

RECLAMATION

Managing Water in the West

Final Environmental Assessment

South Canal Drop 4 Hydropower Project

Western Colorado Area Office

Upper Colorado Region



August 2014

Table of Contents

CHAPTER 1 – INTRODUCTION	1
PROPOSED ACTION	1
NEED FOR AND PURPOSE OF ACTION.....	1
BACKGROUND INFORMATION	2
Uncompahgre Project.....	2
Lease of Power Privilege	2
PUBLIC SCOPING	3
CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES	4
NO ACTION ALTERNATIVE	4
PROPOSED ACTION	4
South Canal Drop 4.....	5
Hydropower Project Design.....	5
Operation.....	7
SUMMARY	8
CHAPTER 3 – AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES	9
UNCOMPAHGRE PROJECT OPERATIONS AND WATER RESOURCES.....	9
ENERGY AND SOCIOECONOMIC CONDITIONS	11
WETLANDS AND WATER QUALITY	12
FISHERIES.....	14
WILDLIFE AND VEGETATION	15
THREATENED AND ENDANGERED SPECIES	18
RECREATION	20
INDIAN TRUST ASSETS & ENVIRONMENTAL JUSTICE.....	20
CULTURAL RESOURCES	20
AIR QUALITY AND NOISE	21
VISUAL RESOURCES.....	22
CUMULATIVE IMPACTS.....	23
SUMMARY AND ENVIRONMENTAL COMMITMENTS.....	23
Mitigation Measures and Environmental Commitments	23

CHAPTER 4 – CONSULTATION & COORDINATION..... 26
 GENERAL..... 26
 DISTRIBUTION LIST..... 26
 COMMENTS ON DRAFT EA..... 27
REFERENCES..... 29

ATTACHMENT A – Preliminary Lease of Power Privilege (Contract No. 2014-0031-CF-0002)

ATTACHMENT B – Bureau of Land Management’s Uncompahgre Field Office list of Species of Concern

ATTACHMENT C – Draft MOA

ATTACHMENT D – Draft EA Comment

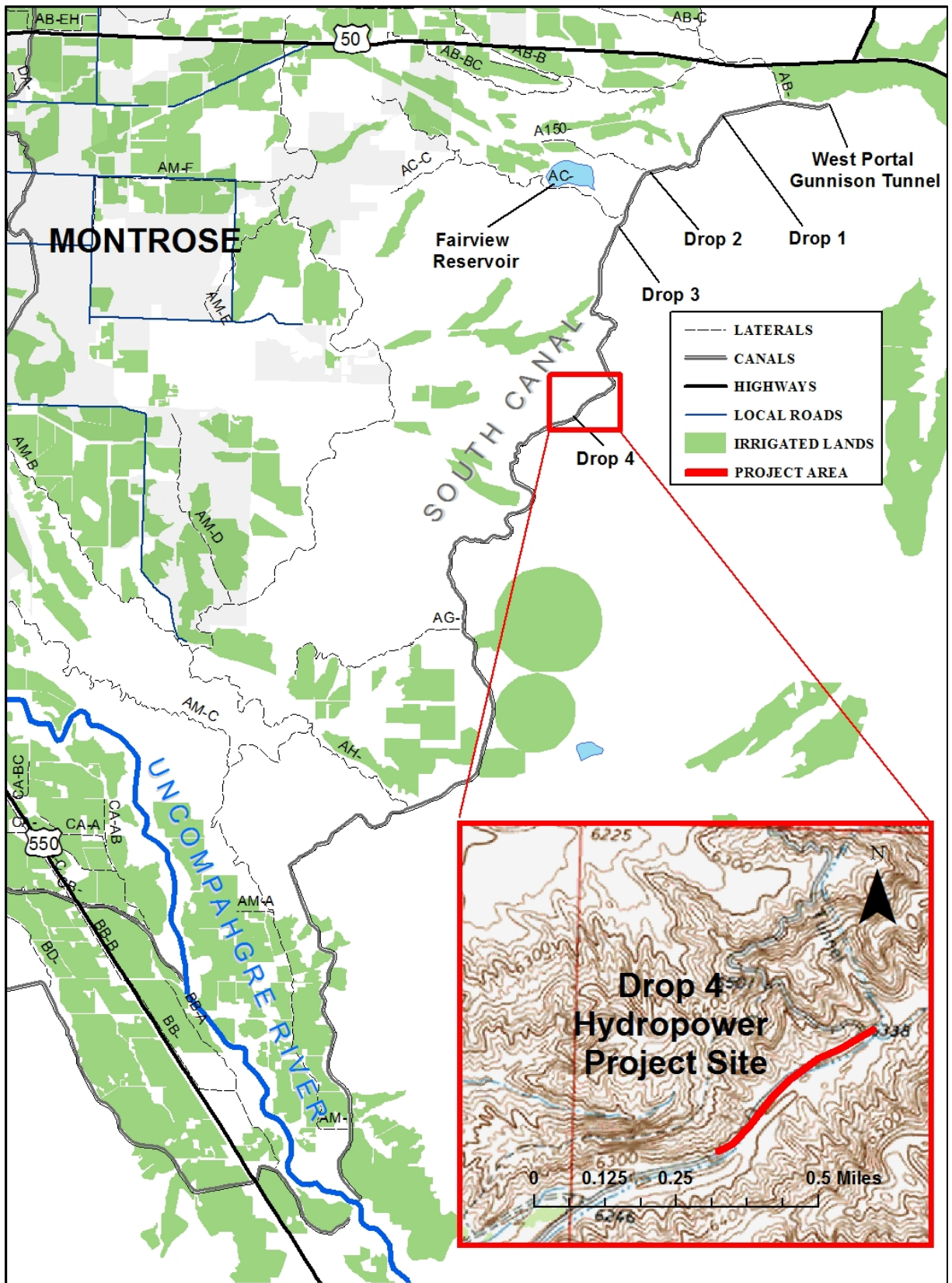


Figure 1. Project Area

CHAPTER 1 – INTRODUCTION

PROPOSED ACTION

The Uncompahgre Valley Water Users Association (UVWUA) has requested approval to develop hydropower at Drop 4 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 with UVWUA. The lease would authorize the use of federal lands, facilities and Uncompahgre Project water to construct, operate and maintain a 4.8 megawatt (MW) hydropower facility. Reclamation would also issue license agreements to allow the construction, operation, and maintenance of 1.27 miles of overhead power lines to connect the new facility to the existing electrical grid. The hydropower project would be located in Montrose County, Colorado, approximately 5.2 miles southeast of the town of Montrose, Colorado as shown in Figure 1.

The Drop 4 hydropower project would be located in a section of the South Canal approximately 0.8 miles downstream from the existing Drop 3 hydropower project completed in 2013. This section of the South Canal drops approximately 71 feet. Water that currently flows through the South Canal would be diverted into a penstock and through the hydropower plant before returning to the Canal to meet irrigation delivery demands downstream. The project also includes 1.27 miles of new overhead interconnection line across federal lands (Bureau of Land Management (BLM) and Reclamation).

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 environmental effects of issuing the LOPP for construction and operation of the Drop 4 hydropower project.

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 4 Hydropower Project is to develop a 4.8 megawatt (MW) hydropower plant on the South Canal at Drop 4 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.

BACKGROUND INFORMATION

Uncompahgre Project

The Uncompahgre Project is an irrigation project in west-central Colorado developed by the Bureau of 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.

To distribute the 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.

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. A LOPP has terms of 40 years, and the general authority includes, 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 a 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 May 14, 2014, a Preliminary Lease of Power Privilege (Contract No. 2014-0031-CF-0002) 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 for reference as Attachment 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.

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 June 12, 2014. Notice of the public meeting was published in the local Montrose Daily Press newspaper.

Reclamation also utilized issues and concerns previously identified during public scoping for another LOPP process for hydropower development of Drops 1 and 3 on the South Canal completed in 2011 and 2012 (Reclamation 2012). Issues identified during that scoping process 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, and
- 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.

NO ACTION ALTERNATIVE

Under this alternative, Reclamation would not issue a LOPP and the proposed hydropower development at Drop 4 on the South Canal would not be constructed at this time.

PROPOSED ACTION

Under the Proposed Action, Reclamation would execute a LOPP to permit UUVWUA to construct, operate, and maintain a 4.8 MW hydropower plant and associated facilities adjacent to the South Canal. The hydropower project would divert water from the South Canal, just above Drop 4, and move the water 1,342 feet downhill through a 10-foot diameter buried penstock to a powerplant, and return the water to the Canal (Figure 2).

