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## Appendix B Applicant Environmental Protection Measures

**These EPMs include those applicable to all resources areas to those that are particular to a specific resource area. These measures are the current set of proposed measures that have been discussed/reviewed with the BLM and NPS. These measures supersede other measures in previous study reports.**

1 **Appendix B**  
2 **Applicant’s Environmental Protection Measures**

3 The applicant’s environmental protection measures identified in this appendix apply to the resources for  
4 which a measure is intended to mitigate the effects of the LPP. The Utah Division of Water Resources  
5 (UDWRe) has identified environmental protection measures that will be implemented as part of the  
6 construction, operation, and maintenance of the LPP. The environmental protection measures also apply  
7 to emergency maintenance activities to the extent they do not interfere with efforts to protect public safety  
8 and undue environmental impact during an emergency event. Some efforts, such as Section 7  
9 consultation, may occur after the fact in emergency situations. Emergency procedures will be developed  
10 in the Emergency Response Plan, as noted below.

11 These applicant-committed measures include design features, best management practices, monitoring,  
12 standard operating procedures, and other practices. They also include measures UDWRe anticipates will  
13 be included in the special use permit and agreements with other Federal agencies, state or local agencies  
14 and entities, and those anticipated to be required by other permit conditions.

15 **B.1. General Construction Practices within the ROWs**

16 *Planning and Permitting*

17 **B.1.1.** The Final Plan of Development (POD) will incorporate mitigation contained in the BLM Record of  
18 Decision and provide detailed project design and construction specifics, including but not limited to  
19 construction contract timing, phasing, and any modifications to construction access roads and right-of-  
20 way (ROW) entry points, and other details. The BLM will review and approve the updated POD prior to  
21 notice to proceed for any surface disturbance activity.

22 The final project POD shall contain detailed plans, including, but not limited to, those listed below.

- 23 • Agency Coordination Plan – primary contacts including the BLM authorized officers, UDWRe,  
24 construction management, environmental compliance inspection contractor, and construction  
25 contractors; identification of reporting procedures and frequency
- 26 • Bird Conservation Strategy – measures to reduce impacts on migratory birds, bald and golden  
27 eagles, and other sensitive birds; the plan will identify measures to be implemented during  
28 construction, including but not limited to, the identification of critical nesting periods for bird  
29 species anticipated to be within the ROWs, pre-construction surveys to be conducted for nesting  
30 raptors and migratory birds (survey to be conducted by qualified biologist <10 days prior to work  
31 at site) , and the construction avoidance buffer size and time duration for active raptor and  
32 migratory bird nests (ranging from 100-feet to 1-mile, depending on species). The plan will  
33 identify design features and measures to be implemented during operation, including description  
34 of design standards (see measure B.5.43), any post-construction monitoring, and adaptive  
35 measures such as marking of power lines to avoid or minimize impacts; the bird conservation  
36 strategy will be developed in coordination with the BLM for compliance with Migratory Bird  
37 Treaty Act (MBTA) and Bald and Golden Eagle Protection Act (BGEPA); for Utah, IM N. UT-  
38 2017-007 Guidance for Utah Bureau of Land Management to Meet Responsibilities under MBTA  
39 and E.O 13186 will be followed, and IM 2006-096 Utah Supplemental Planning Guidance-

- 1 Raptor Best Management Practices, and applicable BLM Resource Management Plan  
 2 prescriptions.
- 3 • Construction Plan – construction schedule, access roads, borrow pits, best management practices,  
 4 vehicle/equipment washing locations, etc.
  - 5 • Construction Traffic Management Plan – measures to reduce and manage construction traffic.
  - 6 • Construction Dust Management Plan – air quality standards and permits, dust control measures,  
 7 general water sources, air quality monitoring, and reporting.
  - 8 • Emergency Response Plan – emergency contacts, notification procedures, available resources,  
 9 and emergency procedures.
  - 10 • Integrated Weed Management Plan – management of areas with noxious/invasive weeds,  
 11 treatment and control measures, monitoring, and reporting.
  - 12 • Mitigation Plan – summary of environmental commitments and mitigation measures, responsible  
 13 parties, timing, and reporting.
  - 14 • Construction Noise Management Plan – measures to manage construction noise.
  - 15 • Public Information Plan – public notification measures.
  - 16 • Restoration Plan – topsoil (growth medium) and vegetative cover salvage, stockpiling and  
 17 replacement; plant salvage, maintenance and replacement, seeding, soil stabilization, and post-  
 18 construction monitoring.
  - 19 • Spill Prevention, Control, and Countermeasure Plan (SPCC) – procedures for storage and  
 20 handling of hazardous and toxic materials, necessary permits, spill response and cleanup.
  - 21 • Storm Water Pollution Prevention Plan (SWPPP) – erosion and sediment control measures,  
 22 compliance inspections and reporting.

23 **B.1.2.** UDWRe will provide a Compliance Inspector (CI). The CI will provide environmental oversight  
 24 and compliance/regulatory activities for UDWRe during construction activities of the project. The CI  
 25 will be responsible for ensuring that UDWRe complies with all terms, conditions, stipulations and other  
 26 metrics and measures required for the project, and will have the authority to halt activities that are in non-  
 27 compliance and assist in BLM coordination, if needed. Metrics and measures will be defined in the  
 28 various detailed plans described in B.1.1. A pre-construction meeting between applicable permitting  
 29 agencies, UDWRe, the CI, and the construction contractor will be required prior to any surface disturbing  
 30 activity occurring. The CI will provide reports to permitting agencies detailing compliance as described in  
 31 the approved Agency Coordination Plan.

32 If required by BLM, UDWRe will provide a Compliance Inspector Contractor (CIC). The CIC will be a  
 33 third party compliance construction monitor that will be paid for by the State but will be directed by and  
 34 will report to the BLM during the construction process. The CIC will have similar duties as the CI and  
 35 will work in conjunction with the CI, but will perform the duties on behalf of BLM.

36 **B.1.3.** All activities directly or indirectly associated with the construction of the project will be conducted  
 37 within the authorized limits of the ROW grants. Any facility relocation, additional construction area,  
 38 additional access, or other use that is not in accord with the ROW grants will not be initiated without prior  
 39 approval of the BLM.

1 **B.1.4.** UDWR will notify each directly affected BLM field office (Arizona Strip Field Office, Kanab  
2 Field Office, and St. George Field Office) at least 14 days before initiation of project construction.  
3 Notification will be made to the designated BLM field office representative.

4 **B.1.5.** A worker education program will be developed by UDWR and used during construction and  
5 operation. It will be presented to personnel who will be on-site, including but not limited to contractors,  
6 contractor's employees, supervisors, inspectors, and subcontractors. A handout will be developed  
7 addressing environmental protection measures incorporated into the project and the responsibility of each  
8 worker in environmental protection. Each worker will be briefed on his or her environmental compliance  
9 responsibilities, provided a handout, and required to sign a certification that he or she understands and  
10 will comply with those environmental protection measures. An individual who fails to comply with the  
11 environmental protection measures will be subject to corrective action up to and including dismissal from  
12 the project

13 Specifics of the program will include, but are not limited to:

- 14 • General site maintenance (i.e., trash disposal)
- 15 • Stormwater and Erosion Control
- 16 • Hazardous material spill protocols
- 17 • refueling protocols
- 18 • Smoking areas
- 19 • Use of sanitary facilities
- 20 • California condor conservation measures
- 21 • MBTA
- 22 • Incident reporting,
- 23 • Prohibiting driving off the cleared corridor or existing roads,
- 24 • Importance of speed limits and other traffic regulations on access roads
- 25 • Prohibiting dogs or hunting on the construction and facility sites
- 26 • Terms and conditions of the LPP Biological Opinion
- 27 • Desert tortoise Habitat Conservation Plan (HCP) measures
- 28 • Identifying and reporting procedures for other sensitive plants and wildlife that occur within the  
29 area of potential effect
- 30 • Cultural and paleontological resource identification and protection
- 31 • Biological, Cultural, and Paleontological monitoring requirements
- 32 • Visual resources measures
- 33 • Avoidance of undue disturbance of biological soil crusts
- 34 • Soil segregation requirements,
- 35 • Noxious weed management and identification
- 36 • Prohibiting collection of wildlife, plants, or cultural/paleontological resources, unless the  
37 collection is part of a mitigation plan and is done by qualified personnel
- 38 • Workers will receive a sticker or certificate that they have completed the training; a laminated  
39 card that can be used for reference, including applicable contact phone numbers, may also be  
40 used
- 41 • Training sessions will be held for new contractors and/or contractor personnel throughout the life  
42 of the project

43 **B.1.6.** A Public Information Plan will be developed by UDWR in coordination with the BLM to notify  
44 the public and appropriate agencies in advance of the start of each construction phase. Measures that will

1 be implemented to inform the public may include public notices, public meetings, letters to nearby  
2 residents, road signs, and other measures.

### 3 *Surveying*

4 **B.1.7.** UDWRe will endeavor to protect all survey monuments found within the ROWs. Survey  
5 monuments include, but are not limited to General Land Office and the BLM Cadastral Survey Corners,  
6 U.S. Geological Survey benchmarks, reference corners, witness points, US Coast and Geodetic Survey  
7 benchmark and triangulation stations, military control monuments, and recognizable civil (both public  
8 and private) survey monuments.

9 **B.1.8.** In the event the destruction of survey monuments is unavoidable, UDWRe will report the incident,  
10 in writing, to the BLM and the installing authority, if known. If General Land Office, BLM, or NPS  
11 monuments or references are destroyed during operations, UDWRe will secure the services of a registered  
12 land surveyor to restore the disturbed monuments and references, using surveying procedures found in the  
13 Manual of Instructions for the Survey of the Public Lands of the United States, latest edition. UDWRe  
14 will record any such surveys in the appropriate office and send a copy to the authorized officer.

15 **B.1.9.** UDWRe will conduct boundary surveys of the edges of the ROWs prior to the start of construction  
16 of each work package. The outer boundaries will be clearly marked with stakes and colored flagging,  
17 placed about 100 feet apart or within sight of each adjacent flag. All ground-disturbing activities will be  
18 confined to the designated ROWs.

19 **B.1.10.** If any exclusion zones within the ROWs are required by the BLM, NPS, or identified in the  
20 biological opinion for resource protection (i.e., biological or cultural resources, protected plants, nesting  
21 birds, etc.), those areas will be staked, flagged or fenced, and signed by UDWRe and approved by the  
22 BLM and NPS to ensure avoidance during construction, and if necessary during operation and  
23 maintenance.

24 **B.1.11.** UDWRe will develop a GIS cloud based Environmental Access Plan (EAP). All contractors will  
25 utilize EAP. The EAP will detail access requirements such as required pre-access surveys or monitoring  
26 requirements. The EAP will be updated throughout the construction process as needed based on  
27 completed surveys, approved access areas, and current conditions and requirements.

### 28 *Fencing*

29 **B.1.12.** Security fencing may be used in specific areas for security or safety concerns.

30 **B.1.13.** Permanent site security fencing will be used to enclose facility sites, including pumping stations,  
31 regulating tanks, hydro stations, forebay and afterbay reservoirs, and remote substations and switchyards.  
32 This fencing will generally consist of standard chain-link fencing with a minimum height of 6 feet and  
33 topped with serpentine razor, or similar wire. Block walls may be constructed at some facility sites  
34 instead of fencing, depending on site requirements. Fence color may vary at some facility sites, and will  
35 be coordinated with the BLM during final design (see B.11.1).

