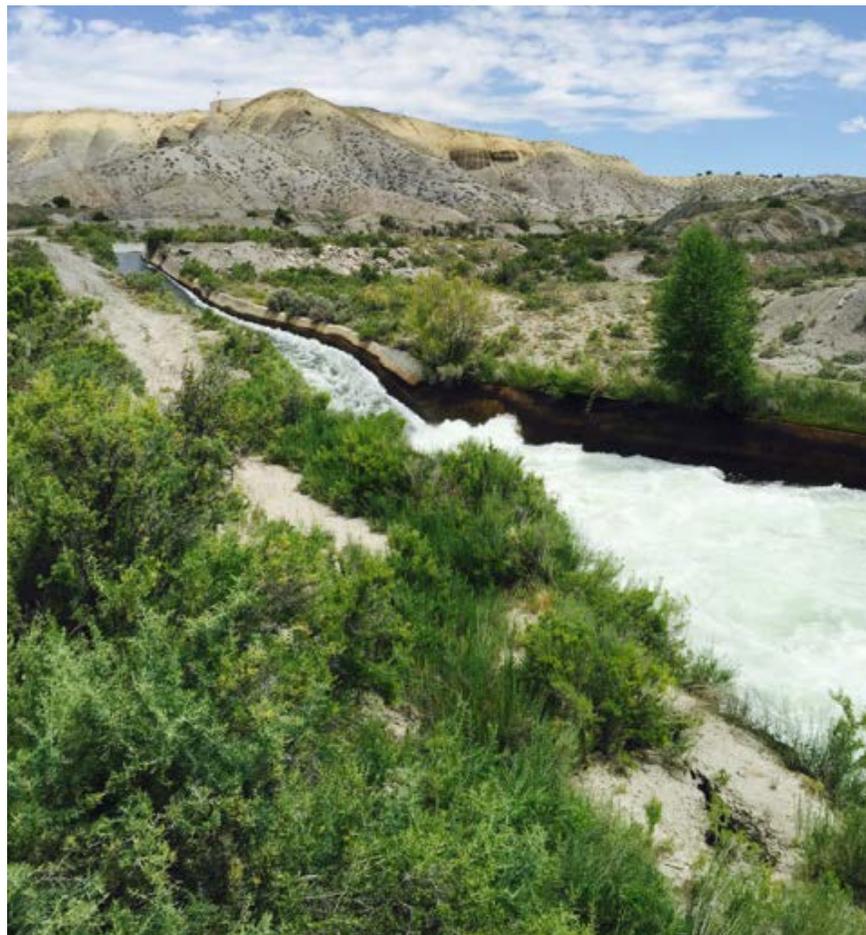


RECLAMATION

Managing Water in the West

Final Environmental Assessment South Canal Drop 5 Hydropower Project

**Western Colorado Area Office
Upper Colorado Region**



August 2015

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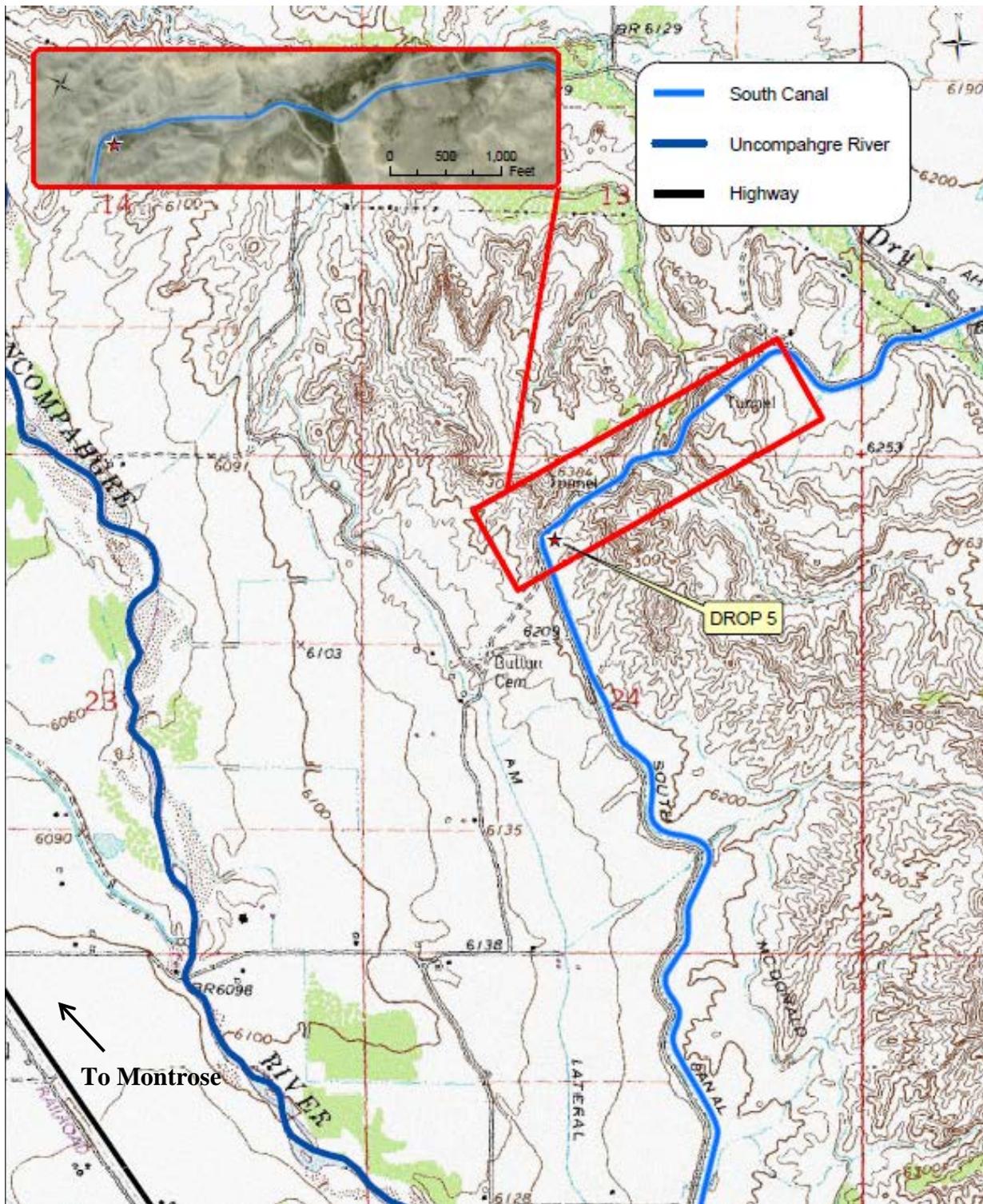


Figure 1. Project Location

CHAPTER 1 – INTRODUCTION

1.1 – Proposed Action

The Uncompahgre Valley Water Users Association (UVWUA) has requested approval to develop hydropower at Drop 5 of the South Canal of the federal Uncompahgre Project. Under the proposed action, the Bureau of Reclamation (Reclamation) would execute a Lease of Power Privilege (LOPP) with the UVWUA for construction, operation, and maintenance of the Drop 5 hydropower project. The lease would authorize the use of federal lands, facilities and Uncompahgre Project water to construct, operate and maintain a 2.4 megawatt (MW) hydropower facility. The hydropower project would be located approximately 4.3 miles southeast of the town of Montrose, in Montrose County, Colorado, as shown in Figure 1.

The Drop 5 hydropower project would be located in a section of the South Canal approximately 4 miles downstream from the existing Drop 4 hydropower project, which was completed in 2015. Drop 5 and the proposed hydropower plant are located entirely on Reclamation withdrawn lands, while upstream segments of the South Canal which will require modification are located on lands administered by the Bureau of Land Management Uncompahgre Field Office (BLM-UFO). This reach of the South Canal drops 38.5 feet in elevation over approximately 2,900 linear feet. Water that currently flows through the South Canal would be diverted into an intake channel and through the hydropower plant before returning to the Canal to meet irrigation delivery demands downstream.

This Environmental Assessment (EA) is prepared in accordance with the National Environmental Policy Act, the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508), and the U.S. Department of the Interior’s regulations (43 CFR Part 46). The EA evaluates the potential environmental effects of issuing the LOPP for construction, operation, and maintenance of the Drop 5 hydropower project.

1.2 – Need for and Purpose of Action

A Lease of Power Privilege (LOPP) is needed to permit a non-federal entity to use a Reclamation facility for electric power generation. The LOPP would ensure that the development of hydropower would be implemented consistent with established authorities, purposes, and water operations for the Uncompahgre Project.

The purpose of the Drop 5 Hydropower Project is to develop a 2.4 MW hydropower plant on the South Canal at Drop 5 to provide a clean, renewable energy source that is locally controlled. Current Federal policy encourages non-Federal development of environmentally sustainable hydropower potential of Federal water resource related projects. The electricity generated by the Project would provide the UVWUA with an additional source of revenue that can be used to

defray annual operating expenses and assist in the maintenance and improvement of the Uncompahgre Project.

1.3 – Background Information

1.3.1 – Uncompahgre Project

The Uncompahgre Project is an irrigation project in west-central Colorado developed by Reclamation and operated by the UVWUA. Irrigated lands surround the town of Montrose and extend 34 miles along both sides of the Uncompahgre River to Delta, Colorado. Project features include Taylor Park Dam and Reservoir in Gunnison County, the Gunnison Tunnel, 7 diversion dams, 128 miles of main canals, 438 miles of laterals, and 216 miles of drains. The systems divert water from the Uncompahgre and Gunnison Rivers to serve over 76,000 acres of irrigated land.

The Uncompahgre Project was authorized by the Secretary of the Interior on March 14, 1903, under the provisions of the Reclamation Act. Construction began in July 1904, and the first water for irrigation was available during the irrigation season of 1908 from the Uncompahgre River. The Gunnison Tunnel was completed in 1909 and the Gunnison Diversion Dam was completed in January 1912 to deliver Gunnison River water to the Uncompahgre Valley. Taylor Park Dam, built from funds allotted under the National Industrial Recovery Act, was completed in 1937. The project was transferred to the UVWUA for operation and maintenance in 1932.

The Uncompahgre Project plan provides for water storage in Taylor Park Reservoir on the Taylor River, which is a part of the Gunnison River Basin. The Gunnison Diversion Dam on the Gunnison River, about 12 miles east of Montrose, diverts Gunnison River direct flows, as well as releases from the Taylor Park Dam into the Gunnison Tunnel and then into the South canal. The tunnel is 5.8 miles long and has a capacity of approximately 1,100 cubic feet per second (cfs). The South Canal extends from the end of the Gunnison Tunnel generally southwest 11.4 miles to the Uncompahgre River. Part of the canal is concrete lined; the remainder is unlined. The South Canal was constructed between 1904 and 1909.

To distribute waters of the Gunnison and Uncompahgre Rivers, the South and West Canals were constructed, and the larger existing private canals that take water directly from the Uncompahgre River were purchased, enlarged, and extended. Laterals were constructed to deliver water from the South Canal to project lands.

1.3.2 – Lease of Power Privilege

The Lease of Power Privilege (LOPP) is a contract between a non-Federal entity and the United States to use federal project facilities for electric power generation consistent with Reclamation project purposes. The LOPP must not impair the efficiency of Reclamation-generated power or water deliveries, jeopardize public safety, or negatively affect any other Reclamation project purpose. The Uncompahgre Project includes the development of hydropower as an authorized project purpose. An LOPP has a term of 40 years, and the general authorities include, among others, the Town Sites and Power Development Act of 1906 (43 U.S.C. 522), and the Reclamation Project Act of 1939 (43 U.S.C. 485h(c)).

On August 3, 2013, Congress passed the Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act. This act requires that Reclamation first offer an LOPP to the irrigation district or water users association operating the federal project, or to the irrigation district or water users association receiving water from the federal project. The UVWUA operates the Uncompahgre Project.

On June 18, 2015, a Preliminary Lease of Power Privilege (Contract No. 2015-0031-CF-0004) was entered into by Reclamation and the UVWUA to permit federal cost-recovery for the NEPA compliance, engineering review, and development of the LOPP. A copy of the Preliminary LOPP is included as Appendix A. The final LOPP must accommodate existing contractual, water delivery, and environmental commitments related to operation and maintenance of the South Canal and the Uncompahgre Project.

1.4 – Relationship to Other Projects

Other hydropower projects in progress or recently implemented (between 2012 and 2015) in the general vicinity include the following (Figure 1a):

- Drop 1 Hydropower Project – A 4.0 MW hydropower project on the South Canal. This hydropower plant is approximately 6.3 miles northeast of Drop 5.
- Drop 2 Hydropower Project – This hydropower project has not been constructed, however NEPA documentation has been completed and an LOPP has been issued to Percheron Power and UVWUA. Once constructed, Drop 2 would house a 987 kW hydropower plant located approximately 5.6 miles northeast of Drop 5.
- Drop 3 Hydropower Project – A 3.5 MW hydropower project on the South Canal. This hydropower plant is approximately 5 miles northeast of Drop 5.
- Drop 4 Hydropower Project – A 4.8 MW hydropower project on the South Canal. This hydropower plant is approximately 4 miles northeast of Drop 5.

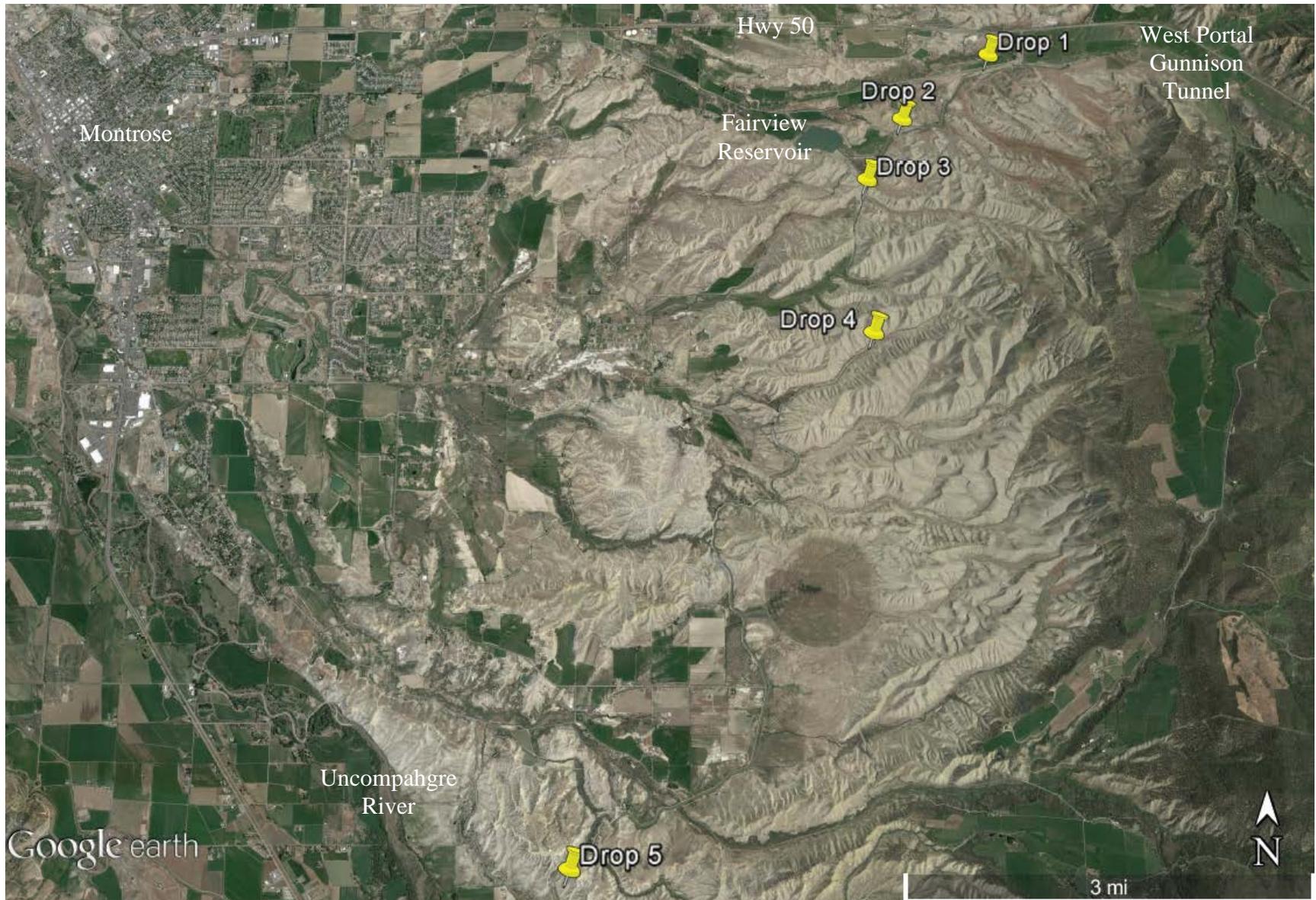


Figure 1a. Location of Drop 5 in relation to other hydropower projects.

1.5 – Public Scoping

Scoping is an early and open process to determine the issues and alternatives to be addressed in the EA. Public scoping was conducted in conjunction with the LOPP negotiation meeting held at the UVWUA office in Montrose on July 1, 2015. Notice of the public meeting was published on Saturday, June 27, 2015, in the local Montrose Daily Press newspaper.