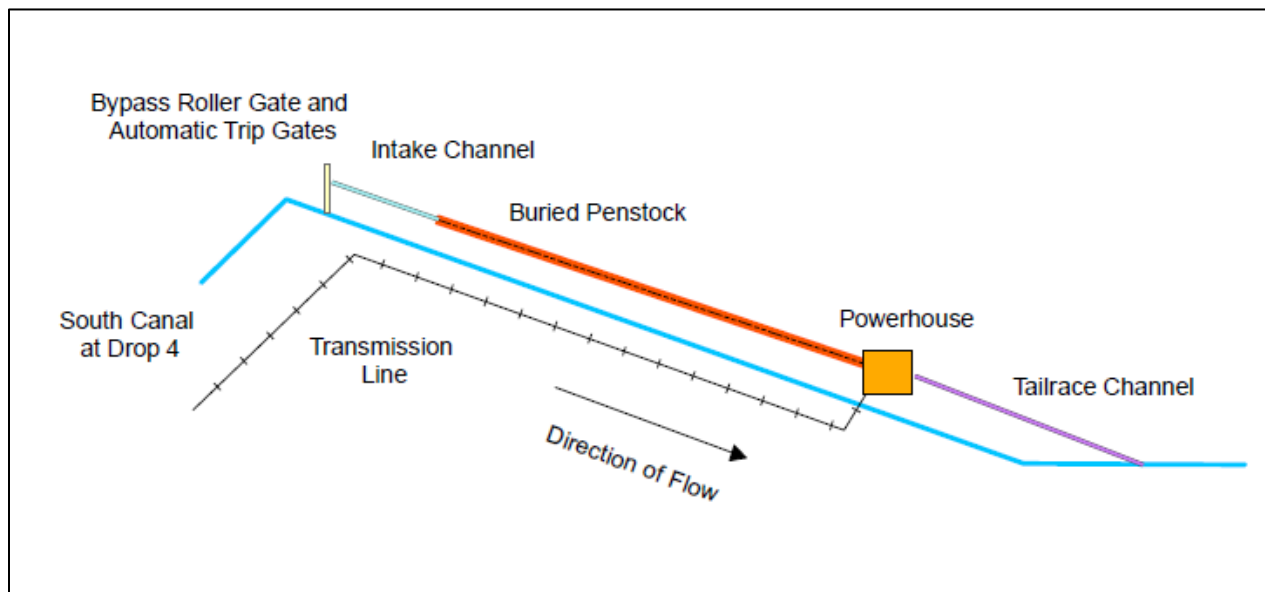


Figure 2. Proposed hydropower project design.

South Canal Drop 4

The original alignment of the South Canal at the Drop 4 site consisted of a 2,312-ft. long concrete channel that included six drop structures. This section was abandoned in 1935 when a concrete chute was built as a Public Works Administration project immediately northwest of the original alignment to bypass the section. The concrete chute is 8-ft. wide with vertical side walls of 6-inch concrete. The chute parallels the abandoned drop structures and runs about 0.5 miles before opening into a wider, concrete lined channel.

Hydropower Project Design

Project designs 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 penstock or hydropower plant are down for repairs or maintenance during the irrigation season. Power produced would be wheeled by the Delta Montrose Electric Association (DMEA) to the Municipal Energy Association of Nebraska (MEAN).

Project designs include construction of an intake to convey flows parallel to the existing canal through 1,342' of 10' diameter repurposed pipe before producing power through the proposed 4.8 MW facility. Flow will then return to the existing canal. This will be a parallel bypass of water and will not alter irrigation deliveries. A summary of the hydropower project features are described in greater detail below. Additional details can be found in the project's supporting design report (Sorenson Engineering 2014):

- 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.
- B. **Intake Channel** – The channel will be adjacent to the existing canal at the upstream end of the project. It will be approximately 900' in length and utilizes the abandoned Drop 4 alignment. Combined in the intake channel are the diversion, bypass, and overflow. The diversion will consist of a 12' wide by 15.75' high roller gate that will be set in the existing concrete canal to divert water to the intake channel. This gate will also be used as a bypass.

The overflow structure will consist of five 10' wide automatic trip gates (ATGs) which 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 the required flows. In conjunction with the ATGs, a 4' long weir wall will be added at the intake to return excess flows to the canal.

- C. **Intake Structure** – The intake portion of the structure will be an approximately 100' long by 30' wide section of new concrete canal to spread and slow the water before entering a deep intake channel. The water will then cross through a bar screen trash removal system to remove debris. It will then enter the 10' diameter penstock pipe placed within the abandoned Drop 4 Canal which will deliver water 1,342' downstream to the powerhouse. During turbine shutdown or startup, the intake roller gate will operate

at rates to match the turbine wicket gates, i.e. maintain constant upstream water level and thus constant movement of flow, including upstream flow modifications.

- D. **Powerhouse** – The powerhouse will be a steel and/or concrete building structure with a steel reinforced concrete foundation. The foundation will embed the turbine housing, steel draft tube, and tailrace stop gates. The building will be approximately 40’ wide by 30’ long and 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 750’ in length and follow the old Drop 4 Canal alignment before returning to the South Canal.
- E. **Turbine** – The turbine will be a vertical double regulated Kaplan. The turbine will be of American/European design built in China, as will be the generator. The turbine manufacturer is represented by Far East Engineering of Boise, Idaho. Nearly identical units were installed on the South Canal Drop 1 and Drop 3 projects constructed earlier this year.

The project will also require 1.27 miles of new overhead power line to connect the new hydropower plant to the power grid. The interconnection line will cross BLM and Reclamation land, originating at the Drop 4 hydropower plant, and will cross adobe hills as it extends to its tie-in at the existing Drop 3 hydropower plant (Figure 3). The power line will initially be owned by Shavano Falls LLC, with possible future ownership transferred to the Delta Montrose Electric Association (DMEA).

Construction of the hydropower facility is currently a private venture; however, UVWUA is considering applying for grants from state and federal sources. Construction is expected to take 10 months at a cost of approximately \$7 million. Construction activities would be coordinated with canal operations and on-going irrigation delivery. Normal irrigation deliveries would be maintained throughout construction. Storage areas and staging areas during construction would be adjacent to the South Canal. Existing roads would be used for construction access, in addition to a new bridge structure and new access roadway which will be constructed across the South Canal between the intake structure and the powerhouse. 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 contoured to prevent erosion, and topsoil, where available, will be stockpiled during construction for later use in re-vegetation. A seeding mix specifically designed for the impact area would be used, and long-term weed control would be implemented. Additional information is found in Chapter 3 under Environmental Commitments.



Figure 3. The yellow line indicates the proposed alignment of the new overhead power line. The blue line represents the location of the South Canal, with brown indicating where the canal is tunneled through the adobe hills.

Operation

UVWUA anticipates that the units would be operated by an automatic computer (unmanned) control 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 of alarm conditions. The facilities will be utility grade with battery system 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 the irrigation supplies.

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. Increases in diversions from the Gunnison River through the Gunnison Tunnel to the South Canal would not be permitted under the LOPP for the hydropower project. Hydropower production would occur in the March through October period. Water resources are discussed further in Chapter 3.

The electricity generated by the Project would provide UVWUA a source of revenue that may be used to defray annual operating expenses.

SUMMARY

Table 1. Summary of potential impacts for alternatives

Resource	No Action Alternative	Hydropower Development at Drop 4
Energy Production	None	15,744 megawatt-hours (MWh) of energy per year.
Wetlands & Riparian Resources	No effect	No effect
Recreation Use	No effect	No effect
Visual Resources	No effect	Minor effects
Fisheries	No effect	No effect
Water Rights	No effect	No change in water rights.
Endangered Species	No effect	No change to endangered fish, no effect to other listed species.
Wildlife and Vegetation	No effect	Temporary impacts associated with construction and maintenance of the hydropower facilities.
Water supply for Irrigation and Municipal Uses	No effect	No effect
Cultural Resources	No effect	Adverse effects to NRHP eligible historic resources, impacts will be mitigated as stipulated in an MOA developed between Reclamation and SHPO.
Air Quality	No effect	Minor changes in air quality during construction associated with fugitive dust. Active dust abatement program implemented to keep changes in air quality to an insignificant level. Offset emission of carbon dioxide (estimated at 32,000,000 to 34,000,000 pounds per year) and other greenhouse gases.
Noise	No effect	Temporary increase of noise levels during construction; distance from any nearby structures combined with enclosure of project equipment will result in no significant long-term effect.
Socio-economics	No effect	Assist in providing a source of renewable energy for MEAN to market to retail municipal utilities throughout Colorado; temporary benefit of increased construction jobs. Increased employment/tax revenues. Long-term benefit to UVWUA members resulting from sale of power.

CHAPTER 3 – AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

This chapter discusses resources that may be affected by actions taken to construct and operate a hydropower plant at Drop 4 on the South Canal. For each resource, existing conditions and impacts are described. This chapter is concluded with a list of environmental commitments.

