, which is filed with FERC as part of the License Application. Section 5.3.3.2.3.1, Chapter 5, Exhibit E of the License Application summarizes the climate change effects on Lake Powell reservoir elevations under the LPP action alternatives and No Action alternative. The same reasonably foreseeable depletions upstream of Glen Canyon Dam as described in the previous paragraph are incorporated into the LPP CRSS model with climate change inflow hydrology. Reclamation applied the climate change future inflow hydrology scenario to the LPP CRSS model, which are the same climate change projections they used in the 2012 Colorado River Basin Water Supply and Demand Study. The climate change inflow data consist of 112 simulations or “traces” of climate change projections of simulated historic and future monthly streamflow from 1950 through 2099. The 112 streamflow projections were developed using General Circulation Model output of 112 future projections of temperature and precipitation output; the temperature and precipitation data was statistically downscaled to a gridded 15km x 15km spatial scale; and then utilized in a hydrologic model of the Colorado River Basin (Variable Infiltration Capacity, or VIC) to simulate future runoff. The 112 projections of gridded future runoff were routed to streamflow at

29 select natural flow node locations in the Colorado River Basin, and bias corrected against Reclamation's historic natural streamflow data. Further information on this data and its use in Colorado River Basin modeling are available in the Colorado River Basin Water Supply & Demand Study Final Study Report, Technical Report B – Supply.

The climate change effects with the LPP diversions from Lake Powell on reservoir elevations are described in Section 5.3.3.2.3.1, Chapter 5, Exhibit E of the License Application at the 90th percentile, 50th percentile, and 10th percentile of 112 simulations or "traces" with the graph in Figure 5-92 showing the difference between LPP diversions (pipeline) and no LPP diversions (no action) at the selected percentiles. The 90th percentile represents a 90 percent probability that the reservoir elevations would be an average difference of 0.39 ft in any one year from 2015 through 2060 between the LPP and No Action. The maximum reservoir elevation difference at the 90th percentile is simulated at 2.14 ft in 2058; however, the CRSS model runs assume under No Action that the LPP water is not diverted and remains in Lake Powell, with all other reasonably foreseeable depletions held constant at 2015 quantities, which causes the LPP water to gradually increase in storage volume within the reservoir. Please see the response to NPS Comment No. 52 for an explanation that UBWR would utilize their water rights totaling 86,249 ac-ft per year and would not leave their water in Lake Powell. The 90th percentile average difference in reservoir levels between LPP and No Action, corrected for UBWR diverting their water rights out of Lake Powell, is estimated at 0.60 ft at the full diversion in any one year from 2049 through 2060. Applying the same corrections for UBWR not leaving their water rights totaling 86,249 ac-ft per year in Lake Powell, the 50th percentile average difference in reservoir levels between LPP and No Action in any one year from 2049 to 2060 is estimated at 0.92 ft at the full diversion. Applying the same corrections for UBWR not leaving their water rights totaling 86,249 ac-ft per year in Lake Powell, the 10th percentile average difference in reservoir levels between LPP and No Action in any one year from 2049 to 2060 is estimated at 3.04 ft at the full diversion volume. At the 10th, 50th, and 90th probabilities, the average difference in reservoir levels (corrected for UBWR diverting their water rights totaling 86,249 ac-ft per year out of Lake Powell) in any one year from 2015 through 2048 would be less than 3.04 ft, 0.92 ft, and 0.60 ft, respectively. The 10 percent probability reservoir elevation of 3.04 ft (corrected for UBWR diverting their water rights out of Lake Powell) difference between LPP and No Action has a higher value than the 50th percent and 90th percent probability values because the simulated water elevation would be lower and the corresponding storage volume difference with the LPP at lower reservoir elevations would be a higher proportion of the total storage volume. The 50th percentile or 50 percent probability is the median value of the 112 "traces" and with the corrections to remove UBWR's water rights from Lake Powell, the 0.92 ft median value is within the maximum and minimum reservoir elevations under normal operations in most months, well within the reservoir elevation differences resulting from equalizing releases made by Reclamation to transfer water to Lake Mead, well within the reservoir elevation differences that occur when high flow releases from Glen Canyon Dam have been made during two- to three-day periods for sediment management downstream of Glen Canyon Dam, and well within annual reservoir operation elevation differences. Therefore, the LPP depletions (withdrawals) under climate change inflow hydrology at the 90th and 50th percent probabilities would have negligible effects on cultural resources along the reservoir shoreline because reservoir elevations would be within the normal operations elevations. The LPP depletions under climate change inflow hydrology at the 10th percentile could have moderate effects on cultural resources along the reservoir shoreline with a 3.04 ft average difference between LPP and No Action conditions under full diversion of the UBWR water rights from Lake Powell; however, the effects of this difference on cultural resources would be moderate because the overriding cause of the low reservoir elevations would be climate change. The cumulative effects of the LPP action alternatives and No Action alternative under climate change conditions at the 10th percentile would be significant when combined with interrelated actions including:

- Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD

- Operation of Glen Canyon Dam EIS and ROD
- Interim Surplus Criteria EIS and ROD
- Bureau of Reclamation and National Park Service LTEMP EIS **and ROD**

A new paragraph is added after the third paragraph in Section 5.3.3.4.1, Chapter 5, Exhibit E of the License Application and reads: **The LPP Proposed Action would have cumulative effects on surface water resources under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the LPP Proposed Action depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of LPP depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow hydrology conditions. These cumulative effects would be significant.

A new subsection and paragraph is added after the sixth paragraph in Section 5.3.3.4, Chapter 5, Exhibit E of the License Application and reads: **5.3.3.4.5 No Action Alternative. The No Action Alternative would have cumulative effects on surface water resources under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the No Action Alternative depletions by UBWR and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of UBWR depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow hydrology conditions. These cumulative effects would be significant.

A new paragraph is added after the first paragraph in Section 5.3.20.4.1, Chapter 5, Exhibit E of the License Application and reads: **The LPP Proposed Action would have indirect cumulative effects on cultural resources along the Lake Powell shoreline under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**

- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the LPP Proposed Action depletions and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of LPP depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow hydrology conditions. These cumulative effects on cultural resources along the Lake Powell shoreline could be significant.

A new paragraph is added after the first paragraph in Section 5.3.20.4.6, Chapter 5, Exhibit E of the License Application and reads: **The No Action Alternative would have indirect cumulative effects on cultural resources along the Lake Powell shoreline under climate change conditions at the 10th percentile when combined with interrelated actions including:**

- **Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD**
- **Operation of Glen Canyon Dam EIS and ROD**
- **Interim Surplus Criteria EIS and ROD**
- **Bureau of Reclamation and National Park Service LTEMP EIS and ROD**

Low reservoir elevations resulting from 10th percentile climate change inflow hydrology conditions as modeled by Reclamation would be lowered further by the combination of the No Action Alternative depletions by UBWR and one or more of the listed interrelated actions. The climate change inflow hydrology would be the primary cause of the lowered reservoir elevation in Lake Powell, and the combination of UBWR depletions and one or more of the other interrelated actions would further lower the reservoir level by at least 3.04 feet at the 10th percentile of climate change inflow hydrology conditions. These cumulative effects on cultural resources along the Lake Powell shoreline could be significant.

NPS Comment No. 114

The U.S. Bureau of Reclamation (Reclamation) was contracted by UDWR to model the effects of LPP depletions (or withdrawals) on Lake Powell elevations. Reclamation is recognized as the U.S. Government's expert agency in operation and modeling of the Colorado River, Lake Powell and Glen Canyon Dam. Reclamation's CRSS modeling of Lake Powell elevations assumes that no new projects or depletions will occur in the Upper Basin (i.e., the Colorado River upstream of Glen Canyon Dam) by holding depletions constant at 2015 levels. Reclamation states in their CRSS report on LPP prepared for UDWR: "This model assumption adopts a rigorous definition of what reasonably foreseeable future depletions are in the Upper Basin and is consistent with DOI NEPA Implementing Regulations. Under this approach, a reasonably foreseeable future depletion is one which has state legislation, or a tribal resolution or Federal Indian water settlement, or a Federal finding of no significant impact (FONSI) or record of decision (ROD). These are the criteria of certainty that a future depletion would occur at a particular time and place. This is a conservative approach to modeling the alternatives and takes the strictest approach to defining what is included and excluded for the cumulative impact analysis required by the Council on Environmental Quality regulations at 40 CFR 1508.7" (Reclamation 2015). The 2007 Interim Guidelines EIS modeling and ROD were applied by Reclamation to the CRSS modeling for the LPP. The CRSS model runs with LPP depletions implement the Interim Guidelines through 2026 and

revert to the 2007 Interim Guidelines Final EIS No Action Alternative for model years 2027 through 2060 because that is the reasonably foreseeable operation. CRSS model runs by Reclamation with LPP depletions at 86,249 ac-ft per year and the current operating regime (i.e., 2007 Interim Guidelines) were not performed or analyzed because such conditions are not in the reasonably foreseeable future. The LPP effects of 86,249 ac-ft per year depletion (full development of current UBWR water rights for LPP) from Lake Powell are evaluated under post-Interim Guidelines operational policies because this condition is reasonably foreseeable and consistent with the 2007 Interim Guidelines FEIS and ROD.

During the UDWR and NPS meeting on February 1, 2017, clarification of 1) “recent modeling by Colorado West Slope water users”, 2) who the referenced Colorado West Slope water users are, and 3) if copies of the referenced modeling results/reports are available, was requested by UDWR. The NPS response to this request is that Malcom Wilson, BOR, has the federal version of the Colorado West Slope Water Users Report. Malcom Wilson supervised and reviewed the CRSS modeling performed and updated for the LPP by Katrina Grantz, Ph.D., Reclamation Hydrologist. The CRSS modeling for LPP incorporated all reasonably foreseeable future depletions (withdrawals) in the Upper Basin and is consistent with DOI NEPA Implementing Regulations, as stated in Reclamation’s report prepared for UDWR.

NPS Comment No. 114 incorrectly assumes the 2007 Interim Guidelines operations extend beyond 2026 and when combined with potentially low Lake Powell elevations and the LPP full depletions, could trigger either a different Operating Tier and/or Drought Response at Upper Basin CRSPA reservoirs, resulting in the reservoir elevation to drop below the minimum power pool of 3490 ft MSL. As stated earlier in this response, the 2007 Interim Guidelines operations are in effect through 2026, and the FEIS No Action Alternative operations are in effect from 2027 through 2060. Both of these conditions are incorporated into the CRSS model on the LPP prepared by Reclamation for UDWR. The annual LPP depletions would be 15,468 ac-ft from 2024 through 2026, and subtracting this quantity from the lowest 10th percentile data point (3552.0 ft MSL) for Lake Powell end-of-December water elevations for the 2007 Interim Guidelines Preferred Alternative (Appendix R, Attachment C: CRSS Model Outputs, Figure BA-3 on page Att. C-2; and Appendix A, Attachment B: CRSS Model Documentation, Table Att. B-1 on page Att. B-3, 2007 FEIS Colorado River Interim Guidelines), the resulting Lake Powell elevation would be 3551.8 ft MSL. This elevation value is 61.8 ft above the Lake Powell minimum power pool elevation established by Reclamation. Therefore, the LPP depletions during the 2007 Interim Guidelines operations would not trigger a different Operating Tier, Drought Response at Upper Basin CRSP reservoirs (3525 ft MSL threshold elevation in Lake Powell), or decrease Lake Powell elevation below the minimum power pool elevation of 3490 ft MSL.