Reclamation also utilized issues and concerns previously identified during public scoping for other LOPP processes for hydropower development of Drops 1, 2, 3, and 4 on the South Canal. Issues identified included:

- Visual impacts from new power lines
- Impacts to existing water deliveries
- Impacts to rainbow and brown trout fisheries in the South Canal and Uncompahgre River
- Changes in diversions from the Gunnison River
- General support for renewable energy
- Effects on endangered plants
- Protection of cultural resources

CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES

Alternatives evaluated in this EA include the No Action Alternative and the Proposed Action Alternative.

2.1 – No Action Alternative

Under the No Action Alternative, Reclamation would not issue an LOPP, and the proposed hydropower development at Drop 5 on the South Canal would not be constructed at this time.

2.2 – Proposed Action

Under the Proposed Action, Reclamation would execute an LOPP to permit UVWUA to construct, operate, and maintain a 2.4 MW hydropower plant and associated facilities adjacent to the South Canal. The hydropower project would divert water from the South Canal, just above Drop 5, and move the water approximately 80 feet downhill through an intake channel to a powerplant, and return the water to the Canal. The project is expected to cause a backwater effect that will increase the water level of the canal for a short distance upstream of the powerplant on the South Canal. In order to compensate for this increase in water level, a 330-foot portion of the South Canal, located approximately 400 feet upstream of the proposed hydropower plant, will be capped. In addition, the sides of the canal will be raised by 1 to 2 feet in a 435-foot segment approximately 1,600 feet upstream of the proposed hydropower plant location.

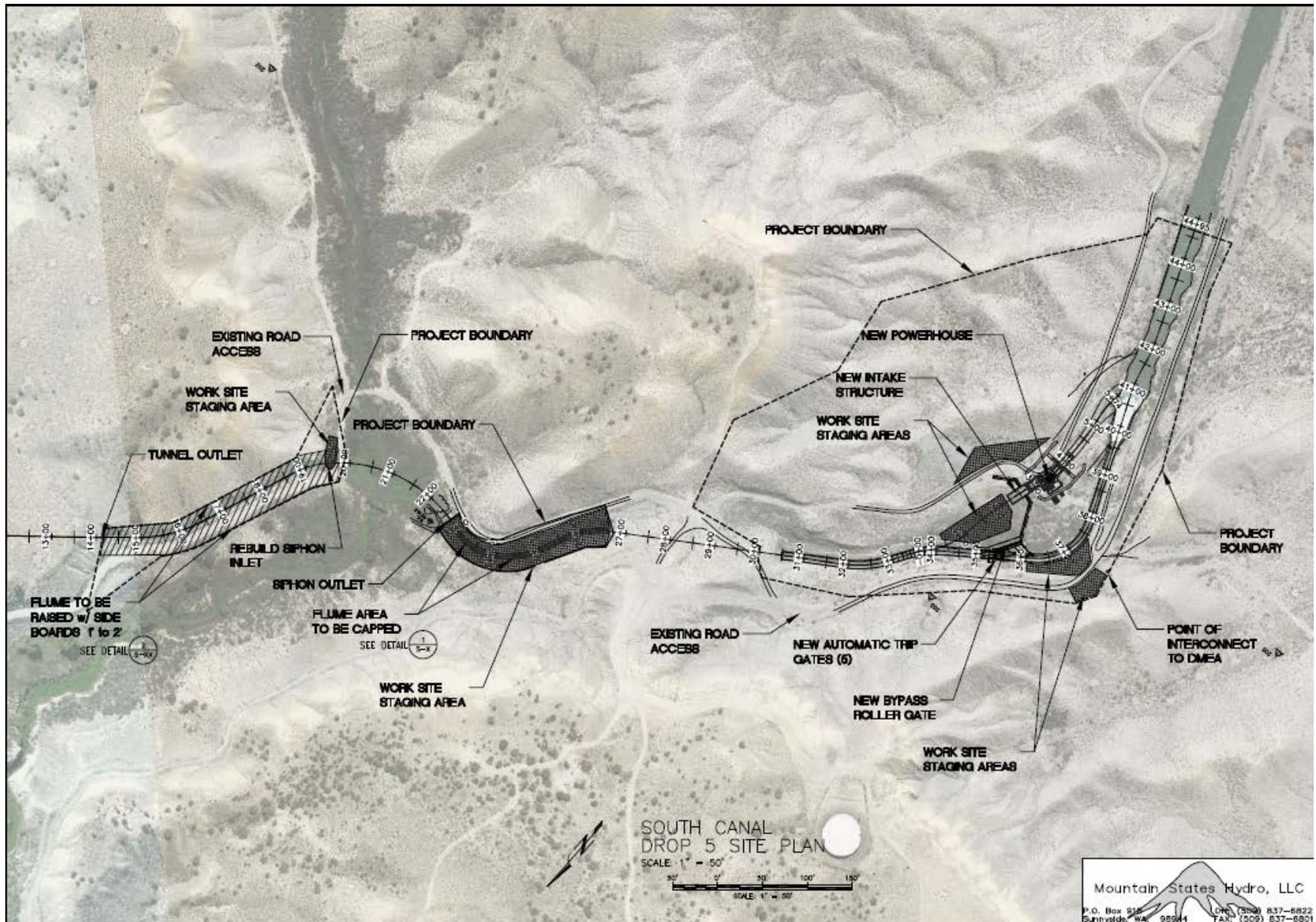


Figure 2. South Canal Drop 5 Site Plan

2.2.1 – South Canal at Drop 5

The segment of the South Canal considered Drop 5 begins approximately 435 feet upstream of the intake to the Dry Cedar Creek Siphon. After exiting the siphon, the canal spans approximately 330 feet before passing through Tunnel 5 and ends about 400 feet below the exit of a concrete-lined chute. A 12-foot wide dirt access road runs along the canal on either the western or eastern side of the canal (Figure 3).

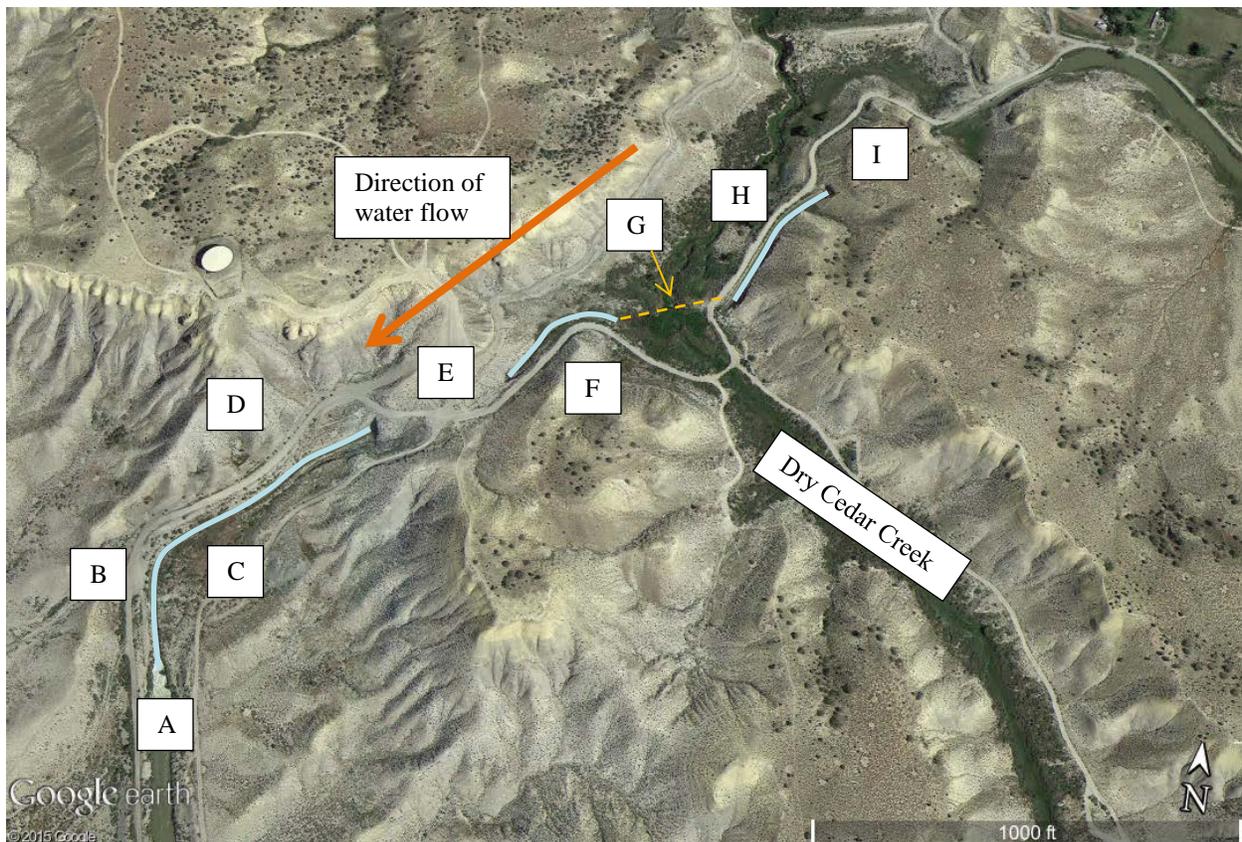


Figure 3. Aerial Photo of South Canal Features within the Drop 5 project area.¹

2.2.2 – Hydropower Project Design

Project plans would be reviewed and approved by Reclamation prior to authorizing construction. Existing diversion structures would remain in place and would be maintained to meet irrigation deliveries during construction and if the intake channel or hydropower plant are down for repairs or maintenance during the irrigation season. Power produced would be transported by the Delta Montrose Electric Association (DMEA), to the Municipal Energy Association of Nebraska (MEAN). The project includes a new transmission line to connect the hydropower plant to the

¹Figure 3 Key: A = Lower extent of project area. B = DMEA interconnect. C = Powerplant location. D = Canal access road. E = Tunnel 5. F = Canal segment to be capped. G = Dry Cedar Creek Siphon. H = Canal segment where the sides will be raised. I= Upper Extent of Project Area. Visible portions of the South Canal (within the project area) have been highlighted in light blue.

electric grid, and will require installation of 5 new power poles and approximately 200 feet of new overhead line to reach the connection to the grid.

The project design includes construction of an intake channel to convey flows from the existing canal to the proposed 2.4 MW facility. Flow will then return to the existing canal. The design will allow for a parallel bypass of water and will not alter irrigation deliveries. A summary of the hydropower project features are described in greater detail below (see Figure 4 for the conceptual hydropower design). Additional details can be found in the project's supporting design report (Sorenson Engineering 2015):

- A. **Canal System** – The portion of the South Canal in the project area is a concrete flume structure which services the Uncompahgre Valley Water Users Association. Water will be backed up through the first upstream tunnel (Tunnel 5) and inverted siphon to attain an increased head. This will require capping the existing canal flume for approximately 330 feet upstream of the Tunnel 5 inlet.
- B. **Intake Channel** – The intake channel will be approximately 200 feet long, conveying water from the existing canal to the intake/power house structure. A bypass structure would be constructed at the upstream end of the intake channel.
- C. **Bypass Structure** – The bypass structure will be located upstream of the intake channel. An approximately 12-foot wide by 18-foot high roller gate will be set in the existing concrete canal to divert water into the intake channel. This gate will also be used as a bypass to direct flows back into the South Canal in the event the hydropower plant is not functioning. Five (5) 10-foot wide automatic trip gates (ATG) will function as a redundant safe guard in the event the plant shuts down for any reason and the bypass gate is not able to divert flows back into the South Canal.
- D. **Intake/Power House Structure** – The intake portion of this steel reinforced concrete structure will be approximately 80-feet long by 23-feet wide by 50-feet high. This will convey water from the intake channel to the scroll case in the powerhouse. A steel bar trash screen will be installed in the structure to remove debris.

The power house portion of this steel reinforced concrete structure will be approximately 50-feet wide by 36-feet long with a metal roof. The power house foundation will embed the turbine housing steel draft tube, and tailrace stop gates. The tailrace stop gates will be used to dewater the unit during maintenance. The building will house the generator and mechanical/electrical auxiliaries. The building will be equipped with a roof access hatch to facilitate future maintenance. The tailrace will be approximately 100 feet long.

- E. **Turbine** – The turbine will be a vertical double regulated Kaplan. The turbine is an American/European design built in China, as is the generator. The turbine manufacturer is represented by Far East Engineering of Boise, Idaho. Nearly identical units were installed on the South Canal Drops 1, 3, and 4 hydropower projects.
- F. **Substation and Transmission Line** – DMEA has an underground 12.4 kV line approximately 200 feet from the power house location. A new overhead line and 5 power poles will be installed for this 200-foot span.

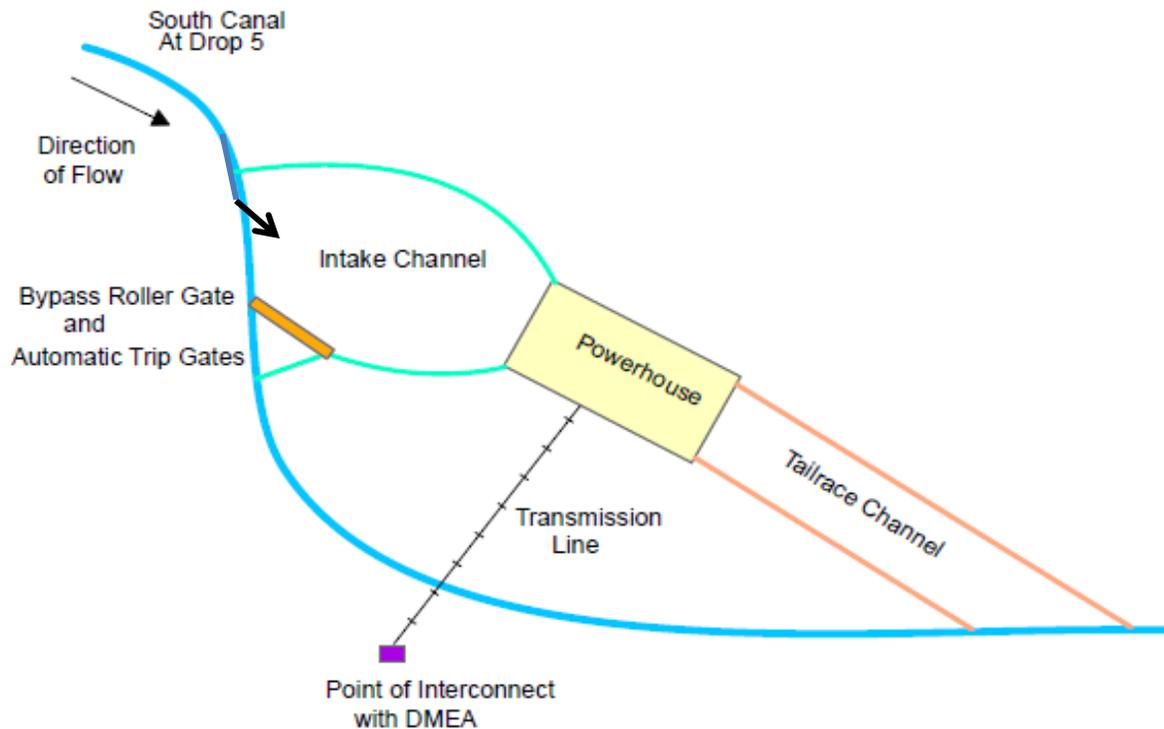


Figure 4. Conceptual hydropower project design

Construction of the hydropower facility is currently a private venture of UVWUA; however, UVWUA has applied for grants from state and federal entities for assistance in funding the proposed project. Construction is expected to take 10 months at a cost of approximately 7.2 million dollars. Construction activities would be coordinated with canal operations and on-going irrigation delivery. Normal irrigation deliveries would be maintained throughout construction. Construction storage and staging areas would be adjacent to the South Canal (Figure 2b). Existing roads would be used for construction access. UVWUA would be responsible for obtaining any required Federal, state, or local permits to construct and operate the Project, including permits under the Clean Water Act (Section 402 and 404 permits) which may be needed for dewatering or other construction activities.

Disturbed land would be re-contoured to prevent erosion, and topsoil, where available, will be stockpiled during construction for later use in revegetation. A seed mix approved by Reclamation would be used to revegetate disturbed areas, and long-term weed control would be continued (see Appendix F). Additional information regarding environmental commitments is discussed further in Section 3.14.

2.2.3 – Operation and Maintenance

UVWUA would operate and maintain the Drop 5 hydropower facilities. The facilities would be controlled by an automated computer (unmanned) system located at the plant, fitted with a dial-in signal to allow remote monitoring of the plant, including critical variables (temperature, voltage, etc.), from any telephone. In addition, the control panel will be fitted with an automatic telephone dialer to alert UVWUA of unsatisfactory conditions, such as the generator turning on or off, changes in temperature of bearings, generator, and cooling water, and canal water intake

levels above and below the trash racks. The facilities will be equipped with a battery system for operation of essential features during power outages.

At the beginning of each irrigation season, water would be discharged through the irrigation system and power plant to exercise the gates and make certain all systems associated with the project are in working order.

The facilities would be designed and equipped with structures to protect the canal and irrigation flows. When the hydropower facilities go off-line, flows would be immediately diverted back into the canal to prevent any disruption to irrigation supply and delivery.