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 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.

Water deliveries are also periodically made from the South Canal to fill Fairview Reservoir, which supplies municipal and industrial water to Ouray, Montrose, and Delta Counties. Outside the irrigation season, between 50 to 100 cfs is delivered via the Gunnison Tunnel and South Canal for one to two days to refill the reservoir.

Figure 4 shows the range of Gunnison Tunnel diversions based on daily diversion data from 1991 through 2010. The average daily diversion rate during this 20 year period is portrayed by the green line. The average annual diversion volume between 1991 and 2010 was 360,600 acre-feet. 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 daily 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 1991 and 2010.

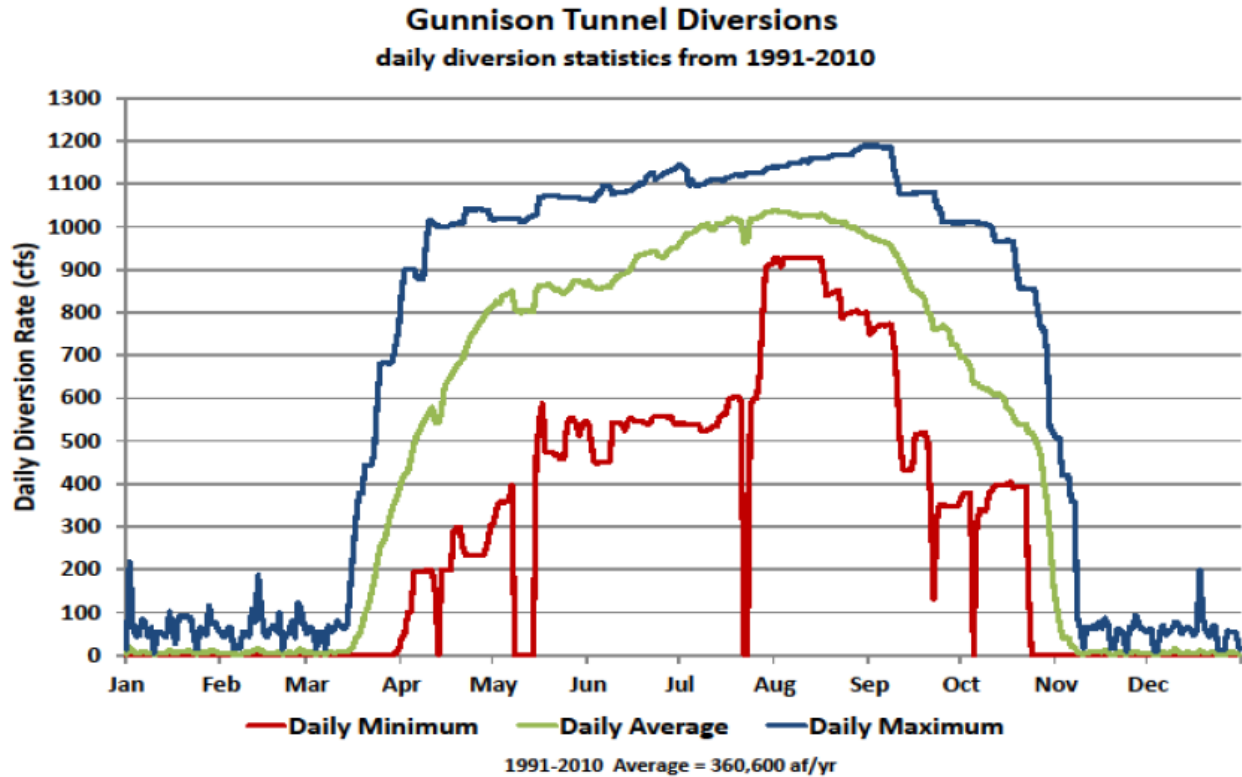


Figure 4- Gunnison Tunnel Diversions, 1991-2010

As can be seen, irrigation diversions generally begin increasing in mid-March, peak in the May through August period, and gradually decreases until the end of October or early November. Diversions in the non-irrigation months are for filling Fairview Reservoir, as discussed above. Total diversions by year are shown in Table 2. It can be seen that there is variability between years based on crop and weather patterns, reservoir storage, and basin water conditions.

Table 2. Annual diversions from the Gunnison River to the South Canal (acre-feet)

Year	Gunnison Tunnel Diversion (af)	Year	Gunnison Tunnel Diversion (af)
1991	361,653	2001	395,524
1992	352,996	2002	360,054
1993	319,246	2003	352,777
1994	363,770	2004	354,890
1995	287,862	2005	360,234
1996	365,832	2006	385,717
1997	278,700	2007	362,228
1998	369,798	2008	360,220
1999	376,640	2009	409,355
2000	395,618	2010	399,586

No Action Alternative: Under the No Action Alternative, 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 4. There would be no change in operations, the timing, or the amount of water diverted into the Gunnison Tunnel. 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.

ENERGY AND SOCIOECONOMIC CONDITIONS

Existing Conditions: Hydropower has been developed previously at two sites along the South Canal, a site on the Montrose and Delta (M&D) Canal known as Shavano Falls, and additional hydropower developments are planned at other locations. The existing and proposed 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 Agency 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 4 to be used to meet future local power demands. Demands for electricity in Delta-Montrose Energy 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 through 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 (Colorado Decision Support Systems). Up to 23,000

acre-feet (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. Project 7 Water Authority provides treatment of the water supplied by a water exchange from Ridgway Reservoir. Because of the physical location of the Project 7 Water Authority's water treatment plant east of Montrose, and because the quality of water in the Gunnison River is superior to that of the Uncompahgre River, an exchange of Ridgway Reservoir storage water with direct flow water from the Gunnison River via the Gunnison Tunnel and South Canal has been established for municipal and industrial water from Ridgway to be used for irrigation.

No Action Alternative: Under the No Action Alternative, UVWUA would not build a hydropower facility at Drop 4 and economic opportunities associated with the hydropower project would be forgone.

Proposed Action: The new hydropower project would produce an estimated average of 15,744 megawatt-hours (MWh) of energy per year based on run of the 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 thus provide 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 results 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 would benefit local communities and businesses, as well as increase tax revenues from taxes collected on these 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.

WETLANDS AND WATER QUALITY

Existing Conditions: The Clean Water Act (CWA) establishes the basic structure for regulating discharges into the 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 has direct connection between the Gunnison River and the Uncompahgre River, and has previously been considered as waters of the United States for other projects.

No Action Alternative: Under the No Action Alternative, there would be no changes in wetlands or water quality in the South Canal.

Proposed Action: Under the Proposed Action, a Section 402 Permit would not be required, unless construction activities occurred during the irrigation season and resulted in direct discharges into waters of the United States. Construction dewatering permits would be required if pumped ground water is directly discharge into to 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. There would be no effect on the water quality of the South Canal.

NWP No. 12 (Utility Line Activities) includes activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2 –acre of waters of the United States for each single and complete project. The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if any of the following criteria are met: 1) the activity involves mechanized land clearing in a forested wetland for the utility line right-of-way; 2) a section10 permit is required; 3) the utility line in waters of the United States, excluding overhead lines, exceeds 500 feet; and 4) the utility line is placed within a jurisdictional area (i.e. water of the United States), and it runs parallel to or along a stream bed that is within that jurisdictional area. Copies of both NWP 12 & 17 can be found at: <http://www.spk.usace.army.mil/Missions/Regulatory/Permitting/NationwidePermits.aspx>.