36 **B.1.14.** Temporary construction fencing may be installed, as necessary, for management of wildlife  
37 resources and grazing livestock during both construction and restoration efforts. The type and location of  
38 fencing will be coordinated with the BLM, Utah Division of Wildlife Resources, and/or Arizona Game  
39 and Fish Department.

1 **B.1.15.** To protect human safety during construction, temporary signs warning the public of the presence  
2 and danger of open trenches in the area will be installed where paved roads, gravel roads or OHV trails  
3 occur within ¼ mile of an open trench. Also, where such roads and trails occur within ¼ mile of an open  
4 trench, temporary warning signs will be placed at intervals along the roads and trails as required by BLM.  
5 The signs will be designed according to BLM and other federal agency requirements and will be  
6 coordinated with agency communications staff.

## 7 ***Clearing and Grading***

8 **B.1.16.** All Biological Resource EPMs (B.5 below) will be adhered to prior to and during clearing and  
9 grading.

10 **B.1.17.** Where feasible, vegetation within the ROWs will be crushed instead of removed by blading, to  
11 minimize impacts to soils.

12 **B.1.18.** Trash and debris will be removed from the ROWs before clearing and grading activities begin and  
13 properly disposed of in a permitted landfill or recycling facility. This is limited to existing surface debris  
14 foreign to the natural, native community.

15 **B.1.19.** In specific areas, boulders greater than 18 inches in diameter found on the soil surface will be  
16 moved to the edge of the ROWs and redistributed randomly across the ROWs during reclamation.  
17 Boulders will either be positioned so that the surface previously in contact with the ground will be in the  
18 same orientation or a desert varnish may be applied to boulders, as needed, to reduce stark visual contrast.  
19 UDWRe will coordinate with BLM during final design to identify areas for surface boulder replacement.

20 **B.1.20.** All available growth medium (topsoil and cleared vegetation) will be salvaged and marked with  
21 signage for redistribution during reclamation. Growth medium will be windrowed along the edge of the  
22 ROWs or placed in stockpiles and temporarily stabilized (if stockpiled for more than 14 days) with  
23 temporary seeding, natural fiber geotextiles, mulch, or other techniques to reduce or eliminate erosion.  
24 Any temporary seeding mixes will be a BLM-approved certified weed-free seed mix.

25 **B.1.21.** Areas with noxious and invasive weeds will be treated and/or monitored in accordance with the  
26 Integrated Weed Management Plan.

27 **B.1.22.** A record will be maintained of when construction-related major vegetation and ground-disturbing  
28 activities begin and are completed, and when restoration activities are initiated as a function of the  
29 SWPPP inspection report.

## 30 ***Access Roads***

31 **B.1.23.** A Construction Traffic Management plan will be developed and coordinated with the BLM and  
32 other relevant state and local authorities prior to the start of construction for each major phase of the  
33 project. The plan will include measures to reduce the number of construction trips by scheduling of work  
34 shifts and materials deliveries, designation of access routes, and other measures to minimize traffic  
35 effects. The plan will also take into account active seasons for hunting, camping, and/or other  
36 recreational activities that occur within the same time and place as each phase of construction.

37 **B.1.24.** While driving on paved roads or marked dirt roads, posted speed limits will be maintained. While  
38 driving within the construction area, on un-posted dirt roads, a maximum speed limit of 25 miles per hour

1 (20 miles per hour in Mojave Desert tortoise habitat) will be required to reduce dust and allow for  
2 observation and avoidance of wildlife, livestock or visitors in the road.

3 **B.1.25.** Public access routes within or crossing the ROWs will be maintained, closed, or detour routes will  
4 be identified during construction activities. Road closures will be coordinated with the BLM and other  
5 permitting and local authorities. Detours needed for temporary road closures because of safety concerns  
6 will be established in coordination with the BLM and other permitting and local authorities, depending on  
7 detour routes.

8 **B.1.26.** Signing and traffic controls will be placed well in advance of the construction area to warn  
9 motorists of detour routes available during construction.

10 **B.1.27.** Signs and persons with flags will be used within the construction area as necessary to direct traffic  
11 in accordance with all applicable Utah Department of Transportation requirements, Arizona Department  
12 of Transportation requirements, county, and local rules and ordinances.

13 **B.1.28.** Designated construction exit locations from the ROWs onto existing paved or improved roads  
14 will be identified. These exit locations will be stabilized with crushed rock underlain by geotextile filter  
15 fabric to prevent sediment from being tracked onto asphalt, concrete, or improved road surfaces and to  
16 limit other damage such as road shoulder rutting.

17 **B.1.29.** Sediment transported onto a public paved road surface by construction equipment or other  
18 vehicles that will require removal by sweeping will be disposed of in an approved landfill. Road washing  
19 and/or street sweeping on public paved roads will be conducted, as needed.

20 **B.1.30.** During construction and maintenance, all unpaved access roads used by construction personnel,  
21 equipment, and materials deliveries will be maintained in coordination with permit ROW requirements.  
22 This maintenance may include use of additional road base materials to maintain road integrity.

23 **B.1.31.** At the completion of construction, temporary access roads will be restored to pre-construction  
24 conditions. Improvements to existing roads made for construction will be left in place in coordination  
25 with the BLM.

## 26 ***Construction***

27 **B.1.32.** Construction contractors will provide site security for equipment and materials, and to limit  
28 access to construction sites to authorized personnel. This may be accomplished through use of security  
29 personnel, signage, and/or fencing of facility sites as needed.

30 **B.1.33.** The ROWs will be kept free from any accumulation of construction waste, trash, and debris to  
31 reduce the attractiveness of the area to opportunistic predators such as desert kit fox, coyotes, and  
32 common ravens. Food waste will be disposed of promptly in predator-proof containers with re-sealable  
33 lids. Trash, debris, recyclables and/or waste will not be buried or burned. Disposal or recycling of trash  
34 and debris will be off-site, at a State of Utah or State of Arizona approved sanitary landfill or recycling  
35 site. Construction materials shall be stored in a gathered, piled, or other organized manner that will  
36 readily accommodate use and eventual removal and will not create fluid or additional waste problems.

37 **B.1.34.** Sanitary waste will be contained within portable toilet facilities. Portable toilets will be obtained  
38 by construction contractors and sited in designated locations in the construction area. The toilets will be

1 maintained and serviced as needed for the duration of construction, and removed at the completion of  
2 construction. Facilities will be anchored to prevent blowing over in high winds.

3 **B.1.35.** Escape ramps will be placed at each end and every ¼- mile of any trench or other excavation  
4 deeper than 4 feet to allow escape of wildlife or livestock that may become entrapped. The spacing of  
5 escape ramps may be adjusted upon approval of the BLM to ensure ramps are placed in areas near water  
6 sources and visible livestock/wildlife trails. The escape ramps will consist of loose dirt at a 2:1 or  
7 shallower slope. Excavation areas that are left open overnight will be checked by construction personnel  
8 every morning and evening and directly prior to backfilling.

9 **B.1.36.** Hazardous and toxic materials such as fuels, solvents, lubricants, and acids used during  
10 construction will be controlled to prevent accidental spills. Toxic and hazardous materials will be stored  
11 in accordance to the project SPCC plan. Vehicle and equipment refueling and hazardous materials storage  
12 will not be allowed within 100 feet of any wash, stream, or spring.

13 **B.1.37.** Spill cleanup kits will be available on heavy equipment and maintained so that any spill of fuels,  
14 solvents, lubricants, or acids can be quickly cleaned up. Construction and maintenance personnel will be  
15 trained in the proper use of the spill kit materials and correct disposal procedures.

16 **B.1.38.** Any leak or accidental release of hazardous and toxic materials will be stopped immediately and  
17 cleaned up at the time of occurrence. Contaminated soils will be removed and disposed of at a State of  
18 Utah or State of Arizona approved landfill site. All spills requiring an emergency response, regardless of  
19 the size of the spill, will be reported to UDWRe and BLM and will be tracked.

20 **B.1.39.** Any release of hazardous and/or toxic materials in excess of a reportable quantity established by  
21 40 CFR, Part 117 will be reported as required by the Comprehensive Environmental Response,  
22 Compensation, and Liability Act, Section 102b. A copy of any report required or requested by any federal  
23 agency or state government as a result of a reportable release or spill of any toxic substances will also be  
24 submitted to the BLM and other applicable agencies.

25 **B.1.40.** For every active phase of construction, fire suppression equipment such as extinguishers and  
26 shovels will be available on-site during construction. Vehicles will not be parked in tall vegetation to  
27 prevent fires from exhaust contact. A designated individual on each construction site will be responsible  
28 for fire watch and fire suppression. For welding crews, one team member will be responsible for fire  
29 watch, in addition to the individual designated for the construction site fire watch and fire suppression.  
30 When welding at field locations, all flammable materials (i.e., brush, litter) will be cleaned for a distance  
31 of 15 feet around the area. Fire restrictions that may be in effect could restrict welding activities  
32 depending on the level of restriction.

33 **B.1.41.** Where the ROWs cross beneath existing power lines, warning signs will be installed with  
34 identified height restrictions during construction. A construction watchman may be designated as needed  
35 during construction activities beneath power lines, to ensure equipment keeps specified distances from the  
36 power line conductor cables.

37 **B.1.42.** When construction practices overlap with an existing authorized ROW on BLM land, UDWRe  
38 will inform the other ROW holder of LPP construction plans that will occur within, or could affect, that  
39 other ROW.

40 **B.1.43.** If blasting is determined to be necessary based on project design, a Blasting Plan will be prepared  
41 and submitted to the BLM for approval in advance of construction. Any blasting will be conducted  
42 conservatively and managed to avoid damage to nearby facilities, properties, or sensitive cultural sites.



1 Blast noise monitoring will be conducted if blasting will be in the vicinity of occupied properties, wildlife  
2 areas, or sensitive public uses such as campgrounds or visitor facilities. Blasting will not occur within 100  
3 feet of an occupied Mojave Desert tortoise burrow.

4 **B.1.44.** A dewatering plan will be prepared and submitted to the BLM for approval in advance of  
5 construction. Should dewatering be necessary, discharge will be filtered to minimize sediment and will be  
6 directed to prevent flow from directly entering streams, wetlands, or sensitive environmental areas.  
7 Erosion and sediment control will be conducted the same as described for stormwater practices. The CI  
8 will coordinate with the BLM on monitoring discharges and will identify site-specific mitigation actions.

9 **B.1.45.** All concrete washout water will be collected and retained in a leak proof container so caustic  
10 material does not reach the soil surface and water does not migrate into the ground and groundwater.  
11 Containers will be allowed to dry (evaporate) and then solids will be disposed of or recycled at an  
12 approved facility or used as tracking pad material onsite.

### 13 *Stormwater and Erosion Control*

14 **B.1.46.** A General Permit for Stormwater Discharges Associated with Construction Activity  
15 (UTRC00000 & Arizona Department of Environmental Quality [ADEQ] CGP) will be obtained prior to  
16 any surface disturbance that includes clearing, grading, excavation, and/or stockpiling.

17 **B.1.47.** A site-specific SWPPP will be prepared and implemented for each construction contract. The plan  
18 will be submitted to the BLM and other applicable agencies. The SWPPP will identify all potential  
19 sources of pollution which could affect the quality of stormwater discharges from the construction site,  
20 describe the construction activities that disturb soils at the site, provide an estimate of the total  
21 disturbance area, and identify waters of the United States within one mile of the site. The SWPPP will  
22 identify erosion and sediment control measures, compliance inspection metrics, maintenance, and  
23 reporting. A copy of the SWPPP will be kept on site and updated as needed to manage pollutants or  
24 reflect changes in site conditions.