The 2007 Interim Guidelines operations between 2027 and 2060 would be as described for the FEIS No Action Alternative and ROD. LPP depletions from Lake Powell would gradually increase from 15,648 ac-ft annually in 2027 to 86,249 ac-ft annually in 2048, depending on the growing demand for M&I water from the LPP. The 10th percentile average No Action Alternative elevation in Lake Powell during this period would be 3561.70 ft MSL. This elevation would be lower than the LPP full depletion (84,249 ac-ft annually) average elevation of 3567.24 ft MSL as modeled by Reclamation. Subtracting the CRSS-modeled LPP average full depletion elevation from the No Action elevation (corrected for not storing UBWR’s water right in Lake Powell – see responses to NPS Comment No. 52 and NPS Comment No. 113 regarding UBWR depletion of their water right from Lake Powell) yields a difference of 1.09 ft, and subtracting 1.09 ft from 3561.70 ft MSL equals 3560.61 ft MSL, which would be 70.61 ft above the Lake Powell minimum power pool elevation. Therefore, the LPP full depletion during the post-Interim Guidelines operating period from 2027 through 2060 would not trigger a Drought Response at Upper Basin CRSP reservoirs (3525 ft MSL threshold elevation in Lake Powell) or decrease Lake Powell elevation below the minimum power pool elevation of 3490 ft MSL.

The most conservative analysis of the combined effect of LPP full depletion and post-Interim Guidelines operation on Lake Powell elevations involves subtracting the LPP full depletion difference (1.09 ft) from the lowest 10th percentile data point (3544.50 ft MSL) for Lake Powell end-of-December water elevations for the 207 Interim Guidelines No Action Alternative (Appendix R, Attachment C: CRSS Model Outputs, Figure BA-3 on page Att. C-2; and Appendix A, Attachment B: CRSS Model Documentation, Table Att. B-1 on page Att. B-3, 2007 FEIS Colorado River Interim Guidelines). The resulting Lake Powell elevation at 10 percent probability would be 3543.41 ft MSL, which is 53.41 ft above the Lake Powell minimum power pool elevation. Therefore, the LPP full depletion during the post-Interim Guidelines operating period from 2027 through 2060 would not trigger a Drought Response at Upper Basin CRSP reservoirs (3525 ft MSL threshold elevation in Lake Powell) or decrease Lake Powell elevation below the minimum power pool elevation of 3490 ft MSL.

Reclamation's 2015 updated report on CRSS modeling of LPP prepared for UDWR acknowledges potential future depletions by Upper Basin states to utilize their full allocations could decrease Lake Powell elevations; however, these future depletions are not in the reasonably foreseeable future consistent with DOI NEPA Implementing Regulations. Therefore, there is a low probability of Lake Powell falling below the minimum power pool elevation of 3490 ft MSL, as modeled by Reclamation at the 10th percentile using direct natural flow inflow hydrology.

Reclamation's updated CRSS model of LPP prepared for UDWR in 2015 incorporates climate change inflow hydrology. The climate change inflow hydrology simulation results show a 90 percent probability that Lake Powell elevation with LPP full depletion would average 3675.86 ft MSL in any one year between 2049 and 2060, 0.60 ft below the No Action CRSS modeled elevation (corrected for UBWR full depletion of their water right). The climate change simulation results show a 50 percent probability that Lake Powell elevation with LPP full depletion would average 3597.30 ft MSL in any one year between 2049 and 2060, 0.92 ft below the No Action CRSS modeled elevation (corrected for UBWR full depletion of their water right). The 90th and 50th percentiles of Lake Powell elevations with LPP full depletion would not result in elevations below the minimum power pool. The climate change simulation results show a 10 percent probability that Lake Powell elevation with LPP full depletion would average 3409.72 ft MSL in any one year between 2049 and 2060, 3.04 ft below the LPP No Action CRSS-modeled elevation (corrected for UBWR full depletion of their water right). Therefore, only the 10th percentile of CRSS modeled Lake Powell elevations with climate change inflow hydrology would result in triggering Drought Response at Upper Basin CRSP reservoirs (3525 ft MSL threshold elevation in Lake Powell) and decrease Lake Powell elevation below the minimum power pool elevation of 3490 ft MSL. It is important to note that the 10th percentile CRSS model runs with climate change inflow hydrology triggering Drought Response at Upper Basin CRSP reservoirs and Lake Powell elevation below the minimum power pool would not result from the LPP depletions, rather they would result from reduced inflow resulting from the most extreme projections of climate change.

Reclamation. 2015. Draft Lake Powell Pipeline Hydrologic Modeling. Prepared for UDWR by U.S. Bureau of Reclamation, Upper Colorado Region, Salt Lake City, Utah. Prepared by Katrina Grantz, Ph.D. September 2015. 24 pp.

NPS Comment No. 115

Flow duration data and curves from the Virgin River Daily Simulation Model (VRDSM) developed by UDWR demonstrate no to minimal differences between the future without the LPP and future with the LPP in the Virgin River. A flow duration curve is a cumulative frequency curve that shows the percent of time specified discharges are equaled or exceeded during a given period. It combines in one curve the

flow characteristics of a stream throughout the range of discharge, regardless of the sequence of occurrence. If the streamflow during the period on which the flow duration curve is based represents the long-term flow of the stream, the curve may be considered a probability curve and used to estimate the percent of time that a specified discharge will be equaled or exceeded in the future (USGS 1959). The Virgin River flows used in the flow duration curve analysis represent historical flow data from the period 1941 through 2013 (72 years). These flow data are corrected for projected decreases in Virgin River streamflow resulting from climate change modeled by Reclamation for UDWR. The minimal differences between comparisons of the VRDSM flow duration curves are caused by timing of the simulated return flows between the future without the LPP and future with the LPP. The LPP would convey the water into Sand Hollow Reservoir, which would be transferred to the Washington County Water Conservancy District (WCWCD) Quail Creek Water Treatment Plant for treatment to meet future M&I water demands. No LPP water would flow directly into the Virgin River; after use for M&I purposes, some return flows would flow into the Virgin River through a variety of pathways.

The VRDSM flow duration curves represent long-term Virgin River flows and are considered a robust data set for probability curves used to estimate the percent of time a specified discharge would be equaled or exceeded in the future. The VRDSM flow duration curves are not annual curves; they represent the continuum of flow conditions in the Virgin River based on 72 years of daily flow data. For example, the flow duration curve data for VRDSM node QX29 in the Virgin River at the Utah-Arizona state line (Figure 4-13 in Final Study Report 18, Surface Water Resources, and Figure 5-88 in Section 5.3.3.2.2.2, Chapter 5, Exhibit E of the License Application) demonstrate a 70 percent probability of 53 cfs with the LPP and 48 cfs under No Action (without the LPP) at any point in time. Virgin River flows at the Utah-Arizona state line are downstream of where LPP indirect return flows would enter the river, and it would appear the estimated 5 cfs increase in flow with the LPP return flows in this example could improve the condition, trend, abundance, and diversity of biotic resources (e.g., fisheries, aquatic macroinvertebrates, food web dynamics, riparian/wetland vegetation, available/usable habitat) and abiotic resources (thermal loading capacity, channel and sediment dynamics, dissolved oxygen concentrations, other water quality parameters). However, the 5 cfs flow increase in this example is within the accuracy rating for USGS gage number 09413500 at the state line (ranging from 8 cfs in the low flow months of July and August to 45 cfs in the high flow month of April) and every month throughout the year. The U.S. government's expert agency on stream gaging (USGS) recognizes the difficulty in making exact, accurate measurements of streamflows in open, natural channels and would consider the 5 cfs increase in this example to be within the measurement accuracy of the stream gage. Sixty-six percent of the flow duration curve data with the LPP show Virgin River flows would be equal to or slightly greater than No Action (without LPP return flows) for all VRDSM nodes (QX21, QX26, QX27, QX28, and QX29) shown in the analyses. Thirty-four percent of the flow duration curve data with No Action (without LPP return flows) are slightly greater than with the LPP for all VRDSM nodes shown in the analyses, and all of these data represent a range from 1 percent to 27 percent of the flow probabilities (the higher end of stream flows). All of the differences between the flow probabilities with the LPP and without the LPP for all the VRDSM nodes shown in the analyses are within the accuracy rating of the closest downstream USGS stream gage. Therefore, the effects of minor simulated increases or decreases in flow between with the LPP and without the LPP (No Action) are not measurable in the Virgin River.

NPS Comment No. 115 references Table 4-3 and Figure 4-6 in Final Study Report 18, Surface Water Resources (same as Table 5-24 and Figure 5-79, respectively, in Section 5.3.3.2.2.2, Chapter 5, Exhibit E of the License Application), which show VRDSM simulated mean monthly flow differences of 14 cfs in March, 17 cfs in April, and 11 cfs in May between No Action (future without LPP) and with LPP indirect return flows at VRDSM node QX21. The mean monthly flows during these months demonstrate the annual spring runoff period, with streamflows under the No Action (without LPP) and with the LPP greater than 200 cfs, which coincides with the period when WCWCD diverts a large portion of their water rights into off-stream storage reservoirs (Quail Creek and Sand Hollow) to help meet demands for M&I

water throughout the year. It is important to note that VRDSM node QX21 is at the Highway 9 bridge over the Virgin River, corresponds to USGS gage number 09408150, and is upstream of any of the VRDSM simulated return flows from the use of LPP water. All of the simulated mean monthly flow differences between the No Action (without LPP) and with LPP return flows at VRDSM node QX21 are within the accuracy rating for USGS gage number 09408150. The simulated mean monthly flow results show the magnitude of flows occurring during each month throughout the period of record (72 years). Figure 4-7 in Final Study Report 18, Surface Water Resources (same as Figure 5-80 in Section 5.3.3.2.2.2, Chapter 5, Exhibit E of the License Application) is the flow duration curve for VRDSM node QX21, representing 72 years of daily flow data and probability of Virgin River flow at any point in time. Using the same example as described earlier in this response, the QX21 flow duration curve data demonstrate a 70 percent probability of 86 cfs with the LPP and 86 cfs under No Action (without the LPP) at any point in time. At 98 percent probability, the QX21 flow duration curve data demonstrate 86 cfs with the LPP and 86 cfs under No Action (without the LPP) at any point in time. At 25 percent probability, the QX21 flow duration curve data demonstrate 86 cfs with the LPP and 88 cfs under No Action (without the LPP) at any point in time. The 2 cfs difference at 25 percent probability in this example is within the accuracy rating for USGS gage number 09408150, and the flow difference is not measurable. The effects of the simulated flow differences between LPP indirect return flows and No Action (without the LPP) on biotic resources and abiotic resources associated with the Virgin River would be negligible.