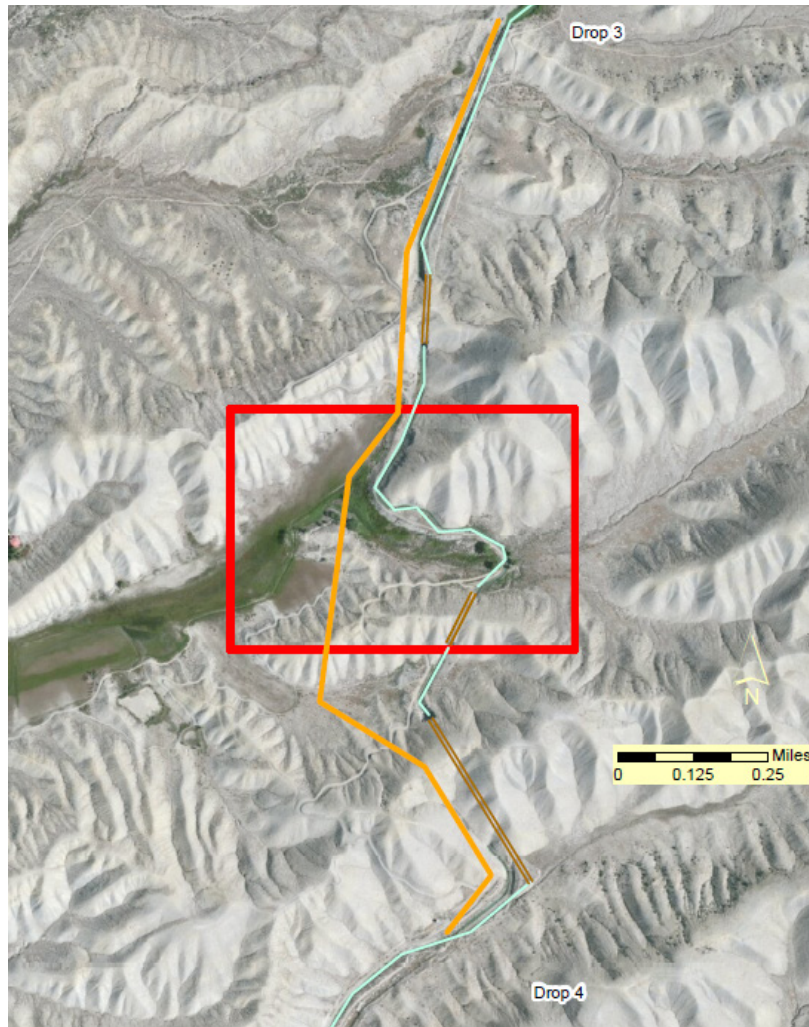


Figure 5. Riparian area supported by canal seepage. The orange line indicates the proposed powerline alignment. The blue line represents South Canal, with the brown sections indicating where the canal tunnels through the adobe hills.

There is one riparian area about 0.6 miles to the north of Drop 4 which appears to be supported only by canal seepage (Figure 5) and is considered non-jurisdictional under the Clean Water Act. Plant species include cattail, tamarisk, coyote willow, and cottonwoods. The proposed powerline alignment crosses through the western edge of this riparian area. The powerpoles are pre-authorized under the requirements of the CWA, as they are wooden and will be anchored directly to the ground. As currently designed, the project will not require pre-construction notification for construction of the power line and meets the requirements for NWP 12.

FISHERIES

Existing Conditions: The Gunnison River, the water source for the South Canal, is an important fishery. Water is diverted by the Gunnison Diversion Dam through the Gunnison Tunnel to the 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 broodstock 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 is expected to be greatly reduced. This benefits both the recreational fishery in the Gunnison River upstream and downstream of the Gunnison Tunnel, and the fishery management programs supported by the reach of the river above the Gunnison Diversion Dam. Recreational fishing and snagging in the South Canal is believed to have been correspondingly reduced or lost as the number of fish diverted into the canal has been reduced. However, the possibility exists that some fish continue to be diverted into the canal, and there is a percentage of mortality to fish that might enter the canal and go through the turbines at Drops 1 and 3. The number of fish that historically traveled through the canal to the Uncompahgre River or West Canal has been reduced. In addition, 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 installation of the fish barrier and the purchase of additional fishing access along the Uncompahgre River by DMEA.

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

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. The electronic fish barrier would continue to deter fish from entering the Gunnison Tunnel, and fish that manage to go through the tunnel would continue to experience a level of mortality by passing through the turbines at Drops 1 and 3. A percentage of fish which successfully pass through turbines at Drops 1 and 3 would experience a level of mortality by passing through the turbine at Drop 4. Because of the electronic fish barrier at the Gunnison Tunnel, fishery conditions in the South Canal are not expected to significantly deviate from existing conditions with the construction of a hydropower facility at Drop 4. No additional mitigation would be required.

WILDLIFE AND VEGETATION

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

The BLM has designated or proposed several Areas of Critical Environmental Concern (Fairview, South Fairview) on public lands to the north and south of the Project area (BLM 2010). These designations are based primarily on the presence of rare endemic vegetation on the adobe hill areas.

Native vegetation in the study area consists of salt desert shrub communities dominated by species of saltbush, with generally sparse vegetation. Mancos shale hills have mat saltbush, shadscale, Gardner saltbush, and black sagebrush. Grasses include bottlebrush squirreltail, galleta, Salina wildrye, Indian rice grass, annual wheatgrass, and cheatgrass. Other species include winterfat, pricklypear 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.

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. Where not concrete-lined, banks of the South Canal support a narrow strip of canary reedgrass, willows, and cattails.

The location of the hydropower project features has been disturbed in the past with significant earth moving due to the original construction of the South Canal, canal rehabilitation projects over the years, access roads and storage areas, disposal of spoil material, and development of borrow areas.

There is a raptor nest in one of the cottonwood trees supported by the riparian area adjacent to the proposed power line. Inspection of the nest found no activity (no birds, green vegetation or droppings), indicating this is not an active nest.

Colorado Parks and Wildlife GIS data (CPW 2014) shows the project area within winter range and severe winter range for both mule deer and elk. The project area is also listed as a winter concentration area for elk. There are no prairie dog towns or known active raptor nests in the hydropower impact area. Waterfowl make occasional use of the low velocity sections of the South Canal outside of the drop area.

Appendix B includes a listing of plant and animal species of special concern developed by the BLM's Uncompahgre Field Office for the general region, and includes species potentially occurring in the Project area.

No Action Alternative: Under the No Action Alternative, a hydropower facility at Drop 4 would be not developed and there would be no changes to the existing wildlife and vegetation conditions.

Proposed Action: Much of the project area has been disturbed in the past with significant earth moving due to the original construction of the South Canal, canal rehabilitation projects over the years, access roads and storage areas, disposal of spoil material, and development of borrow areas.

Construction of the power line will not remove or disturb the inactive raptor nest. However, if the power line construction is delayed until after March 1st, the nest should be revisited, and if active, all construction activities within 1/8 mile avoided until after the nest fledges.

Temporary impacts to wildlife and other vegetation would occur due to the construction of the hydropower facilities. Approximately 12 acres of land would be disturbed during construction of the hydropower facilities at Drop 4. Erosion-control Best Management Practices for drainage and sediment control will be implemented to prevent or reduce nonpoint 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 due primarily to direct disturbance associated with construction. Wildlife may avoid using the area during construction.

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 as a condition of the LOPP, which will benefit native plant and animal species that utilize the area. UVWUA is responsible for consultation with Reclamation for acceptable weed control measures, including pesticides/herbicides approved for use on Reclamation land. 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 re-vegetation. Disturbed areas will be contoured to reduce erosion and facilitate re-vegetation and will be re-seeded with a Reclamation approved seed mixture which contains greasewood and sagebrush. The plan for re-vegetation and related erosion control/re-contouring and implementation will require approval by Reclamation. The UVWUA will work directly with Reclamation and adjacent landowners to re-vegetate disturbed areas and develop appropriate seed mixtures.

To minimize potential impacts to wintering mule deer and elk, construction activities associated with the new power line will be restricted between January 1st and March 31st. Power line construction during the January-March time period may occur during a mild winter, but only after additional discussions with the local Colorado Parks and Wildlife Office. It is anticipated that the majority of other major construction activities associated with the hydropower facilities will occur outside this time period, and disturbances to local deer and elk population is predicted to be minimal.

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

THREATENED AND ENDANGERED SPECIES

Existing Conditions: Table 3 includes species which are listed under the Endangered Species Act as endangered, threatened, or are a candidate for listing which are potentially occurring in Montrose County or in downstream rivers.

Table 3. Special status species in Montrose County

Common Name	Scientific Name	Status	General Habitat
Black-footed ferret	<i>Mustela nigripes</i>	Endangered	Prairie dog towns
Bonytail	<i>Gila elegans</i>	Endangered	Colorado River and major tributaries
Colorado hookless cactus	<i>Sclerocactus glaucus</i>	Threatened	River benches, xeric slopes with cobbles and pebbles
Clay-loving wild buckwheat	<i>Eriogonum pelinophilum</i>	Endangered	Adobe hills
Colorado pikeminnow	<i>Ptychocheilus lucius</i>	Endangered	Colorado River and major tributaries
Greenback cutthroat trout	<i>Oncorhynchus clarki stomias</i>	Threatened	Small, high elevation streams
Gunnison prairie dog	<i>Cynomys gunnisoni</i>	Candidate	Western Montrose County
Gunnison sage grouse	<i>Centrocercus minimus</i>	Proposed Endangered	Colorado plateau, basin big sagebrush
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened	Closed-canopy forests or rocky canyons
North American wolverine	<i>Gulo gulo luscus</i>	Candidate	Mountainous wilderness areas
Skiff milkvetch	<i>Astragalus microcymbus</i>	Candidate	Sagebrush parks
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Proposed Threatened	Riparian, cottonwood woodland

Generated by the U.S. Fish & Wildlife Service's Environmental Conservation Online System on 06/10/2014.