The hydropower project would only use normal irrigation flows in the South Canal. The Uncompahgre Project was constructed as an irrigation project and irrigation will remain as its primary purpose with all other uses playing secondary roles. The hydropower project would be operated as a run-of-canal plant. During the irrigation season, the Project would divert irrigation flow from the canal, pass it through the power plant, and return the water to the canal immediately below the power plant. No increase in diversions from the Gunnison River through the Gunnison Tunnel to the South Canal would be permitted under the LOPP for this hydropower project. Hydropower production would occur in the March through October irrigation period. Water resources are discussed further in Chapter 3.

CHAPTER 3 – AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

This chapter discusses resources that may be affected by the Proposed Action and the No Action Alternatives. For each resource, the potentially affected area and/or interests are identified, existing conditions described, and potential impacts predicted under the No Action and Proposed Action Alternatives. This section is concluded with a summary of impacts and a list of environmental commitments.

3.1 – Uncompahgre Project Operations and Water Resources

Existing Conditions: The Uncompahgre Project is authorized and operated to provide water supplies for irrigation in the Uncompahgre Valley. Irrigation supplies are developed from four sources: direct flow diversions from the Uncompahgre River, storage water from Ridgway Reservoir, direct flow diversions from the Gunnison River, and storage water from Taylor Park Reservoir.

Taylor Park Reservoir and Gunnison River water is diverted through the Gunnison Tunnel to the South Canal. Diversions generally begin in March and end in October. During peak irrigation months, approximately 1,050 cfs is diverted through the tunnel. Minimum irrigation diversions are approximately 400 cfs, an amount that is sufficient to operate head gates on the South Canal. Several laterals carry water from the South Canal to portions of the eastern Uncompahgre Valley, but the majority of the South Canal water enters the Uncompahgre River and the West Canal south of Montrose, Colorado. A series of diversion dams on the Uncompahgre River then direct water to much of the remaining Uncompahgre Valley.

Figure 5 shows the range of Gunnison Tunnel diversions based on daily diversion data from 1995 through 2014. The average daily diversion rate during this 20 year period is portrayed by the green line. The average annual diversion volume between 1995 and 2014 was 367,300 acre-feet (af). The maximum daily diversion during this 20 year period is shown by the blue line and the minimum daily diversion during this same period is shown by the red line. The maximum and minimum diversion lines do not portray any historical diversion patterns but simply show the maximum and minimum daily diversion rate that occurred on that particular day during the period between 1995 and 2014.

Gunnison Tunnel Diversions
daily diversion statistics from 1995-2014

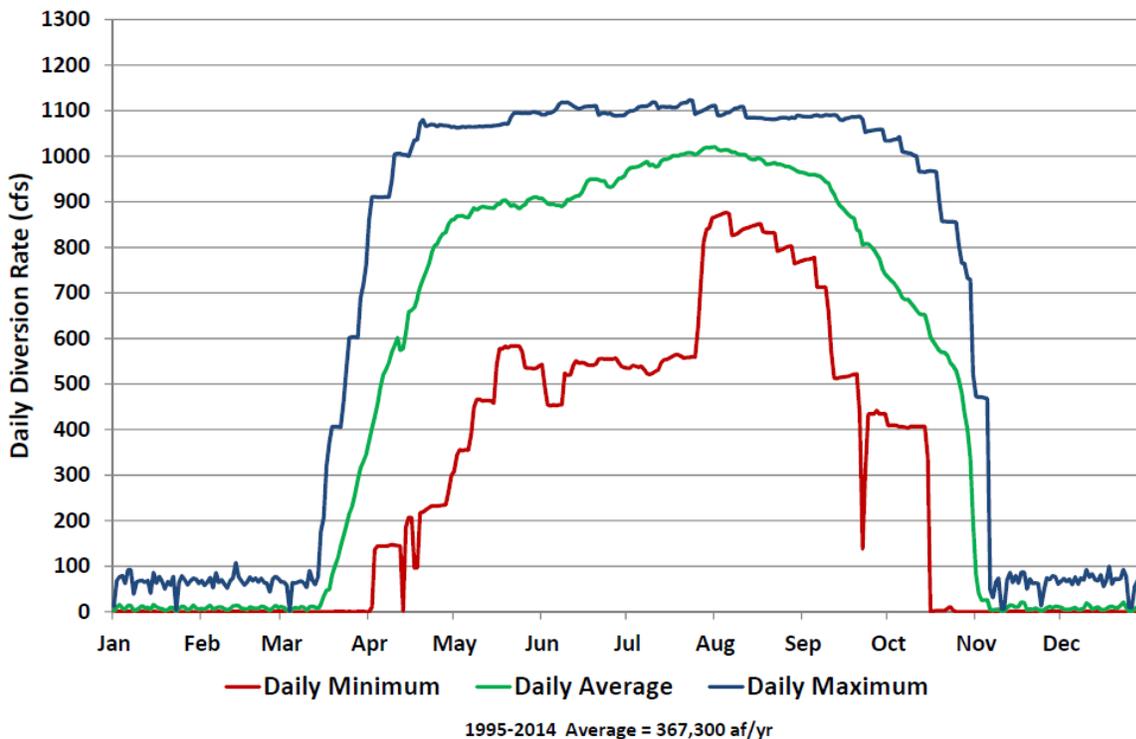


Figure 5. Gunnison Tunnel Diversions to the South Canal, 1995-2014

As can be seen, irrigation diversions generally begin increasing in mid-March, peak in the May through September period, and gradually decrease until mid-November. Diversions in the non-irrigation months are for filling Fairview Reservoir. Total diversions by year are shown in Table 1. It can be seen that there is variability between years based on crop and weather patterns, reservoir storage, and basin water conditions.

Table 1. Annual diversions from the Gunnison River to the South Canal (acre-feet).

Year	Gunnison Tunnel Diversion (af)	Year	Gunnison Tunnel Diversion (af)
1995	228,192	1996	383,994
1997	266,965	1998	364,829
1999	369,467	2000	391,541
2001	393,227	2002	357,643
2003	350,644	2004	351,961
2005	364,778	2006	396,624
2007	355,401	2008	358,592
2009	408,867	2010	399,553
2011	414,031	2012	364,693
2013	378,147	2014	386,353

No Action Alternative: Under the No Action Alternative, water diverted into the Gunnison Tunnel for irrigation would not be used for hydropower production at Drop 5. There would be no changes to current irrigation deliveries or operations. Gunnison Tunnel diversions vary from year to year due to water availability, weather patterns, crop and land use patterns, and other factors. This variability would continue with or without the hydropower project. Changes in climate or major changes in cropping or land use patterns may also affect irrigation diversions and water use patterns.

Proposed Action: Under the proposed action, the water diverted into the Gunnison Tunnel for irrigation would also be used for hydropower production at Drop 5. There would be no change in the operations, timing, or amount of water diverted into the Gunnison Tunnel. The minimum amount of water required for the hydropower plant to produce power is 300 cfs. The maximum amount of water that will be routed through the facility is 840 cfs. Water routed through the hydropower plant would be returned to the South Canal immediately below the hydropower facility. The power plant would be operated as a run-of-canal facility, and existing irrigation supplies and deliveries would not be affected. Hydropower production would only occur during the irrigation season.

3.2 – Energy and Socioeconomic Conditions

Existing Conditions: Hydropower has been developed previously at three sites along the South Canal (Drops 1, 3 and 4), and at a site on the Montrose and Delta (M&D) Canal known as Shavano Falls. An LOPP has been awarded to UVWUA to construct a hydropower plant at Drop 2 of the South Canal as well; however, construction has not yet begun on the Drop 2 hydropower project. The existing and planned Uncompahgre Project hydropower projects are located in the Rocky Mountain Power Area of the Western Electric Coordination Council Region of the North American Electric Reliability Council.

In the short-term, the proposed project would be used to meet a portion of the electricity demand in Municipal Energy of Nebraska's (MEAN) service territory. MEAN is part of the Nebraska Municipal Power Pool and was organized in 1980 to secure power supply for its members and provide related administrative and technical services. MEAN combines the capacities of a number of municipally-owned plants with Western Area Power Administration power and purchased power. MEAN supplies power and energy to approximately 40 municipalities in Nebraska, Colorado and Kansas. There is existing potential for future power produced from Drop 5 to be used to meet future local power demands. Demands for electricity in Delta Montrose Electric Association's service territory have been on an increasing trend for decades. The peak demand and annual energy requirements for the area are projected to increase at an average annual compound rate of 1.8 to 2.0 percent over the 10-year planning period of 2007 to 2017 (WECC 2004). The proposed project would help meet this rising demand.

Amendment 37 to the Colorado Constitution established a Renewable Energy Standard which requires each provider of retail electric service in the State of Colorado that serves over 40,000 customers to secure a minimum percentage of electricity (10% by 2015) from renewable energy sources such as wind, solar, and hydroelectricity.

The Uncompahgre Project and water supplies from the Gunnison and Uncompahgre Rivers are critical to the economies of Delta and Montrose Counties, and west-central Colorado. The Uncompahgre Project supports over 66,000 acres of irrigated agriculture through a series of over 500 miles of canals and laterals. Principle crops harvested on the irrigated lands include alfalfa, wheat, corn, dry beans, and small grains. Up to 23,000 af of water is also diverted from the South Canal to Project 7 Water Authority's Fairview Reservoir for municipal and industrial water in Ouray, Montrose, and Delta Counties.

No Action Alternative: Under the No Action Alternative, UVWUA would not build a hydropower facility at Drop 5 and energy production and economic opportunities associated with the hydropower project would be forgone.

Proposed Action: The new hydropower project would produce an estimated average of 8,623 megawatt-hours (MWh) of energy per year based on run-of-canal flows, and would help meet regional power demands in the future. Power from the proposed project would be distributed through MEAN facilities in Colorado, Nebraska, and Wyoming.

The life of the project is expected to extend well beyond 50 years, and could provide the UVWUA a long-term, reliable revenue stream. According to initial estimates, revenues could be relatively small at first, dependent on financial terms of interest and amortization schedule, but the project should produce positive cash flow once operations start. The projections are highly dependent on interest rates and actual operation and maintenance costs. However, after the project debt is paid, the long-term life for which the project will be designed would result in revenues to the UVWUA to help pay for Uncompahgre Project operation, maintenance and improvement costs.

The proposed project will provide an additional source of renewable energy for MEAN to market throughout Colorado, which could then help those agencies reach the Renewable Energy Standard.

There would be short-term employment and spending on goods, services, and materials during the construction phase. This could benefit local communities and businesses, as well as increase tax revenues from taxes collected on those purchases.

The transport and delivery of irrigation or municipal and industrial water in the South Canal would not be affected by hydropower development during construction, operation, or any future maintenance projects.

3.3 – Wetlands and Water Quality

Existing Conditions: The Clean Water Act (CWA) establishes the basic structure for regulating discharges into waters of the United States. Section 402 of the CWA states that any person who proposes to discharge pollutants from a point source to waters of the United States must apply for a Non-Point Discharge Elimination System (NPDES) Permit (Section 402 Permit). Section 404 of the CWA requires permits for the discharge of dredged or fill material into waters of the United States. Wetland areas adjacent to waters of the United States may also be subject to permit requirements. Authorization can either be issued under nationwide or individual permits

and are site specific. Nationwide permits include entire groups of activities. The South Canal is a direct connection between the Gunnison River and the Uncompahgre River, and has previously been determined to be waters of the United States. The other waters of the United States in the project area are Dry Cedar Creek and adjacent wetlands (Figure 5).

No Action Alternative: Under the No Action Alternative, there would be no changes to wetlands or other waters of the United States or water quality in the South Canal.

Proposed Action: Under the Proposed Action, a Section 402 NPDES Permit is required, as the ground disturbance activities associated with this project are greater than one acre in size. These discharges are covered under the Colorado Department of Public Health and Environment's (CDPHE) General Permit No. COR-030000, Colorado Discharge Permit System General Permit: Stormwater Discharges Associated with Construction Activity, Authorization to Discharge under the Colorado Discharge Permit System. As per the permit requirements, UVWUA will be responsible for preparing a Storm Water Management Plan (SWMP) and submitting an application form as provided by CDPHE at least ten (10) days prior to the commencement of construction activities. The application requires certification that a SWMP has been completed for the construction project (CDPHE 2012).

Construction dewatering permits would be required if pumped ground water is directly discharged into waters of the United States. Outside the irrigation season, the South Canal is dewatered and has no direct connection to waters of the United States.

Under Section 404, Nationwide Permit (NWP) No. 17 (Hydropower Projects) addresses discharges of dredged or fill material associated with hydropower projects having: 1) less than 5000 kW at existing facilities, and 2) are issued exemption granted by FERC (in this case exempt from FERC through the Lease of Power Privilege). UVWUA would be responsible for obtaining this Nationwide Permit prior to construction. Construction within the South Canal would occur when the canal is dry; therefore, water quality in the South Canal would not be affected during construction. After completion of construction, water quality in the South Canal will not be affected by the hydropower operations.

Project construction activities will not occur within Dry Cedar Creek. Best Management Practices, including drainage, erosion control, and sediment control will be implemented to prevent or reduce point source pollution during and following construction. A Storm Water Management Plan will be developed and filed with CDPHE. Fuel storage, equipment, maintenance, and fueling procedures will be developed to minimize the risk of spills and the impacts from these incidents, and these procedures will be submitted to CDPHE prior to construction. A Spill Prevention Control and Countermeasure Plan (SPCC) will be prepared and submitted to CDPHE along with the SWMP prior to construction.

3.4 – Fisheries

Existing Conditions: The Gunnison River, the water source for the South Canal, is an important recreational fishery. Water is diverted by the Gunnison Diversion Dam through the Gunnison Tunnel to the South Canal to provide irrigation water to Montrose and Delta Counties. The Gunnison River has been designated a Gold Medal fishery, and the river upstream from the

Gunnison Diversion Dam supports the highest biomass of wild rainbow trout of any reach of the river. This section of the river serves as an important brood stock source for managing rainbow trout throughout Colorado. Downstream from the Gunnison Diversion Dam, the river flows through the Black Canyon of the Gunnison National Park and the Gunnison Gorge National Conservation Area, and is managed as a Gold Medal and wild trout fishery.

Historically, there were significant numbers of fish that entered the South Canal from the Gunnison River, via the Gunnison Tunnel diversion, each irrigation season. Some of the fish from the Gunnison River would move through the South Canal and into the Uncompahgre River or West Canal downstream, or would be harvested by anglers in the South Canal.

With the 2012 installation of the electronic fish barrier at the entrance to the Gunnison Tunnel, fish entrainment into the South Canal was expected to be greatly reduced. However, the electronic fish barrier has not proven to be as effective as expected in deterring fish from entering the Gunnison Tunnel. It is likely that some fish continue to enter the South Canal, and there is some mortality to fish that enter the canal. These fish may eventually go through the turbines at Drops 1, 3 and 4, upstream of the proposed action area; fish survival through the turbines is estimated to range between 88-100% (Cada et al.). Any impacts to recreational fishing in the South Canal and Uncompahgre River as a result of South Canal hydropower development were fully mitigated with the purchase of additional fishing access along the Uncompahgre River by DMEA as part of the mitigation commitments for Drops 1 and 3 in 2012.

No Action Alternative: Under the No Action Alternative, no changes to current fishery conditions in the South Canal are expected.

Proposed Action: Diversions from the Gunnison River would not change due to operation of the hydropower project. Habitat conditions in the Gunnison River will not change. Fish that enter the South Canal through the Gunnison Tunnel would continue to experience a level of mortality by passing through the turbines at Drops 1, 3 and 4. Any fish that successfully pass through turbines at Drops 1, 3, and 4 may experience a level of mortality by passing through the turbine at Drop 5.

The Kaplan turbine design will incorporate recommended design concepts 1, 4, and 6 as outlined in the *A Summary of Environmentally Friendly Turbine Design Concepts* developed by the US Department of Energy (DOE 1999) to help ensure the Kaplan turbine is designed in an environmentally friendly manner. A copy of this summary can be viewed at: <http://www1.eere.energy.gov/wind/pdfs/doewater-13741.pdf>. Fishery conditions in the South Canal are not expected to significantly differ from existing conditions with the construction of a hydropower facility at Drop 5. No additional mitigation for fisheries is warranted.

3.5 – Wildlife and Vegetation

Existing Conditions: In the general Project area, non-irrigated lands include areas of clay hills or eroded Mancos shale. Soils are highly alkaline with little organic material and only about 40% vegetative cover. Low precipitation, high rates of erosion, and clay soils create a harsh environment with sparse and limited, although in some cases rare or unique, vegetation.

Native vegetation in the study area consists of salt desert shrub communities dominated by species of saltbush. Mancos shale hills contain mat saltbush, shadscale, Gardner saltbush, and black sagebrush. Grasses include bottlebrush squirreltail, galleta, Salina wildrye, and Indian rice grass. Other species include winterfat, prickly pear cactus, yellow milkvetch, woody aster, and Canada thistle. Greasewood occurs in areas with elevated groundwater along the canal and areas with salt grass and sea-blight occur in swales. Clay-loving wild buckwheat have been identified near the project area (see Section 3.7).

The South Canal introduced a water supply to the area approximately 100 years ago. Seepage from the canal supports patches of greasewood and tamarisk and, in wetter areas, willows and cattails. Road sides and other disturbed areas support rabbitbrush, Russian knapweed, halogeton, cheatgrass, and annual mustards.

Dry Cedar Creek, a perennial tributary of the Uncompahgre River, crosses the project area. Wetland vegetation adjacent to Dry Cedar Creek is comprised primarily of willows, cattails, and reed canary grass, with greasewood and Russian knapweed occurring on the upland periphery of the wetland/riparian areas.