NPS Comment No. 115 identifies a statement in USGS documentation for gage number 09413500 Virgin River Near St. George, UT under the heading Extremes for Period of Record: “[N]o flow at times in some years.” The comment correctly identifies that simulated mean monthly flows do not adequately reflect or capture the duration and frequency of no-flow or extreme low flow events. However, the 72 years of daily streamflow data at USGS gage 09413500 (VRDSM node QX29) do capture the duration and frequency of these events in the flow duration curve data, which is a probability curve. The graph of flow duration curves in Figure 4-13 in Final Study Report 18, Surface Water Resources (same as Figure 5-88 in Section 5.3.3.2.2.2, Chapter 5, Exhibit E of the License Application), demonstrates that the Virgin River streamflow approaches zero cfs between 99 percent and 100 percent of the time. This means that less than 1 percent of the time during the 72 years of daily streamflow data, the Virgin River flows as simulated by the VRDSM approach or equal zero cfs at the Utah-Arizona state line. The flow duration curve data show 3 cfs flow at 100 percent with the LPP and 3 cfs flow at 100 percent under No Action (without the LPP), with no difference between the two modeled scenarios. The 3 cfs daily flow probability represents an average of specific daily flow events between zero cfs and 6 cfs over the period of record. The occurrence of these extreme low flow or no-flow days less than 1 percent of the time demonstrates they are infrequent and of short duration, which is why the USGS notes “no flow at times in some years” under the heading Extremes for Period of Record at gage number 09413500. The flow duration curves for VRDSM node QX29 show the same 3 cfs low-flow values with the LPP and without the LPP return flows, which proves it is possible to determine the LPP would not alter the frequency or duration of no-flow or extreme low-flow events that occur less than one percent of the time during the 72-year period of daily stream flow data.

USGS (United States Geological Survey). 1959. Manual of Hydrology: Part 2. Low Flow Techniques, Flow-Duration Curves. Geological Survey-Water Supply Paper 1542-A. 33 pp.

FIGURES

(Figure 5-213a responds to NPS Comment No. 1)

(Figure 3-8a responds to NPS Comment No. 13)

(Figure 1-3 responds to NPS Comment No. 48)



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<p>Noise Contour dBA Levels from Operation</p> <ul style="list-style-type: none"> — 45dBA — 39dBA — 33dBA 	<ul style="list-style-type: none"> Noise Sample Location Project Pump Station Project Regulating Tank Project Hydro Station — Water Conveyance System — Hydro System - Proposed Action 	<ul style="list-style-type: none"> — Interstate — US Highway — ST Highway — Hwy — Major Road — Major Rivers & Streams 	<ul style="list-style-type: none"> Bureau of Reclamation National Park Service 	<p>FERC Project Number: 12966-001</p> <p>BLM Serial Numbers: AZA-34941 UTU-85472</p> <div style="text-align: right;"> N </div>	<p style="text-align: center;">LPP</p> <p style="text-align: center; font-size: small;">Spatial Reference: UTM Zone 12N, NAD-83</p> <p style="text-align: center;"> UDWRe Figure 5-213a </p> <p style="text-align: center;">LPP Water Conveyance System Decibel Contours - Operation Effects</p>
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Image courtesy of USGS © 2017 Microsoft Corporation

- Water Conveyance System
- Hydro System - South Alignment Alternative
- Hydro System - Highway Alignment Alternative
- Kane County Pipeline System
- Contours 5 ft
- Interstate
- US Highway
- ST Highway
- Hwy
- Major Road

Data Sources:
 Utah Geological Survey
 U.S. Geological Survey
 Arizona Department of Mines

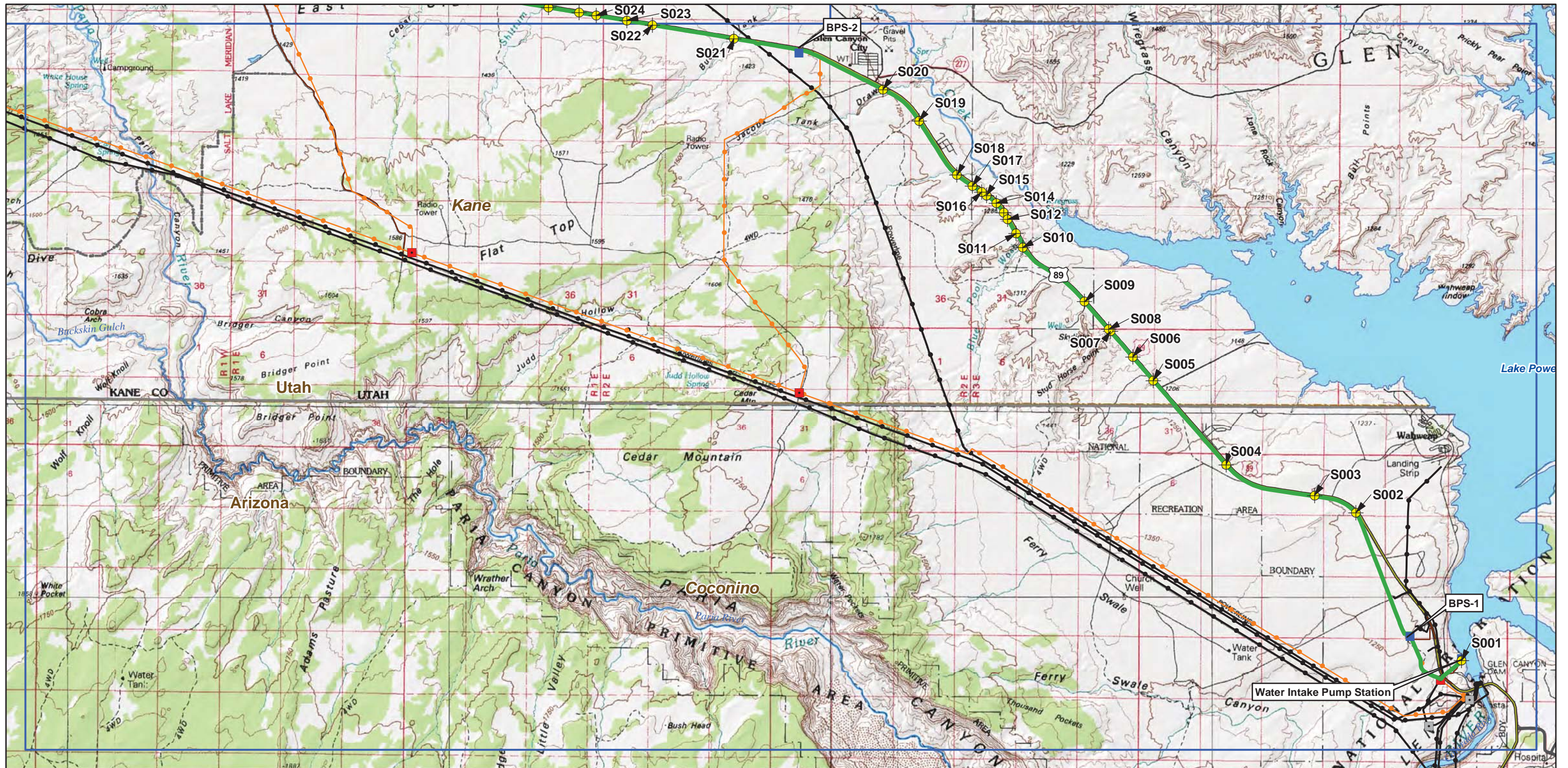
FERC Project Number:
 12966-001
 BLM Serial Numbers:
 AZA-34941
 UTU-85472



Lake Powell Pipeline Project
 Spatial Reference: UTM Zone 12N, NAD-83

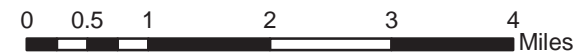
UDWRe Figure 3-8a MWH

**LPP BPS-1
 Access Road Alignment**



- | | | | | |
|-----------------------------|---|--------------|-----------------------------------|------------------------|
| Grid Index | Water Conveyance System | Interstate | Hurricane Cliffs Forebay/Afterbay | National Park/Monument |
| Potential Water of the U.S. | Hydro System - Proposed Action (Penstock Segment) | US Highway | Lakes & Reservoirs | Tribal Lands |
| Project Pump Station | KCWCD System | ST Highway | Rivers & Streams | State Boundaries |
| Project Regulating Tank | Project Transmission Lines | Hwy | Substation | County Boundaries |
| Project Hydro Station | Existing Transmission Lines | Major Road | Proposed Substation | |
| | | Access Roads | | |

FERC Project Number:
 12966-001
BLM Serial Numbers:
 AZA-34941
 UTU-85472



LPP
 Spatial Reference: UTM Zone 12N, NAD-83
UDWR Figure 1-3 **MWH**
LPP
Intermittent Drainage Crossings on GLCA

FEDERAL REGISTER VOL. 79, NO. 185
WEDNESDAY, SEPTEMBER 24, 2014

(Responds to NPS Comment No. 75)

1852.227–88 Government-Furnished Computer Software and Related Technical Data.

As prescribed in 1827.409(m), insert the following clause:

(a) *Definitions.* As used in this clause—

Government-furnished computer software” or *GFCS* means computer software:

(1) In the possession of, or directly acquired by, the Government whereby the Government has title or license rights thereto; and

(2) Subsequently furnished to the Contractor for performance of a Government contract.

“*Computer software, data and technical data* have the meaning provided in the Federal Acquisition Regulations (FAR) Subpart 2.1—Definitions or the Rights in Data—General clause (FAR 52.227–14).

(b) The Government shall furnish to the Contractor the GFCS described in this contract or in writing by the Contracting Officer. The Government shall furnish any related technical data needed for the intended use of the GFCS.

(c) *Use of GFCS and related technical data.* The Contractor shall use the GFCS and related technical data, and any modified or enhanced versions thereof, only for performing work under this contract unless otherwise provided for in this contract or approved in writing by the Contracting Officer.

(1) The Contractor shall not, without the express written permission of the Contracting Officer, reproduce, distribute copies, prepare derivative works, perform publicly, display publicly, release, or disclose the GFCS or related technical data to any person except for the performance of work under this contract.

(2) The Contractor shall not modify or enhance the GFCS unless this contract specifically identifies the modifications and enhancements as work to be performed. If the GFCS is modified or enhanced pursuant to this contract, the Contractor shall provide to the Government the complete source code, if any, and all related documentation of the modified or enhanced GFCS.

(3) Allocation of rights associated with any GFCS or related technical data modified or enhanced under this contract shall be defined by the FAR Rights in Data clause(s) included in this contract (as modified by any applicable NASA FAR Supplement clauses). If no Rights in Data clause is included in this contract, then the FAR Rights in Data—General (52.227–14) as modified by the NASA FAR Supplement (1852.227–14) shall apply to all data first produced in the performance of this contract and all data delivered under this contract.