The clay-loving wild 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 of the project's direct and indirect impact area did not record this species (Bio-Logic 2013 and BLM UFO 2014). While the vegetation communities of the surrounding hillsides were typical of suitable Clay-loving buckwheat habitat, the hills themselves were much too steep to be indicative of the plant, which prefers more gradual slopes.

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 endangered bonytail, Colorado pikeminnow, humpback chub, and razorback sucker are found in the Gunnison and/or 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. 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 Fish and Wildlife Service (FWS 2009) 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. 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.

Potential habitat for other listed species does not occur in areas affected by the hydropower project. Designated critical habitat occurs about 18 miles downstream below the confluence of the Gunnison and Uncompahgre rivers.

No Action Alternative: Under the no action alternative, there would be no change in effect to any threatened, endangered, or candidate species in Montrose County, Colorado.

Proposed Action: Under the proposed action, there would be no new effects 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 fish. Water depletions associated with the Uncompahgre Project were consulted on and addressed in the Gunnison Basin Programmatic Biological Opinion (FWS 2009) and no additional consultation is needed for this project.

Vegetation surveys of the Project's direct and indirect impact area did not find any threatened or endangered species. Two surveys were completed for endangered plants: one for the hydropower plant location (Bio-Logic 2013) and one for the powerline alignment (BLM UFO 2014). The construction footprint, powerline corridor and construction access areas were inventoried and no Colorado hookless cactus was identified. The project area is considered to provide marginal habitat for Clay-loving buckwheat. Known clay-loving buckwheat populations occur just east and north of the project area, and changes in project plans may require additional surveys prior to construction.

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 approved by Reclamation.

RECREATION

Existing Conditions: Areas adjacent to any canal and drops are dangerous. The maintenance road along the canal is steep and narrow in places and can be dangerous, especially when wet. For these reasons, public access is not allowed.

No Action Alternative: Under the No Action Alternative, hydropower facilities would not be constructed at Drop 4. There would be no change in recreation from existing conditions.

Proposed Action: Under the proposed action, hydropower facilities would be constructed at Drop 4. The water course created by the South Canal spill water will be located within the buried penstock, which will alter the ambience of the water coursing down-gradient. The project would have no effect on recreation.

INDIAN TRUST ASSETS & ENVIRONMENTAL JUSTICE

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 ITA's in the project area, and therefore no impacts are projected.

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 project, and therefore, no impacts are predicted under the alternatives.

CULTURAL RESOURCES

Existing Conditions: The project impact area has been inventoried for cultural resources (Alpine 2013). 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 the South Canal Construction Camp at Tunnel 3 is eligible for inclusion on the NRHP. The Colorado State Historic Preservation Officer (SHPO) has reviewed and concurred with Reclamation 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 in divisions 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 South Canal Construction Camp at Tunnel 3 is a historic labor camp associated with construction of the South Canal. The camp is on the portion of the South Canal constructed between September 1905 and October 1907.

No Action Alternative: Under the No Action Alternative, no hydropower facilities would be constructed at Drop 4. There would be no impact to cultural resources.

Proposed Action: Under the proposed action, hydropower facilities would be constructed at Drop 4. Reclamation determined that the proposed project will adversely affect NHPA eligible cultural resources and has consulted with the SHPO. A Memorandum of Agreement (MOA) between Reclamation and the SHPO to mitigate the effects is being finalized. A draft of the MOA is included as Attachment C. The MOA will be executed and mitigation measures implemented prior to commencing with construction.

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 approved by Reclamation.

If any 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 SHPO. No construction work will occur at or near the additional impact area until this consultation is completed.

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 2013). Agricultural operations and construction activities can be sources of dust pollution during wind events in the general region.

There are no significant noise sources or problems in the project area. The primary source of noise in the project area is the noise of flowing water in the South Canal over Drop 4.

No Action Alternative: Under the No Action Alternative, no hydropower facilities would be constructed at Drop 4. 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 4.

There would be minor noise impacts during excavation for the powerplant and from construction traffic. During operation, the turbines and generators would produce machinery noise, representing a new potential noise source; however, such equipment would be fully enclosed, located a considerable distance from any dwellings, and should have no discernible impact.

After construction of the project facilities, the distance from and enclosure of equipment to any residences will drop noise associated with operations of the hydropower facilities below detectable levels.

There would be short-term dust impacts during excavation work, although this is predicted to be insignificant because dust abatement Best Management Practices 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 2012 “the average annual electricity consumption for a U.S. residential customer was 10,837 kWh.” With an average annual energy generation of 15,744,000 kWh, the Drop 4 hydropower project would provide enough clean energy to power 1,453 homes each year. Table 4 has been modified to demonstrate the number of pounds of CO₂ that could be removed annually for the average U.S. household utilizing steam-electric generators in 2012 for the specific fuels identified (EIA 2013). Reclamation estimates that Carbon dioxide emissions would be reduced by an estimated 32,000,000 to 34,000,000 pounds per year based on the size of the hydropower project and the Energy Information Administration’s reduction numbers.

Table 4. Drop 4 Hydroelectric Development Associated Carbon Reduction

Fuel Type: Coal	Lbs of CO ₂ per Million Btu	Heat Rate (Btu per kWh)	Lbs CO ₂ per kWh	Lbs of CO ₂ removed when using clean energy
Bituminous	205.300	10,107	2.08	32,747,520
Sub-bituminous	212.700	10,107	2.16	34,007,040
Lignite	215.400	10,107	2.18	34,321,920

Last updated: April 17, 2014 (<http://www.eia.gov/tools/faqs/faq.cfm?id=74&t=11>)

VISUAL RESOURCES

Existing Conditions: The BLM uses a Visual Resource Management (VRM) system to assess visual resources. BLM lands in the vicinity of Drop 4 are VRM Class IV, a category that accepts major modifications in the landscape. The visual appearance of the landscape along the South Canal is dominated by Mancos Shale adobe hills with irrigated land developed along flats below the canal. Lands west or downhill from the canal show considerable modification to the landscape by the construction of ditches and roads, maintenance activities, and agricultural development. Lands east or uphill from the canal show less evidence of development and have a more natural appearance.

No Action Alternative: Under the No Action Alternative, no hydropower facilities would be constructed at Drop 4. There would be no changes to visual resources.

Proposed Action: Under the proposed action, approximately 1.27 miles of new power line would be constructed across BLM and Reclamation land to connect power generated at the proposed hydropower station to the grid. Power poles would be painted with colors to blend with the existing landscape and would be non-reflective. Disturbed areas would be contoured and re-vegetated. Construction material and existing debris from previous construction would be disposed of at designated landfills.

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. Overall, the construction of the hydropower plant would not result in significant cumulative impacts.

SUMMARY AND ENVIRONMENTAL COMMITMENTS

The primary effect of the proposed action would be to develop a renewable energy resource. 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.

Mitigation Measures and Environmental Commitments

The following measures will be implemented and followed by UVWUA and its contractors. The LOPP requires that these commitments be followed and met. An environmental commitment plan will be prepared 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 is required to be operated 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 areas. No new access roads will be constructed. A new bridge structure has already been constructed by UVWUA across the South Canal between the intake structure and the powerhouse to allow for improved access.
- Erosion-control Best Management Practices for drainage and sediment control will be implemented to prevent or reduce nonpoint source pollution during and following construction.
- All construction equipment shall be power-washed and free of soil and debris prior to entering the construction site to reduce the spread of noxious and unwanted weeds.
- Topsoil, where available, will be stockpiled during construction for later use in re-vegetation. Disturbed areas will be contoured to reduce erosion and facilitate re-

vegetation. Disturbed areas will be re-seeded with a Reclamation approved seed mixture which includes greasewood and sagebrush. The plan for re-vegetation and related erosion control/re-contouring and implementation will require approval by Reclamation.

- Dust abatement Best Management Practices will be undertaken in all areas disturbed during 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.
- 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) which may be needed for dewatering or other activities.
- 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 approved by Reclamation.
- In the event of a change in project plans which would require work outside of areas inventoried for clay-loving wild buckwheat, Reclamation will be consulted to determine if additional surveys are required.
- To minimize potential impacts to wintering mule deer and elk, construction activities associated with the new power line will be restricted between January 1st and March 31st. Power line construction during the January-March time period may occur during a mild winter, but only after additional discussions with the local Colorado Parks and Wildlife Office.
- All new power lines and power poles will follow the recommended standards as outlined in the *Avian Protection Plan Guidelines* developed by the US Fish and Wildlife Service and Industry (Edison Electric Institute 2005). A copy these standards can be viewed at: http://www.aplic.org/uploads/files/2634/APPguidelines_final-draft_April2005.pdf
- If the power line construction is delayed until after March 1st, the nearby raptor nest should be revisited. If active, all construction activities within 1/8 mile of the nest should be avoided until after the nest fledges.
- 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 approved by Reclamation.
- Cultural mitigation measures agreed to in a Memorandum of Agreement with the Colorado State Historic Preservation Officer will be completed by UVWUA before project construction commences.
- If any 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 SHPO. No construction work will occur at or near the additional impact area until this consultation is completed.
- Powerhouses and substations will be non-reflective and painted to blend with the project area background.
- 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. 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. A copy of the Montrose County Weed Management Plan is available at: <http://www.montrosecounty.net/162/Weed-Mitigation>.
- Disturbance to nearby shrubs and other ground cover will be kept to a minimum, with disturbance occurring only in those areas which are absolutely necessary for project construction.