Much of the project area has been disturbed in the past due to substantial earth moving associated with the original construction of the South Canal, canal rehabilitation and maintenance projects, access roads and storage areas, and disposal of spoil material.

The Project area is located in winter range for mule deer, and the area supports high densities of wintering mule deer. There are no prairie dog towns or known active raptor nests in the project area. Waterfowl make occasional use of the low velocity section of the South Canal downstream of the project area.

No Action Alternative: Under the No Action Alternative, a hydropower facility at Drop 5 would not be developed and there would be no changes to the existing wildlife and vegetation conditions.

Proposed Action: Temporary impacts to wildlife and other vegetation would occur due to the construction of the hydropower facilities. Approximately six acres of land would be disturbed during construction of the hydropower facilities at Drop 5. The project's borrow area is about three acres in size, and will be restored to pre-project conditions after construction. Construction of the project will result in approximately three acres of permanent disturbance. Best Management Practices, including drainage, erosion control, and sediment control measures will be implemented to prevent or reduce non-point and point source pollution during and following construction. Fuel storage, equipment maintenance, and fueling procedures will be developed to minimize the risk of spills and the impacts from these incidents. A Spill Prevention Control and Countermeasure Plan (SPCC) will be prepared prior to construction. With these control measures in place, wildlife impacts are predicted to be minor and temporary due primarily to direct disturbance associated with construction. Wildlife, including deer, would likely avoid using the area during construction. Upon completion of construction, wildlife use should return to pre-construction levels.

Reclamation coordinated with Colorado Parks and Wildlife (CPW) to determine any impacts the construction (including the timing of construction) may have on area wildlife. CPW determined that the construction area is located in an area that supports high densities of wintering mule deer, and that this project is likely to impact deer during winter construction. CPW recommended that UVWUA limit activity, noise, truck travel, and hours of operation to the greatest extent possible to reduce impacts to wintering mule deer (see Appendix B). Construction of the hydropower project will require work to be completed during the non-irrigation season, which may have temporary negative impacts on wintering deer. Normal operation and maintenance of the hydropower plant after the construction period is not expected to impact wintering deer. Potential impacts to wintering deer during construction will be minimized by conducting the majority of construction activities during daylight hours, which will minimize stress to the deer as they are more active in the late afternoon through early morning.

Invasive and non-native plant species such as Russian knapweed, Russian olive, and kochia, will be controlled within the project area for the life of the project by UVWUA, which will benefit native plant and animal species that inhabit or utilize the area. UVWUA is responsible for consultation with Reclamation for acceptable weed control measures, including pesticides/herbicides approved for use on Reclamation land. UVWUA will adhere to their 2012 *Pesticide Discharge Management Plan and Integrated Pest Management Plan for Uncompahgre Valley Water Users Association*, as well as Montrose County's 2011 *Montrose County Weed Mitigation Department Weed Management Plan*. UVWUA will focus on ensuring the control of invasive weeds within the project area, especially Russian knapweed. Use of pesticides/herbicides will comply with the applicable Federal and state laws, and will be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. All construction equipment will be power-washed and free of soil and debris prior to entering the construction sites to reduce the spread of noxious and unwanted weeds. Topsoil, where available, will be stockpiled during construction for later use in revegetation. Immediately upon completion of construction, disturbed areas will be re-contoured and seeded to reduce erosion and facilitate revegetation. The plan for re-contouring, revegetation and related erosion control measures will require approval by Reclamation. The UVWUA will work directly with Reclamation to revegetate disturbed areas using a Reclamation approved seed mixture (see Appendix F).

Above-ground power line and power pole designs will meet recommended standards as outlined in the *Avian Protection Plan Guidelines* developed by the US Fish and Wildlife Service and Industry (APLIC 2005). A copy of these standards can be viewed at: http://www.aplic.org/uploads/files/2634/APPguidelines_final-draft_April2005.pdf.

3.6 – BLM Sensitive Species

Existing Conditions: The Proposed Action is located partially on lands managed by BLM's Uncompahgre Field Office (UFO). According to BLM Manual Part 6840, BLM Sensitive species are "species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Endangered Species Act." BLM Sensitive species are designated by the BLM's state director. Of the 34 species identified as BLM Sensitive Species of the UFO, 22 species were determined to have the potential to occur

within or near the Proposed Action Area, based on a review of habitat requirements for each species (Table 2) (BLM 2015).

Table 2. BLM Sensitive Species with the potential to occur in the project area.

Species	Habitat Description	Potential Effects of Project
White-tailed prairie dog <i>Cynomys leucurus</i>	Level to gently sloping grasslands and semi-desert grasslands.	No burrows observed in impact area
Kit fox <i>Vulpes macrotis</i>	Semi-desert shrublands of saltbrush, shadscale and greasewood.	Insignificant loss of potential habitat
Gunnison’s prairie dog <i>Cynomys gunnisoni</i>	Level to gently sloping grasslands, semi-desert shrublands, and montane shrublands.	Habitat not affected
Allen’s big-eared bat <i>Idionycteris phyllotis</i>	Ponderosa pine, pinyon-juniper woodland, oak brush, riparian woodland (cottonwood); typically found near rocky outcrops, cliffs, and boulders; often forages near streams and ponds.	Habitat not affected
Spotted bat <i>Euderma maculatum</i>	Desert shrub, ponderosa pine, pinyon-juniper woodland, canyon bottoms, open pasture, and hayfields; roost in crevices in cliffs with surface water nearby.	Insignificant loss of potential breeding habitat
Townsend’s big-eared bat <i>Corynorhinus townsendii</i>	Mesic habitats, including coniferous forests, deciduous forests, sagebrush steppe, juniper woodlands, and mountain; maternity roosts and hibernation in caves and mines; does not use crevices or cracks; caves, buildings, and tree cavities for night roosts.	Habitat not affected
Fringed myotis <i>Myotis thysanodes</i>	Desert, grassland, and woodland habitats including ponderosa pine, pinyon/juniper, greasewood, saltbush, and scrub oak; roosts in caves, mines, rock crevices, and buildings.	Insignificant loss of potential feeding habitat
Bald eagle <i>Haliaeetus leucocephalus</i>	Nests in forested rivers and lakes; winters in upland areas, often with rivers or lakes nearby.	Insignificant effect on potential hunting habitat
Golden eagle <i>Aquila chrysaetos</i>	Lives in open and semi-open country featuring native vegetation; generally avoid developed areas and uninterrupted stretches of forest. Canyonlands, rimrock terrain, and riverside cliffs and bluffs. Nests on cliffs and steep escarpments in grassland, chaparral, shrubland, forest, and other vegetated areas.	Insignificant effect on potential hunting habitat
American peregrine falcon <i>Falco peregrines anatum</i>	Open country near cliff habitat, often near water such as rivers, lakes, and marshes; nests on ledges or holes on cliff faces and crags.	Insignificant effect on potential hunting habitat

Species	Habitat Description	Potential Effects of Project
Ferruginous hawk <i>Bufo regalis</i>	Open, rolling, and/or rugged terrain in grasslands and shrubsteppe communities; also grasslands and cultivated fields; nests on cliffs and rocky outcrops.	Insignificant effect on potential hunting habitat
Burrowing owl <i>Athene cunicularia</i>	Level to gently sloping grasslands and semi-desert grasslands; Prairie dog colonies for shelter and food.	Habitat not affected
Brewer's sparrow <i>Spizella berweri</i>	Breeds primarily in sagebrush shrublands, but also in other shrublands such as mountain mahogany or rabbitbrush; migrants seen in wooded, brushy, and weedy riparian, agricultural, and urban areas; occasionally observed in pinyon-juniper.	Habitat affected would be poor to not suitable
Longnose leopard lizard <i>Gambelia wislizenii</i>	Desert and semidesert areas with scattered shrubs or other low plants; e.g. saberush; areas with abundant rodent burrows.	Not recorded in impact area
Midget faded rattlesnake <i>Crotalus viridis concolor</i>	Rocky outcrops for refuge and hibernacula, often near riparian.	Habitat not affected
Northern leopard frog <i>Rana pipiens</i>	Springs, slow-moving streams, marshes, bogs, ponds, canals, flood plains, reservoirs, and lakes; in summer, commonly inhabits wet meadows and fields; may forage along water's edge or in nearby meadows or fields.	Habitat not affected
Crandall's rockcress <i>Arabis crandallii</i> (<i>Boechera crandallii</i>)	Grows in limestone chip-rock and stony areas, often among sagebrush, ridges, and steel hill slopes. Grows in more open, sometimes windswept places. Endemic to the Gunnison Basin.	Habitat not affected
Grand Junction milkvetch <i>Astragalus linifolius</i>	Sparsely vegetated habitats in pinyon-juniper and sagebrush communities, often within Chinle and Morrison Formation and selenium-bearing soils.	Habitat not affected
Montrose bladderpod <i>Lesquerella vicina</i>	Sandy-gravel soil mostly of sandstone fragments over Mancos shale (heavy clays) mainly in pinyon-juniper woodlands or in the ecotone between it and salt desert scrub; also in sandy soils derived from Jurassic sandstones and in sagebrush steppe communities.	Potential habitat affected
Colorado desert parsley <i>Lomatium concinnum</i>	Adobe hills and plains on rocky soils derived from Mancos Formation shale; shrub communities dominated by sagebrush, shadscale, greasewood, and scrub oak.	Potential habitat affected

Species	Habitat Description	Potential Effects of Project
Pardox Valley lupine <i>Lupinus crassus</i>	Pinyon-juniper woodlands, or clay barrens derived from Chinle or Mancos Formation shales, often in draws and washes with sparse vegetation.	Habitat not affected
Paradox breadroot <i>Pediomelum aromaticum</i>	Open pinyon-juniper woodlands in sandy soils or adobe hills.	Habitat not affected

No Action Alternative: Under the no action alternative, there would be no effect to any BLM Sensitive species.

Proposed Action: Under the Proposed Action, there would be no significant effects to BLM Sensitive species. The project area on BLM land is within UVWUA’s existing right-of-way. Potential for impacts to any of the BLM Sensitive Species would be unlikely due to the ongoing disturbance from routine operation and maintenance within the canal right-of-way.

3.7 – Threatened and Endangered Species

Existing Conditions: The Endangered Species Act (ESA) of 1973 protects federally listed endangered, threatened and candidate plant and animal species and their critical habitats.

Table 3 summarizes the federally-listed species that may occur within or near the project area (FWS 2015) and explains habitat requirements and potential effects of the Proposed Action on each species. Species with suitable habitat in the Proposed Action Area, or otherwise potentially affected by the Proposed Action, are discussed following Table 3. Unless otherwise specified, all information related to the species below was obtained from resources available on FWS’ Environmental Conservation Online System (ecos.fws.gov).

Table 3. Federally-listed species occurring in or near the Proposed Action Area

Species	Status	General Habitat	Range in Project Area?	Habitat in Project Area?	Effect of Proposed Action
Gunnison sage grouse <i>Centrocercus minimus</i>	Threatened	Prefers large contiguous patches of sagebrush (>200 acres) with an abundant herbaceous understory, interspersed with wet swales.	Historic range only	No	No Effect
Mexican spotted owl <i>Strix occidentalis lucida</i>	Threatened	Generally nests in older mature conifer stands, and on walls of shady wooded canyons.	Potential	No	No Effect

Species	Status	General Habitat	Range in Project Area?	Habitat in Project Area?	Effect of Proposed Action
Yellow-billed cuckoo <i>Coccyzus americanus</i>	Threatened	Breeds in low elevation river corridors with fairly extensive mature cottonwood galleries.	Yes	No	No Effect
Greenback cutthroat trout <i>Oncorhynchus clarki stomias</i>	Endangered	High elevation cold water streams and cold water lakes with adequate stream spawning habitat present during spring.	Yes	No	No Effect
Bonytail <i>Gila elegans</i>	Endangered	Although no habitat is present within the Project area for these four species, downstream designated critical habitat on the Colorado & Gunnison Rivers is affected by consumptive use of water from the South Canal	No, but designated critical habitat is downstream	No, but critical habitat is downstream	No Effect
Colorado pikeminnow <i>Ptychocheilus lucius</i>	Endangered	Although no habitat is present within the Project area for these four species, downstream designated critical habitat on the Colorado & Gunnison Rivers is affected by consumptive use of water from the South Canal	No, but designated critical habitat is downstream	No, but critical habitat is downstream	No Effect

Species	Status	General Habitat	Range in Project Area?	Habitat in Project Area?	Effect of Proposed Action
Humpback chub <i>Gila cypha</i>	Endangered	Although no habitat is present within the Project area for these four species, downstream designated critical habitat on the Colorado & Gunnison Rivers is affected by consumptive use of water from the South Canal	No, but designated critical habitat is downstream	No, but critical habitat is downstream	No Effect
Razorback sucker <i>Xyrauchen texanus</i>	Endangered	Although no habitat is present within the Project area for these four species, downstream designated critical habitat on the Colorado & Gunnison Rivers is affected by consumptive use of water from the South Canal	No, but designated critical habitat is downstream	No, but critical habitat is downstream	No Effect
Clay-loving wild buckwheat <i>Eriogonum pelinophilum</i>	Endangered	Endemic to the rolling clay (adobe) hills and flats immediately adjacent to the communities of Delta and Montrose, Colorado.	Yes	Yes	No Effect
Colorado hookless cactus <i>Sclerocactus glaucus</i>	Threatened	Alluvial benches along the Colorado and Gunnison Rivers and their tributaries. Colorado hookless cactus generally occurs on gravelly or rocky surfaces on river terrace deposits and lower mesa slopes.	Yes	No	No Effect

The endangered wild clay-loving buckwheat is found in specific microhabitats in the adobe hill areas along the eastern side of the Uncompahgre Valley, and it is endemic to Delta and Montrose

Counties, Colorado. In the past, its habitat was fragmented and lost due to agricultural, road, and housing development. Currently, habitat is threatened by off-road vehicle use and expansion of housing areas. Vegetation surveys recorded this species nearby but outside of the project's direct and indirect impact areas (Bio-Logic Inc. 2013 and 2015).

The Colorado hookless cactus occurs primarily on alluvial benches (soils deposited by water) along the Colorado and Gunnison Rivers and their tributaries. The cactus generally occurs on gravelly or rocky surfaces on river terrace deposits and lower mesa slopes, and it is endemic to Delta, Montrose, Mesa, and Garfield Counties, Colorado. Ongoing and foreseeable threats include mineral and energy development, illegal collection, recreational off-road vehicle use, and grazing. The Colorado hookless cactus does not occur within the project's direct or indirect impact areas (Bio-Logic Inc. 2013 and 2015).

The Gunnison Sage Grouse requires a variety of habitats such as large expanses of sagebrush with a diversity of grasses and forbs along with wetland and riparian ecosystems. It requires sagebrush for cover and for fall and winter food. The most substantial current and future threats to the Gunnison Sage Grouse include habitat loss and decline due to human development and associated infrastructure. Other threats include overgrazing, mineral development, predation, and recreation (FWS 2014). The project area is not located within designated critical habitat. There is unoccupied critical habitat about 1.5 miles to the southeast of the project area. The nearest occupied critical habitat is about 3 miles south of the project area, on the south side of the Uncompahgre River.

The endangered bonytail, Colorado pikeminnow, humpback chub, and razorback sucker are found in the Gunnison and Colorado Rivers downstream from the project area, and are influenced by water use activities in the basin that affect both the quantity of flows and quality of water. Designated critical habitat occurs downstream below the confluence of the Gunnison and Uncompahgre Rivers. In accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.), and the Interagency Cooperation regulations (50 CFR 402), the U.S. Fish and Wildlife Service issued a Programmatic Biological Opinion (PBO) for the Gunnison River and effects on the endangered Colorado pikeminnow, humpback chub, bonytail, and razorback sucker and their critical habitats (FWS 2009). Consultation for the Gunnison River Basin included the continued operations and depletions associated with existing Reclamation projects, including the Uncompahgre Project, other Federal projects, and existing non-federal water depletions.

Suitable habitat for the other federally-listed species does not occur in areas affected by the hydropower project.

No Action Alternative: Under the no action alternative, there would be no effect to any threatened, endangered, or candidate species as a result of the proposed Project.

Proposed Action: Under the proposed action, there would be no effect on endangered, threatened, or candidate species or their habitat due to the development of any features of the hydropower project. There are no listed species present in areas that would be affected by construction, and there would be no changes in river flows or water quality that could affect the downstream endangered fishes. Water depletions associated with the Uncompahgre Project were

consulted on and addressed in the Gunnison Basin Programmatic Biological Opinion (FWS 2009). No additional depletions would be caused by the proposed Project.

Vegetation surveys of the Project's direct and indirect impact areas did not identify clay-loving wild buckwheat within the project area; however, there is a known population of clay-loving wild buckwheat near the project area. The lands surrounding the project area may provide suitable habitat for clay-loving wild buckwheat, and plant populations outside the surveyed areas are anticipated. Construction in the project area nearest to the clay-loving buckwheat will consist of raising the walls of the South Canal. Substantial increases in dust above baseline conditions is not expected to result from this activity, which will avoid potential indirect effects to the buckwheat. To ensure project construction will have no impact on clay-loving wild buckwheat populations outside the project area, UVWUA and its contractors will fence or mark the entirety of the project action area prior to construction, to prevent vehicle access or disturbance outside the fenced/marked areas during construction. With implementation of this environmental commitment, the Proposed Action will have no effect on clay-loving wild buckwheat.