25 **B.1.48.** A SPCC Plan (40 CFR 112) will be prepared and submitted to the BLM and other applicable  
26 agencies. The plan will describe measures that will be taken to properly store, handle, and prevent  
27 hazardous materials from being picked up in stormwater and transported offsite. It will also contain  
28 measures related to clean up procedures and time frames, notification procedures, and restoration efforts  
29 for the affected area.

30 **B.1.49.** Construction sequencing will be designed and scheduled to create the shortest construction  
31 window practicable and the least amount of potential stormwater runoff. Construction, cleanup, and  
32 reclamation will be sequenced to minimize the time between ground disturbance and final restoration.

33 **B.1.50.** Erosion and sediment control will be implemented using both non-structural and structural best  
34 management practices (BMPs). Non-structural BMPs examples include soil stabilization such as mulch,  
35 slope tracking, seeding, erosion matting and structural examples are silt fence, wattles, and ditch checks.  
36 Any netting for erosion and sediment control BMPs will be of natural-fiber (non-plastic material). BMP  
37 specifications will be included in the project specific SWPPP(s) prepared for the project.

38 **B.1.51.** Temporary perimeter sediment controls will be installed as necessary prior to initial soil  
39 disturbance activities and will be maintained throughout construction and reclamation. These controls will  
40 be designed to retain sediment on site to the maximum extent practicable. Typical sediment control BMPs  
41 include:

- 1 • Siltation or filter berms
- 2 • Filter or silt fencing
- 3 • Sediment barriers, e.g., sand bags, straw bales, straw wattles (straw bound into rolls or bales)
- 4 • Temporary erosion controls, e.g. straw & woodchip mulches, Jute netting

5 Temporary seeding will be installed as soon as practical on all disturbed areas that will remain disturbed  
6 and inactive for more than 14 days. Any straw used for erosion or sediment control will be certified weed-  
7 free. Temporary erosion and sediment controls will be inspected weekly and after major precipitation  
8 events and will be removed after construction and/or when they are no longer needed.

9 **B.1.52.** During construction, broken structural erosion controls will be replaced or restored as soon as  
10 practicable (typically within a day) but before the next forecasted precipitation event. Sediment will be  
11 removed from structures when sediment reaches 50 percent of the barrier capacity and disposed of within  
12 disturbed ROWs. Redistribution of sediment will be coordinated with the BLM.

13 **B.1.53.** For construction activities crossing a dry wash, spoil stockpiles will be pushed away and stored a  
14 minimum of 10 feet away from the ordinary high-mark and silt fencing will be used to limit sediment  
15 movement from the stockpile; stockpiles without silt fences will be located a minimum of 100 feet away  
16 from dry washes. All stockpiles will be kept within project ROWs.

17 **B.1.54.** At a minimum, a 10-foot wide vegetation buffer strip and other erosion control measure such as  
18 straw bales or wattles (certified weed free) will be maintained between the cleared ROWs and an adjacent  
19 drainage. The timing of clearing, grading, trenching, pipe installation, stabilization and seeding banks  
20 during drainage crossings will be minimized to promote expedient efforts towards restoration.

21 **B.1.55.** Non-stormwater discharges, including from pipeline and facility hydrostatic testing, will be  
22 directed into existing dry washes or other downstream project facilities as feasible. Best management  
23 practices such as diffusers or other energy dissipaters, straw bales (certified weed free), or filter sacks will  
24 be used to prevent bank instability and erosion. Discharges will be managed and monitored so that they  
25 do not exceed the typical 2- to 5-year flood event of the existing washes, and to allow debris  
26 accumulations to be removed as needed. Discharges will also be managed to not exceed bank levels and  
27 downstream banks and terrestrial vegetation will be monitored and discharges stopped if above bank  
28 erosion is detected.

29 **B.1.56.** Stormwater compliance inspections will be conducted by UDWR throughout construction at  
30 least once every 7 days regardless of rain events, or every 14 days and additionally within 24 hours of a  
31 storm event greater than 0.5 inches to ensure compliance with the SWPPP and Utah Department of  
32 Environmental Quality (UDEQ) and ADEQ permits. Inspections will include disturbed areas of the  
33 project that have not been stabilized, material and equipment storage areas that are exposed to  
34 precipitation, all erosion and sediment control measures installed within the ROWs, all structural control  
35 measures, and all locations where vehicles enter and/or exit the ROWs. Inspectors will notify the  
36 construction manager to where requirements of the SWPPP are not being followed, and implement  
37 corrective action as required to achieve compliance. Inspection reports will be maintained on file and  
38 submitted to the BLM and UDEQ or ADEQ upon request.

39 **B.1.57.** A Hydrostatic Discharge Plan will be submitted to the BLM for approval, prior to the start of any  
40 discharges.

41 **B.1.58.** Water quality of the hydrostatic testing water will be tested prior to discharge in accordance with  
42 UDEQ or ADEQ permit requirements.

1 **B.1.59.** At the completion of construction, all non-natural berms, ditches, temporary erosion and sediment  
2 controls, bales, wattles, and other energy dissipating/filtering devices not required for protection of  
3 facilities will be removed, and drainages restored to their original form. Soils used for erosion control  
4 structures and soils captured by those structures will be distributed across the ROWs prior to replacing the  
5 topsoil and reclamation. Bales, wattles, and other energy dissipating/filtering devices will be disposed of  
6 in approved trash receptacles. The ground surface will be graded to blend into the preconstruction  
7 topography and/or slopes.

8 **B.1.60.** Washes and ephemeral drainages will be restored to pre-existing conditions. Soils over the  
9 pipeline will be compacted in place for maximum pipeline stability, and additional stabilization measures  
10 such natural fiber erosion matting and seeding will be installed. Stabilization measures such as rip rap  
11 may be required to protect the facilities and prevent increased erosion in the wash. If armoring of the  
12 channel crossing with rip-rap or concrete due to high erosion potential is necessary, those areas and  
13 methods will be identified for BLM, USACE, and other applicable agency approval, depending on  
14 jurisdictional status of the feature.

15 **B.1.61.** Post-construction stormwater management will consist of permanent erosion control measures  
16 installed as necessary at the completion of construction to protect areas disturbed by UDWR activities.  
17 These could include vegetation restoration, tracking and matting of steep slopes to maintain stability,  
18 berming (contoured to blend with existing landscape), and/or placement of colored riprap. Final  
19 stabilization of soil disturbed areas will be achieved when vegetation restoration is completed in  
20 accordance with the BLM-approved Restoration Plan and UDEQ or ADEQ stormwater permit  
21 requirements.

## 22 ***Restoration***

23 **B.1.62.** A detailed Restoration Plan will be prepared and submitted to the BLM for approval prior to the  
24 start of construction. The portion of the plan pertaining to restoration in listed species habitat will be in  
25 accordance with approved study reports and permits and submitted to the USFWS by the BLM for  
26 approval. The Restoration Plan will describe reclamation and rehabilitation objectives and methods to be  
27 used, species of plants and/or seed mixture to be used, time of planting, blending with existing vegetation  
28 at ROW edges, fertilizer mix reviews and approvals, success standards, and follow-up monitoring.

29 **B.1.63.** Soils and cut/fill areas will be restored to blend into existing and characteristic landforms, and  
30 will be placed in a manner to minimize stark contrast with adjacent undisturbed areas. Topsoil from  
31 cut/fill activities will be spread on freshly disturbed areas to reduce color contrast and aid rapid  
32 revegetation. Disposal of excess fill material downslope will be avoided in order to avoid creating color  
33 contrast with existing vegetation/soils. Cut slopes will be randomly scarified and roughened to reduce  
34 texture contrasts with existing landscapes.

35 **B.1.64.** Vegetation conditions of the ROWs and adjacent reference site locations will be documented in  
36 the Restoration Plan prior to construction, to establish baseline conditions for restoration. The Restoration  
37 Plan will detail how baseline conditions will be assessed. Revegetation efforts will establish a stable  
38 biological groundcover equal to or exceeding that which occurred prior to disturbance.

39 **B.1.65.** All cacti and yucca within the ROWs that will be disturbed in the Mojave Desert habitat portion  
40 of the project will be salvaged, with the following exceptions:

- 1 • Cholla, including silver or golden cholla (*Opuntia echinocarpa*) and pencil cholla (*Opuntia*  
2 *ramosissima*), equal to or greater than 3 feet tall or less than 1 foot tall (i.e., only these species of  
3 cholla between 1 foot and less than 3 feet tall will be salvaged)
- 4 • All cacti and yucca whose vegetative mass is more than 40 percent dead (i.e., apical leaves,  
5 brown or significantly chlorotic, stems rotten or significantly desiccated, etc.)
- 6 • All cacti and yucca less than 1 foot tall (excluding barrel cactus [*Ferocactus cylindraceus*],  
7 cottontop cactus [*Echinocactus polycephalus*], and hedgehog cactus [*Echinocereus sp.*])
- 8 • All yucca that are over six feet in height
- 9 • Any cacti or yucca that cannot be accessed safely due to steep slopes or very rocky areas
- 10 • All cacti and yucca not salvaged will be left on-site to become part of the vegetative mulch

11 **B.1.66** Within the portion of the ROWs located within special designation areas (e.g., critical habitat,  
12 areas of critical environmental concern) identified in BLM Resource Management Plans or other federal  
13 policies or directives, additional shrub salvage or enhanced seed application may be conducted to enhance  
14 restoration efforts in coordination with the BLM. Additional shrub salvage may be accomplished by  
15 either 1) salvaging from the BLM lands within the ROWs, 2) salvaging from an approved off-site harvest  
16 site, and/or 3) propagation of shrubs from native seed in an approved nursery.

17 **B.1.67.** Salvaged cacti and yucca will be transported to designated transplanting sites within the ROWs.  
18 Upon approval from the BLM, salvaged vegetation may be transplanted at designated sites outside the  
19 ROWs.

20 **B.1.68.** Plant salvage in special designation areas (see B.1.65 and B.1.66) will occur from only within the  
21 ROWs or as indicated in the Restoration Plan. Salvaging will not begin until the ROW has been clearly  
22 staked and flagged. As feasible, salvage operations will not be performed during periods of high  
23 temperatures or other unfavorable environmental conditions. All salvaged plants will be documented and  
24 catalogued.

25 **B.1.69.** Prior to commencing any plant salvage operations in special designation areas, a free use permit,  
26 flora transportation tags, or any other required permits will be obtained to transport salvaged plants as part  
27 of restoration activities.

28 **B.1.70.** Salvaged plants in special designation areas will be maintained for the duration of construction  
29 activities if identified for replanting within the ROWs as part of site restoration, in coordination with the  
30 BLM. Maintenance will include necessary watering and other care to ensure reasonable survival of the  
31 salvaged plants.

32 **B.1.71.** At the completion of construction, coordination with the BLM on road decommissioning will  
33 occur. In areas where there are no above-ground facilities, permanent access roads, or facilities no less  
34 than 12 inches below the ground surface, the ground surface will be ripped as needed to an appropriate  
35 depth based on site characteristics to help relieve compaction, to establish an adequate seed bed to  
36 provide good seed-to-soil contact during seeding, and facilitate penetration and plant establishment (see  
37 comprehensive seeding program EPMs). Topsoil, mulched vegetation salvaged at the start of  
38 construction, and additional stabilization measures such as straw will be re-spread across the ROWs at the  
39 completion of construction.