CHAPTER 4 – CONSULTATION & COORDINATION

GENERAL

The public was invited to attend a negotiation meeting between Reclamation and UVWUA. The meeting was held on June 12, 2014 in Montrose to discuss the terms and conditions associated with the construction and operation of the South Canal Drop 4 Hydropower Project. Reclamation also used this public meeting to provide an opportunity for the public to identify issues and concerns with the proposed project. No interested parties attended the meeting. 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, and the Montrose & Delta Canal at Shavano Falls in preparing this draft EA.

In addition, Reclamation has conducted consultations with the Colorado State Historic Preservation Officer under Section 106 of the National Historic Preservation Act and the U.S. Fish and Wildlife Service under the Endangered Species Act. Results of these consultations have been incorporated into the project analysis and discussions in Chapter 3.

Availability of the draft EA was announced through a press release and through a distribution letter sent to nearby landowners and interested agencies. A draft EA was distributed for agency review and comment on July 24, 2014. Comments were requested by August 8, 2014.

DISTRIBUTION LIST

News Releases announced the availability of the Draft EA, and the EA was placed on Reclamation's website at: www.usbr.gov/uc/ under environment documents. The draft EA was also announced in a distribution letter to an updated mailing list as shown below:

- Colorado State Representatives
- Colorado State Senator
- Delta County Commission, Delta CO
- Montrose County Commission, 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
- Corps of Engineers, Grand Junction CO
- U.S. Environmental Protection Agency, Denver CO
- U.S. Geological Survey, Grand Junction CO
- Individuals and Landowners

COMMENTS ON DRAFT EA

A total of one written comment was received on the Draft EA, and a copy is provided as Attachment D.

Comment Letter – Colorado Parks and Wildlife

Comment: The proposed project lies inside CPW mapped winter range for mule deer, and is occupied by chucker and Gambel’s quail. To offset impacts to wildlife, the following steps could be taken:

- 1) Minimizing construction, operations and maintenance from December 1st through April 31st each year to reduce impacts to wintering mule deer.
- 2) Minimize impacts to shrubs and other ground cover. Gamble’s quail and chukar rely on the shrubs for feeding, nesting and cover.

Response: Reclamation held an onsite meeting on August 22, 2014 with District Wildlife Manager Matt Ortega. The project was discussed, along with potential impacts to wintering mule deer. It was agreed upon to add an additional environmental commitment to the Final EA which requires UVWUA to consult with Colorado Parks and Wildlife prior to approving construction of the new power line if construction will occur between January 1st and March 31st. If the winter is mild, Colorado Parks and Wildlife may support additional power line construction activities within the January-March time period. In addition, UVWUA is committed to completing most major construction activities at the hydropower site prior to the critical winter months, which would minimize disturbances to wintering mule deer and elk .

Impacts to shrubs and other ground cover in the project area will be kept to a minimum. It was agreed upon that the Reclamation approved seed mixture for revegetation after project completion will include greasewood and sagebrush.

REFERENCES

- Alpine 2013. Cultural Resource Inventory of Three Potential Hydropower Sites, Montrose County, Colorado. Alpine Archaeological Consultants, Inc. October 2013.
- APLIC 2005. Avian Protection Plan (APP) Guidelines. The Edison Electric Institute's Avian Power Line Interaction Committee and U.S. Fish and Wildlife Service. April 2005.
- BLM 2010. Draft Evaluation of Proposed and Existing Areas of Critical Environmental Concern for the Uncompahgre Planning Area. Bureau of Land Management Uncompahgre Field Office. June 2010. Accessed on June 10, 2014. Website at: http://www.blm.gov/pgdata/etc/medialib/blm/co/field_offices/uncompahgre_field/rmp/rmp_docs.Par.96192.File.dat/Draft%20ACEC%20Report%20071510.pdf.
- BLM UFO 2014. South Canal Hydroelectric Project Survey for the Federally Endangered Clay-loving Wild Buckwheat (*Eriogonum pelinophilum*). Bureau of Land Management Uncompahgre Field Office. May 2014.
- Bio-Logic, Inc. 2013. Sorenson Engineering & Uncompahgre Valley Water Users Association South Canal and Montrose & Delta Canal Hydroelectric Projects Rare Plant Survey Report. BIO-Logic, Inc. Natural Resource Consultants, Montrose, Colorado. October 10, 2013.
- CPW 2014. Resource Stewardship Geographic Information System (GIS). Colorado Parks and Wildlife. Accessed on August 26, 2014. Website at: <http://cpw.state.co.us/aboutus/Pages/ResourceStewardshipGIS.aspx>
- EPA 2013. Currently Designated Nonattainment Areas for all Criteria Pollutants. Environmental Protection Agency. December 5, 2013. Accessed on June 10, 2014. Website at: <http://www.epa.gov/airquality/greenbook/anc13.html>.
- FWS 2009. Final Gunnison River Basin, Programmatic Biological Opinion. Fish and Wildlife Service, Ecological Services, Colorado Field Office, Denver, Colorado. December 4, 2009.
- Reclamation 2012. Final Environmental Assessment South Canal Hydropower Project. Bureau of Reclamation, Western Colorado Area Office. February 2012.
- Sorenson Engineering 2014. Supporting Design Report for South Canal Drop 4 Hydroelectric Project. Rep. Idaho Falls, Idaho: Sorenson Engineering, 2014.
- WECC 2004. 10-Year Coordinated Plan Summary; Planning and Operation for Electric System Reliability. Western Electricity Coordinating Council, 2004. Accessed on June 10, 2014. Website at: <http://www.wecc.biz/library/WECC%20Documents/Publications/10->

[Year%20Coordinated%20Plan%20Summaries/2004-2013%2010-Year%20Coordinated%20Plan%20Summary.pdf](#)

Contract No. 2014-0031-CF-0002

**PRELIMINARY LEASE AND FUNDING AGREEMENT
BETWEEN
BUREAU OF RECLAMATION
AND
UNCOMPAHGRE VALLEY WATER USERS ASSOCIATION
FOR
SOUTH CANAL DROP 4 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 on the western slope of the Rocky Mountains 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 4 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 4.

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 4, 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 U.S. 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 provide Reclamation with representatives to 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 a 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.

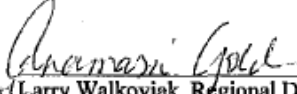
12. GENERAL PROVISIONS

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.

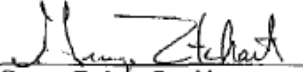
12.2 No Member of or Delegate to the Congress, Resident Commissioner, or official of the Association shall benefit from this Agreement, other than as a water user or landowner in the same manner as other water users or landowners.

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.


Larry Walkoviak, Regional Director
Upper Colorado Regional Office
Bureau of Reclamation

5/14/14
Date


George Etchart, President
Uncompahgre Valley Water Users Association

5-6-14
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 4, 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

ATTACHMENT B – Bureau of Land Management’s Uncompahgre Field Office list of Species of Concern