(4) The Contractor may provide the GFCS, and any modified or enhanced versions thereof, to subcontractors as necessary for the performance of work under this contract. Before release of the GFCS, and any modified or enhanced versions thereof, to such subcontractors (at any tier), the Contractor shall insert, or require the insertion of, this clause, including this paragraph (c)(4), suitably modified to identify the parties as

follows: references to the Government are not changed, and in all references to the Contractor the subcontractor is substituted for the Contractor so that the subcontractor has all rights and obligations of the Contractor in the clause.

(d) The Government provides the GFCS in an “AS-IS” condition. The Government makes no warranty with respect to the serviceability and/or suitability of the GFCS for contract performance.

(e) The Contracting Officer may by written notice, at any time—

(1) Increase or decrease the amount of GFCS under this contract;

(2) Substitute other GFCS for the GFCS previously furnished, to be furnished, or to be acquired by the Contractor for the Government under this contract;

(3) Withdraw authority to use the GFCS or related technical data; or

(4) Instruct the Contractor to return or dispose of the GFCS and related technical data.

(f) *Title to or license rights in GFCS.* The Government shall retain title to or license rights in all GFCS. Title to or license rights in GFCS shall not be affected by its incorporation into or attachment to any data not owned by or licensed to the Government.

(g) *Waiver of Claims and Indemnification.* The Contractor agrees to waive any and all claims against the Government and shall indemnify and hold harmless the Government, its agents, and employees from every claim or liability, including attorney’s fees, court costs, and expenses, arising out of, or in any way related to, the misuse or unauthorized modification, reproduction, release, performance, display, or disclosure of the GFCS and related technical data by the Contractor, a subcontractor, or by any person to whom the Contractor has released or disclosed such GFCS or related technical data.

(h) *Flow-down of Waiver of Claims and Indemnification.* In the event a contract includes this NASA FAR Supplement clause 1852.227–88, the Contractor shall include the foregoing clause 1852.227–88(g), suitably modified to identify the parties, in all subcontracts, regardless of tier, which involve use of the GFCS and/or related technical data in any way. At all tiers, the clause shall be modified to define GFCS as it is defined herein and to identify the parties as follows: references to the Government are not changed, and in all references to the Contractor the subcontractor is substituted for the Contractor so that the subcontractor has all rights and obligations of the Contractor in the clause. In subcontracts, at any tier, the Government, the subcontractor, and the Contractor agree that the mutual obligations of the parties created by this clause 1852.227–88 constitute a contract between the subcontractor and the Government with respect to the matters covered by the clause.

(End of clause)

1852.228-73 [Removed]

■ 65. Section 1852.228–73 is removed.

■ 66. in section 1852.231–71, paragraph (d) is revised to read as follow

1852.231–71 Determination of Compensation Reasonableness.

* * *

Determination of Compensation Reasonableness

(XX/XX)

* * * * *

(d) The offeror shall require all service subcontractors provide, as part of their proposal, the information identified in (a) through (c) of this provision for cost reimbursement or non-competitive fixed-price type subcontracts having a total potential value expected to exceed the threshold for requiring certified cost or pricing data as set forth in FAR 15.403–4.

(End of provision)

■ 67. In section 1852.232–70, paragraphs (a)(2) and (c)(3) are revised to read as follows:

1852.232–70 NASA Modification of FAR 52.232–12 .

* * * * *

NASA Modification of FAR 52.232–12 (XX/XX)

(a) * * *

(2) In paragraph (m)(1), delete “in the form prescribed by the administering office” and substitute “and Standard Form 425, Federal Financial Report.”

* * * * *

(c) * * *

(3) In paragraph (j)(1), insert between “statements,” and “and” “together with Standard Form 425, Federal Financial Report”

* * * * *

1852.237-72, 1852.237-73, 1852.242-70, 1852.249-72 [Removed]

■ 68. Sections 1852.237–72 and 1852.237–73 are removed.

■ 69. Section 1852.242–70 is removed.

■ 70. Section 1852.249–72 is removed.

[FR Doc. 2014–21476 Filed 9–23–14; 8:45 am]

BILLING CODE 7510–13–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R8–ES–2014–0039; 4500030113]

Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List *Eriogonum corymbosum* var. *nilesii* and *Eriogonum diatomaceum*

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 12-month petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding on a petition to list the plants *Eriogonum diatomaceum* (Churchill Narrows buckwheat) and *Eriogonum corymbosum* var. *nilesii* (Las Vegas buckwheat) as endangered or threatened species and to designate critical habitat under the Endangered Species Act of 1973, as amended (Act). After review of the best available scientific and commercial information, we find that listing either *Eriogonum diatomaceum* or *Eriogonum corymbosum* var. *nilesii* is not warranted at this time. However, we ask the public to submit to us any new information that becomes available concerning the threats to the *Eriogonum diatomaceum* or *Eriogonum corymbosum* var. *nilesii* or their habitats at any time.

DATES: The finding announced in this document was made on September 24, 2014.

ADDRESSES: This finding is available on the Internet at <http://www.regulations.gov> at Docket Number FWS-R8-ES-2014-0039. Supporting documentation we used in preparing this finding is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office, 1340 Financial Boulevard, Suite 234, Reno, NV 89502; telephone 775-861-6300; or facsimile 775-861-6301.

FOR FURTHER INFORMATION CONTACT: Edward D. Koch, State Supervisor, U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office, 1340 Financial Boulevard, Suite 234, Reno, NV 89502; telephone 775-861-6300; or facsimile 775-861-6301. If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Previous Federal Actions

We identified *Eriogonum diatomaceum* as a candidate species in the May 4, 2004, candidate notice of review (CNOR; 69 FR 24876). *Eriogonum diatomaceum* was included in all subsequent annual CNORs (70 FR 24870, May 11, 2005; 71 FR 53756, September 12, 2006; 72 FR 69034, December 6, 2007; 73 FR 75176, December 10, 2008; 74 FR 57804, November 9, 2009; 75 FR 69222, November 10, 2010; 76 FR 66370, October 26, 2011; 77 FR 69994,

November 21, 2012; 78 FR 70104, November 22, 2013). When it was first identified as a candidate, we assigned a listing priority number (LPN) of 2, reflecting a species with threats that were high in magnitude and imminent. The LPN was changed to 5 in 2008 (73 FR 75176, December 10, 2008) to reflect a species with threats that were high in magnitude but not imminent; the LPN remained at 5 in all subsequent CNORs.

We identified *Eriogonum corymbosum* var. *nilesii* as a candidate species in the December 6, 2007, CNOR (72 FR 69034). *Eriogonum corymbosum* var. *nilesii* was included in all subsequent annual CNORs (73 FR 75176, December 10, 2008; 74 FR 57804, November 9, 2009; 75 FR 69222, November 10, 2010; 76 FR 66370, October 26, 2011; 77 FR 69994, November 21, 2012; 78 FR 70104, November 22, 2013). On April 22, 2008, we received a petition (Center for Biological Diversity 2008) to list *E. c. var. nilesii* as endangered or threatened under the Endangered Species Act of 1973, as amended (Act; 16 U.S.C. 1531 *et seq.*). We did not publish separate substantial 90-day and warranted-but-precluded 12-month petition findings, but made these findings in the 2008 CNOR (73 FR 75176, December 10, 2008). When it was first identified as a candidate, we assigned a LPN of 6, reflecting a species with threats that were high in magnitude but not imminent; the LPN remained at 6 in all subsequent CNORs.

Background

We completed comprehensive assessments of the biological status of *Eriogonum diatomaceum* and *Eriogonum corymbosum* var. *nilesii*, and we prepared reports of the assessments (Species Reports), which provide a thorough account for each of the plants. This finding is based upon these Species Reports for *Eriogonum diatomaceum* and *Eriogonum corymbosum* var. *nilesii* and scientific analyses of available information prepared by the Service and an application of section 4(a) of the Act. The Species Reports contain the best scientific and commercial data available concerning the status of *Eriogonum diatomaceum* and *Eriogonum corymbosum* var. *nilesii*, including the past, present, and future stressors to the plants. As such, the Species Reports provide the scientific basis that informs our regulatory decision in this document, which involves the further application of standards within the Act and its regulations and policies. The Species Reports (including all references) and other materials relating

to this finding can be found on the Nevada Fish and Wildlife Office Web site at: http://www.fws.gov/nevada/highlights/species_actions/species_actions.html and at <http://www.regulations.gov> at Docket No. FWS-R8-ES-2014-0039.

A summary of the biology, taxonomy, life history, and distribution for each of the plants follows. The reader is directed to the Species Reports for a more detailed discussion of these topics as well as the current conditions of *Eriogonum diatomaceum* and *Eriogonum corymbosum* var. *nilesii* (Service 2014a; Service 2014b; http://www.fws.gov/nevada/highlights/species_actions/species_actions.html).

Eriogonum diatomaceum

Eriogonum diatomaceum is a member of the Polygonaceae (buckwheat family). It is a low, matted, herbaceous perennial forb with leaves that have densely matted, wooly hairs and with head-like clusters of creamy-white flowers. Flowering typically occurs between the months of June and September. *E. diatomaceum* occurs between 4,300 and 4,560 feet (ft) (1,311 and 1,390 meters (m)) in elevation on diatomaceous outcrops, and is a narrow endemic of the Lahontan Basin section of the western Great Basin (Service 2014a, pp. 3–6). We recognize four populations of this species that are restricted to approximately 3 square miles (7.8 square kilometers) in the Churchill Narrows area of the Pine Nut Mountains in Lyon County, Nevada. These four populations occupy approximately 18 acres (ac) (7.3 hectares (ha)) on lands managed entirely by the Bureau of Land Management (BLM) (Service 2014a, pp. 7–10), and *E. diatomaceum*'s historical range is the same as its current range. *E. diatomaceum* was added to the Nevada State list of fully protected species of native flora in 2004. In addition, *E. diatomaceum* is recognized by the BLM as a sensitive species (Service 2014a, p. 3).

BLM monitored each of the four populations from 2005–2007 and in 2012. This sampling data and estimated abundance data for *Eriogonum diatomaceum* in each monitoring location are presented in the Species Report (Service 2014a, pp. 10–13). Overall, BLM sampled 1,104–1,604 plants during each sampling year, and of those, approximately 638–994 were live plants. The estimated abundance of *Eriogonum diatomaceum* in each monitoring location extrapolated from data collected in BLM monitoring macroplots, for each year of data collection, showed a range from 35,950 to 59,307 plants present depending on

the year of the monitoring effort (Service 2014a, p. 13).