40 **B.1.72.** Upon the completion of topsoil replacement, salvaged plants identified for replanting will be  
41 removed from the nursery sites and transplanted within the ROWs in areas not occupied by above-ground  
42 facilities or access roads. Efforts will be taken to restore plants to the same general area from which they  
43 were salvaged. Plants will be replanted in a random and non-uniform pattern, in an effort to mimic the

1 adjacent non-disturbed plant communities. Planting holes will be two times the size of the plant material  
2 to be transplanted and will be pre-watered. All backfill will be free of debris, foreign objects, rocks large  
3 enough to obstruct root growth or watering, and noxious weeds. As feasible, transplanting will not occur  
4 during periods of high temperatures or other unfavorable environmental conditions.

5 **B.1.73.** A comprehensive seeding program will be applied after completion of topsoil and plant  
6 replacement. The seed mix, application rate, and application method will be described in the Restoration  
7 Plan and reviewed by the BLM. Vegetable-based soil binders and/or hydromulch may be used on steep  
8 slopes to reduce seed movement and erosion. Seeds for restoration will be obtained from native local  
9 seed and/or a BLM-approved commercial seed vendor, and will be certified free of plant species listed on  
10 the Utah and Arizona noxious weed lists or specifically identified by the BLM. Examples of BLM-St.  
11 George Field Office (SGFO) approved native plant seed species, include: white bursage (*Ambrosia*  
12 *dumosa*), Four-wing Saltbush (*Atriplex canescens*), Mormon tea (*Ephedra nevadensis*), Sand Sagebrush  
13 (*Artemisia filifolia*), Rubber Rabbitbrush (*Chrysothamnus nauseosus*), Saltbush (*Atriplex confertifolia*),  
14 Winterfat (*Krasheninnikovia lanata*), Brittlebrush (*Encelia spp.*), Sideoats Grama (*Bouteloua*  
15 *curtipendula*), Blue Grama (*Bouteloua gracilis*), Galleta (*Pleuraphis jamesii*), Sand Lovegrass  
16 (*Eragrostis trichodes*), Indian Ricegrass (*Achnatherum hymenoides*), Sand Dropseed (*Sporobolus*  
17 *cryptandrus*), Bottlebrush Squirreltail (*Elymus elymoides*), Globemallow (*Sphaeralcia ambigua*),  
18 Datura (*Datura sp.*), creosote bush (*Larrea tridentate*), and indigo bush (*Psorothamnus fremontii*). Use  
19 of exotic nonnative plant species is not allowed on public land managed by the SGFO, including Forage  
20 kochia (*Kochia prostrata*) and Crested wheatgrass (*Agropyron cristatum*).

21 **B.1.74.** Watering may be conducted after completion of seeding, to help remove air pockets and compact  
22 soils in and around the roots of transplanted vegetation. Initial and subsequent quantities and timing of  
23 watering will be reviewed by the BLM as part of the Restoration Plan

24 **B.1.75.** Signs and/or physical blocking barriers indicating restoration activities are being conducted may  
25 be installed where needed to deter off-road vehicular damage to restored areas. Placement and design of  
26 signs and barriers will be coordinated with the BLM and identified in the Restoration Plan.

## 27 **Noxious Weeds**

28 **B.1.76.** An Integrated Weed Management Plan will be prepared and submitted to the BLM and other  
29 applicable agencies for approval prior to the start of construction. The BLM will coordinate with USFWS  
30 as needed. Noxious weed control will be implemented to minimize the spread of noxious weeds during  
31 construction and restoration/revegetation activities. All weed control efforts on BLM-administered lands  
32 will be in compliance with the BLM Handbook H-9011, H-9011-1 Chemical Pest Control, H-9014 Use of  
33 Biological Control Agents of Pests on Public Lands, and H-9015 Integrated Pest Management.

34 **B.1.77.** Areas within the ROWs that have pre-existing noxious weed infestations as identified in the  
35 Special Status Vegetation and Noxious Weed Inventory will be treated by a licensed contractor with a  
36 BLM-approved control method (i.e., chemical, mechanical, and/or biological controls) prior to the start of  
37 construction activities, as feasible. If noxious weed infestations exist within the ROWs at the start of  
38 construction, topsoil and fill will be kept segregated and not transported to other areas within the ROWs.

39 **B.1.78.** Prior to the import of borrow or fill from outside the ROWs, the source material location will be  
40 inspected by a qualified biologist or weed scientist to ensure it is free of noxious weeds or specifically  
41 identified in the BLM-approved Integrated Weed Management Plan for the project.

1 **B.1.79.** Any straw or other organic products used during construction, restoration, operations,  
2 maintenance, or for stabilization will be certified free of plant species listed on the Utah and Arizona  
3 noxious weed list or specifically identified in the BLM-approved Integrated Weed Management Plan for  
4 the project.

5 **B.1.80.** Construction vehicles and equipment will be cleaned with a high pressure washer or high pressure  
6 air and wire brush prior to arrival on the ROWs and prior to departure from areas of known noxious weed  
7 infestations to minimize the introduction or spread of noxious weeds. Cleaning efforts will concentrate on  
8 tracks, tires, and vehicle undercarriage, with special emphasis on axles, frames, cross members, motor  
9 mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs  
10 will be swept out and refuse will be disposed of in waste receptacles. Cleaning stations will be designated  
11 and will be recorded using global positioning systems or other mutually acceptable equipment and  
12 provided to the BLM Weed Coordinator or designated contact person. All water and material at the  
13 vehicle cleaning stations will be contained and collected and hauled off site for disposal at an approved  
14 disposal site.

15 **B.1.81.** UDWR or its certified licensed contractor will submit a request for a Pesticide Use Proposal to  
16 the BLM and other applicable agencies prior to the planned application of any herbicide and a Pesticide  
17 Application Record after the planned application of the herbicide. The Pesticide Use Proposal will  
18 identify areas of planned herbicide application for BLM use. No herbicide mixing or rinsing of containers  
19 or application equipment will occur within 100 feet of natural sources (i.e., lakes, streams, or springs). An  
20 annual report on herbicide application on public lands within the ROWs will be provided to the BLM.

21 **B.1.82.** Herbicides may not be sprayed within or around an exclusion area containing sensitive resources  
22 (buffers may be applied around areas in coordination with the BLM, depending on resource). These areas  
23 will be delineated with stakes and signs during construction or by GPS data. Removal of noxious and  
24 invasive weeds in these areas shall be accomplished by method(s) approved by the BLM or that are  
25 identified in the biological opinion.

## 26 **B.2. General Operations Practices**

### 27 *General*

28 **B.2.1.** Facility inspection and maintenance will only use established access roads, and no off-road travel  
29 will be allowed. While driving on paved roads, routes, or marked dirt roads, posted speed limits will be  
30 maintained. While driving on un-posted dirt roads, a maximum speed limit of 25 miles per hour (20 miles  
31 per hour in Mojave Desert tortoise habitat) will be maintained to reduce dust and allow for observation of  
32 desert tortoise, other wildlife or livestock in the road.

33 **B.2.2.** The ROWs will be maintained in a clean condition, and any waste material, including human  
34 waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment that may be generated  
35 from ROW activities will be disposed of promptly at a State of Utah or State of Arizona approved landfill  
36 site.

37 **B.2.3.** Hazardous materials at the Hurricane Cliffs Hydro Station will be stored in secondary containment  
38 structures, in compliance with Utah OSHA standards.

39 **B.2.4.** Pipelines, penstocks and facilities will be equipped with pressure and flow sensors that will  
40 immediately indicate a major system failure or break. The system will begin an automatic shutdown

1 process to isolate the affected area. Valve placement and storage capacity are planned to allow isolation  
2 of pipeline and penstock segments to manage drainage volumes. Personnel will be promptly mobilized to  
3 evaluate and repair any failure.

4 **B.2.5.** Stormwater discharges will be managed during facility operation by conducting regular inspection  
5 and maintenance of any permanent erosion control structures. Inspections will be conducted prior to and  
6 immediately following a rain event. Maintenance will be performed on the permanent structures as  
7 needed.

8 **B.2.6.** Pipeline or other facility repairs that may be needed will be accomplished within the ROWs,  
9 following all environmental requirements of this plan. If additional ROWs or amendment of the existing  
10 ROWs are required for pipeline or facility repair, prior written approval will be obtained from the BLM.  
11 If additional area is required for emergency repairs, such as in the case of a major system failure or break,  
12 UDWRe will obtain BLM verbal or written permission prior to any disturbance outside of the granted  
13 ROW area(s).

14 **B.2.7.** UDWRe will limit maintenance of existing BLM roads to the existing disturbance, and perform  
15 maintenance in accordance with specifications provided by the BLM field offices.

16 **B.2.8.** If major infrastructure replacements or improvements are required, additional ROWs or an  
17 amendment of the existing ROWs may be required. Additional environmental compliance may also be  
18 required. Notification and prior approval for said additional or amended ROWs will be obtained from the  
19 BLM as required.

## 20 ***Restoration Monitoring***

21 **B.2.9.** Vegetation restoration success will be monitored by UDWRe and reported to the BLM, as defined  
22 in the approved Restoration Plan. Monitoring will include both qualitative and quantitative data collection  
23 and analysis. Restoration will be considered successful when a stable biological groundcover equal to or  
24 exceeding that which occurred prior to disturbance is established. Vegetation restoration success on non-  
25 BLM lands will be coordinated with the respective landowners.

26 **B.2.10.** Annual restoration monitoring reports will be submitted to the BLM for five years documenting  
27 post-construction monitoring, and will include but not be limited to activities conducted, current status,  
28 recommended future activities, and lessons learned. Along with the annual report in the fifth year,  
29 UDWRe will include a quantitative analysis, to allow opportunity following the third-year report to  
30 correct any issues that may prevent restoration site release within the subsequent two years. If monitoring  
31 indicates that restoration is not trending towards meeting or has not met designated success criteria, the  
32 restoration activities may be revised and remedial measures implemented, subject to BLM approval.  
33 Restoration activities and annual reporting shall continue until the restoration fulfills the requirements of  
34 the BLM-approved Restoration Plan, and UDWRe receives written release from the BLM. Since  
35 successful restoration may be achieved in some areas more quickly than other sites, written approval shall  
36 identify the area released.

37 **B.2.11.** In the unlikely event of a major system rupture resulting in discharge of greater than 5,000,000  
38 gallons or off-site erosion, UDWRe will notify the BLM and other appropriate government entities as  
39 identified in the Emergency Response Plan. UDWRe will coordinate with the BLM to develop and  
40 implement incident-specific restoration measures as directed by the BLM.

1 **B.2.12.** The ROWs and primary unpaved access routes used for facility inspections will be monitored for  
2 noxious weeds from the start of construction until termination of the ROWs. Noxious weeds will be  
3 treated with a BLM-approved control method (i.e., chemical, mechanical, and/or biological controls) as  
4 needed. A request for a Pesticide Use Proposal will be submitted to the BLM prior to any planned  
5 noxious weed herbicide application, and a Pesticide Application Record will be submitted after weed  
6 herbicide use. All applications of herbicides shall comply with BMPs, SOPs, and Conditions from the  
7 Vegetation Treatments Programmatic EIS Biological Assessment related to Mojave Desert tortoise (DOI-  
8 BLM-WO-WO2100-2007-0002-EIS), Vegetation Treatments Using Aminopyralid Fluroxypyr and  
9 Rimsulfuron on BLM Lands in 17 Western States PEIS (DOI-BLM-WO-WO2100-2012-0002-EIS), the  
10 Arizona Strip Field Office noxious weed EA (DOI-BLM-AZ-A000-2016-0001-EA), and the SGFO  
11 specific EA (DOI-BLM-UT-C030-2016-0005-EA). Treatments may be waived in areas where noxious  
12 weeds are prevalent in adjacent off ROW areas with the BLM approval.