**BLM Uncompahgre Field Office
Special Status Species and Birds of Conservation Concern
Last Update: November 18, 2013**

THREATENED AND ENDANGERED SPECIES OF THE UFO ¹			
SPECIES	STATUS	HABITAT DESCRIPTION ²	DESIGNATED CRITICAL HABITAT IN FIELD OFFICE?
Black-footed ferret ⁴ <i>Mustela nigripes</i>	E	Prairie dog colonies for shelter and food; >200 acres of habitat with at least 8 burrows/acre	No
Bonytail <i>Gila elegans</i>	E	Warm-waters of the Colorado River mainstem and tributaries, some reservoirs; flooded bottomlands for nurseries; pools and eddies over rocky substrates with silt-boulder mixtures for spawning; no designated critical habitat in UFO	No
Clay-loving wild buckwheat <i>Eriogonum pelinophilum</i>	E	Mancos shale badlands in salt desert shrub communities, often with shadscale, black sagebrush, and mat saltbush; 5200' – 6400' in elevation	Yes
Colorado pikeminnow <i>Ptychocheilus lucius</i>	E	Warm-waters of the Colorado River mainstem and tributaries; deep, low velocity eddies, pools, runs, and nearshore features; uninterrupted streams for spawning migration and young dispersal; also floodplains, tributary mouths, and side canyons; highly complex systems	Yes
Humpback chub <i>Gila cypha</i>	E	Warm-water, canyon-bound reaches of Colorado River mainstem and larger tributaries; turbid waters with fluctuating hydrology; young require low-velocity, shoreline habitats such as eddies and backwaters; no designated critical habitat in	No
Razorback sucker <i>Xyrauchen texanus</i>	E	Warm-water reaches of the Colorado River mainstem and larger tributaries; some reservoirs; low velocity, deep runs, eddies, backwaters, sidecanyons, pools, eddies; cobble, gravel, and sand bars for spawning; tributaries, backwaters, floodplain for nurseries	Yes
Southwestern willow flycatcher ⁵ <i>Empidonax traillii extimus</i>	E	For breeding, riparian tree and shrub communities along rivers, wetlands, and lakes; for wintering, brushy grasslands, shrubby clearings or pastures, and woodlands near water	No
Uncompahgre fritillary butterfly ⁵ <i>Boloria acrocneuma</i>	E	Restricted to moist, alpine slopes above 12,000' in elevation with extensive snow willow patches; restricted to San Juan Mountains	No
Canada lynx <i>Lynx canadensis</i>	T	Spruce-fir, lodgepole pine, willow carrs, and adjacent aspen and mountain shrub communities that support snowshoe hare and other prey	No

Colorado hookless cactus <i>Sclerocactus glaucus</i>	T	Salt-desert shrub communities in clay soils on alluvial benches and breaks, toe slopes, and deposits often with cobbled, rocky, or graveled surfaces; 4500' – 6000' in elevation	No
Greenback cutthroat trout <i>Oncorhynchus clarki stomias</i>	T	Cold water streams and lakes with adequate spawning habitat (riffles), often with shading cover; young shelter in shallow backwaters	No
Mexican spotted owl ⁵ <i>Strix occidentalis</i>	T	Mixed-conifer forests and steep-walled canyons with minimal human disturbance	No
Gunnison sage grouse ⁷ <i>Centrocercus minimus</i>	PE	Sagebrush communities (especially big sagebrush) for hiding and thermal cover, food, and nesting; open areas with sagebrush stands for leks; sagebrush-grass-forb mix for nesting; wet meadows for rearing chicks	Proposed
North American Wolverine <i>Gulo gulo luscus</i>	PT	Alpine and arctic tundra, boreal and mountain forests (primarily coniferous). Limited to mountains in the south, especially large wilderness areas. Usually in areas with snow on the ground in winter. Riparian areas may be important winter habitat. May disperse through atypical habitat. When inactive, occupies den in cave, rock crevice, under fallen tree, in thicket, or similar site. Terrestrial and may climb trees.	Not yet designated
Western yellow-billed cuckoo ⁶ <i>Coccyzus americanus</i>	PT	Riparian, deciduous woodlands with dense undergrowth; nests in tall cottonwood and mature willow riparian, moist thickets, orchards, abandoned pastures	Not yet designated

¹ U.S. Fish and Wildlife Service. 2009. Federally listed species in Colorado. Official correspondence, February.

² Van Reyper G. 2006. Bureau of Land Management TES [threatened, endangered, sensitive] species descriptions. Uncompahgre Field Office, Montrose, CO, updated 2009/2010. Unpublished document.

³ Assessment based on UFO files and GIS data, partner data, and local knowledge.

⁴ Black-footed ferret believed to be extirpated from this portion of its range.

⁵ Species not known to occur within UFO boundaries, but known to occur in close proximity.

⁶ Federal candidate species; in accordance with BLM policy and Manual 6840, candidate and proposed species are to be managed and conserved as BLM sensitive species. For the Gunnison prairie dog, candidate status includes only those populations occurring in the "montane" portion of the species' range.

⁷ U.S. Fish and Wildlife Service. 2013. 78FR2486 Proposed Listing, 78FR7540 Proposed Critical habitat.

BLM SENSITIVE SPECIES OF THE UFO ¹		
SPECIES	HABITAT DESCRIPTION ^{2,3}	POTENTIAL AND/OR KNOWN OCCURRENCES IN PROJECT AREA ⁴
<i>FISH</i>		
Roundtail chub <i>Gila robusta</i>	Warm-water rocky runs, rapids, and pools of creeks and small to large rivers; also large reservoirs in the upper Colorado River system; generally prefers cobble-rubble, sand-cobble, or sand-gravel substrate	
Bluehead sucker <i>Catostomus discobolus</i>	Large rivers and mountain streams, rarely in lakes; variable, from cold, clear mountain streams to warm, turbid streams; moderate to fast flowing water above rubble-rock substrate; young prefer quiet shallow areas near shoreline	
Flannelmouth sucker <i>Catostomus latipinnis</i>	Warm moderate- to large-sized rivers, seldom in small creeks, absent from impoundments; pools and deeper runs often near tributary mouths; also riffles and backwaters; young usually in shallower water than are adults	
Colorado River cutthroat trout <i>Oncorhynchus clarki pleuriticus</i>	Cool, clear streams or lakes with well-vegetated streambanks for shading cover and bank stability; deep pools, boulders, and logs; thrives at high elevations	
<i>MAMMALS</i>		
Desert bighorn sheep <i>Ovis canadensis nelsoni</i>	Steep, mountainous or hilly terrain dominated by grass, low shrubs, rock cover, and areas near open escape and cliff retreats; in the resource area, concentrated along major river corridors and canyons	
White-tailed prairie dog <i>Cynomys leucurus</i>	Level to gently sloping grasslands and semi-desert grasslands from 5,000' – 10,000' in elevation	
Kit fox <i>Vulpes macrotis</i>	Semi-desert shrublands of saltbrush, shadscale and greasewood	
Gunnison's prairie dog ¹⁰ <i>Cynomys gunnisoni</i>	Level to gently sloping grasslands, semi-desert shrublands, and montane shrublands, from 6,000'-12,000 in elevation	
Allen's (Mexican) 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.	

Big free-tailed bat <i>Nyctinomops macrotis</i>	Rocky areas and rugged terrain in desert and woodland habitats; roosts in rock crevices in cliffs and in buildings caves, and occasionally tree holes	
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	
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	
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	
<i>BIRDS</i>		
Bald eagle ⁵ <i>Haliaeetus leucocephalus</i>	Nests in forested rivers and lakes; winters in upland areas, often with rivers or lakes nearby	
American peregrine falcon ⁵ <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	
Northern goshawk <i>Accipiter gentilis</i>	Nests in a variety of forest types including deciduous, coniferous, and mixed forests including ponderosa pine, lodgepole pine, or in mixed-forests with fir and spruce; also nest in aspen or willow forests; migrants and wintering individuals can be observed in all coniferous forest types	
Ferruginous hawk <i>Buteo regalis</i>	Open, rolling and/or rugged terrain in grasslands and shrubsteppe communities; also grasslands and cultivated fields; nests on cliffs and rocky outcrops	
Burrowing owl ⁹ <i>Athene cunicularia</i>	Level to gently sloping grasslands and semi-desert grasslands; Prairie dog colonies for shelter and food	
Columbian sharp-tailed grouse ⁶ <i>Tympanuchus phasianellus columbian</i>	Native bunchgrass and shrub-steppe communities for nesting; mountain shrubs including serviceberry are critical for winter food and escape cover	Extirpated
Long-billed curlew <i>Numenius americanus</i>	Lakes and wetlands and adjacent grassland and shrub communities	Spring/ fall migrant, non-breeding
White-faced ibis <i>Plegadis chihii</i>	Marshes, swamps, ponds and rivers	Spring/ fall migrant, non-breeding