Eriogonum corymbosum var. *nilesii*

Eriogonum corymbosum var. *nilesii* (Las Vegas buckwheat) is a member of the Polygonaceae (buckwheat family) (Service 2014b, pp. 4–8). It is an open to somewhat spreading perennial shrub with numerous yellow to pale yellow flowers. Flowering typically occurs between the months of August and November. *Eriogonum corymbosum* var. *nilesii* occurs between 656 and 2,789 ft (200–850 m) in elevation on clayey, gravelly, or rarely sandy flats and slopes (0–3 percent) or gypsum flats and mounds (Service 2014b, pp. 17–18). We recognize the geographic range of *E. c.* var. *nilesii* as restricted to southern Nevada, in contrast to some prior accounts showing a range extending into southern Utah and northern Arizona based on morphological and genetic data described in detail in the Species Report (Service 2014b, pp. 4–11). In southern Nevada, *E. c.* var. *nilesii* is found northwest of the Virgin River (in Lincoln County) and west of Lake Mead (in Clark County). Within this region, *E. c.* var. *nilesii* currently occupies a total of approximately 795.3 ac (321.85 ha) (Service 2014b, pp. 11–12). The majority (80 percent) of this occupied acreage is federally owned, with 72 percent administered by the BLM, and another 8.15 percent by the Department of Defense (DOD), at Nellis Air Force Base. Landownership for the remainder of occupied habitat is as follows: City of Las Vegas (0.13 percent), Clark County (0.80 percent), State of Nevada (0.001 percent), and private landowners (18.81 percent). Of 12 historically recognized populations of the plant (all located in southern Nevada), 9 populations remain extant (4 in Las Vegas Valley, 2 in White Basin Mountains, 1 in Muddy Mountains, 1 in Coyote Springs Valley, and 1 in Toquop Wash), and 3 have been extirpated (2 in the Las Vegas Valley and 1 in the White Basin Mountains) (Service 2014b, pp. 14–16). In addition, four of the extant populations (Las Vegas Valley) have been partially extirpated. *Eriogonum corymbosum* var. *nilesii* is not listed by the State of Nevada, but it is recognized as a sensitive species by the BLM (Service 2014b, p. 3).

Expressed in terms of acreage, *Eriogonum corymbosum* var. *nilesii* has been extirpated from 1,303.5 ac (527.5 ha) of formerly occupied habitat, corresponding to nearly 62 percent of its range. Most of the lands from which the plant has been extirpated are in private ownership (94.9 percent) (Service 2014b, pp. 11–12). Within the range of

the plant, the combined total of available estimates of plants at the nine extant populations ranges between 31,176–31,773 individuals across a total of 795.3 ac (321.85 ha). Of the total 31,176–31,773 estimated individuals, 7,529–7,817+ are located in four populations in Las Vegas Valley, 296+ are located in one population in Muddy Mountains, 308–550+ are located in two populations in White Basin, 13,043–13,110+ are located in Coyote Springs, and 10,000+ are located in Toquop Wash (Service 2014b, pp. 14–16). However, reliable estimation of population size or trends in *E. c.* var. *nilesii* is complicated by many factors including varied survey methods, and as a result, the data are not always directly comparable and must be interpreted with caution (Service 2014b, pp. 18–19).

Summary of Biological Status and Threats

The Act directs us to determine whether any species is an endangered species or a threatened species because of any factors affecting its continued existence. We completed comprehensive assessments of the biological status of *Eriogonum diatomaceum* and *Eriogonum corymbosum* var. *nilesii*, and we prepared reports of the assessments (Species Reports), which provide a thorough account for each of the plants. In this section, we summarize the conclusions of those reports, which can be accessed at Docket FWS–R8–ES–2014–0039 on <http://www.regulations.gov>, and at http://www.fws.gov/nevada/highlights/species_actions/species_actions.html. Section 4 of the Act (16 U.S.C. 1533) and implementing regulations (50 CFR 424) set forth procedures for adding species to, removing species from, and reclassifying species on the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, a species may be determined to be endangered or threatened based on any of the following five factors:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; or
- (E) Other natural or manmade factors affecting its continued existence.

A species is an endangered species for purposes of the Act if it is in danger of extinction throughout all or a significant portion of its range, and is a threatened

species if it is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. For purposes of this analysis, we first evaluate the status of the species throughout all of its range, and then consider whether the species is in danger of extinction or likely to become so in any significant portion of its range.

In making this finding, information pertaining to *Eriogonum diatomaceum* and *Eriogonum corymbosum* var. *nilesii* in relation to the five factors provided in section 4(a)(1) of the Act is summarized below, based on the analysis of stressors contained in the Species Reports. In considering what factors might constitute threats, we must look beyond the mere exposure of the species to the factor to determine whether the species responds to the factor in a way that causes actual impacts to the species. If there is exposure to a factor, but no response, or only a positive response, that factor stressor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine the scope and severity of the potential threat. If the threat is significant, it may drive or contribute to the risk of extinction of the species such that the species warrants listing as endangered or threatened as those terms are defined by the Act. This does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely impacted could suffice. The mere identification of factors that could impact a species negatively is not sufficient to compel a finding that listing is appropriate; we require evidence that these factors are operative threats that act on the species to the point that the species meets the definition of an endangered or threatened species under the Act.

Analysis Under Section 4(a)(1) of the Act

The Act requires that the Secretary determine whether a species is an endangered or threatened species because of any of the five factors enumerated in 16 U.S.C. 1533(a)(1). Our discussion of the threats, which we have categorized here under each of these five factors, is contained in the Species Reports (can be accessed at Docket FWS–R8–ES–2014–0039 on <http://www.regulations.gov>, and at http://www.fws.gov/nevada/highlights/species_actions/species_actions.html). In the Species Reports, we present detailed discussions of current and future stressors to *Eriogonum*

diatomaceum and *Eriogonum corymbosum* var. *nilesii*. We consider in this document how threats categorized under each of the five factors are affecting each of the plants. In our Species Reports, we describe the timing, scope, and severity for each stressor associated with each of the plants. We describe the scope as the percentage of the plant's distribution that is reasonably expected to be affected by a stressor within a specified, foreseeable amount of time, given continuation of current circumstances and trends. Within the scope of the threat, the severity is the level of damage to the plant's population or breeding occurrences that is reasonably expected from the stressor within a specified, foreseeable amount of time, given continuation of current circumstances and trends.

All potential stressors currently acting upon *Eriogonum diatomaceum* and *Eriogonum corymbosum* var. *nilesii* or likely to affect either of the plants in the foreseeable future (and consistent with the five listing factors identified above) are evaluated and addressed in the Species Reports, and summarized in the following paragraphs. The reader is directed to the Species Reports (can be accessed at Docket FWS-R8-ES-2014-0039 on <http://www.regulations.gov>, and at http://www.fws.gov/nevada/highlights/species_actions/species_actions.html) for a more detailed discussion of the stressors summarized in this document.

Eriogonum Diatomaceum

The Species Report evaluated the biological status of the species and each of the potential stressors affecting its continued existence (Service 2014a, entire). It was based upon the best available scientific and commercial data and the expert opinion of the Species Report team members. Based on the analysis and discussion contained in the Species Report, we evaluated the potential threats under the five statutory factors: Mineral exploration and development (Factors A and E); livestock grazing (Factors A and E); herbivory (Factor C); off-highway vehicle (OHV) activity and road development (Factors A and E); nonnative, invasive plant species (Factors A and E); disease (Factor C); and climate change (Factors A and E). We found that these factors currently may have minor impacts on individuals in some locations, but they are not impacting the species as a whole currently and are not expected to in the future. The full analyses of these possible stressors are documented in the Species Report and are summarized

below. Based on the analysis contained in the Species Report, we find that the best available scientific and commercial information does not indicate that these stressors are causing a decline in the species or its habitat, either now or into the future.

Mineral Exploration and Development (Factors A and E)

Eriogonum diatomaceum occurs on diatomaceous soil deposits, which is an economically valuable mineral that is in increasing demand. Mineral activity (exploration and development of diatomaceous earth deposits) has impacted *E. diatomaceum* habitat and resulted in the loss of individual plants and habitat at one of the four populations, corresponding to a loss of 5 ac (1.67 ha) or 22 percent of historically occupied habitat for the species. Two active mining claims still remain open within the plant's range, and 95 claims are closed within this area; all lands occupied by *E. diatomaceum* are open to mineral entry. The BLM requires that all operations comply with State law and permits, and since *E. diatomaceum* is listed as threatened by the State, the BLM requires claimants to be in compliance with State law (Service 2014a, p. 29). The BLM has affirmed that protecting *E. diatomaceum* and its habitat from impacts is clearly within the BLM's discretion when it comes to mineral material sales, and expressed its intent to continue managing the species as a Special Status Species, avoid impacts to the species and its habitat, and otherwise coordinate with the Service to develop effective mitigation measures (Service 2014a, p. 21). The scope of the mining stressor historically was 100 percent, because all populations were thought to be affected by the potential for mining. In addition, the severity of the stressor of mining historically was moderate, because of the loss of 5.5 ac (2.2 ha) of historically occupied habitat from mining. However, this stressor is one of historical significance, because it is not known to be occurring at present. Given the limited number of mining claims and the active management of these claims by BLM, we do not consider mining (Factors A and E) to be a current or future threat to the species such that the species would warrant listing.

Livestock Grazing (Factors A and E)

All populations of *Eriogonum diatomaceum* are within grazing allotments and are potentially exposed to livestock grazing, so the scope of livestock grazing is 100 percent. Livestock grazing may result in impacts,

such as trampling, resulting in broken stems and leaves of plants, and soil compaction, to individual *Eriogonum diatomaceum* plants, but we have no data indicating (qualitatively or quantitatively) the numbers (or percentages) of individuals or habitat acreage lost as a result of grazing. In addition, BLM monitored each of the four populations from 2005–2007 and in 2012, and the results of these surveys do not indicate that the population numbers are declining or that grazing is affecting the species through habitat loss (Service 2014a, p. 13). Therefore, while livestock grazing may affect individuals, based on the information that is available at this time, the information does not indicate that grazing is a current or future threat to the species such that the species would warrant listing.

Herbivory (Factor C)

Herbivory by jackrabbits, resulting in clipping of flower stems and tunneling into roots, has been documented on individuals at all four populations of *Eriogonum diatomaceum*; however, the best available scientific information does not provide any indication of a significant effect on recruitment of *E. diatomaceum*. In addition, BLM monitored each of the four populations from 2005–2007 and in 2012, and the results of these surveys do not indicate that the population numbers are declining or that herbivory is affecting the species (Service 2014a, p. 13). Therefore, while herbivory may affect individuals, based on the information that is available at this time, the information does not indicate that herbivory is a current or future threat to the species such that the species would warrant listing.

OHV Activity and Road Development (Factors A and E)

OHV activity and road development is known to occur at three of the four *Eriogonum diatomaceum* populations; roads can alter the hydrology of a site, and OHV activity can compact soils, crush plants, and provide a means for nonnative plant species to invade otherwise remote, intact habitats. However, we are currently not aware of individuals or habitat having been lost as a result of these activities, and the best available scientific information does not provide an indication of the level to which OHV activity and road development currently affects *E. diatomaceum* or is likely to affect the species into the future. In addition, BLM monitored each of these populations from 2005–2007 and in 2012, and the results of these surveys do not indicate

that the population numbers are declining or that OHV activity and road development is affecting the species through habitat loss (Service 2014a, p. 13). Therefore, while OHV activity and road development may affect individuals, based on the information that is available at this time, the information does not indicate that OHV activity and road development is a current or future threat to the species such that the species would warrant listing.