13 **B.2.13.** An annual report on noxious weeds conditions and control activities within the ROWs will be  
14 submitted to the BLM.

### 15 **B.3. Geologic Hazards and Soils**

16 **B.3.1.** If pipeline and penstock crossings of a fault are identified during detailed geotechnical  
17 investigations, additional design features will be considered to ensure pipeline integrity (e.g., flexible  
18 couplings, increased pipe wall thickness, pipe sleeves).

19 **B.3.2.** Soils unsuitable for use as pipeline and penstock backfill will be used to refill borrow pits  
20 identified as part of the project and will not be exported from federal lands.

### 21 **B.4. Water Resources**

22 **B.4.1.** In accordance with Clean Water Act individual permit requirements, BMPs will be implemented  
23 for the pipeline crossing of Paria River (intermittent flow) and Sand Wash, Buckskin Gulch (if flowing  
24 during a precipitation runoff event), and penstock crossing of Kanab Creek (intermittent flow) and Short  
25 Creek (if flowing during a precipitation runoff event). The BMPs will utilize industry-accepted  
26 procedures.

27 **B.4.2.** The project has been sited to avoid wetlands, and no construction is currently planned to occur in  
28 wetlands.

### 29 **B.5. Biological Resources**

#### 30 *General*

31 **B.5.1.** Qualified biologists will act as biological monitors and be present on-site during project-related  
32 actions that may impact special status biological resources. The USFWS and authorized BLM officer will  
33 approve the selected consulting firm/biologists to be used to implement the terms and conditions of the  
34 Biological Opinion or other agreements between UDWR, BLM, and other federal or state agencies. Any  
35 biologist and/or firm not previously approved will submit a curriculum vitae and be approved by the  
36 USFWS and BLM authorized officer. Other personnel may assist with implementing terms and  
37 conditions that do not involve tortoise handling, monitoring, or surveys, but only under direct field



1 supervision of the USFWS and BLM- approved biologists. Specific biologist requirements for Mojave  
2 Desert tortoise are described further in the tortoise measures below.

3 **B.5.2.** All necessary federal and state handling permits will be obtained.

4 **B.5.3.** The biological monitors will be responsible for determining compliance with measures as defined  
5 by the Biological Opinion or other agreements between UDWRe, the BLM, and other federal or state  
6 agencies. Biological monitors will have the authority to halt non-emergency construction activities that  
7 are not in compliance with these measures. Stop work directives will be effective long enough to remedy  
8 the immediate situation, and will be limited to the equipment and parties involved in the situation. All  
9 action of noncompliance or conditions of threat to special status species will be recorded immediately by  
10 the biological monitor and reported to UDWRe. UDWRe will immediately report all such action and  
11 conditions to the BLM for reporting to the USFWS and/or Utah Division of Wildlife Resources or  
12 Arizona Game and Fish Department (AGFD). Biological monitors will be qualified biologists and/or  
13 botanists, as determined by the BLM.

14 **B.5.4.** No harassment or harming of animals will be allowed. Animals found entrapped in open holes,  
15 open pipes/culverts, or excavations will be reported to the biological monitor. Before any pipe with a  
16 diameter of three inches or greater is buried, capped, or moved it will first be inspected for animals. If the  
17 wildlife is unable to escape on its own, it will be moved from the construction area by the biologists, in  
18 accordance with applicable federal and state guidelines.

19 B.5.5. The Environmental Compliance Representative will report to the BLM and other federal or state  
20 agencies, in accordance with ROW requirements, any entrapment, death, or injury to special status  
21 species.

22 **B.5.6.** Prior to discharge of water used for hydrostatic testing of the pipeline and other facilities, all  
23 appropriate discharge and biological permits will be obtained and the drainage locations will be surveyed  
24 for special status species and nesting migratory birds. The BLM will be notified of any special status  
25 species or nesting migratory birds found in the drainage area, and will determine whether additional  
26 measures need to be implemented prior to the discharge, beyond those identified in project permits and  
27 any other applicable agreements or requirements between UDWRe and the BLM, USFWS, and Utah  
28 Division of Wildlife Resources or AGFD.

29 **B.5.7.** Biological resource monitoring and compliance updates will be provided to the BLM throughout  
30 the construction period for record keeping and project documentation purposes. These will include  
31 information on ongoing construction activities, monitoring, wildlife and special status species  
32 observations, species relocations, entrapped special status species, and any other pertinent biological  
33 issues. Updates may be written or oral, as agreed upon by the BLM and UDWRe or AGFD contract  
34 biologists. An annual written report will be provided to the BLM.

### 35 *Special Status Plants*

36 **B.5.8.** In areas where special status plant species were identified in previous surveys either within or  
37 adjacent to the ROWs, pre-construction surveys will be conducted during the blooming or fruiting season  
38 as needed to verify plant identification. The USFWS Information for Planning and Consultation website  
39 will be reviewed prior to construction to obtain appropriate ESA species list updates for the project.  
40 Specific locations of special status plants, including BLM sensitive species, will be recorded for  
41 subsequent salvage or seed collection. To date, BLM sensitive plant species that have been identified  
42 within the ROWs include:

- 1 • Slender evening primrose (*Camissonia exilis*)
- 2 • Kanab barrel cactus (*Echinocactus polycephalus* var. *xeranthemoides*)
- 3 • Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii*)
- 4 • Cutler lupine (*Lupinus caudatus* var. *cutleri*)
- 5 • Kane beadroot (*Pediomelum epipsilum*)
- 6 • Smooth penstemon (*Penstemon laevis*)
- 7 • Nipple phacelia (*Phacelia mammalariensis*)
- 8 • Atwood's pretty phacelia (*Phacelia pulchella* var. *atwoodii*)

9 **B.5.9.** UDWRe will adjust construction activities as feasible to avoid any identified special status plant  
10 populations within the ROWs. T-posts strung with rope and signage will be used to mark the avoidance  
11 area including a reasonable buffer, alerting construction personnel to avoid the area. The onsite  
12 Environmental Compliance Representative will ensure these areas are properly monitored and protected.  
13 When individual special status plant locations are known (coordinates have been surveyed with GPS  
14 equipment) prior to construction drawings being prepared, the special status plants will be included in the  
15 construction drawings.

16 **B.5.10.** If the special status plant species cannot be avoided, UDWRe will implement plant or seed  
17 salvage prior to the start of construction. Seeds will be collected from special status plants that are located  
18 within the ROWs. Collection, storage, and handling of seeds will be in accordance with commonly  
19 accepted scientific practices. Collected special status plant seed will be applied with the seeding program  
20 as part of restoration at the completion of construction, and in the same general area as the seeds were  
21 initially collected, as appropriate.

22 **B.5.11.** If previously unknown special status plant species are discovered within the ROWs prior to start  
23 of or during construction, UDWRe will consult with the BLM, and the BLM will reinitiate consultation  
24 with USFWS, if appropriate.

25 **B.5.12.** If federal or state protected plant species are discovered in areas cleared during previous surveys  
26 within the ROWs during construction, the on-site biological monitor or agency personnel will have the  
27 authority to temporarily halt non-emergency construction activities in order to: 1) mark the area with T-  
28 posts and rope, including a reasonable buffer, to alert construction personnel to avoid the area, or 2) allow  
29 time for UDWRe to consult with the BLM, and for the BLM to reinitiate consultation with USFWS, if  
30 appropriate.

31 **B.5.13.** Herbicides may not be sprayed within or around any special status plant exclusion areas (buffers  
32 may be applied around areas in coordination with the BLM, depending on species). These areas will be  
33 delineated with stakes and signs during construction or by GPS data. Removal of noxious and invasive  
34 weeds in these areas shall be accomplished by method(s) approved by the BLM and that are identified in  
35 the biological opinion.

### 36 ***Mojave Desert Tortoise***

37 **B.5.14.** Desert tortoise surveys and monitoring in tortoise habitat in Utah will be completed prior to and  
38 during construction, respectively. UDWRe will submit to U.S. Fish and Wildlife Service (USFWS), Utah  
39 Ecological Services Field Office, the qualifications and references for individuals conducting surveys and  
40 monitoring at least 30 days prior to initiation of construction activities.

41 **B.5.15.** Desert tortoise monitors are individuals who are approved by the USFWS to:

- 1 • assess habitat suitability;
- 2 • conduct presence/absence and abundance surveys for desert tortoises;
- 3 • monitor LPP activities within desert tortoise habitat;
- 4 • ensure proper implementation of conservation measures; and
- 5 • report incidents of non-compliance in accordance with biological opinions and permits.

6 Desert tortoise monitors should have sufficient desert tortoise field experience (a minimum of 480 hours  
7 searching for tortoises and tortoise sign) to detect the presence of desert tortoises through observations of  
8 animals and signs including scat and burrows. A desert tortoise monitor is not authorized to handle desert  
9 tortoises. The monitor will keep detailed field notes that will be turned into the USFWS office every three  
10 months.

11 **B.5.16.** Field contact representatives (FCR) are individuals who are approved by the USFWS to:

- 12 • monitor LPP activities within desert tortoise habitat;
- 13 • conduct daily clearance sweeps as detailed in the text below;
- 14 • ensure proper implementation of protective measures; and
- 15 • call the desert tortoise monitor or USFWS with any questions or concerns.

16 The FCRs are not permitted to assess habitat suitability or conduct USFWS protocol level surveys  
17 (USFWS 2017) for desert tortoises because they do not have sufficient training or field experience.

- 18 • Desert tortoise monitors will ensure the FCRs meet the following qualifications:
- 19 • can recognize signs of desert tortoises;
- 20 • understand monitoring protocols; and
- 21 • have a minimum of one field day under the supervision of a desert tortoise monitor in each  
22 activity season and habitat type.

23 While FCRs are not authorized to handle desert tortoise or conduct USFWS protocol level surveys  
24 (USFWS 2017), FCRs may be approved, depending on activity season and habitat quality, to conduct  
25 daily clearance sweeps for desert tortoises immediately prior to or during LPP activities. The FCR will  
26 keep detailed field notes of tortoise related activity performed that will be turned into the USFWS Utah  
27 Ecological Services Field Office every three months.

28 **B.5.17.** Before construction activities begin, a pre-construction meeting will be held between the  
29 applicant, all onsite workers, Washington County Water Conservancy District (WCWCD), and the desert  
30 tortoise monitor to review all conservation measures. A handout of the conservation measures will be  
31 provided to all onsite workers.

32 **B.5.18.** Anytime a vehicle or construction equipment is parked in desert tortoise habitat, the area around  
33 and directly under the vehicle must be inspected for tortoises before the vehicle or equipment is moved.  
34 The inspection does not need to be performed by a tortoise monitor or FCR. If there is a desert tortoise  
35 observed, it will be left to move on its own – the tortoise will not be approached or handled. If this does  
36 not occur within 15 minutes, an approved desert tortoise biologist will be contacted to remove and  
37 relocate the tortoise.

38 **B.5.19.** If a desert tortoise is found in the project area during LPP activities, the tortoise will not be  
39 approached or handled and all LPP activities within 300 feet of the tortoise will be halted immediately,  
40 until such time as the tortoise leaves the area or is moved from the site. This distance can be adjusted  
41 down depending on specific circumstances as coordinated with the Utah Division of Wildlife Resources  
42 (UDWRi). The UDWRi will be contacted to approach and handle the tortoise. The USFWS (and the

1 Washington County HCP administrator, if so directed by UDWRi or USFWS) will be notified within 24  
2 hours if a tortoise is found in the project area.