In the event of discovery of any threatened or endangered species, the UVWUA will immediately cease all ground-disturbing activities in the vicinity and notify Reclamation. Work will not be resumed until approved by Reclamation.

3.8 – Recreation

Existing Conditions: Areas adjacent to any canal, hydraulic drops and other infrastructure are potentially dangerous. The maintenance road adjacent to the canal is on Mancos shale soils and can be slippery and dangerous, especially when wet. The canal and canal road crosses private land, and the canal road is often gated and signed at private property boundaries. For these reasons, public access is not allowed, and recreation is not authorized within the canal right-of-way.

No Action Alternative: Under the No Action Alternative, hydropower facilities would not be constructed at Drop 5. There would be no change in recreation from existing conditions.

Proposed Action: Under the proposed action, hydropower facilities would be constructed at Drop 5. The maintenance road would continue to be slippery and dangerous, especially when wet, and public access and recreation along the canal and canal road would continue to be unauthorized. The project would have no effect on recreation.

3.9 – Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held by the United States for Indian Tribes or individuals. Reclamation and other Federal agencies share the responsibility to protect these assets. There are no potentially affected ITAs in the project area, and therefore no ITAs will be affected by the No Action Alternative or the Proposed Action.

3.10 – Environmental Justice

Executive Order 12898 on Environmental Justice provides that Federal agencies analyze programs to assure that they do not disproportionately adversely affect minority or low income populations or Indian Tribes. There are no potentially affected minorities or low income populations or Indian Tribes affected by the proposed project, and therefore no impacts are expected under either alternative.

3.11 – Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on cultural resources. Cultural resources are defined as physical or other expressions of human activity or occupation. Such resources include culturally significant landscapes, prehistoric and historic archaeological sites, isolated artifacts or features, traditional cultural properties, Native American and other sacred places, and artifacts and documents of cultural and historical significance.

Existing Conditions: The project area of potential effect has been inventoried for cultural resources (Alpine 2013 and 2015). There were no prehistoric sites located; however, Reclamation determined that the affected portions of the South Canal contribute to an officially eligible site on the National Register of Historic Places (NRHP), and a construction camp adjacent to the project area is eligible for inclusion on the NRHP. The Colorado State Historic Preservation Officer (SHPO) has reviewed and concurred with Reclamation’s determinations. A brief description of these cultural resources is presented below.

The South Canal was the first large-volume canal built to transport water from the Gunnison Tunnel throughout the Uncompahgre Valley. The South Canal is 11.4 miles long, and carries up to 1,010 cfs of water directly from the opening of the Gunnison Tunnel to a point on the Uncompahgre River about 9 miles south of Montrose. Construction of the South Canal took place between 1904 and 1909. The acreage brought under cultivation by the Gunnison Tunnel and the South canal was more than twice what was possible before the project was built.

The construction camp is an historic labor camp associated with construction of the South Canal between September 1904 and July 1905.

No Action Alternative: Under the No Action Alternative, hydropower facilities would not be constructed at Drop 5. There would be no impact to cultural resources.

Proposed Action: Under the proposed action, hydropower facilities would be constructed at Drop 5. Reclamation determined that the proposed project will adversely affect segments of the South Canal, an NRHP eligible cultural resource, and has consulted with the SHPO. Reclamation determined that the project will have no effect on other NRHP eligible cultural resources. UVWUA and its contractors will install temporary fencing to prevent vehicle access or disturbance to the NRHP eligible cultural resource located outside of but immediately adjacent to the Action Area. A Memorandum of Agreement (MOA) between Reclamation and the SHPO to mitigate the effects to the NRHP-eligible cultural resource has been executed.

Cultural mitigation stipulations outlined in the MOA will be completed by UVWUA before construction commences (Appendix C).

In the event of discovery of currently unknown cultural or paleontological resources, the UVWUA will immediately cease all ground-disturbing activities in the vicinity and notify Reclamation. Work will not be resumed until approved by Reclamation.

If any additional areas of impact (for example, access roads, borrow areas, or waste areas) are identified during the course of the undertaking, they will be inventoried for cultural resources and consulted on with the SHPO. No construction work will occur at or near the additional impact area until this consultation is completed.

3.12 – Air Quality and Noise

Existing Conditions: Air quality is generally excellent in the project area, and there are no air quality non-attainment areas in the vicinity (EPA 2015). Agricultural operations and construction activities can be sources of dust pollution, which is made worse during wind events.

There are no significant noise sources or problems in the project area. The primary source of noise in the project area is flowing water in the South Canal over Drop 5.

No Action Alternative: Under the No Action Alternative, no hydropower facilities would be constructed at Drop 5. There would not be a change in air quality and noise.

Proposed Action: Under the proposed action, a hydropower facility would be constructed at Drop 5.

There would be an increase in noise levels during excavation and grading for the hydropower facilities and from construction traffic. During operation, the turbines and generators would produce machinery noise, representing a new noise source; however, such equipment would be fully enclosed, located a minimum of 950 feet from any dwellings, and should have minimal effects on existing noise levels. After construction of the project facilities, the enclosure of the equipment, combined with the distance to any residences and intervening topography will diminish the noise associated with hydropower facility operations at any residences. The expected increase in noise levels in the immediate vicinity of the powerplant due to operation is minimal, and therefore noise increases at any residences are anticipated to be at minimal or non-detectable levels.

There would be short-term dust impacts during excavation work, although this is predicted to be insignificant because Best Management Practices for dust abatement would be followed during construction and operation of the hydropower facilities. Reclamation will require watering to minimize/control dust from cleared areas and along roadways. There would be no long-term adverse impacts on air quality due to operation and maintenance of the hydropower facilities. As with other hydropower projects, there would be a beneficial offset of emissions of carbon dioxide (CO₂) and other greenhouse gases. According to the U.S. Energy Information Administration (EIA), in 2013 “the average annual electricity consumption for a U.S. residential customer was 10,903 kilowatt hours (kWh) (EIA 2013).” With an average annual energy

generation of 8,623 MWh, the Drop 5 hydropower project would provide enough clean energy to power about 790 homes each year. By providing 8,623 MWh of clean energy to the electrical grid which may otherwise have been provided by fossil fuels, Reclamation estimates that CO₂ emissions would be reduced by an estimated 17,849,610 to 18,711,910 pounds per year with implementation of the hydropower project, based on the size of the hydropower project and the Energy Information Administration’s reduction numbers (EIS 2013a).

3.13 – Cumulative Impacts

Cumulative impacts are impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Three other hydropower plants have been constructed at Drops 1, 3, and 4, and an additional hydropower plant is proposed at Drop 2, on the South Canal upstream of the Proposed Action Area. Drop 2 may be under construction concurrently with Drop 5, however these plans are not yet finalized. At this time, there are no other known federal, state, or local projects that occur or are proposed to be constructed within, or in the immediate vicinity of, the Proposed Action Area. Implementation of the Proposed Action is not expected to raise cumulative impacts to a significant level.

3.14 – Summary

Table 4 summarizes the predicted impacts of the No Action and Proposed Action Alternatives analyzed in this EA.

Table 4. Summary of Impacts for the No Action and Proposed Action Alternatives.

Resource	No Action Alternative	Hydropower Development at Drop 5
Energy Production	None	8,623 megawatt-hours of energy per year.
Wetlands & Riparian Resources	No effect	No effect
Recreation Use	No effect	No effect
Fisheries	No effect	No effect
Water Rights	No effect	No change in water rights.
Threatened & Endangered Species	No effect	No effect to federally-listed threatened, endangered or candidate species or critical habitat.
Wildlife and Vegetation	No effect	Temporary impacts associated with construction of the hydropower facilities.

Resource	No Action Alternative	Hydropower Development at Drop 5
BLM Sensitive Species	No effect	Insignificant temporary effects to potential breeding habitat for the spotted bat, and potential hunting habitat for the bald eagle, golden eagle, American peregrine falcon, and ferruginous hawk. Permanent loss of approximately 3 acres of potential habitat for the kit fox, Montrose bladderpod, and Colorado desert parsley.
Water supply for Irrigation and Municipal Uses	No effect	No effect
Cultural Resources	No effect	Adverse effect to NRHP eligible historic resources. Impacts will be mitigated as stipulated in an MOA between Reclamation, UVWUA, BLM, and SHPO.
Air Quality	No effect	Minor and insubstantial changes in air quality during construction associated with fugitive dust. Active dust abatement program implemented will keep any temporary negative changes in air quality to a minimal level. Offset emission of carbon dioxide (estimated at 17,849,610 to 18,711,910 pounds per year) and other greenhouse gases with implementation of the proposed action.
Noise	No effect	Temporary increase of noise levels during construction. Distance from nearby structures combined with enclosure of project equipment will result in no significant long-term increases in noise.
Socio-economics	No effect	Assist in providing a source of renewable energy for municipal utilities in the Rocky Mountain Power Area of the Western Electric Coordination Council Region of the North American Electric Reliability Council. Temporary benefit of increased construction jobs and temporary increase in employment/tax revenues. Long-term benefit to UVWUA members resulting from sale of power.
Cumulative Impacts	No effect	Implementation of the Proposed Action is not expected to raise cumulative impacts to a significant level.

3.15 – Environmental Commitments

The primary effect of the proposed action would be to develop a new source of renewable energy for use by the public. There would be short-term economic benefits due to construction expenditures and employment. In the long-term, UVWUA and their members would benefit from income generated from the project.

The following measures will be implemented by UVWUA and its contractors. The LOPP requires that these commitments be followed and met. An environmental commitment plan has been prepared and is included in Appendix D of this Final EA to document how environmental

commitments and mitigation measures will be implemented during design, construction, and operation of the Project.

- The construction and operation of the hydropower project will be carried out in a manner that does not interfere with the irrigation supplies or maintenance of the Uncompahgre Project.
- Existing access roads will be used to access the construction, staging, and stockpile areas. No new access roads will be constructed.
- Best Management Practices, including drainage features, erosion and sediment control measures, will be implemented to prevent or reduce point source pollution during and following construction. A Storm Water Management Plan will be developed and filed with the Colorado Department of Health and Environment (CDPHE).
- Prior to construction, erosion and sediment control measures will be applied around wetland and riparian vegetation associated with Dry Cedar Creek to ensure no fill material enters the wetlands or creek.
- All construction equipment will be power-washed and free of soil and debris prior to entering the construction site to reduce the spread of noxious and invasive weeds.
- Topsoil, where available, will be stockpiled during construction for later use in restoration and revegetation of disturbed areas. Immediately upon completion of construction, disturbed areas will be re-contoured and seeded to reduce erosion and facilitate revegetation (see Appendix F). The plan for re-contouring and revegetation will require pre-approval by Reclamation.
- Best Management Practices for dust abatement will be followed during construction and operation of the hydropower facilities. Watering is required to minimize and control dust from cleared areas and along roadways.
- Fuel storage, equipment maintenance, and fueling procedures will be developed to minimize the risk of spills and the impacts from these incidents. A Spill Prevention, Control and Countermeasure Plan (SPCC) will be prepared prior to construction and kept on-site at all times. The procedures and the SPCC will be submitted to CDHPE prior to construction.
- UVWUA will be responsible for obtaining any required Federal, state, or local permits to construct and operate the project, including permits under the Clean Water Act (Section 402 and 404 permits).
- UVWUA will be responsible for submitting an application for a Colorado Industrial Stormwater General Permit as provided by CDPHE at least ten (10) days prior to the commencement of construction activities. The application requires certification that a Storm Water Management Plan has been completed for the construction project.
- Prior to construction, UVWUA and its contractors will fence or mark the entirety of the project action area, and no work, access, or disturbance will occur outside the fenced/marked area, in order to avoid potential impacts to federally-listed species or cultural resources.
- In the event of discovery of threatened or endangered species, the UVWUA will immediately cease all ground-disturbing activities in the vicinity and notify Reclamation. Work will not be resumed until authorized by Reclamation.
- The Kaplan turbine design will incorporate recommended design concepts 1, 4, and 6 as outlined in *A Summary of Environmentally Friendly Turbine Design Concepts* developed

by the US Department of Energy (DOE 1999) to help ensure the Kaplan turbine is designed in an environmentally friendly manner. A copy of this summary can be viewed at: <http://www1.eere.energy.gov/wind/pdfs/doewater-13741.pdf>.

- To ensure project construction will have no impact on the NRHP-eligible cultural resource located immediately adjacent to the project area, UVWUA and its contractors will install high visibility construction fencing along the project area boundary in the vicinity of the resource, and no construction work, access, or disturbance will occur outside the fenced area.
- In the event of discovery of evidence of possible cultural or paleontological resources, the UVWUA will immediately cease all ground-disturbing activities in the vicinity and notify Reclamation. Work will not be resumed until authorized by Reclamation.
- UVWUA will comply with all Stipulations contained in the Memorandum of Agreement with the Colorado State Historic Preservation Officer (Appendix C).
- If any additional areas of impact (for example: access roads, borrow areas, or waste areas) are identified during the course of the undertaking, they will be inventoried for threatened and endangered species and cultural resources and consulted on with the U.S. Fish and Wildlife Service and the State Historic Preservation Officer, as applicable. No disturbance will occur outside of the identified project area boundaries until the required consultations are completed.
- Above-ground power line and power pole designs will meet recommended standards as outlined in the Avian Protection Plan Guidelines developed by the US Fish and Wildlife Service and Industry (APLIC 2005). A copy of these standards can be viewed at: http://www.aplic.org/uploads/files/2634/APPguidelines_final-draft_April2005.pdf.
- Powerhouses and substations will be non-reflective and painted to blend with the project area background in order to minimize visual impacts.
- The water utilized for power development will be non-consumptive. No new water rights will be appropriated for the purposes of operating the facility. The operation of the facility will not interfere or conflict with the purpose and operations of the Uncompahgre Project, including but not limited to the South Canal. There will be no increase in diversions from the Gunnison River solely for hydropower use permitted under the LOPP. The hydropower facility will be operated based on irrigation diversion patterns.
- Irrigation supplies and canal maintenance access will be maintained during construction at all times. Water supplies to Fairview Reservoir will not be interrupted.
- The UVWUA will be responsible for noxious weed control within the limits of the facility for the life of the project. UVWUA is responsible for consultation with Reclamation for acceptable weed control methods, including pesticides/herbicides approved for use on public land. UVWUA will adhere to their 2012 *Pesticide Discharge Management Plan and Integrated Pest Management Plan for Uncompahgre Valley Water Users Association*, as well as Montrose County's 2011 *Montrose County Weed Mitigation Department Weed Management Plan*. UVWUA will focus on ensuring the control of invasive weeds within the project area, especially Russian knapweed. Use of pesticides/herbicides will comply with the applicable Federal and state laws. Pesticides/herbicides will be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior.

CHAPTER 4 – CONSULTATION AND COORDINATION

4.1 – General

Public scoping for this EA was conducted in conjunction with the LOPP negotiation meeting between Reclamation and UVWUA. Notice of the meeting was published in the Montrose Daily Press on June 27, 2015. The meeting was held on July 1, 2015, in Montrose to discuss the terms and conditions associated with the construction and operation of the South Canal Drop 5 Hydropower Project. Reclamation also used this public meeting to provide an opportunity for the public to identify issues and concerns with the proposed project. The meeting was attended by UVWUA, Reclamation, DMEA, Mountain States Hydro, and one interested party. Reclamation and the UVWUA have had informal discussions with adjacent landowners, and local, county, and state agencies. Reclamation also relied on issues that were previously identified for other hydropower projects recently constructed in the Lower Gunnison Basin on the Dallas Creek Project at Ridgway Dam, South Canal at Drops 1, 3, & 4, and the Montrose & Delta Canal at Shavano Falls in preparing the draft EA.

In addition, Reclamation has coordinated with the Colorado State Historic Preservation Officer under Section 106 of the National Historic Preservation Act, the U.S. Fish and Wildlife Service under the Endangered Species Act, the Bureau of Land Management Uncompahgre Field Office, and Colorado Parks and Wildlife. Results of the consultations have been incorporated into the project analysis and discussions in Chapter 3 and written correspondence is included in the appendices.

4.2 – Distribution List

News Releases announced the availability of the draft EA, and the EA was made available upon request via mail or email on August 27, 2015. Comments were requested by September 14, 2015. The draft EA was also announced with a request for comments in a distribution letter mailed to agencies, nearby landowners, and stakeholders, as shown below:

No comments were received on the draft EA.