Nonnative, Invasive Plant Species (Factors A and E)

Nonnative, invasive plant species can negatively affect *Eriogonum diatomaceum* through competition with and displacement of native plant species and degradation of habitat. When *E. diatomaceum* habitat is undisturbed, nonnative, invasive plant species are not a threat because the specialized habitat of *E. diatomaceum* does not appear to be conducive to their spread. However, when soil disturbances occur within occupied *E. diatomaceum* habitat, nonnative, invasive plant species can impact *E. diatomaceum* due to their ability to potentially compete with and displace this species from its habitat. Nonnative, invasive plant species are present within all *E. diatomaceum* populations. However, the severity of nonnative, invasive plant species is unknown because the best available scientific information does not provide any indication of the level to which nonnative, invasive plant species affect *E. diatomaceum*. In addition, BLM monitored each of the four populations from 2005–2007 and in 2012, and the results of these surveys do not indicate that the population numbers are declining or that nonnative, invasive plant species are affecting the species (Service 2014a, p. 13). Therefore, while nonnative, invasive plant species may affect individuals, based on the information that is available at this time, the information does not indicate that nonnative, invasive plant species are a current or future threat to the species that the species would warrant listing.

Disease (Factor C)

A rust (fungal) pathogen was observed on approximately 26 percent of the overall *Eriogonum diatomaceum* population during survey work in the late 1990s. At this time, no studies are known that identify this pathogen, its origin, or its ultimate effect on this plant, and the long-term survival rate of rust-infected plants has not been determined or monitored. However, BLM monitored each of the four

populations of *E. diatomaceum* from 2005–2007 and in 2012, and the results of these surveys do not indicate that the population numbers are declining or that pathogens are affecting the species (Service 2014a, p. 13). Therefore, based on the best information that is available at this time, the information does not indicate that disease is a current or future threat to the species such that the species would warrant listing.

Climate Change (Factors A and E)

In the Great Basin, temperatures have risen, and current climate change projections indicate further warming over the rest of the century. Winter temperatures are projected to increase, which will change the balance of temperature and precipitation resulting in earlier spring snow runoff, declines in snowpack, and increased frequency of drought and fire events. Warmer temperatures and greater concentration of atmospheric carbon dioxide can create conditions favorable for nonnative, invasive plant species. We anticipate that the alteration of precipitation and temperature patterns could result in decreased survivorship of *Eriogonum diatomaceum* due to physiological stress of individual plants, altered phenology, and reduced seedling establishment and plant recruitment. However, the severity of climate change is unknown because even though climate projections exist for the Great Basin, we do not know how *E. diatomaceum* is likely to respond to these climatic changes. In addition, BLM monitored each of the four populations of *E. diatomaceum* from 2005–2007 and in 2012, and the results of these surveys do not indicate that the population numbers are declining or that climate change is currently affecting the species (Service 2014a, p. 13). In addition, we do not know of any information that demonstrates climate change is affecting the species. Therefore, based on the information that is available at this time, the information does not indicate that climate change is a current or future threat to the species such that the species would warrant listing.

Inadequacy of Existing Regulatory Mechanisms (Factor D)

The Act requires that the Secretary assess existing regulatory mechanisms in order to determine whether they are adequate to address threats to the species (Factor D). The Species Report includes discussions of applicable regulatory mechanisms for *Eriogonum diatomaceum* (Service 2014a, pp. 16–30). In the Species Report, the Service examines the applicable Federal, State,

and other statutory and regulatory mechanisms to determine whether these mechanisms provide protections to *E. diatomaceum*. For *E. diatomaceum*, all four populations occur on BLM land, and BLM has monitored these populations over time. *E. diatomaceum* is identified as a BLM sensitive species, which means that BLM's management objective is to initiate proactive conservation measures that reduce or eliminate threats to minimize the likelihood of and need for listing. Occupied and potential habitat for this species was nominated as an Area of Critical Environmental Concern (ACEC) in 2008; however, BLM has postponed finalizing this ACEC designation pending the completion of an amendment to the Carson City District Resource Management Plan (RMP). A decision for the RMP is not expected until 2016. During the preparation of the Species Report, we met with BLM managers to discuss the status of *E. diatomaceum* and BLM's ongoing management of the species. During those conversations, the BLM affirmed its intent to continue managing the species as a BLM sensitive species, regardless of the species' status under the Act, and to avoid impacts to the species or its habitat, particularly in the context of mining activity (Service 2014a, p. 16).

Based on the analysis contained within the Species Report, we conclude that the best available scientific and commercial information does not indicate that there is an inadequacy of existing regulatory mechanisms to address impacts from the identified potential threats such that listing would be warranted.

Interaction Among Factors

When conducting our analysis about the potential threats affecting *Eriogonum diatomaceum*, we also assessed whether the species may be affected by a combination of factors. In the Species Report (Service 2014a, p. 30), we identified multiple potential stressors that may have interrelated impacts on *E. diatomaceum* or its habitat. Mineral development and exploration result in the loss of habitat; depending on the nature of mining activities, these impacts can be permanent and irreversible (conversion to land uses unsuitable to the species) or less so (minor ground disturbance and loss of individual plants) (Factors A and E). When mineral development and exploration occurs in between (but not within) populations, this can eliminate corridors for pollinator movement, seed dispersal, and population expansion. Livestock grazing may result in direct

impacts to individual *Eriogonum diatomaceum* plants due to trampling (Factors A and E). Both livestock grazing and OHV/road corridors create patterns of soil disturbance that in turn alter habitat function and create conditions conducive to the invasion of nonnative plant species (Factors A and E). Once nonnative, invasive plant species are established, these species tend to spread beyond the footprint of mineral development and exploration or OHV/road corridors, further deteriorating otherwise intact habitat and native vegetation, including *E. diatomaceum*. Herbivory, when combined with climate change and altered precipitation and temperature regimes, may interfere with seedling recruitment and persistence of the species on the landscape (Factors A, C, and E). Each of these potential stressors may affect individuals of *E. diatomaceum*. However, BLM monitored each of the four populations of *E. diatomaceum* from 2005–2007 and in 2012, and the results of these surveys do not indicate that the population numbers are declining or that these stressors are currently affecting the species (Service 2014a, p. 13). Therefore, the current best available scientific and commercial information does not show that these combined impacts are resulting in current or future impacts to the species such that the species would warrant listing.

All or some of the potential stressors could act in concert to result in cumulative stress on *Eriogonum diatomaceum*. However, the best available scientific and commercial information currently does not indicate that these stressors singularly or cumulatively are resulting now or will in the future result in a substantial decline of the total extant population of the plant or have impacts to *E. diatomaceum* at the species level. Therefore, we do not consider the cumulative impact of these stressors to *E. diatomaceum* to be substantial at this time, nor into the future such that the species would warrant listing under the Act.

Eriogonum corymbosum var. *nilesii*

The Species Report for *Eriogonum corymbosum* var. *nilesii* evaluated the biological status of the plant and each of the potential stressors affecting its continued existence (Service 2014b, entire). It was based upon the best available scientific and commercial data and the expert opinion of the Species Report team members. Based on the analysis and discussion contained in the Species Report, we evaluated the potential threats under the five statutory factors: Development for residential,

commercial, or other purposes (A and E); OHV use and road development (Factors A and E); mineral exploration and development (Factors A and E); nonnative, invasive plant species (Factors A and E); modified wildfire regime (Factors A and E); and climate change (Factors A and E). We found that these factors are not likely to impact the plant as a whole currently and are not expected to in the future. The full analyses of possible stressors are documented in the Species Report and summarized below. Based on the analysis contained in the Species Report and under the five statutory factors, we find that the best available scientific and commercial information does not indicate that current and future threats are causing or going to cause a decline in the plant or its habitat, either now or into the future. We recognize that habitat and individuals have been lost from 62 percent of the historical occurrences of *E. c.* var. *nilesii* through past development on private lands, and we anticipate that approximately 5.5 percent of remaining habitat will be lost into the future as a result of development. However, we do not anticipate future development to be a threat to the remaining populations because most are on public lands (many of which are in conservation areas) where we do not anticipate similar losses.

Development for Residential, Commercial, or Other Purposes (Factors A and E)

We found that past development has had an impact on *Eriogonum corymbosum* var. *nilesii* and has resulted in the loss of 1,303.5 ac (527.5 ha) of formerly occupied habitat mostly on private lands (Service 2014b, pp. 11–12, 24)). Future development is likely to impact an additional 43.93 ac (17.78 ha) of *E. c.* var. *nilesii* habitat (Service 2014b, pp. 24–30). Development has occurred in the past and is imminent into the future in these limited areas (43.93 ac (17.78 ha)). The future development of 43.93 ac (17.78 ha) will result in partial loss of two populations and entire loss of one population in Las Vegas Valley, and it will also result in partial loss of one population in Coyote Springs (Service 2014b, pp. 14–16). There should be no future development loss in one other population in Las Vegas Valley, one population in the Muddy Mountain Wilderness, two populations in White Basin, and one population in Toquop Wash. Even though some limited development will occur in the future, we found that development is not imminent in the future over most of the remaining extant

habitat, because 80 percent of the remaining occupied habitat is on Federal lands where development is unlikely due to conservation plans, conservation areas, wilderness areas, ACECs, and other protective means. The best available scientific and commercial information indicates that even though development has resulted in losses of historical occurrences of *E. c.* var. *nilesii*, we do not anticipate future development to result in large losses that would be a threat to the plant such that listing the plant would be warranted.

OHV Activity and Road Development (Factors A and E)

OHV use and road development can cause loss, degradation, and fragmentation of *Eriogonum corymbosum* var. *nilesii* habitat and compact soils, crush plants, and provide a means for nonnative plant species to enter otherwise remote, intact habitats. OHV use and road development is authorized and currently occurs to some degree in six of the nine extant populations of *E. c.* var. *nilesii*. The 1998 BLM Las Vegas District Resource Management Plan (RMP) includes provisions limiting OHV activity to designated roads, trails, and/or dry washes in all ACECs and Wilderness Study Areas. We do know that OHV use and road development do occur to some degree in many of the extant populations, but we are not currently aware of individuals or habitat having been lost as a result of these activities (Service 2014b, pp. 30–31). Therefore, while OHV activity and road development may affect individuals, based on the information that is available at this time, the information does not indicate that OHV activity and road development are a current or future threat to the plant such that the plant would warrant listing.