3 **B.5.20.** All equipment taken into desert tortoise suitable habitat will be power-washed to remove noxious  
4 weeds and seeds and petroleum products prior to entering or re-entering the site. Fueling machinery will  
5 occur on already disturbed areas within ROWs. Laws and regulations pertaining to fueling of vehicles and  
6 equipment will be observed.

7 **B.5.21.** LPP activities and equipment in desert tortoise suitable habitat will be confined to the designated  
8 ROWs which will be identified by stakes, lathes, and flagging. To the extent feasible, previously  
9 disturbed areas within the ROWs will be used for temporary storage areas.

10 **B.5.22.** Designated routes of travel will be used whenever feasible in desert tortoise suitable habitat.  
11 Additional access routes outside designated routes of travel or the temporary ROWs will be limited to  
12 areas pre-cleared by the desert tortoise monitor that do not contain sign of desert tortoise within 100  
13 meters (328 feet). Use of access routes will be kept to a minimum.

14 If construction or modification of access routes is needed, desert tortoise monitor(s) approved to conduct  
15 protocol level surveys (USFWS 2010) will survey these routes plus a 100-meter (328 feet) zone of  
16 influence. If a desert tortoise or fresh tortoise sign is found within the 100 meter (328 feet) zone of  
17 influence of the LPP (regardless of habitat quality), the monitor will contact UDWRi and USFWS to  
18 discuss appropriate translocation, avoidance, and minimization measures based on the case-specific  
19 circumstances."

20 **B.5.23.** Cross-country vehicular travel by contractor personnel outside of the ROWs or identified access  
21 routes will be prohibited.

22 **B.5.24.** Surface occupancy or other surface disturbing activities will be avoided as feasible within 600  
23 meters (1,969 feet) of occupied desert tortoise habitat.

24 **B.5.25.** Trash and food items will be contained in closed (predator-proof) containers and removed  
25 regularly as needed to reduce attractiveness to opportunistic predators such as ravens, coyotes, and feral  
26 dogs.

27 **B.5.26.** Use of firearms by contractor personnel for target practice will be prohibited from the  
28 construction site and access routes.

29 **B.5.27.** Contractor personnel will be prohibited from bringing domestic dogs to the construction site.

30 **B.5.28.** A hazardous materials spill kit will be kept on site during construction that is appropriate for the  
31 solvents involved in operation and maintenance of vehicles and machinery used during the construction.  
32 Laws and regulations pertaining to hazardous materials will be observed.

33 **B.5.29.** Bulk concrete, grout, cement mortar, and solid and source site materials will be stored at a staging  
34 area.

35 **B.5.30.** Project vehicle speeds in the project area will be limited to 20 mph. Speed limit signs can be  
36 posted when entering and exiting occupied habitat.

37 **B.5.31.** *For occupied or high quality desert tortoise habitat in the active season (February 15 –*  
38 *November 30) – Unless UDWRi elects fencing in lieu of desert tortoise monitors, desert tortoise monitors*

1 will be on site during all LPP activities for the protection of desert tortoises. These monitors will be  
2 responsible for determining compliance with measures as defined in the biological opinion.

3 **B.5.32.** *For occupied or high quality desert tortoise habitat in the active season (February 15 –*  
4 *November 30)* – No more than one hour prior to daily construction activities commencing or by 7 am each  
5 work day (whichever is later), a desert tortoise monitor will conduct a clearance sweep of that day’s  
6 Project activity area (including a 100-meter [328 feet] zone of influence on all sides) and carefully inspect  
7 any hazards (e.g. trenches, open pipes). If temperatures are cold enough that tortoise activity is not  
8 expected, UDWR may coordinate with USFWS to reduce the monitoring requirements.

9 **B.5.33.** *For occupied or high quality desert tortoise habitat in the active season (February 15 –*  
10 *November 30)* – A desert tortoise monitor will be assigned to each grouping of equipment (heavy  
11 machines which use power to perform a construction function specific to the machine) operating in  
12 spatially disjunct areas within the project site. A grouping of equipment is defined as all construction  
13 equipment working within a 1,000-foot linear distance from the first piece of equipment to the last piece  
14 of equipment. Equipment performing backfilling, re-contouring, and reclamation activities are included in  
15 this measure.

16 **B.5.34.** *For occupied or high quality desert tortoise habitat in the active season (February 15 –*  
17 *November 30)* – If UDWR chooses not to have a desert tortoise monitor on every grouping of  
18 equipment, it can use temporary fencing.

19 **B.5.35.** *For occupied or high quality desert tortoise habitat in the active season (February 15 –*  
20 *November 30)* – Blasting is not permissible within 100 meters (328 feet) of an occupied tortoise burrow,  
21 due to potential direct effects of this action on burrow stability.

22 **B.5.36.** *For occupied or high quality desert tortoise habitat in the active season (February 15 –*  
23 *November 30)* – If LPP activities occur within occupied habitat during the most active seasons (March 15  
24 – May 15 and August 20 – October 20), UDWR will hold a short refresher meeting with all LPP  
25 personnel that will be led by the desert tortoise monitor or FCR (whichever is on-site when the meeting is  
26 conducted) on March 15 and August 20 (or the first working day just prior to those dates). This meeting  
27 will include instruction and handouts to remind workers of the LPP’s conservation measures. A refresher  
28 meeting may need to be given on both dates for the LPP. Refresher meetings will be held in addition to  
29 the pre-construction meeting described in General Measures. However, if the initial pre-construction  
30 meeting occurred recently (within one month prior to the most active season start date, March 15 or  
31 October 20), the refresher meeting that will have normally been held on that date is not required.

32 **B.5.37.** *For occupied or high quality desert tortoise habitat in the active season (February 15 –*  
33 *November 30)* – UDWR may choose to use temporary tortoise-proof fencing infrastructure in lieu of  
34 full-time monitoring to keep desert tortoises out of LPP activities. When temporary fencing is used and if  
35 the temperature is 95 degrees F or higher, the entire fence line will be checked at least three times a day—  
36 once by a tortoise monitor no more than one hour prior to each day’s construction activities beginning or  
37 by 7 am (whichever is later), and twice more by the FCR throughout the day. Longer term Projects can  
38 consider installing tortoise shade structures (see b, below) to lessen the need for three daily checks of the  
39 fence to one daily check. In the event shade structures are installed, daily fence line checks must continue  
40 no more than one hour prior to each day’s activities beginning or 7 am (whichever is later). If  
41 temperatures do not reach 95 degrees F, the fence line can be checked once a day. Any fencing plans must  
42 be approved by USFWS.

1 Temporary tortoise-proof fencing consists of barrier fence buried at least 15 centimeters or 6 inches  
2 (leaving 1 meter or 3.3 feet aboveground) and supported by stakes.

3 Shade structures will be constructed on a flattened mound of dirt 20 cm high (to protect the shelter from  
4 runoff). Shelter material will be arranged in a half moon shape, and must be a minimum of 20 cm tall, 40  
5 cm long, and 40 cm wide. Shelters must be covered with 20 cm of soil on the top and sides to stabilize  
6 and insulate the structure.

7 **B.5.38.** *For occupied or high quality desert tortoise habitat in the active season (February 15 –*  
8 *November 30)* – If the proponent does not install temporary fencing, then by the close of each work day,  
9 open trenches and other open excavations will be covered or provided with tortoise escape ramps.  
10 Excavations left open will be checked each morning for presence of tortoise prior to commencement of  
11 daily work and at the end of the work day.

12 Escape ramps will have a slope no steeper than 3:1 and be a minimum of 91.5 cm (3 feet) in length.  
13 Escape ramps will be placed at 100-meter (328 feet) intervals. These distances will be reduced if the FCR,  
14 desert tortoise monitor, and approved desert tortoise biologist determine that the plug/escape ramp  
15 spacing is insufficient to facilitate animal escape from the trench.

16 **B.5.39.** *For occupied or high quality desert tortoise habitat in the active season (February 15 –*  
17 *November 30)* – No standing water as a result of LPP operations will be permitted in desert tortoise  
18 habitat because this can attract desert tortoises and predators. Similarly, leaks on water trucks and water  
19 tanks will be repaired to prevent pooling water. If watering conditions could temporarily attract tortoises,  
20 the FCR or a desert tortoise monitor assigned to a group of equipment constructing the pipeline may  
21 periodically leave the group of equipment to patrol each area being watered.

22 **B.5.40.** *For occupied or high quality desert tortoise habitat in the active season (February 15 –*  
23 *November 30)* – The storing and handling of bulk hazardous waste materials will be excluded from the  
24 LPP areas within 600 meters (1,969 feet) of active tortoise burrows.

25 **B.5.41.** *For occupied or high quality desert tortoise habitat in the less active season (December 1 –*  
26 *February 14)* – A desert tortoise monitor is not required for measures identified for the active season. A  
27 FCR will complete similar activities and remain on-site during all LPP activities, conduct daily clearance  
28 sweeps out to 100 meters (328 feet), check any hazards, and check all backfilling, re-contouring, and  
29 reclamation activities prior to initiation. A desert tortoise monitor will come out to the site weekly to  
30 check in with the FCR, review and collect field notes, and check any hazards.

31 **B.5.42.** *For occupied or high quality desert tortoise habitat in the less active season (December 1 –*  
32 *February 14)* – In lieu of a FCR that remains on site throughout the day, UDWR may use temporary  
33 fencing infrastructure. A FCR will come out to the site daily to check the fence line and any hazards. A  
34 desert tortoise monitor will come out to the site bi-weekly to check in with the FCR, review and collect  
35 field notes, and check the fence line and any hazards (regardless of temperatures).

36 **B.5.43.** *For unoccupied, medium desert tortoise habitat in the active season (February 15 – November*  
37 *30)* – Desert tortoise monitors are not required to be on site during all LPP activities and temporary  
38 fencing is not required.

39 **B.5.44.** *For unoccupied, medium desert tortoise habitat in the active season (February 15 – November*  
40 *30)* – A desert tortoise monitor will come out to the site weekly to check in with the FCR, review and  
41 collect field notes, and check any hazards.