- State Representative Jared Polis
- State Representative Ken Buck
- State Representative Mike Coffman
- State Representative Diana DeGette
- State Representative Ed Perlmutter
- State Representative Scott Tipton
- State Representative Doug Lamborn
- State Senator Cory Gardner

- State Senator Michael Bennet
- Montrose County Commission, Montrose, CO
- Bureau of Land Management, Uncompahgre Field Office, Montrose, CO
- Colorado Division of Water Resources, Montrose, CO
- Colorado Parks and Wildlife, Montrose, CO
- Colorado State Historic Preservation Office, Denver, CO
- Tri-County Water Conservancy District, Montrose, CO
- Delta-Montrose Electric Association, Montrose, CO
- Uncompahgre Valley Water Users Association, Montrose, CO
- Project 7 Water Authority, Montrose, CO
- Montrose Daily Press, Montrose, CO
- Telluride Watch, Telluride, CO
- Ouray Plain Dealer, Ouray, CO
- Western Slope Conservation Center, Paonia, CO
- Daily Sentinel, Grand Junction, CO
- Western Resource Advocates, Boulder, CO
- High Country Citizens Alliance, Crested Butte, CO
- Southern Ute Indian Tribe, Ignacio, CO
- Ute Mountain Ute Indian Tribe, Towaoc, CO
- Fish and Wildlife Service, Grand Junction, CO
- U.S. Army Corps of Engineers, Grand Junction, CO
- U.S. Environmental Protection Agency, Denver, CO
- U.S. Geological Survey, Grand Junction, CO
- Individuals and Landowners

4.3 – Draft EA Comments

A Draft EA was released for public review and comment on August 27, 2015, and comments from the general public were accepted up to and through September 14, 2015. The BLM-UFO received an extended comment period due to portions of the Proposed Action occurring on BLM land. During the comment period, Reclamation received one response, which was from the BLM-UFO (Appendix E). Following are responses to comments received on the Draft EA:

COMMENTS FROM THE BUREAU OF LAND MANAGEMENT UNCOMPAHGRE FIELD OFFICE:

COMMENT 1: Page 14, Section 2.2.2, Paragraph 3: Please refer to comments made under Section 3.5, Page 22, Paragraph 8 and Page 23, Paragraph 3.

RESPONSE 1: BLM provided Reclamation with a recommended native seed mixture which includes species which are not overly competitive with the Clay-loving wild buckwheat. This seed mixture is the Reclamation approved seed mixture referenced throughout the document, and has been included in Appendix F.

COMMENT 2: Page 20, Section 3.3: Fuel storage, equipment, maintenance, and fueling procedures should be developed and submitted to CDPHE prior to construction along with SWMP and SPCC.

RESPONSE 2: Reclamation has included this commitment in the referenced section, and has added it to the project's environmental commitments.

COMMENT 3: Page 22, Section 3.5, Paragraphs 2, 3, and 4: Description of “native vegetation” should not include reference to introduced and invasive species (e.g. “annual wheatgrass”, “Russian knapweed”, “cheat-grass”, “Canada thistle”, “tamarisk”, “halogeton”, and “annual mustards”. It is recommended that this section introduce the federally listed *Eriogonum pelinophilum* (Clay-loving wild buckwheat), with reference to section 3.7.

RESPONSE 3: The description of “native vegetation” did not include references to Russian knapweed, Canada thistle, tamarisk, halogeton, or annual mustards. Those species have been identified on road sides and other disturbed areas within the project area, and have therefore been included in the Wildlife and Vegetation section of the Final EA. Annual wheatgrass and cheatgrass have been removed from the native vegetation paragraph in the Final EA. Clay-loving wild buckwheat has been included in the native vegetation paragraph in the Final EA, with a reference to section 3.7.

COMMENT 4: Page 22, Section 3.5, Paragraph 8: How will area be restored to pre-project conditions after construction? Due to the probable spread of weeds (e.g. Russian knapweed) on disturbed land during/post construction, how will such effects be minimized? A more complete description of fuel storage, equipment maintenance, and fueling procedures ‘to be developed’ to minimize risk of spills and impacts from such incidents should be included.

RESPONSE 4: The area will be restored to pre-project conditions by re-contouring the disturbed land to prevent erosion, stockpiling and replacing topsoil within the project area, and by planting a Reclamation approved seed mixture (see Response 1). The Final EA includes environmental commitments for the control of weeds (i.e. all construction equipment will be power-washed and free of soil and debris prior to entering the construction site, UVWUA will be responsible for noxious weed control within the limits of the facility for the life of the project, etc). As per BLM recommendation in Comment 2, the fuel storage, equipment maintenance, and fueling procedures to be developed will be submitted to CDPHE prior to construction along with the SWMP and SPCC. Additional information will not be included in the Final EA.

COMMENT 5: Page 23, Section 3.5, Paragraph 3: We recommend a native seed mix be utilized for revegetation, and include species which are not overly competitive with the Clay-loving wild buckwheat. We can assist in recommendations for this. The seed mix should be disclosed prior to application.

RESPONSE 5: BLM provided Reclamation with a recommended native seed mixture which includes species which are not overly competitive with the Clay-loving wild buckwheat. This seed mixture is the Reclamation approved seed mixture referenced throughout the document, and has been included in Appendix F.

COMMENT 6: Page 35, Section 3.15, Bullet 3: S/A above.

RESPONSE 6: See Response 5.

COMMENT 7: Page 28, Section 3.7, Paragraph 1: At what location within project area was Clay-loving wild buckwheat recorded?

RESPONSE 7: Clay-loving wild buckwheat was not recorded within the project area, as defined. During initial discussions of the proposed project with BLM, the project included modifying canal segments further upstream of the proposed project area, however, the scope of the proposed project has been modified to completely avoid impacts to the Clay-loving wild buckwheat. The nearest Clay-loving wild buckwheat populations are located approximately 130 feet north of the project area.

COMMENT 8: Page 29, Section 3.7, Paragraph 5: We recommend the employment of a 3rd party bio-monitor to oversee the fencing off of project areas, to ensure the protection of Clay-loving wild buckwheat populations, as well as to offer guidance to work crews, ensure the maintenance of such fencing and compliance to its boundaries.

RESPONSE 8: The threatened and endangered species surveys for the proposed project included land outside of the project area. UVWUA and its contractors will be required to fence the project area, which will require work approximately 130 feet south of the nearest recorded Clay-loving wild buckwheat. Because of the distance between the proposed fencing and any Clay-loving wild buckwheat plants, it is unnecessary to require a third party bio-monitor to oversee the fencing off of the project area.

COMMENT 9: Page 35, Section 3.15, Bullet 8: S/A above.

RESPONSE 9: See Response 8.

COMMENT 10: Page 29, Section 3.7, Paragraph 6: In the event of discovery of any T/E species, the UVWUA will notify BLM and FWS in addition to Reclamation.

RESPONSE 10: In the event of discovery of any T&E species, the UVWUA will notify Reclamation, and Reclamation, as lead Federal agency, will notify BLM and FWS.

COMMENT 11: General Comment: In the event of a change of project plans which would require work in areas with known T/E species, as well as any work to be conducted outside of previously surveyed areas, BLM and FWS will be consulted, in addition to Reclamation, to determine if additional surveys are required before proceeding with any such work.

RESPONSE 11: Reclamation, as lead Federal agency, will be responsible for consulting with BLM, FWS, USACE, EPA, SHPO, or any other agency as determined necessary in the event of a change in project plans, including changes which would require work in areas with known T&E species, or work to be conducted outside of previously surveyed areas.

COMMENT 12: General Comment: It is strongly recommended that UVWUA and BOR commit to treating Russian knapweed along canal where it has intermingled, and where it is encroaching upon *E. pelinophilum* populations, as it is having adverse effects which will most likely increase due to disturbances to *E. pelinophilum* habitat. UVWUA and BOR should consult

with USFWS to develop and coordinate an effective plan to treat Russian knapweed (and any other weeds) which is specific to simultaneously controlling such invasives and employs cautionary measures for *E. pelinophilum* populations.

RESPONSE 12: UVWUA will be responsible for controlling invasive weeds, including Russian knapweeds, within the project area. UVWUA and BOR have previously developed a plan to treat weeds in their 2012 *Pesticide Discharge Management Plan and Integrated Pest Management Plan for Uncompahgre Valley Water Users Association*. UVWUA will also be responsible for controlling weeds in accordance with Montrose County’s Weed Management Plan. The following has been included as an environmental commitment in the Final EA:

“UVWUA will adhere to their 2012 *Pesticide Discharge Management Plan and Integrated Pest Management Plan for Uncompahgre Valley Water Users Association*, as well as Montrose County’s 2011 *Montrose County Weed Mitigation Department Weed Management Plan*. UVWUA will focus on ensuring the control of invasive weeds within the project area, especially Russian knapweed.”

REFERENCES

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ABBREVIATIONS AND ACRONYMS

- af – acre-feet
- ATG – automatic trip gates
- BLM – U.S. Bureau of Land Management
- CDPHE – Colorado Department of Public Health and Environment
- cfs – cubic feet per second
- CO₂ – Carbon dioxide
- CPW – Colorado Parks and Wildlife
- CWA – Clean Water Act
- DMEA – Delta-Montrose Electric Association
- EA – Environmental Assessment
- EIS – Energy Information Administration
- ESA – Endangered Species Act
- FERC – Federal Energy Regulatory Commission
- FWS – U.S. Fish and Wildlife Service
- ITA – Indian Trust Asset
- kW - kilowatt
- kWh – kilowatt hours
- LOPP – Lease of Power Privilege
- M&D – Montrose & Delta Canal
- MEAN – Mutual Energy Association of Nebraska
- MOA – Memorandum of Agreement
- MW – megawatt
- MWh – megawatt hours
- NPDES – Nonpoint Discharge Elimination System
- NRHP – National Register of Historic Places
- NWP – Nationwide Permit
- PBO – Programmatic Biological Opinion
- Reclamation – Bureau of Reclamation
- SHPO – State Historic Preservation Officer
- SPCC – Spill Prevention, Control and Countermeasure Plan
- UFO – Uncompahgre Field Office
- USACE – U.S. Army Corps of Engineers
- UVWUA – Uncompahgre Valley Water Users Association

Appendix A – Preliminary Lease of Power Privilege (Contract No. 2015-0031-CF-0004)

Contract No. 2015-0031-CF-0004

**PRELIMINARY LEASE AND FUNDING AGREEMENT
BETWEEN
BUREAU OF RECLAMATION
AND
UNCOMPAHGRE VALLEY WATER USERS ASSOCIATION
FOR
SOUTH CANAL DROP 5 LEASE OF POWER PRIVILEGE
COST-RECOVERY**

1. THIS PRELIMINARY LEASE AND FUNDING AGREEMENT (Agreement) is made pursuant to the Reclamation Act of 1902 approved June 17, 1902 (32 Stat. 388), and acts amendatory thereof or supplementary thereto, particularly the Contributed Funds Act of March 4, 1921 (43 U.S.C. § 395), among the Bureau of Reclamation (Reclamation) and the Uncompahgre Valley Water Users Association (Association) for the purpose of contributing funds to Reclamation to perform environmental, and other services necessary to establish and implement a Lease of Power Privilege (LOPP).

WITNESS TO

2. EXPLANATORY RECITALS

2.1 WHEREAS, the Uncompahgre Project, located in west-central Colorado, was authorized for construction by the Secretary of the Interior on March 14, 1903, under the provisions of the Reclamation Act of 1902; and

2.2 WHEREAS, the Uncompahgre Project was authorized to allow for the sale of hydroelectric power under the Act of June 22, 1938 (52 Stat. 941), Sale of Surplus Power, Uncompahgre Valley Project; and

2.3 WHEREAS, the electricity generated by the proposed hydropower plant to be located on the South Canal at Drop 5 will provide a clean, renewable energy source; and

2.4 WHEREAS, a proposal was reviewed by Reclamation staff, and it has been determined that negotiations should proceed with the Association for the LOPP on the South Canal at Drop 5.

2.5 WHEREAS, under Reclamation law and policy, the Association is required to pay in advance all costs associated with work undertaken by Reclamation necessary for completion of this project; and

2.6 WHEREAS, the Contributed Funds Act provides authority for the Secretary of the Interior, acting through Reclamation, to receive moneys, without further appropriation.

The law states: "All moneys after March 4, 1921, from any State, municipality, corporation, association, firm, district, or individual for investigations, surveys, construction work, or any other development work incident thereto involving operations similar to those provided for by the Reclamation law shall be covered into the Reclamation fund, and shall be available for expenditure for the purposes for which contributed in like manner, as if said sums had been specifically appropriated for said purposes."

NOW THEREFORE, in consideration of the foregoing the parties agree to the following:

3. PURPOSE

3.1 The purpose of this Agreement is to receive funding from the Association for Reclamation's assistance in the development of the LOPP on the South Canal at Drop 5, and identify timelines for the LOPP process.

4. RESPONSIBILITIES

4.1 Reclamation will assure that all actions identified in its Scope of Work below are complete.

4.2 The Association will assure that all actions identified in its Scope of Work below are complete.

5. RECLAMATION'S SCOPE OF WORK

5.1 Reclamation will be the lead agency for ensuring compliance with the National Environmental Policy Act (NEPA), Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA); and request consultation from the Fish and Wildlife Service pursuant to Section 7 of the ESA, if consultation is required.

5.2 Reclamation LOPP lead contact on this project will be Mr. Ryan Christianson, as identified in Article 11.1 herein. Reclamation shall schedule a meeting within 30 calendar days of the execution of this Agreement. The attendees will be Reclamation staff and the Association representatives. The purpose of this meeting will be to ensure all attendees understand the roles and responsibilities of each of the parties in the LOPP process. The agreed upon terms, roles and responsibilities resulting from this meeting will be documented in a manner agreeable to the parties involved.

5.3 Reclamation shall perform tasks related to the development and implementation of the LOPP, including, but not limited to: contract development, design review, and technical assistance, as needed, related to construction, operation, maintenance and security of the power facility.

5.4 Reclamation may contract with another person or entity, in consultation with the Association, for obligations described herein. All costs, including Reclamation's actual costs for administering the contract(s), shall be paid by the Association.

5.5 Reclamation shall establish a specific account (Federal Account) to

receive funds advanced by the Association.

5.6 Reclamation shall provide a monthly accounting of its expenses for work performed to establish and implement the LOPP.

6. ASSOCIATION'S SCOPE OF WORK

6.1 The Association shall notify Reclamation in writing with the names of representatives who will participate on the LOPP contract negotiation team.

6.2 The Association shall assist Reclamation, as requested, with completion of activities required to comply with NEPA, ESA, NHPA, and other applicable Federal laws as required.

6.3 The Association shall assist Reclamation in arranging public involvement, including meeting places and notices to the public, if so determined to be necessary by Reclamation for NEPA compliance.

6.4 The Association shall pay all costs in the manner described in Article 10, herein. Reclamation has estimated the costs associated with NEPA compliance and other tasks listed in

Exhibit A to be **\$70,000**. Upon execution of this Agreement and prior to initiation of required tasks by Reclamation, the Association shall advance to Reclamation the estimated costs associated with the completion of such tasks. The Association shall make an initial deposit into the Federal Account in the amount of **\$40,000**. At such time when the balance in the Federal Account is anticipated to be reduced to **\$10,000** or less, Reclamation will request additional deposits be made into the Federal Account. The Association shall deposit the requested funds into the Federal Account within 30 days of receipt of the request.

6.5 The Association shall provide a timeline schedule for completing the necessary steps to execute the LOPP contract and begin construction.7. TERM OF THE AGREEMENT

7.1 The date of execution for this Agreement shall be the date this Agreement is signed by the Regional Director.

7.2 This Agreement shall be effective for a period of 15 months from the date of the execution, or until either execution of the LOPP contract, or the Association ceases to pursue a LOPP contract.

8. TERMINATION

8.1 Either party may terminate this Agreement with 30 days written notice to the other party.

9. MODIFICATION(S) TO THE AGREEMENT

9.1 Either party may formally request modification of this Agreement. Modifications shall be by mutual consent of the parties by the issuance of a written modification to this Agreement, signed and dated by the parties, to any changes being performed.

10. BUDGET AND METHOD OF PAYMENT

10.1 In order to comply with 43 U.S.C. 395 Contributed Funds Act of March 4, 1921, Reclamation will issue written requests to the Association for advancement of funds to be deposited into the Federal Account (Article 5.5, herein). Requests for deposits will include work estimates for the deposit requested. Reclamation will not perform any work until adequate funds are available in the Federal Account. The Association will be allowed 30 days from the date it receives a request to make the requested deposits. The fund amount will be based upon the estimate shown on Exhibit A. If the estimate does not cover all of Reclamation's costs, Reclamation will request additional funds from the Association in advance of continuing work.

10.2 If this Agreement is terminated prior to execution of a LOPP contract (Article 8.1, herein), or if this Agreement is no longer in effect (Article 7.2, herein), remaining funds deposited in the Federal Account (Article 5.5, herein) shall be returned to the Association within 30 days of the date of termination, or of the first day when the Agreement was no longer in effect. 10.3 Upon the execution of an LOPP contract, remaining funds deposited in the Federal Account (Article 5.5, herein) shall remain in the Federal Account. The Federal Account shall be maintained and the funds deposited in this account shall be utilized to pay Reclamation's costs associated with administering the LOPP during the term of the LOPP contract.

11. NOTICES AND AUTHORIZED REPRESENTATIVES

11.1 Any and all notices required to be given by parties hereto, unless otherwise stated in this Agreement shall be in writing and be deemed communicated when mailed through the United States Postal Service, certified, return receipt requested, and addressed as follows:

To Uncompahgre Valley Water Users Association

Mr. Steve Fletcher
Manager
P.O. Box 69
Montrose CO 81402

To Bureau of Reclamation

Mr. Ryan Christianson
Western Colorado Area Office
445 West Gunnison, Suite 221

Grand Junction CO 81501

The parties may change their leads or address for the purpose of this section by giving written notice of such change to the other in the manner herein provided.

12. GENERAL PROVISIONS

12.1 Nothing herein shall be construed to obligate Reclamation to expend or involve the United States of America in any contract or other obligation requiring funding.

12.2 No Member of or Delegate to the Congress, Resident Commissioner, or official of the Association shall benefit from this Agreement, other than as a water user or landowner in the same manner as other water users or landowners.

12.3 Any information furnished to Reclamation, under this Agreement, is subject to the Freedom of Information Act (5 U.S.C. 552)

In Witness Whereof, the parties hereto have executed this Agreement as of the last date written below.