Mineral Exploration and Development (Factors A and E)

When *Eriogonum corymbosum* var. *nilesii* became a candidate for Federal listing in 2007 (72 FR 69034, December 6, 2007), mining activities were identified as having the potential to impact 2 of the 12 populations recognized in that document. In 2013, we reviewed the status of all locatable mining claims within the legal sections containing the plant. According to this review, there are 74 “closed” (an administrative term that indicates a prior claim that is no longer current) and no “active” (meaning paperwork and fees filed with the BLM in support of the claim are current) locatable mineral claims within the sections

occupied by this plant (Service 2014b, p. 33).

With regard to the timing of mining-related impacts, although this activity has been previously identified as having the potential to affect *Eriogonum corymbosum* var. *nilesii*, we are unaware of mining having directly affected this plant in the form of losses of individuals or habitat. With regard to scope, to the best of our knowledge, historically no populations have been affected by this activity, and no open locatable mineral claims currently exist within occupied habitat. In light of the above information, severity is low to nonexistent.

Overall, mineral exploration and development has been previously identified as having the potential to affect *Eriogonum corymbosum* var. *nilesii*, but we are unaware of mining having directly affected this plant in the form of losses of individuals or habitat. Historically, no populations have been affected by this activity, and no open locatable mineral claims currently exist within occupied habitat (Service 2014b, pp. 31–33); therefore, we do not consider mining to be a current or future threat to the plant such that the plant would warrant listing.

Nonnative, Invasive Plant Species (Factors A and E)

The majority of *Eriogonum corymbosum* var. *nilesii* habitat is not affected by nonnative, invasive plant species, likely because the specialized habitat of the plant has not experienced high levels of soil disturbances conducive to their spread. However, in areas where soil disturbances have occurred, nonnative, invasive plant species may pose a threat to *E. c.* var. *nilesii* due to their ability to potentially compete with and displace the plant and other native species from its habitat. Nonnative, invasive plant species are present to some degree in five of the nine extant populations; however, the severity of nonnative, invasive plant species is unknown because the best available scientific information does not provide any indication of the level of which nonnative, invasive plant species affect *E. c.* var. *nilesii*, and the majority of *E. c.* var. *nilesii* habitat is not affected by nonnative, invasive plant species (Service 2014b, pp. 33–34). Therefore, we do not consider nonnative, invasive plant species to be a current or future threat to the plant such that the plant would warrant listing.

Modified Wildfire Regime (Factors A and E)

Historically, wildfire has been infrequent in the Mojave Desert due to

limited fuels created by sparse vegetation. However, since the 1970s, fires have become more frequent due to recent invasions by annual grasses (Service 2014b, p. 34). Due to increasing invasion by nonnative, annual grasses, wildfire is now considered one of the primary stressors to the conservation of native plants and animals and to the maintenance of ecosystem integrity in the Mojave Desert. Regardless of an overall increase of wildfire in the Mojave Desert, there are no reported accounts of wildfire within *Eriogonum corymbosum* var. *nilesii* habitat (Service 2014b, pp. 34–35). We are unaware of wildfire having directly affected this plant in the form of losses of individuals or habitat, and we do not have information indicating that this plant would be negatively affected by wildfire. Therefore, based on the information that is available at this time, the information does not indicate that a modified wildfire regime is a current or future threat to the plant such that the plant would warrant listing.

Climate Change (Factors A and E)

The direct, long-term impact from climate change to *Eriogonum corymbosum* var. *nilesii* is yet to be determined. Current climate change projections for the Mojave Desert indicating warming temperatures, and climate predictions for the geographic range of *E. c.* var. *nilesii* suggest there will be more frequent and/or prolonged drought. However, predictions for this area in particular suggest localized, increasing August precipitation. We anticipate that the alteration of precipitation and temperature patterns could result in decreased survivorship of *E. c.* var. *nilesii* due to physiological stress of individual plants, altered phenology, and reduced seedling establishment and plant recruitment. Climate change also may exacerbate impacts from other factors currently affecting this plant and its habitat. However, the severity of climate change is unknown because even though climate projections indicating warming temperatures exist for the Mojave Desert, we do not know how *E. c.* var. *nilesii* is likely to respond to these climatic changes (Service 2014b, pp. 35–37). In addition, we do not know of any information that demonstrates climate change is affecting the plant. Therefore, based on the information that is available at this time, the information does not indicate that climate change is a current or future threat to the plant such that the plant would warrant listing.

Inadequacy of Existing Regulatory Mechanisms (Factor D)

The Act requires that the Secretary assess existing regulatory mechanisms in order to determine whether they are adequate to address threats to the species (Factor D). The Species Report includes discussions of applicable regulatory mechanisms (Service 2014b, entire). In the Species Report, the Service examines the applicable Federal, State, and other statutory and regulatory mechanisms to determine whether these mechanisms provide protections to *Eriogonum corymbosum* var. *nilesii*. *E. c.* var. *nilesii* is a BLM sensitive species (Service 2014b, p. 3). In addition, BLM has entered into conservation agreements (CA) for many lands to preserve, enhance, and restore riparian areas and their associated uplands for the plant (Service 2014b, pp. 38–42).

In 2002, the Muddy Mountains Wilderness, which supports the Muddy Mountains population of *Eriogonum corymbosum* var. *nilesii*, was added to the National Wilderness Preservation System by the Clark County Conservation of Public Land and Natural Resources Act of 2002 (Pub. L. 107–282). This designation protects this population from mining, grazing, OHV use, and human development (Service 2014b, p. 41).

In 2005, BLM, the Service, Nevada Division of Forestry (NDF), and the City of North Las Vegas entered a CA to retain 300 ac (121 ha) of the Upper Las Vegas Wash area in Federal ownership to establish it as the Eglington Preserve. The goal is to preserve, enhance, and restore riparian areas and their associated uplands within the Eglington Preserve. In 2011, the BLM established the 10,669-ac (4,318-ha) conservation transfer area (CTA), which contains the 300-ac (121-ha) Eglington Preserve, and encompasses one of the populations in the Las Vegas Valley. The BLM's vision for the CTA is "to preserve the natural functioning of the Upper Wash, protect the sensitive resources within, and support education, research, and low-impact recreational use. The CTA is ecologically functional to the maximum extent possible and managed to ensure the long-term integrity of the Las Vegas Formation and associated fossil beds, the rare plant habitat for *Arctomecon californica*, *Arctomecon merriamii*, and *Eriogonum corymbosum* var. *nilesii*, as well as natural flood water capacity for present and future generations." The BLM will require mitigation and monitoring measures to minimize impacts to resources caused by future allowable uses in the CTA as

determined on a case-by-case basis (Service 2014b, pp. 39–41).

In 2007, BLM re-purchased approximately 1,103 ac (446 ha) of land that supports one of the White Basin populations of *Eriogonum corymbosum* var. *nilesii*. Ongoing revisions to the Las Vegas BLM's RMP are expected to include a proposal to designate the property and the surrounding area as the Bitter Spring ACEC, for the protection of *E. c.* var. *nilesii* and two other special status plant species (Service 2014b, p. 41).

Another population in the Las Vegas Valley was designated as a "Buckwheat Conservation Area" by Clark County in 2010. Also in 2010, the Nellis Air Force Base (AFB) established a conservation area where sites containing *Eriogonum corymbosum* var. *nilesii* would remain undeveloped unless military mission requirements dictate otherwise, and the DOD would not allow further development for activities that are purely recreational. In addition, Nellis AFB will also consult with NDF and the Service to incorporate conservation measures for the plant if development is to occur within occupied habitat.

As described in the Species Report, there are several Federal, State, and County protections for *Eriogonum corymbosum* var. *nilesii*. In addition, BLM has entered into CAs for many lands to preserve, enhance, and restore riparian areas and their associated uplands for the plant (Service 2014b, pp. 38–42). Overall, there are conservation protections (such as conservation areas, ACECs, and wilderness areas) or limits on activities (such as OHV activity) within eight of the nine extant populations.

Based on the analysis contained within the Species Report, we conclude that the best available scientific and commercial information does not indicate that there is an inadequacy of existing regulatory mechanisms to address impacts from the identified potential threats such that listing the plant would be warranted.

Interaction Among Factors

When conducting our analysis about the potential stressors affecting *Eriogonum corymbosum* var. *nilesii*, we also assessed whether the plant may be affected by a combination of factors. In the Species Report (Service 2014b, p. 38), we identified multiple potential stressors that may have interrelated impacts on *E. c.* var. *nilesii* or its habitat. OHV and other road corridors can exacerbate habitat loss and fragmentation, and tend to be associated with (accompanying or following) development activities (Factors A and

E). Development and OHV/road corridors tend to create conditions that favor the establishment of nonnative, invasive plant species; once established, these species tend to spread well beyond the footprint of development actions or OHV/road corridors, further deteriorating otherwise intact habitat and native vegetation (Factors A and E). Some nonnative, invasive plant species, particularly annual grasses, then increase the frequency of wildfire, leading to modified wildfire regimes (Factors A and E). Climate change has the potential to alter many patterns of land use, including development and associated infrastructure, but also the precipitation and temperature regimes that in turn influence the establishment and persistence of vegetation, both native and nonnatives alike (Factors A and E). However, the current best available scientific and commercial information does not show that these combined impacts are resulting in current impacts or are likely to result in future impacts to the plant.

All or some of the potential stressors could act in concert to result in cumulative stress on *Eriogonum corymbosum* var. *nilesii*. However, the best available scientific and commercial information currently does not indicate that these stressors singularly or cumulatively are resulting now or will in the future result in a substantial decline of the total extant population of the plant or have impacts to *E. c.* var. *nilesii* at the taxon level. Therefore, we do not consider the cumulative impact of these stressors to *E. c.* var. *nilesii* to be substantial at this time, nor into the future.

Determination

As required in section 4(a)(1) of the Act, we conducted a review of the status of *Eriogonum diatomaceum* and *Eriogonum corymbosum* var. *nilesii* and assessed the five factors in consideration of whether *E. diatomaceum* and *E. c.* var. *nilesii* are endangered or threatened species throughout all of their ranges. We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to these plants. We reviewed information available in our files and other available published and unpublished information. We also consulted with species experts and land managers in the areas where these plants occur.

Eriogonum diatomaceum

We evaluated each of the potential stressors in the Species Report for *Eriogonum diatomaceum*, and we

determined that mineral exploration and development (Factors A and E); livestock grazing (Factors A and E); herbivory (Factor C); OHV activity and road development (Factors A and E); nonnative, invasive plant species (Factors A and E); disease (Factor C); and climate change (Factors A and E) are factors that have had impacts on individuals in some locations, but they are not impacting the species currently or into the future such that listing would be warranted. Based on the analysis contained within the Species Report, we conclude that the best available scientific and commercial information does not indicate that these stressors are going to cause a decline in the species or its habitat, either now or are likely to do so into the future. In addition, we evaluated existing regulatory mechanisms and did not determine an inadequacy of existing regulatory mechanisms for *E. diatomaceum*. Finally, although there is uncertainty in extrapolations of population estimates based on survey results, the best available scientific and commercial information shows that *E. diatomaceum* population numbers do not appear to be in decline (Service 2014a, pp. 12–13).