- 1 **B.5.45.** *For unoccupied, medium desert tortoise habitat in the active season (February 15 – November*  
2 *30) – A FCR will perform a sweep of any open trench and any other open excavations at least three times*  
3 *daily. If a desert tortoise or fresh tortoise sign is found within the 100 meter (328 feet) zone of influence*  
4 *of the LPP, the monitor will contact UDWRi and USFWS to discuss appropriate translocation, avoidance,*  
5 *and minimization measures based on the case-specific circumstances.*
- 6 **B.5.46.** *For unoccupied, medium desert tortoise habitat in the active season (February 15 – November*  
7 *30) – No standing water as a result of LPP operations will be permitted in desert tortoise habitat as this*  
8 *can attract desert tortoises and predators. Similarly, leaks on water trucks and water tanks will be repaired*  
9 *to prevent pooling water. If conditions favor tortoise activity, the FCR or a desert tortoise monitor*  
10 *assigned to a group of equipment constructing the pipeline may periodically leave the group of equipment*  
11 *to patrol each area being watered.*
- 12 **B.5.47.** *For unoccupied, medium desert tortoise habitat in the less active season (December 1 – February*  
13 *14) – Desert tortoise monitors or a FCR are not required to remain on-site during all LPP activities and*  
14 *temporary fencing is not required.*
- 15 **B.5.48.** *For unoccupied, medium desert tortoise habitat in the less active season (December 1 – February*  
16 *14) – A FCR will perform a sweep of any open trench and any other open excavations once daily.*
- 17 **B.5.49.** *For unoccupied, medium desert tortoise habitat in the less active season (December 1 – February*  
18 *14) – A FCR will contact a desert tortoise monitor bi-weekly to review and submit field notes (electronic*  
19 *submission is permissible), and report any hazards. If a desert tortoise or fresh tortoise sign is found*  
20 *within the 100 meter (328 feet) zone of influence of the LPP (regardless of habitat quality), the monitor*  
21 *will contact UDWRi and USFWS to discuss appropriate translocation, avoidance, and minimization*  
22 *measures based on the case-specific circumstances.*
- 23 **B.5.50.** *For unoccupied, medium desert tortoise habitat in the less active season (December 1 – February*  
24 *14) – A desert tortoise monitor will come out to the site every four weeks to check with the FCR and*  
25 *check any hazards.*
- 26 **B.5.51.** A formal Reclamation Plan for all desert tortoise habitat will be developed and submitted to the  
27 BLM per BLM requirements.
- 28 **B.5.52.** Desert tortoise monitor(s) will prepare all survey reports and field notes and submit them to  
29 USFWS quarterly and at project completion. The reports will identify the extent of impacts to desert  
30 tortoises. They will include:
- 31       • Desert tortoise survey and monitoring reports.  
32       • Desert tortoise encounters within project boundaries and how they were reported and addressed.
- 33 **B.5.53.** During routine inspections, scheduled maintenance, emergency maintenance, or any other  
34 maintenance, if desert tortoises are encountered, they will be avoided and the BLM Biologist will be  
35 contacted if there appear to be hazards to the tortoise. The BLM will coordinate with the USFWS as  
36 appropriate.
- 37 **B.5.54.** Scheduled maintenance in suitable habitat will be performed during the less active season  
38 (December 1 – February 14). It will be overseen by an individual who has received the desert tortoise  
39 education training provided by the Washington County HCP. Scheduled maintenance activities will not  
40 create new disturbance beyond the already-disturbed access road and pipeline features.

1 **B.5.55.** Maintenance activities that are performed during the less-active season, or that create new surface  
2 disturbance in suitable habitat will be coordinated with the BLM. The BLM will coordinate with the  
3 USFWS as appropriate.

4 **B.5.56.** If emergency maintenance activities create new surface disturbance in suitable habitat or is  
5 required during the active season in suitable habitat, the BLM will be contacted within 24 hours to  
6 minimize any impacts and coordinate post-emergency response. The BLM will coordinate with the  
7 USFWS as appropriate.

## 8 ***Gila Monster and Common Chuckwalla***

9 **B.5.57.** Within potential habitat and confirmed sightings near the LPP for Gila monster and common  
10 chuckwalla, pre-construction surveys of the ROWs will be conducted by qualified biologists to find and  
11 move individuals out of harm's way. These surveys may be conducted in accordance with Gila monster  
12 protocol. All occupied burrows found in the construction zone will be examined and excavated as  
13 described for the desert tortoise. If a Gila monster is found, Utah Division of Wildlife Resources or  
14 Arizona Game and Fish Department and BLM will be immediately contacted.

15 **B.5.58.** Gila monster and common chuckwalla will be moved only by qualified biologists and solely for  
16 the purpose of moving them out of harm's way. The onsite biologists will follow the Utah Division of  
17 Wildlife Resources or AGFD and BLM Gila monster protocol and specifically will know how to: 1)  
18 identify Gila monster and be able to distinguish it from other lizards such as chuckwalla and western  
19 banded gecko, 2) report any observations of Gila monster to Utah Division of Wildlife Resources or  
20 AGFD and BLM, 3) be alerted to the consequences of a Gila monster bite; and 4) be aware of protective  
21 measures provided under state law.

22 **B.5.59.** All Gila monster and common chuckwalla observed by project workers will be reported  
23 immediately to the biological monitor. A report of the Gila monster sighting will be filed with Utah  
24 Division of Wildlife Resources or AGFD and BLM. The report will include information on the animal's  
25 size and condition, location (with GPS coordinates), date and time, habitat (including plant species  
26 present), photo-documentation (if feasible), and circumstances under which it was found.

## 27 ***Burrowing Owl and Kit Fox***

28 **B.5.60.** Burrowing owl is a migratory bird. As such, the measures presented in the migratory bird section  
29 are in addition to the ones listed here.

30 **B.5.61.** Surveys of suitable habitat in the ROWs for active burrowing owl will be conducted by qualified  
31 biologists during nesting season (March 1 through August 31) and no more than 30 days prior to the start  
32 of construction. Surveys for active kit fox burrows can be conducted at the same time. The presence of  
33 active burrows or dens will be verified through non-invasive means including motion cameras, fiber-optic  
34 scope or miniature closed-circuit video probe; the surveys will consider that dens can be very diverse with  
35 several tunnels and entrance and exit burrows. The locations of active burrows within the ROWs will be  
36 determined using a GPS unit to enable accurate relocation during subsequent mitigation actions.

37 **B.5.62.** There will be no destruction of occupied, active nesting burrows or natal dens, capture and  
38 relocation of live burrowing owls or kit foxes, nor harm in any way to individual animals on public land  
39 administered by the BLM. Active nesting burrows or natal dens within the ROWs will be avoided by  
40 modifying construction activities in the immediate area. T-posts with rope and signs will be used to mark



1 the avoidance area, which will include a buffer of at least 0.25 miles. The buffer area may be reduced in  
2 coordination with the BLM's adaptive management process and will be determined prior to construction.  
3 The fencing will be installed in a manner to allow for ingress and egress of the animals. The avoidance  
4 area will also be signed to inform construction personnel to avoid the area.

5 **B.5.63.** Destruction of unoccupied burrows and dens will occur outside of the active nesting (March 1 to  
6 August 31) or natal season (February 15 to May 15) to avoid take. Burrows or dens will be excavated  
7 using hand tools and refilled to prevent reoccupation. Clearing and collapsing of burrows or dens within  
8 the ROWs will be done by qualified biologists prior to the start of construction. Existing unsuitable  
9 burrows or dens on adjacent BLM land outside of the ROWs will be enhanced (enlarged or cleared of  
10 debris) or new burrows and dens created (by installing artificial burrows and dens) at a ratio of two  
11 enhanced or new burrows to each one burrow that will be destroyed.

## 12 ***Migratory Birds (including Raptors)***

13 **B.5.64.** As feasible, UDWR will conduct initial ground clearing outside of the critical nesting period for  
14 migratory birds.

15 **B.5.65.** If initial ground clearing will occur during the critical nesting period, pre-construction surveys for  
16 nesting migratory birds will be conducted by a qualified biologist (no more than 10 days prior to  
17 construction). If an active nest is identified, a no-activity buffer (ranging from 100-feet to 1-mile,  
18 depending on species; Romin and Muck 2002, USFWS 2014) is to be established around the nest site and  
19 remain in place until the young have fledged and/or the nest becomes non-active.

20 **B.5.66** If nesting migratory birds are found during the pre-construction surveys, UDWR will follow  
21 measures identified within the Bird Conservation Strategy (see measure B.1.1). If feasible, the bird nests  
22 will be avoided until the birds have fledged. T-posts and rope fencing will be used to mark the avoidance  
23 areas, which will also be signed to inform construction personnel to avoid the area. If avoidance is not  
24 feasible, UDWR will consult with the BLM.

25 **B.5.67.** Power poles, perch discouragers, and line spacing will be designed and constructed in accordance  
26 with the recommendations of the Avian Power Line Interaction Committee (APLIC, 2006), in order to  
27 reduce the potential to electrocute or otherwise harm raptors.

28 **B.5.68.** UDWR will continue working with Utah Division of Wildlife Resources or AGFD through  
29 Partners in Flight and other associated monitoring programs to support on-going surveys for eagles,  
30 ferruginous hawks, and other raptors within the general project vicinity.

31 **B.5.69.** If trees located within the ROWs cannot be avoided and must be removed for construction, the  
32 trees will be removed outside of the nesting period for raptors or other migratory birds, as feasible. If  
33 removal of a tree during the nesting period is required, the tree will first be surveyed by a qualified  
34 biologist to ascertain the presence of any nests. Should active nests of raptors or migratory birds be  
35 present, the tree will not be removed until the birds have fledged.

36 **B.5.70.** Where appropriate, restrict permitted activities from May 1 through July 15 within 0.5 mile of  
37 raptor nest sites unless the nest site has been determined to be inactive for at least the previous 5 years;  
38 the specific avoidance buffer distance and time period for raptor species may be refined in the Bird  
39 Conservation Strategy (see measure B.1.1). Construction could occur during restricted periods if  
40 sufficient monitoring of the nest is completed during the present active season and the nest is found to be  
41 unoccupied for that year (presence/absence surveys according to protocols).

1 **B.5.71.** Immediately prior to the start of an authorized or permitted project, BLM will contact personnel  
2 monitoring California Condor locations and movements to determine the locations and status of condors  
3 in or near the project area.

4 **B.5.72.** UDWR will notify the BLM wildlife team lead or condor biologist if California Condors visit  
5 the worksite while permitted activities are underway.

6 **B.5.73.** Where condor nesting activity is known within 0.5 miles of permitted or authorized activities that  
7 include operation of heavy machinery, BLM may encourage the operator to avoid use of the equipment  
8 during the active nesting season (February 1- November 30), or as long as the nest is viable to the extent  
9 consistent with the Agreement between the U.S. Fish and Wildlife Service and the Coalition of County  
10 and Local Governments for the California Condor Experimental Population, Northern Arizona and  
11 Southern Utah (Condor Agreement).

12 **B.5.74.** Where condors occur within 1.0 mile of permitted or authorized activities that include blasting,  
13 BLM will encourage that blasting be postponed until the condors leave the area or are hazed away by  
14 personnel permitted to haze condors to the extent consistent with the Condor Agreement.

15 **B.5.75.** Where condor nesting activity is known within 1.0 mile of the project area, BLM encourages that  
16 blasting activity be delayed until after the active nesting season (February 1- November 30), or as long as  
17 the nest is viable to the extent consistent with the Condor Agreement. These dates may be modified based  
18 on the most current information regarding condor nesting.

19 **B.5.76.** Where California Condors visit a worksite while activities are underway, the onsite supervisor  
20 will notify the BLM wildlife team lead or condor biologist. Project workers and supervisors will be  
21 instructed to avoid interaction with condors. Operations will cease until the bird leaves on its own or until  
22 techniques are employed by permitted personnel that results in the individual condor leaving the area to  
23 the extent consistent with the Condor Agreement.

24 **B.5.77.** The project site will be cleaned up at the end of each day the work is being conducted (e.g., trash  
25 removed, scrap materials picked up) to minimize the likelihood of condors visiting the site. BLM staff  
26 may conduct site visits to the area to ensure adequate clean-up measures are taken.

27 **B.5.78.** For projects where potential exists for leakage or spill of hazardous materials, a spill plan will be  
28 developed and implemented to prevent water contamination and potential poisoning of condors. The plan  
29 will include provisions for immediate cleanup of any hazardous substance, and will define how each  
30 hazardous substance will be treated in case of leakage or spill. The plan will be reviewed by the BLM  
31 condor lead biologist to ensure condors are adequately addressed.

## 32 ***Big Game***

33 **B.5.79.** There will be no permanent site fencing along the pipeline alignment away from above-ground  
34 facilities in order to avoid restricting seasonal movement patterns of big game. Temporary fencing may be  
35 used to protect wildlife during pipeline construction. Temporary fencing may be in place at a given  
36 location for an extended period after completing a pipe segment's construction to prevent grazing on the  
37 ROW while vegetation is being re-established. Temporary fence specifications will be coordinated with  
38 the BLM field offices.