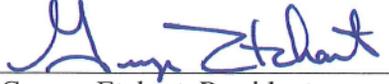
Brent Rhees, Regional Director
Upper Colorado Regional Office
Bureau of Reclamation

6/18/15
Date

APPROVED



Regional Solicitor's Office



George Etchart, President
Uncompahgre Valley Water Users Association

6-11-15
Date

EXHIBIT A

Work provided by the Bureau of Reclamation in the development and construction of the hydro-powerplant on the South Canal located at Drop 5, within the Uncompahgre Project boundary.

Advancement estimates:

Description	Cost (\$)
Negotiation and Development of Lease	25,000
Planning and Design Technical Assistance	4,000
NEPA Review	25,000
Travel- Region	5,000
Contingencies	11,000
TOTAL ADVANCEMENT ESTIMATES	\$70,000

Appendix B – Coordination with Colorado Parks and Wildlife



July 23, 2015

Jennifer Ward
Environmental Protection Specialist
Bureau of Reclamation
Western Colorado Area Office
445 West Gunnion Ave, Suite 221
Grand Junction, CO 81501

RE: Draft Environmental Assessment, South Canal Drop 5 Hydropower Project

Dear Ms. Ward,

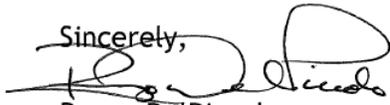
Thank you for the opportunity to comment on the draft Environmental Assessment (EA) for the South Canal Drop 5 Hydropower Project. Colorado Parks and Wildlife (CPW) staff as visited the site of the proposed project, and we do have a few minor concerns with possible impacts to wildlife.

The proposed project site lies on the South Canal north of Trout Road and south of Kinikin Road, southeast of Montrose. The habitat consists of pinon and juniper trees, sage brush, greasewood and small seasonal wetlands.

The area of the proposed project lies inside CPW mapped winter range for mule deer and the area supports high densities of wintering mule deer. Deer populations throughout western Colorado have been generally declining. This project is likely to impact deer that winter in this area. Our standard stipulations and recommendations are as follows. We recommend construction activities be performed before December 1st and avoiding construction from December 1ST through April 30th each year. If this is not possible with this project, we would recommend to limit activity, noise, truck travel and hours of operation to the greatest extent possible to reduce impacts to wintering mule deer. Activity should be restricted to as early in winter as possible to not stress to deer in late winter when they are in their worst body condition and most vulnerable to stress. In addition, limiting construction and traffic into the area

between the hours of 9am and 4pm would minimize stress to deer as they are more active late afternoon through the night into early morning. CPW does not have concern for normal operations of the completed project.

Again, thank you for the opportunity to comment on the draft Environmental Assessment for the South Canal Drop 5 Hydropower Project. If you have further questions please contact myself, or District Wildlife Manager Matt Ortega at (970)-252-6011.

Sincerely,

Renzo DelPiccolo
Area Wildlife Manager
970.252.6010

cc: Matt Ortega-DWM, Patt Dorsey-SW Region Manager, Jon Holst-Energy Resource Specialist, Brian Magee-Land Use Coordinator

Appendix C – Cultural Resources Documentation



June 20, 2014

Ed Warner
Area Manager
Bureau of Reclamation
Upper Colorado Region
Western Colorado Area Office
445 West Gunnison Avenue, Suite 221
Grand Junction, Colorado 81501

Re: Finding of Adverse Effect to the South Canal Construction Camp (Tunnel 3),
South Canal Drop 4 Hydropower Project, Montrose, Colorado (CHS #65599)

Dear Mr. Warner:

Thank you for your additional correspondence dated June 12, 2014 (received by our office on June 16, 2014) regarding the subject undertaking which is supplemental to our prior Section 106 consultation for the Shavano Falls Hydropower Project.

At the time of our prior Section 106 consultation, National Register eligibility for five sites and two isolated finds as well as project effects for the South Canal Drop 4 and 5 project areas was not requested due to ongoing engineering redesign. While the subject of your current consultation is limited to the South Canal Drop 4 area of potential effects, we are providing comment for all remaining sites including those located within the Drop 5 locality to facilitate any future Section 106 consultation that may be required for the latter.

After review of the remaining resource forms provided, we concur that sites 5MN2351 and 5MN10212 are eligible for listing to the National Register of Historic Places (NRHP). We concur that linear segments 5MN1851.7, 5MN1851.8, and 5MN1851.9 retain sufficient historical integrity to support the overall eligibility of the larger resource. We concur that isolated finds 5MN10213 and 5MN10214 are not eligible for listing to the NRHP.

With respect to the South Canal Drop 4 hydropower project, we concur that if avoidance is not possible that the proposed undertaking will result in an adverse effect to the following NRHP-eligible and supporting properties: 5MN1851.7, 5MN1851.8, and 5MN10212. Consequently, we find the proposed mitigation satisfactory as outlined within the survey report and inventory forms and we look

forward to developing a Memorandum of Agreement and Treatment Plan between all applicable parties to mitigate the effect of this undertaking on these historic properties.

Please note that as stipulated in 36 CFR 800.6(a)(1), the lead agency official shall notify the Advisory Council on Historic Preservation of the adverse effect determination so that it may indicate whether it wishes to participate in the resolution of effects. The consultation process does involve other consulting parties such as local governments and Tribes, which as stipulated in 36 CFR 800.3 are required to be notified of the undertaking. Additional information provided by the local government, Tribes or other consulting parties may cause our office to re-evaluate our comments and recommendations.

Thank you for the opportunity to comment. **If** we may be of further assistance, please contact Mark Tobias, Section 106 Compliance Manager at (303) 866-4674 or mark.tobias@state.co.us.

Sincerely,



for Edward C. Nichols
State Historic Preservation Officer
ECN/MAT



18 August 2015

Ed Warner
Area Manager
Bureau of Reclamation
Western Colorado Area Office
445 W. Gunnison Ave., Suite 221
Grand Junction, CO 81501

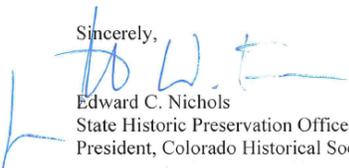
RE: South Canal Drop 5 Hydropower Project, Uncompahgre Project, Montrose County

Dear Mr. Warner:

Thank you for your recent correspondence dated 22 July 2015, concerning the proposed construction of a hydropower plant at Drop 5 of the South Canal (5MN.1851). Our office has reviewed the submitted materials. We concur with your assessment that this undertaking will have an adverse effect on three segments of the South Canal , all of which support the eligibility of the overall resource (which itself is eligible for listing on the National Register of Historic Places). The proposed undertaking will have no adverse effect on the National Register-eligible canal construction camp (5MN.2348).

If the avoidance of an adverse effect is not possible, we believe that mitigation of the historic resources should be outlined in a Memorandum of Agreement (MOA) signed by our respective offices. Please note that under 36.CFR.800.6(a)(1), the Advisory Council on Historic Preservation needs to be notified of the adverse effect determination and given the opportunity to decide whether to participate in the resolution of the adverse effect.

If you have any questions, please contact Joseph Saldibar, Architectural Services Manager, at (303) 866-3741.

Sincerely,

Edward C. Nichols
State Historic Preservation Officer, and
President, Colorado Historical Society

**MEMORANDUM OF AGREEMENT
BETWEEN
THE WESTERN COLORADO AREA OFFICE, BUREAU OF RECLAMATION
AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER
REGARDING SOUTH CANAL DROP 5 HYDROPOWER PROJECT, UNCOMPAHGRE
PROJECT, MONTROSE COUNTY, COLORADO**

WHEREAS, the Bureau of Reclamation (Reclamation) and the Uncompahgre Valley Water Users Association (UVWUA) plan to construct a hydropower plant on the South Canal in Montrose County, Colorado (Project); and

WHEREAS, Reclamation plans to issue a Lease of Power Privilege (LOPP) for the Project pursuant to the Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act, thereby making the Project an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, and its implementing regulations, 36 CFR Part 800; and

WHEREAS, Reclamation has defined the undertaking's area of potential effect (APE) as described in Attachment A; and

WHEREAS, Reclamation as lead Federal agency has determined that the Project will have an adverse effect on three recorded segments of the South Canal (5MN1851.9, 5MN1851.12, and 5MN1851.13). These cultural resources have been determined by Reclamation, in consultation with the Colorado State Historic Preservation Officer (SHPO), to be eligible for inclusion on the National Register of Historic Places under Criteria A and C (5MN1851.9), and Criterion C (5MN1851.12 and 5MN1851.13); and

WHEREAS, the UVWUA is the sponsor of the Project, has participated in the consultation, and has been invited to sign the Memorandum of Agreement (MOA); and

WHEREAS, a portion of this hydropower project occurs on land administered by the Bureau of Land Management – Uncompahgre Field Office (BLM). The BLM has participated in the consultation, and has declined our invitation to sign the MOA; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), Reclamation has notified the Advisory Council on Historic Preservation (Council) of its adverse effect determination providing the specified documentation, and the Council has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii);

NOW, THEREFORE, pursuant to Section 106 of the NHPA, Reclamation and the SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect on historic properties.

STIPULATIONS

Reclamation shall ensure that the following measures are carried out:

- I.** Prior to any modification associated with this undertaking, Reclamation will ensure that the 5MN1851.9, 5MN1851.12, and 5MN1851.13 segments of the South Canal will be recorded in accordance with the guidance for Level II Documentation found in “Historic Resource Documentation, Standards for Level I, II, and III Documentation” (Office of Archaeology and Historic Preservation Publication 1595, March 2013). The documentation will be of archival quality, and will include mapping of the properties and photographic documentation of the portions of the historic properties to be included in the hydropower project. Photographs will be black and white archival quality (4” x 6”) prints. Features will be plotted on the maps with GPS waypoints and will be extensively described and indexed in the report.
- II.** Reclamation will supplement the Level II Documentation with a descriptive and historical narrative. The narrative will synthesize the existing documentation on 5MN1851.9, 5MN1851.12, and 5MN1851.13, and describe the canal in the context of the development and history of the Uncompahgre Valley area. The narrative will include photographs of the landscape features taken during the cultural resources survey. A Summary Report for the recorded segments, which includes the Level II Documentation and the narrative, will be prepared.
- III.** The South Canal Construction Camp at Tunnel 5 (5MN2348) is not anticipated to be impacted by this project. In the event that the proposed Project plan changes and the South Canal Construction Camp at Tunnel 5 will be impacted, Reclamation will reinitiate consultation with SHPO prior to any construction activities occurring in the South Canal Construction Camp at Tunnel 5 area.
- IV.** Reclamation will submit a copy of the Level II Documentation to the SHPO within one (1) year of the execution of this MOA. The Level II Documentation shall be subject to SHPO review and approval.
- V.** All of the above stipulations must be satisfied prior to construction and/or any earth disturbances within the APE.

VI. DURATION

This MOA will be null and void if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, Reclamation may consult with the other signatories to reconsider the terms of the agreement. Unless terminated pursuant to Stipulation XI, below, this MOA will be in effect through Reclamation’s implementation of the stipulations of this MOA, and will terminate and have no further force or effect when Reclamation, in consultation with the SHPO, determines that the terms of the MOA have been fulfilled in a satisfactory manner.

VII. POST-REVIEW DISCOVERIES

If potential historic properties are discovered or unanticipated effects on historic properties found, the UVWUA shall implement the discovery plan included as Attachment B of this MOA.

VIII. MONITORING AND REPORTING

Each year following the execution of this MOA until its stipulations are carried out, it expires, or is terminated, UVWUA shall provide all parties to this MOA a summary report detailing work carried out pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in UVWUA's efforts to carry out the terms of this MOA.

The signatories may monitor activities pursuant to this MOA, and the Council will review such activities if so requested by a party to this MOA. Reclamation will cooperate with the signatories in carrying out their review and monitoring responsibilities.

IX. DISPUTE RESOLUTION

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, Reclamation shall consult with such party to resolve the objection. If Reclamation determines that such objection cannot be resolved, Reclamation will:

- a. Forward all documentation relevant to this dispute, including Reclamation's proposed resolution, to the ACHP. The ACHP shall provide Reclamation with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, Reclamation shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. Reclamation will then proceed according to its final decision.
- b. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, Reclamation may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, Reclamation shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.
- c. Reclamation's responsibilities to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

X. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

XI. TERMINATION

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other signatories to attempt to develop an amendment per Stipulation X, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

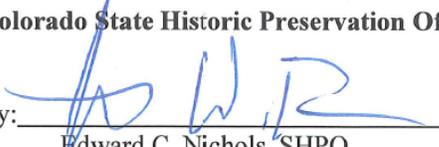
Once the MOA is terminated, and prior to work continuing on the undertaking, Reclamation must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. Reclamation shall notify the signatories as to the course of action it will pursue.

Execution of this MOA by UVWUA, Reclamation and SHPO, and implementation of its terms evidence that Reclamation has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

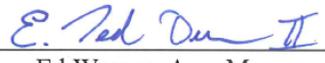
SIGNATORIES:

SIGNATORIES:

Colorado State Historic Preservation Officer

By:  Date: 10/20/15
Edward C. Nichols, SHPO

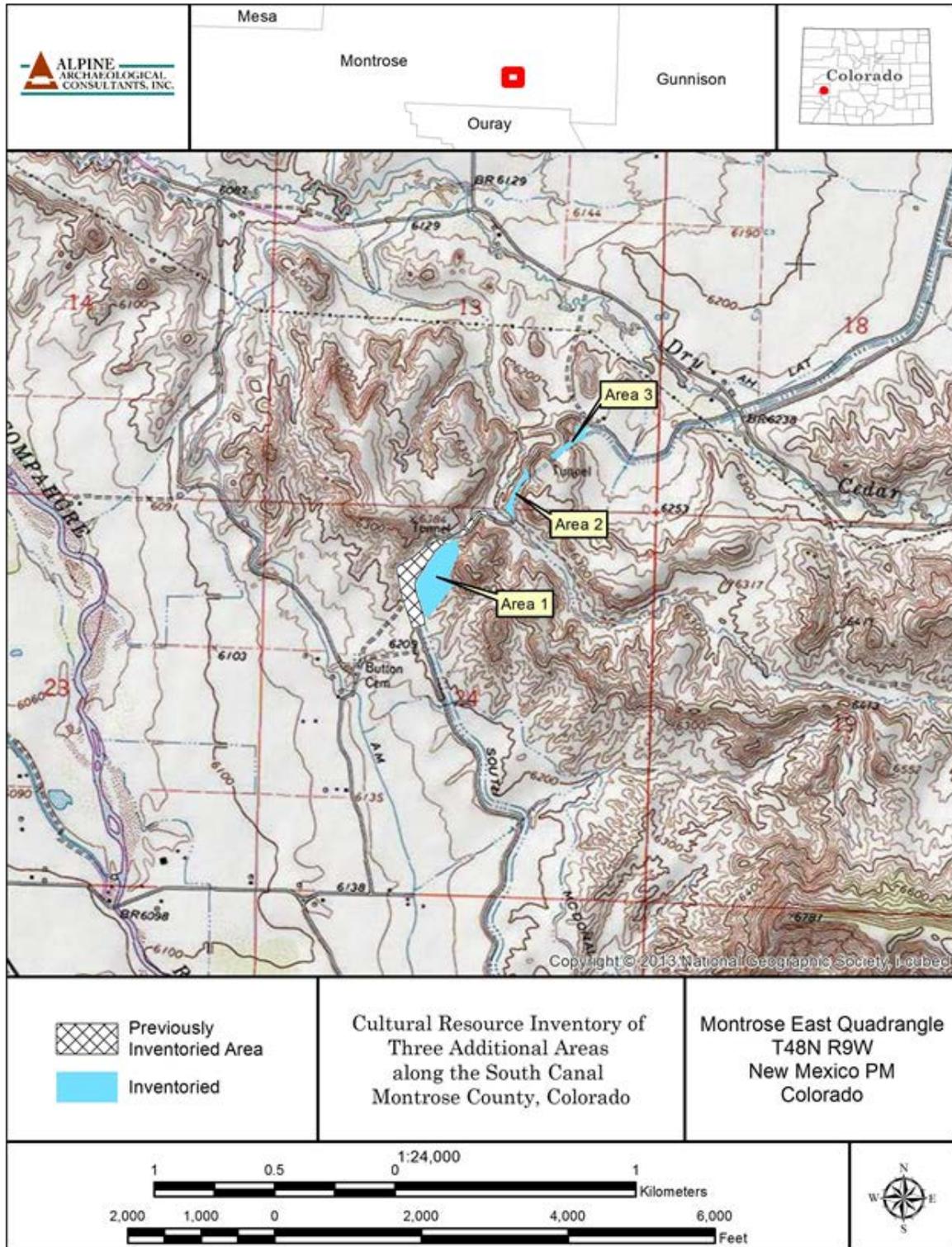
Bureau of Reclamation, Western Colorado Area Office

By:  Date: 10/16/15
for Ed Warner, Area Manager

Uncompahgre Valley Water Users Association

By:  Date: 10/14/15
Steve Fletcher, Manager

ATTACHMENT A – AREA OF POTENTIAL EFFECT



² This map originated from the July 2015 Cultural Survey Report. The APE includes both the Previously Inventoried Area (hatchmarks) and the extended Inventory Area (blue polygons).