Eriogonum corymbosum var. *nilesii*

We evaluated each of the potential stressors in the Species Report for *Eriogonum corymbosum* var. *nilesii*, and we determined that development for residential, commercial, or other purposes (Factors A and E); OHV use and road development (Factors A and E); mineral exploration and development (Factors A and E); nonnative, invasive plant species (Factors A and E); modified wildfire regime (Factors A and E); and climate change (Factors A and E) are factors that may have impacts on individuals in some locations, but they are not impacting the plants currently or into the future such that listing would be warranted. Based on the analysis contained within the Species Report, we conclude that the best available scientific and commercial information does not indicate that these stressors currently are going to cause a decline in the plant or its habitat, either now or are likely to do so into the future. In addition, we evaluated existing regulatory mechanisms and did not determine an inadequacy of existing regulatory mechanisms for *E. c.* var. *nilesii*. Even though we found that some of the potential stressors have caused the loss of *E. c.* var. *nilesii* populations in the past, we do not anticipate that the potential threats are likely to impact the remaining populations in the future

such that listing the plant would be warranted, because of the large amount of occupied habitat being conserved and the land ownership of much of *E. c. var. nilesii*'s habitat.

The Act defines an endangered species as any species that is "in danger of extinction throughout all or a significant portion of its range" and a threatened species as any species "that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future." Based on our analyses conducted in the Species Reports and summarized in this finding, and using the best scientific and commercial information available, we find that the magnitude and imminence of threats do not indicate that *Eriogonum diatomaceum* or *Eriogonum corymbosum* var. *nilesii* are in danger of extinction (endangered), or likely to become endangered within the foreseeable future (threatened), throughout their ranges. In the Species Report, we describe how our ability to project future trends in the various factors identified as relevant to *E. diatomaceum* and *E. c. var. nilesii* differs for each factor, with some factors better assessed in terms of relatively short time periods, whereas others are more appropriately assessed in terms of longer time horizons. Our ability to project future trends in the various factors identified as relevant to each of the plants differs for each factor, with some factors (such as development and grazing) more easily predicted in terms of relatively short time periods (such as the 1–10 years for which future development is anticipated based on plans and the 10–15 year time period for grazing allotment permits). Others (such as climate change) can often be predicted over longer time horizons (such as 50 years for most climate models). We do not have a single foreseeable future timeframe because each of the potential stressors can be predicted into the future over different time horizons, and we do not have data to support a single foreseeable future timeframe.

In general, we assessed the potential stressors as a continuation of current circumstances as discussed in the Species Reports (Service 2014, p. 17; Service 2014b, p. 24). In the case of *Eriogonum diatomaceum*, as discussed above, the best available information indicates that there is no evidence of population declines within the species at current threat levels. In a continuation of current conditions, it is therefore likely that the populations will remain stable in the future. For *Eriogonum corymbosum* var. *nilesii*, our information shows that development is

likely to reduce the overall population and habitat by a small percentage within a reasonably short timeframe, however, aside from this stressor, the best available information indicates that populations are not currently being affected by other potential stressors. Additionally, much of the remaining populations and habitat are in conserved areas, or areas with limited activity, whereby the species would not likely be impacted by these potential stressors or the species exposure to these potential stressors would be reduced. Therefore, a continuation of current conditions would indicate that the remaining populations will likely be stable in the future. With regard to both species, although models can predict climate changes over longer timeframes, the best available scientific information does not indicate how climate change effects will impact either of these plants into the future. Therefore, our ability to predict future climate change effects is limited.

Therefore, based on our assessment of the best available scientific and commercial information, we find that listing *Eriogonum diatomaceum* or *Eriogonum corymbosum* var. *nilesii* throughout all or a significant portion of their ranges as endangered or threatened species is not warranted at this time.

Significant Portion of the Range

Under the Act and our implementing regulations, a species may warrant listing if it is an endangered or a threatened species throughout all or a significant portion of its range. The Act defines "endangered species" as any species which is "in danger of extinction throughout all or a significant portion of its range," and "threatened species" as any species which is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." The term "species" includes "any subspecies of fish or wildlife or plants, and any distinct population segment [DPS] of any species of vertebrate fish or wildlife which interbreeds when mature." We published a final policy interpreting the phrase "significant portion of its range" (SPR) (79 FR 37578, July 1, 2014). The final policy states that (1) if a species is found to be an endangered or a threatened species throughout a significant portion of its range, the entire species is listed as an endangered or a threatened species, respectively, and the Act's protections apply to all individuals of the species wherever found; (2) a portion of the range of a species is "significant" if the species is not currently an endangered or a threatened species throughout all of

its range, but the portion's contribution to the viability of the species is so important that, without the members in that portion, the species would be in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range; (3) the range of a species is considered to be the general geographical area within which that species can be found at the time the Service or the National Marine Fisheries Service makes any particular status determination; and (4) if a vertebrate species is an endangered or a threatened species throughout an SPR, and the population in that significant portion is a valid DPS, we will list the DPS rather than the entire taxonomic species or subspecies.

The SPR policy is applied to all status determinations, including analyses for the purposes of making listing, delisting, and reclassification determinations. The procedure for analyzing whether any portion is an SPR is similar, regardless of the type of status determination we are making. The first step in our analysis of the status of a species is to determine its status throughout all of its range. If we determine that the species is in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range, we list the species as an endangered (or threatened) species and no SPR analysis will be required. If the species is neither an endangered nor a threatened species throughout all of its range, we determine whether the species is an endangered or a threatened species throughout a significant portion of its range. If it is, we list the species as an endangered or a threatened species, respectively; if it is not, we conclude that listing the species is not warranted.

When we conduct an SPR analysis, we first identify any portions of the species' range that warrant further consideration. The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose to analyzing portions of the range that are not reasonably likely to be significant and either an endangered or a threatened species. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that (1) the portions may be significant and (2) the species may be in danger of extinction in those portions or likely to become so within the foreseeable future. We emphasize that answering these questions in the affirmative is not a determination that the species is an endangered or a threatened species throughout a

significant portion of its range—rather, it is a step in determining whether a more detailed analysis of the issue is required. In practice, a key part of this analysis is whether the threats are geographically concentrated in some way. If the threats to the species are affecting it uniformly throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats applies only to portions of the range that clearly do not meet the biologically based definition of “significant” (i.e., the loss of that portion clearly would not be expected to increase the vulnerability to extinction of the entire species), those portions will not warrant further consideration.

If we identify any portions that may be both (1) significant and (2) endangered or threatened, we engage in a more detailed analysis to determine whether these standards are indeed met. The identification of an SPR does not create a presumption, prejudgment, or other determination as to whether the species in that identified SPR is an endangered or a threatened species. We must go through a separate analysis to determine whether the species is an endangered or a threatened species in the SPR. To determine whether a species is an endangered or a threatened species throughout an SPR, we will use the same standards and methodology that we use to determine if a species is an endangered or a threatened species throughout its range.

Depending on the biology of the species, its range, and the threats it faces, it may be more efficient to address the “significant” question first, or the status question first. Thus, if we determine that a portion of the range is not “significant,” we do not need to determine whether the species is an endangered or a threatened species there; if we determine that the species is not an endangered or a threatened species in a portion of its range, we do not need to determine if that portion is “significant.”

We evaluated the current ranges of *Eriogonum diatomaceum* and *Eriogonum corymbosum* var. *nilesii* to determine if there is any apparent geographic concentration of potential threats for either of the plants. We examined potential threats to *E. diatomaceum* from mineral exploration and development; livestock grazing; herbivory; OHV activity and road development; nonnative, invasive plant species; disease; and climate change. We examined potential threats to *E. c. var. nilesii* from development for residential, commercial, or other purposes; OHV use and road development; mineral exploration and

development; nonnative, invasive plant species; modified wildfire regime; and climate change. Even though we found that some of the potential threats have caused the loss of *E. c. var. nilesii* populations in the past, we do not anticipate that the potential threats are likely to impact the remaining populations in the future such that listing the plant would be warranted, because of the large amount of occupied habitat being conserved and the land ownership of much of *E. c. var. nilesii*'s habitat. Overall, we found no current concentration of threats now or into the future that suggests that either of these plants may be in danger of extinction in a portion of its range. We found no portions of their ranges where current or future potential threats are significantly concentrated or substantially greater than in other portions of their ranges. Therefore, we find that potential threats affecting each plant are essentially uniform throughout its range, indicating no portion of the range of either plant warrants further consideration of possible endangered or threatened species status under the Act.

Our review of the best available scientific and commercial information indicates that neither *Eriogonum diatomaceum* nor *Eriogonum corymbosum* var. *nilesii* are in danger of extinction (an endangered species) or likely to become endangered within the foreseeable future (a threatened species), throughout all or a significant portion of their ranges. Therefore, we find that listing either of these two plants as an endangered or threatened species under the Act is not warranted at this time.

We request that you submit any new information concerning the status of, or threats to, *Eriogonum diatomaceum* and *Eriogonum corymbosum* var. *nilesii* to our Nevada Fish and Wildlife Office (see **ADDRESSES**) whenever it becomes available. New information will help us monitor these plants and encourage their conservation. If an emergency situation develops for either of these two plants, we will act to provide immediate protection.

References Cited

- Service 2014a. Species Report for *Eriogonum diatomaceum* (Churchill Narrows buckwheat). Nevada Fish and Wildlife Office. March 28, 2014.
- Service 2014b. Species Report for *Eriogonum corymbosum* var. *nilesii* (Las Vegas buckwheat). Nevada Fish and Wildlife Office. March 28, 2014.

A complete list of references cited in each of the Species Reports (Service 2014a; Service 2014b) is available on the Internet at <http://www.regulations.gov> or at <http://www.fws.gov/nevada/>

[highlights/species_actions/species_actions.html](#) and upon request from the Nevada Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this finding are the staff members of the Pacific Southwest Regional Office and the Nevada Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Authority

The authority for this section is section 4 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: September 12, 2014.

Stephen Guertin,

Acting Director, U.S. Fish and Wildlife Service.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 679

RIN 0648–BE24

Fisheries of the Exclusive Economic Zone Off Alaska; Establishing Transit Areas Through Walrus Protection Areas at Round Island and Cape Peirce, Northern Bristol Bay, Alaska; Amendment 107

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of availability of fishery management plan amendment; request for comments.

SUMMARY: The North Pacific Fishery Management Council (Council) has submitted Amendment 107 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area (BSAI FMP). Amendment 107, if approved, would establish seasonal transit areas for vessels designated on Federal Fisheries Permits (FFPs) through Walrus Protection Areas in northern Bristol Bay, AK. This action would allow vessels designated on FFPs to transit through Walrus Protection Areas in the U.S. Exclusive Economic Zone (EEZ) near Round Island and Cape Peirce from April 1 through August 15, annually. This action is necessary to restore the access of Federally-permitted vessels to transit through Walrus Protection Areas that was limited by