39 **B.5.80.** In consultation with the BLM or NPS, and Utah Division of Wildlife Resources or AGFD, a plan  
40 will be developed to either turn existing water sources on or off to aid in animal distribution away from

1 active construction areas. UDWR will coordinate with ranchers and other land permittees within the  
2 project hydrographic basins to ensure that existing artificial water sources continue to be available during  
3 construction for big game. If construction is within two miles of an existing artificial water source,  
4 supplemental temporary stock tanks will be placed in a suitable location away from the construction area.  
5 The location of the temporary stock tanks will be selected in consultation with appropriate ranchers and  
6 land permittees, the BLM or NPS, and Utah Division of Wildlife Resources or AGFD, and after  
7 appropriate site-specific environmental review and analysis has occurred. Water tanks will be filled using  
8 trucks, and maintained for the duration of construction in this area.

9 **B.5.81.** Where appropriate, restrict LPP construction activities in big game  
10 calving/fawning/kidding/lambing grounds and crucial summer range from April 15 through June 30.

11 **B.5.82.** Pipeline, penstock and electrical transmission line construction in crucial mule deer winter range  
12 will be coordinated with Utah Division of Wildlife Resources and the BLM and scheduled during the  
13 period from May 1 through September 30 between Highway 89 milepost 31 and 50 to avoid impacts on  
14 crucial mule deer winter habitat. If these dates are determined to be too restrictive to efficiently construct  
15 the pipeline and penstock, then alternative minimization techniques will be discussed with Utah Division  
16 of Wildlife Resources and the BLM.

17 **B.5.83.** Unavoidable impacts on Paunsaugunt deer herd crucial winter habitat could be mitigated by  
18 compensatory measures, including contributions to ongoing mule deer habitat improvement projects and  
19 construction of a new improved crossing structure at Highway 89 milepost 39.5. Compensatory  
20 mitigation measures will be coordinated as necessary with Utah Division of Wildlife Resources.

21 **B.5.84.** Where appropriate, restrict LPP construction activities within suitable bighorn sheep habitat from  
22 March 1 through May 31 and from July 1 through August 31.

## 23 ***Fish***

24 **B.5.85.** During pipeline construction, BMPs will be implemented to minimize effects on fish (if present)  
25 from the temporary rerouting of intermittent flow in Paria River and in other intermittent washes.  
26 Practices will comply with Utah Division of Wildlife Resources and Clean Water Act permitting  
27 requirements. Examples of BMPs could include screens on pump intakes.

## 28 **B.6. Paleontological Resources**

29 **B.6.1.** A field survey will be conducted of areas within the ROWs identified as having a high potential for  
30 paleontological resources, based upon a paleontological records search (following BLM Instruction  
31 Manual 2008-009, Potential Fossil Yield Classification System for Paleontological Resources on Public  
32 Lands). The field survey will identify if there are any surface exposures containing visible fossils and if  
33 there is a potential for buried fossils within the construction footprint. If any important fossils or middens  
34 are found during the field survey, a program will be developed in coordination with applicable agencies  
35 and implemented to remove any exposed fossils prior to construction, per agency guidelines.

36 **B.6.2.** Areas identified as having a high potential for buried paleontological resources based upon the  
37 field survey will be monitored by a qualified paleontologist during construction activities involving  
38 ground disturbance, including grading, excavation, and trenching.

1 **B.6.3.** Any fossils recovered during the field survey or construction monitoring will be prepared in  
2 accordance with standard professional paleontological techniques. The fossils will be curated in a BLM-  
3 approved facility. A report on the findings and significance of the salvage program, including a list of the  
4 recovered fossils, will be prepared following completion of the program. A copy of this report will  
5 accompany the fossils, and a copy will be submitted to the Utah State Museum or Arizona State Museum.

## 6 **B.7. Cultural Resources**

7 **B.7.1.** Measures summarizing the requirements from the agreement document for National Historic  
8 Preservation Act Section 106 review will be used to complete this section.

## 9 **B.8. Land Use and Range Management**

10 **B.8.1.** UDWRe will coordinate in advance of construction with the BLM, other applicable agencies, and  
11 permit holders that may be affected by construction activities. This coordination will allow for advance  
12 planning of grazing practices to minimize access and use conflicts.

13 **B.8.2.** Range improvements, including fence lines and cattle guards, corrals, or other non-watering  
14 facilities, located within the ROWs and along permanent access roads will be documented prior to the  
15 start of construction. If range improvements are temporarily removed or damaged as a result of  
16 construction, they will be repaired to the grazing permittee requirements and be functional upon  
17 completion of construction. Temporary fencing and needed facilities will be used during construction to  
18 keep cattle confined to grazing areas as intended by the existing range improvements temporarily moved  
19 for construction.

20 **B.8.3.** If livestock is struck by a vehicle directly associated with construction activities, UDWRe will  
21 compensate permittee for the livestock at market value.

22 **B.8.4.** If access to livestock watering sources or facilities is restricted, alternate source(s) will be made  
23 available in consultation with the BLM or the NPS for the duration that access is restricted. Restricted  
24 access points and alternate sources will be made during final design. If livestock watering sources or  
25 facilities are damaged during construction, they will be repaired to BLM or NPS standards and be  
26 functional upon completion of construction.

## 27 **B.9. Noise**

28 **B.9.1.** All construction equipment will be equipped with manufacturer's standard noise control devices  
29 (i.e., mufflers, acoustical lagging, and/or engine enclosures). All construction equipment will be inspected  
30 at periodic intervals to ensure proper maintenance and presence of noise control devices.

31 **B.9.2.** Pumping stations and hydroelectric generating stations will be enclosed and utilize noise design  
32 features (e.g., acoustical louvers and noise absorbing panels) to minimize operational noise levels.  
33 Pressure reducing station valves will be fully enclosed in vaults. Potential facility noise levels will be  
34 estimated during facility design, and features incorporated to minimize normal operational noise levels  
35 with an objective of 60 A-weighted decibel (dBA) or less at the boundary of the facility.

36 **B.9.3.** Equipment will be operated conservatively, which means the operator will not throttle the engine  
37 excessively and will keep engine speed as low as necessary to perform required tasks. In addition, the  
38 operator will not leave equipment running or idling needlessly.

1 **B.9.4.** When construction occurs in the vicinity of occupied residences located within 0.5 mile of the  
2 project, the occupants will be notified of the construction schedule with a written letter. To the extent  
3 feasible, construction will occur during daytime hours (6:00 a.m. to 6:00 p.m., 7 days per week; 24-hour  
4 operations may be approved for tunneling or drilling) within 0.5 mile of the residences to minimize the  
5 impacts from construction noise during evening and nighttime hours. Where campgrounds, recreation  
6 sites, other similar facilities, and high use areas are located within 0.5 mile of the project, signage will be  
7 posted at appropriate locations indicating the construction schedule and construction will occur during  
8 daytime hours to avoid disturbances to campground users.

## 9 **B.10. Air Quality**

10 **B.10.1.** Dust control permits will be obtained for each construction contract in accordance with local,  
11 county and/or state requirements. The permits will contain a Dust Control Plan listing all construction  
12 activities that will occur and the BMPs that will be used to mitigate construction dust. The BMPs will  
13 include site-specific dust control measures that are based on each project soil type, specific construction  
14 activities, phases and stages. They may include:

- 15 • Moisture conditioning of construction materials
- 16 • Controlling dust on access roads
- 17 • Covering or stabilizing soil with vegetation
- 18 • Using phased construction
- 19 • Limiting size and number of ingress and egress points
- 20 • Limiting size of staging areas
- 21 • Limiting vehicle speeds on the work site to minimize dust generation
- 22 • Proactive measures to prevent unauthorized access to disturbed areas
- 23 • Application of track-out controls

24 **B.10.2.** UDWRe will comply with all requirements of applicable dust control permits.

25 **B.10.3.** Any dust palliative, dust suppressant, or tackifier used within threatened and endangered species  
26 habitat or active drainages will be approved by the BLM. BLM will coordinate with USFWS as needed.

27 **B.10.4.** Operating permits will be obtained as required from the local county and/or the state for  
28 stationary sources as necessary, such as aggregate rock handling equipment, rock crushers, conveyors,  
29 and screening equipment which may emit particulate matter. UDWRe will comply with all requirements  
30 of the operating permits.

31 **B.10.5.** Operating permits will be obtained for combustion equipment such as stationary internal  
32 combustion engines (greater than 250 horsepower) used during construction or operation of the project.  
33 The Operating Permit will include operating requirements, reporting requirements and pollutant emission  
34 limits.

35 **B.10.6.** Active construction sites and unpaved roads used for construction will be watered or a chemical  
36 dust suppression approved by the BLM will be applied, as needed, to maintain effective dust control.

37 **B.10.7.** Equipment will be operated conservatively, which means the operator will not throttle the engine  
38 excessively and will keep engine speed as low as necessary to perform required tasks. In addition, the  
39 operator will not leave equipment running or idling needlessly.

1 **B.11. Visual Resources**

2 Environmental protection measures related to revegetation and restoration of temporarily disturbed areas  
3 to reduce visual impacts are described in Sections B.1 and B.2 of this Appendix.

4 **B.11.1.** Pumping stations, the water treatment facility, buried storage reservoir, hydroelectric generating  
5 stations, substations, transmission lines and towers, permanent fencing, permanent access roads, culvert  
6 ends, markers and other project facilities will utilize architectural details and be painted or constructed of  
7 colored block or colored materials to blend with the colors of the surrounding landscape, per BLM  
8 Manual 8400 – Visual Resources Management. Architectural details will be coordinated with BLM  
9 during final design and approved by the BLM as part of local building permit approvals. Visual  
10 Resources Management objectives in land use plans will be followed as applicable.

11 **B.11.2.** Lighting needed to conduct construction at night will be limited to the basic requirements to  
12 conduct the work. Lighting will be shielded, and directed down towards the site and not into surrounding  
13 areas or onto roads. Lighting for night construction will be coordinated and approved by the BLM and  
14 other applicable agencies.

15 **B.11.3.** Nighttime lighting during project operations at the pumping stations, pressure reducing stations,  
16 regulating tanks, and electrical substations will either be manually controlled or programmed and used  
17 when occupied or when needed for safety and security. Lighting will be shielded and directed downwards  
18 and towards the facility site and will follow NPS night sky and International Dark Sky standards.

19 **B.11.4.** Rock cuts and other construction areas along the ROWs in sensitive visual areas or landscapes  
20 will be restored to blend with adjacent geological structure and may be painted or sprayed with an  
21 artificial desert varnish following construction completion and prior to revegetation to reduce the visual  
22 contrast. Application rates and color tint will be site-specific. Available artificial desert varnish materials  
23 used for visual resource impact mitigation purposes will be approved by the BLM prior to use.

24 **B.11.5.** Additional trees in juniper areas will be cleared to create uneven, natural appearing openings in  
25 vegetative cover adjacent to the pipeline alignment. Trees and shrubs will be feathered along the edge of  
26 the ROW with selective thinning to create variations in density and create uneven edges. Slash piles will  
27 not be left in sensitive viewing areas.

28 **B.11.6.** Existing vegetation that screens pipeline and penstock alignments, flow-control facilities, parking  
29 lots and other features from key viewing areas will be retained if it does not impede construction  
30 activities.

31 **B.11.7.** Pitting and vertical mulching in sensitive locations may be used in coordination with the BLM to  
32 reduce contrast and visibility of the pipeline.