ATTACHMENT B – UNANTICIPATED DISCOVERY PLAN

PLAN AND PROCEDURES FOR THE UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES

THE SOUTH CANAL DROP 5 HYDROPOWER PROJECT, UNCOMPAHGRE PROJECT, MONTROSE COUNTY, COLORADO

1. INTRODUCTION

The Uncompahgre Valley Water Users Association (UVWUA) plans construct a hydropower plant on Drop 5 of the South Canal. The purpose of this project is to construct a hydropower plant capable of generating 2.4 MW annually. The following Unanticipated Discovery Plan (UDP) outlines procedures to follow, in accordance with state and federal laws, if archaeological materials are discovered.

2. RECOGNIZING CULTURAL RESOURCES

A cultural resource discovery could be prehistoric or historic. Examples include:

- An accumulation of shell, burned rocks, or other food related materials
- An area of charcoal or very dark stained soil with artifacts,
- Stone tools or waste flakes (i.e. an arrowhead, or stone chips),
- Clusters of tin cans or bottles, logging or agricultural equipment that appears to be older than 50 years,
- Buried railroad tracks, decking, or other industrial materials.

When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

STEP 1: STOP WORK. If any UVWUA employee, contractor or subcontractor believes that he or she has uncovered a cultural resource at any point in the project, all work adjacent to the discovery must stop. The discovery location should be secured at all times.

STEP 2: NOTIFY MANAGER. Notify the Project Manager. The Project Manager will follow the provisions of this Unanticipated Discovery Plan.

STEP 3: NOTIFY BUREAU OF RECLAMATION. Contact the Project Overseer at the Bureau of Reclamation:

Project Manager:
Mr. Steve Fletcher
(970)-249-3813
sfletcher@montrose.net

Reclamation Project Overseer:
Jennifer Ward
970-248-0651
jward@usbr.gov

The Project Manager or the Reclamation Project Overseer will make all other calls and notifications.

If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Do not call 911 or speak with the media.

4. FURTHER CONTACTS AND CONSULTATION

A. Project Manager's Responsibilities:

- Protect Find: The UVWUA Project Manager is responsible for taking appropriate steps to protect the discovery site. All work will stop in an area adequate to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating archaeological/cultural material as set forth in this document.
- Direct Construction Elsewhere On-site: The UVWUA Project Manager may direct construction away from cultural resources to work in other areas prior to contacting the concerned parties.
- Contact CR Manager: If there is a CR Program Manager, and that person has not yet been contacted, the Project Manager will do so.
- Contact Project Overseer: If the Project Overseer at the Bureau of Reclamation has not yet been contacted, the Project Manager will do so.
- Identify Find: The Project Manager will ensure that a qualified professional archaeologist examines the find to determine if it is archaeological.
 - If it is determined not archaeological, work may proceed with no further delay.
 - If it is determined to be archaeological, the Project Manager will continue with notification.
 - If the find may be human remains or funerary objects, the Project Manager will ensure that a qualified physical anthropologist examines the find. If it is determined to be human remains, the procedure described in Section 5 will be followed.

B. Project Overseer's Responsibilities

- Notify SHPO: The Project Overseer will notify the Colorado State Historic Preservation Office (SHPO).

Colorado State Historic Preservation Office:

Mr. Edward C. Nichols
State Historic Preservation Officer
Colorado Historical Society
1200 Broadway
Denver CO, 80203
(303)-866-3355

C. Further Activities

- Archaeological discoveries will be documented as described in Section 6.
- Construction in the discovery area may resume as described in Section 7.

5. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect.

Because the project is a Federal undertaking, the provisions of the Native American Graves Protection and Repatriation Act of 1990 apply, and the Project Overseer will follow its provisions.

In the event possible human skeletal remains are discovered, UVWUA will comply with applicable state and federal laws, and the following procedure:

A. Notify Law Enforcement Agency or Coroner's Office:

In addition to the actions described in Sections 3 and 4, the Project Manager will immediately notify the local law enforcement agency or coroner's office.

The coroner (with assistance of law enforcement personnel) will determine if the remains are human, whether the discovery site constitutes a crime scene, and will notify SHPO.

Montrose County Coroner
(970)-249-7755

B. Further Activities:

When consultation and documentation activities are complete, construction in the discovery area may resume as described in Section 7.

6. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological deposits discovered during construction will be assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The Project Manager will ensure the proper documentation and assessment of any discovered cultural resources in cooperation with the Bureau of Reclamation, SHPO, affected tribes, and a contracted consultant (if any). All prehistoric and historic cultural material discovered during project construction will be recorded by a professional archaeologist in accordance with all state and federal laws.

7. PROCEEDING WITH CONSTRUCTION

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. A professional archaeologist must determine the boundaries of the discovery location. In consultation with SHPO and affected tribes, the Project Manager and Project Overseer will determine the appropriate level of documentation and treatment of the resource.

Construction may continue at the discovery location only after the process outlined in this plan is followed and UVWUA and the Bureau of Reclamation determine that compliance with state and federal laws is complete.

Appendix D – Draft Environmental Commitment Plan

Uncompahgre Valley Water Users Association Drop 5 Hydropower Project Environmental Commitment Plan

This Environmental Commitment Plan (ECP) has been prepared to satisfy the requirements of the National Environmental Policy Act (NEPA). The Bureau of Reclamation is the lead federal agency with primary responsibility for complying with NEPA on the Drop 5 Hydropower Project. As such, Reclamation is responsible for ensuring the environmental commitments are implemented. The Drop 5 Hydropower Project Environmental Assessment recommended mitigation measures to avoid, minimize, rectify, reduce, eliminate or compensate for impacts caused by construction, operation and maintenance of the project. Implementation of the ECP will reduce potentially significant impacts to a less than significant level. The Reclamation group responsible for ensuring each environmental commitment has been implemented or followed by the Uncompahgre Valley Water Users Association (UVWUA) is listed below, as well as the required timing of compliance. U VWUA may utilize this ECP to document compliance with each commitment, and may use this record as a portion of their Environmental Commitment Checklist which will be submitted to Reclamation.

Table 1. UVWUA Drop 5 Hydropower Project Environmental Commitments: Pre-Construction

MITIGATION MEASURE or PROJECT DESIGN FEATURE	AGENCY MONITOR ³	DATE OF COMPLIANCE
An application will be submitted for a Colorado Industrial Stormwater General Permit as provided by the Colorado Department of Public Health and Environment at least ten (10) days prior to the commencement of construction activities.	Reclamation - EPG	
A Storm Water Management Plan will be developed and filed with the Colorado Department of Public Health and Environment.	Reclamation - EPG	
Fuel storage, equipment, maintenance, and fueling procedures will be developed to minimize the risk of spills and impacts from these incidents.	Reclamation - EPG	
A Spill Prevention Control and Countermeasure Plan will be prepared.	Reclamation - EPG	

³ KEY:

Reclamation EPG = Reclamation’s Environmental Planning Group

Reclamation WRG = Reclamation’s Water Resources Group

MITIGATION MEASURE or PROJECT DESIGN FEATURE	AGENCY MONITOR ³	DATE OF COMPLIANCE
All construction equipment will be power-washed and free of soil and debris prior to entering the construction site to reduce the spread of noxious and invasive weeds.	Reclamation - EPG	
All required Clean Water Act Section 404 permits will be obtained.	Reclamation - EPG	
Prior to construction, UVWUA and its contractors will fence or mark the entirety of the project action area, and no work, access, or disturbance will occur outside the fenced/marked area, in order to avoid potential impacts to federally-listed species or cultural resources.	Reclamation - EPG	
In the event of a change in project plans which would require work outside of areas inventoried for threatened and endangered species or cultural resources, Reclamation will be consulted prior to any work to determine if additional surveys are required.	Reclamation - EPG	
To ensure project construction will have no impact on the NRHP-eligible cultural resource located immediately adjacent to the project area, UVWUA and its contractors will install high visibility construction fencing along the project area boundary in the vicinity of the resource, and no construction work, access, or disturbance will occur outside the fenced area.	Reclamation - EPG	
All field work required to complete Level II Documentation of the cultural resources impacted by this project will be completed before construction commences.	Reclamation - EPG	
Best Management Practices, including drainage, erosion control, and sediment control will be implemented to prevent or reduce point source pollution during and following construction.	Reclamation - EPG	
Drainage, erosion control, and sediment control Best Management Practices will be applied around riparian vegetation associated with the Dry Cedar Creek to ensure no fill material enters the creek.	Reclamation - EPG	

Table 2. UVWUA Drop 5 Hydropower Project Environmental Commitments: During Construction

MITIGATION MEASURE or PROJECT DESIGN FEATURE	AGENCY MONITOR	DATE OF COMPLIANCE
Existing access roads will be used to access the construction, staging, and stockpile areas. No new roads will be constructed.	Reclamation - EPG	
Best Management Practices, including drainage, erosion control, and sediment control will be implemented to prevent or reduce point source pollution during and following construction.	Reclamation - EPG	

MITIGATION MEASURE or PROJECT DESIGN FEATURE	AGENCY MONITOR	DATE OF COMPLIANCE
Drainage, erosion control, and sediment control Best Management Practices will be applied around riparian vegetation associated with the Dry Cedar Creek to ensure no fill material enters the creek.	Reclamation - EPG	
Best Management Practices for dust abatement will be followed during construction of the facilities. Watering will be required as necessary to minimize and control dust from cleared areas and along roadways.	Reclamation - EPG	
In the event of discovery of threatened or endangered species, all ground-disturbing activities in the area will immediately cease, and Reclamation will be notified. Work will not be resumed until authorized by Reclamation.	Reclamation - EPG	
Topsoil, where available, will be stockpiled during construction for later use in restoration and revegetation of disturbed areas.	Reclamation - EPG	
In the event of a change in project plans which would require work outside of areas inventoried for threatened and endangered species, Reclamation will be consulted to determine if additional surveys are required.	Reclamation - EPG	
In the event of discovery of evidence of possible cultural or paleontological resources, all ground disturbing activities in the area will immediately cease, and Reclamation will be notified. Work will not be resumed until authorized by Reclamation.	Reclamation - EPG	
If additional areas of impact (for example: access roads, borrow pits, or waste areas) are identified during the course of the undertaking, they will be inventoried for cultural resources and consulted on with the State Historic Preservation Officer. No construction work will occur at or near the additional impact areas until this consultation is completed.	Reclamation - EPG	
The hydropower plant will be constructed in a manner that does not interfere with the irrigation supplies or maintenance of the Uncompahgre Project.	Reclamation - WRG	
Irrigation supplies and canal maintenance access will be maintained during construction at all times. Water supplies to Fairview Reservoir will not be interrupted.	Reclamation - WRG	

Table 3. UVWUA Drop 5 Hydropower Project Environmental Commitments: Post Construction

MITIGATION MEASURE or PROJECT DESIGN FEATURE	AGENCY MONITOR	DATE OF COMPLIANCE
Disturbed land will be re-contoured to prevent erosion, and topsoil, where available, will be stockpiled during construction for later use in revegetation. The Reclamation-approved seed mix included in Appendix F of the Final EA will be used to revegetate disturbed areas, and long-term weed control will be implemented.	Reclamation - EPG	
Level II Documentation as agreed to in the Memorandum of Agreement (MOA) will be submitted to Reclamation within one year of the execution of the MOA.	Reclamation - EPG	
Noxious weed control is required within the limits of the facility for the life of the project. Reclamation will be consulted for acceptable weed control methods, including pesticides/herbicides approved for use on public land. Use of pesticides/herbicides will comply with applicable Federal and state laws. Pesticides/herbicides will be used only in accordance with their registered uses and within imitations imposed by the Secretary of the Interior.	Reclamation - EPG	
The hydropower plant will be operated and maintained in a manner that does not interfere with the irrigation supplies or maintenance of the Uncompahgre Project.	Reclamation - WRG	
The water utilized for power development will be non-consumptive. No new water rights will be appropriated for the purposes of operating the facility. The operation of the facility will not interfere or conflict with the purpose and operations of the Uncompahgre Project, including, but not limited to, the South Canal. There will be no increase in diversions from the Gunnison River solely for hydropower use permitted.	Reclamation - WRG	
The hydropower facility will be operated based on irrigation diversion patterns.	Reclamation - WRG	
Above-ground power line and power pole designs will meet recommended standards as outlined in the Avian Protection Plan Guidelines developed by the US Fish and Wildlife Service and Industry (APLIC 2005). A copy of these standards can be viewed at: http://www.aplic.org/uploads/files/2634/APPguidelines_final-draft_Aprl2005.pdf ,	Reclamation - WRG	
Powerhouses and substations will be non-reflective and painted to blend with the project area background in order to minimize visual impacts.	Reclamation - WRG	

Appendix E – Comments Received During Public Scoping

BLM – UNCOMPAHGRE FIELD OFFICE, COLORADO BUREAU OF RECLAMATION – 3RD PARTY **DRAFT** EA FOR S. CANAL DROP 5 HYDROELECTRIC PROJECT

Comments on Draft EA for Field Office Review Due September 24, 2015

Cmt #	Page #	Section #	BLM Commentor	Comment
1.	14	2.2.2 (pgh3)	Elizabeth Kaufman - Bio	Please refer to comments made under section 3.5, pg22, pgh8 and pg23 pgh3.
2.	20	3.3	Elizabeth Kaufman - Bio	Fuel storage, equipment, maintenance, and fueling procedures should be developed and submitted to CDPHE prior to construction along with SWMP and SPCC.
3.	22	3.5 (pgh2,3, and 4)	Elizabeth Kaufman - Bio	Description of “native vegetation” should not include reference to introduced and invasive species (e.g. “annual wheatgrass”, “Russian knapweed”, “cheat-grass”, “Canada thistle”, “tamarisk”, “halogeton”, and “annual mustards”. It is recommended that this section introduce the federally listed <i>Eriogonum pelinophilum</i> (Clay-loving wild buckwheat), with reference to section 3.7.
4.	22	3.5 (pgh8)	Elizabeth Kaufman - Bio	How will area be restored to pre-project conditions after construction? Due to the probable spread of weeds (e.g. Russian knapweed) on disturbed land during/post construction, how will such effects be minimized? A more complete description of fuel storage, equipment maintenance, and fueling procedures ‘to be developed’ to minimize risk of spills and impacts from such incidents should be included.
5.	23	3.5 (pgh3)	Elizabeth Kaufman - Bio	We recommend a native seed mix be utilized for revegetation, and include species which are not overly competitive with the Clay-loving wild buckwheat. We can assist in recommendations for this. The seed mix should be disclosed prior to application.
6.	35	3.15 (Bullet 3)	Elizabeth Kaufman - Bio	S/A above.
7.	28	3.7 (pgh1)	Elizabeth Kaufman - Bio	At what location within project area was Clay-loving wild buckwheat recorded?
8.	29	3.7 (pgh5)	Elizabeth Kaufman - Bio	We recommend the employment of a 3 rd party bio-monitor to oversee the fencing off of project areas, to ensure the protection of Clay-loving wild buckwheat populations, as well as to offer guidance to work crews, ensure the maintenance of such fencing and compliance to its boundaries.
9.	35	3.15 (Bullet 8)	Elizabeth Kaufman - Bio	S/A above.
10.	29	3.7 (pgh6)	Elizabeth Kaufman - Bio	In the event of discovery of any T/E species, the UVWUA will notify BLM and FWS in addition to Reclamation.
11.	General Comments		Elizabeth Kaufman - Bio	In the event of a change of project plans which would require work in areas with known T/E species, as well as any work to be conducted outside of previously surveyed areas, BLM and FWS will be consulted, in addition to Reclamation, to determine if additional surveys are required before proceeding with any such work.

Cmt #	Page #	Section #	BLM Commentor	Comment
12.	General Comments		Elizabeth Kaufman - Bio	It is strongly recommended that UVWUA and BOR commit to treating Russian knapweed along canal where it has intermingled, and where it is encroaching upon <i>E. pelinophilum</i> populations, as it is having adverse effects which will most likely increase due to disturbances to <i>E. pelinophilum</i> habitat. UVWUA and BOR should consult with USFWS to develop and coordinate an effective plan to treat Russian knapweed (and any other weeds) which is specific to simultaneously controlling such invasives and employs cautionary measures for <i>E. pelinophilum</i> populations.

Appendix F – BLM Recommended Native Seed Mixture

Suggested Native Seed Mix for Restoration in *Eriogonum pelinophilum* Habitat

Species	(A) Desired % of planting	(B) Multiplier (A x 0.01)	(C) PLS lbs for full stand	(D) PLS lbs per acre needed for mix (B x C)	(E) PLS lbs per acre for project (D x # acres)
Bottlebrush squirreltail (<i>Elymus elemoides</i>)	15	0.15	8	1.2	
Galleta Grass (<i>Hilaria</i> or <i>Pleuraphis jamesii</i>)	40	0.4	8	3.2	
Indian Ricegrass (<i>Acnatherum hymenoides</i>) Variety Paloma	20	0.2	8	1.6	
Annual sunflower (<i>Helianthus annuus</i>)	5	0.05	10	0.5	
Shadscale (<i>Atriplex confertifolia</i>)	10	0.10	5	0.5	
Gardner saltbush (<i>Atriplex gardneri</i>)	5	0.05	5	0.25	
Black Sagebrush (<i>Artemisia nova</i>)	5	0.05	1	0.05	
Totals	100	1.0		7.3	

The rate shown is for a drilled seeding, or some other method that incorporates the seed into the soil. Rates should be doubled if the seed is to be aerially applied.