American white pelican <i>Pelecanus erythrorhynchos</i>	Typically large reservoirs but also observed on smaller water bodies including ponds; nests on islands	
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	
Black swift ⁹ <i>Cypseloides niger</i>	Nests on precipitous cliffs near or behind high waterfalls; forages from montane to adjacent lowland habitats	
<i>REPTILES AND AMPHIBIANS</i>		
Longnose leopard lizard <i>Gambelia wislizenii</i>	Desert and semidesert areas with scattered shrubs or other low plants; e.g., sagebrush; areas with abundant rodent burrows, typically below 5,000' in elevation	
Midget faded rattlesnake ⁷ <i>Crotalus viridis concolor</i>	Rocky outcrops for refuge and hibernacula, often near riparian; upper limit of 7500'-9500' in elevation	
Milk snake <i>Lampropeltis triangulum taylori</i>	Variable types including shrubby hillsides, canyons, open ponderosa pine stands and pinyon-juniper woodlands, arid river valleys and canyons, animal burrows, and abandoned mines; hibernates in rock crevices	
Northern leopard frog ⁸ <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	
Canyon treefrog <i>Hyla arenicolor</i>	Rocky canyon bottoms along intermittent or perennial streams in temporary or permanent pools or arroyos; semi-arid grassland, pinyon-juniper, pine-oak woodland, scrubland, and montane zones; elevation 1000' - 10,000'	
Boreal toad <i>Anaxyrus boreas boreas</i>	Mountain lakes, ponds, meadows, and wetlands in subalpine forest (e.g., spruce, fir, lodgepole pine, aspen); feed in meadows and forest openings near water but sometimes in drier forest habitats	
<i>PLANTS</i>		
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; elevation 4800' - 6200'	
Naturita milkvetch <i>Astragalus naturitensis</i>	Cracks and ledges of sandstone cliffs and flat bedrock area typically with shallow soils, within pinyon-juniper woodland; elevation 5400' - 6700'	
San Rafael milkvetch <i>Astragalus rafaelsensis</i>	Banks of sandy clay gulches and hills, at the foot of sandstone outcrops, or among boulders along dry watercourses in seleniferous soils derived from shale or sandstone formations; elevation 4500'- 5300'	
Sandstone milkvetch <i>Astragalus sesquiflorus</i>	Sandstone rock ledges (Entrada formation), domed slickrock fissures, talus under cliffs, sometimes in sandy washes; elevation 5000' - 5500'	

Gypsum Valley cateye <i>Cryptantha gypsophila</i>	Confined to scattered gypsum outcrop and grayish-white, often lichen-covered, soils of the Paradox Member of the Hermosa Formation; often the dominant plant at these sites; elevation 5200' – 6500'	
Fragile (slender) rockbrake <i>Cryptogramma stelleri</i>	Cool, moist, sheltered calcareous cliff crevices and rock ledges	
Kachina daisy (fleabane) ⁹ <i>Erigeron kachinensis</i>	Saline soils in alcoves and seeps in canyon walls; elevation 4800' – 5600'	
Montrose (Uncompahgre) 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; elevation 5800' – 7500'	
Colorado (Adobe) 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, or scrub oak; elevation 5500' – 7000'	
Paradox Valley (Payson's) 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; elevation 5000' – 5800'	
Dolores skeleton plant ⁹ <i>Lygodesmia doloresensis</i>	Reddish purple, sandy alluvium and colluviums of the Cutler Formation between the canyon walls and the river in juniper, shadscale, and sagebrush communities; elevation 4000' – 5500'	
Eastwood's monkey-flower <i>Mimulus eastwoodiae</i>	Shallow caves and seeps on steep canyon walls; elevation 4700' – 5800'	
Paradox (Aromatic Indian) breadroot <i>Pediomelum aromaticum</i>	Open pinyon-juniper woodlands in sandy soils or adobe hills; elevation 4800' – 5700'	
<i>INVERTEBRATES</i>		
Great Basin silverspot butterfly <i>Speyeria nokomis</i> <i>Nokomis</i>	Found in streamside meadows and open seepage areas with an abundance of violets	

¹ Based on Colorado BLM State Director's Sensitive Species List (Last update: November 20, 2009).

² Van Reyper G. 2006. Bureau of Land Management TES [threatened, endangered, sensitive] species descriptions. Uncompahgre Field Office, Montrose, CO, updated 2009/ 2010. Unpublished document.

³ Spackman SB, JC Jennings, C Dawson, M Minton, A Kratz, C Spurrier. 1997. Colorado rare plant field guide. Prepared for the BLM, USFS, and USFWS by the Colorado Natural Heritage Program.

⁴ Assessments based on UFO files and GIS data, partner data, and local knowledge.

⁵ ESA delisted species.

⁶ Species not known to occur in UFO.

⁷ Validity of subspecies designation is in question by taxonomists.

⁸ Species currently under status review by FWS and a 12-month finding is pending; i.e., listing of the species throughout all or a significant portion of its range may be warranted.

⁹ Species not on BLM Colorado State Director's Sensitive List; included at the Field Office level to account for recent sightings, proximate occurrences, and/or potential habitat.

¹⁰ 12-month Finding Not Warranted 78 FR 68660; Removed from USFWS list

BIRDS OF CONSERVATION CONCERN OF THE UFO ¹

SPECIES	HABITAT DESCRIPTION ²	RANGE AND STATUS IN THE UFO ^{2,3}	POTENTIAL AND/OR KNOWN OCCURRENCES IN PROJECT AREA ⁴
Gunnison sage grouse <i>Centrocercus minimus</i>	Sagebrush communities (especially big sagebrush) for hiding and thermal cover, food, and nesting; open areas with sagebrush stands for leks; sagebrush-grass-forb mix for nesting; wet meadows for rearing chicks	Year-round resident, breeding	See assessment under Sensitive Species Section.
American bittern <i>Botaurus lentiginosus</i>	Marshes and wetlands; ground nester	Spring/ summer resident, breeding confirmed in the region but not within the UFO	
Bald eagle ⁵ <i>Haliaeetus leucocephalus</i>	Nests in forested rivers and lakes; winters in upland areas, often with rivers or lakes nearby	Fall/winter resident, no confirmed breeding	See assessment under Sensitive Species Section.
Ferruginous hawk <i>Buteo regalis</i>	Open, rolling and/or rugged terrain in grasslands and shrubsteppe communities; also grasslands and cultivated fields; nests on cliffs and rocky outcrops	Fall/ winter resident, non-breeding	See assessment under Sensitive Species Section.
Golden eagle <i>Aquila chrysaetos</i>	Open country, grasslands, woodlands, and barren areas in hilly or mountainous terrain; nests on rocky outcrops or large trees	Year-round resident, breeding	
Peregrine falcon ⁵ <i>Falco peregrinus</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	Spring/summer resident, breeding	See assessment under Sensitive Species Section.
Prairie falcon <i>Falco mexicanus</i>	Open country in mountains, steppe, or prairie; winters in cultivated fields; nests in holes or on ledges on rocky cliffs or embankments	Year-round resident, breeding	
Long-billed curlew <i>Numenius americanus</i>	Lakes and wetlands and adjacent grassland and shrub communities	Spring/ fall migrant, non-breeding	See assessment under Sensitive Species Section.
Snowy plover ⁶ <i>Charadrius alexandrinus</i>	Sparsely vegetated sand flats associated with pickleweed, greasewood, and saltgrass	Spring migrant, non-breeding	

Mountain plover <i>Charadrius montanus</i>	High plain, cultivated fields, desert scrublands, and sagebrush habitats, often in association with heavy grazing, sometimes in association with prairie dog colonies ; short vegetation	Spring/ fall migrant, non-breeding	
Yellow-billed cuckoo / <i>Coccyzus americanus</i>	Riparian, deciduous woodlands with dense undergrowth; nests in tall cottonwood and mature willow riparian, moist thickets, orchards, abandoned pastures	Summer resident, breeding	See assessment under Sensitive Species Section.
Flammulated owl <i>Otus flammeolus</i>	Montane forest, usually open and mature conifer forests; prefers ponderosa pine and Jeffrey pine	Summer resident, breeding	
Burrowing owl <i>Athene cunicularia</i>	Open grasslands and low shrublands often in association with prairie dog colonies; nests in abandoned burrows created by mammals; short vegetation	Summer/ fall resident, breeding	See assessment under Sensitive Species Section.
Lewis's woodpecker <i>Melanerpes lewis</i>	Open forest and woodland, often logged or burned, including oak, coniferous forest (often ponderosa), riparian woodland, and orchards, less often in pinyon-juniper	Year-round resident, breeding	
Willow flycatcher ⁶ <i>Empidonax traillii</i>	Riparian and moist, shrubby areas; winters in shrubby openings with short vegetation	Summer resident, breeding	
Gray vireo <i>Vireo vicinior</i>	Pinyon-juniper and open juniper-grassland	Summer resident, breeding	
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	Pinyon-juniper woodland	Year-round resident, breeding	
Juniper titmouse <i>Baeolophus griseus</i>	Pinyon-juniper woodlands, especially juniper; nests in tree cavities	Year-round resident, breeding	
Veery <i>Catharus fuscescens</i>	Deciduous forests, riparian, shrubs	UFO is outside known range. Possible summer resident, observed recently in Gunnison County, possible breeding.	
Bendire's thrasher <i>Toxostoma bendirei</i>	Desert, especially areas of tall vegetation, cholla cactus, creosote bush and yucca, and in juniper woodland	UFO is outside known range	
Grace's warbler <i>Dendroica graciae</i>	Mature coniferous forests	Summer resident, breeding	

Brewer's sparrow <i>Spizella breweri</i>	Sagebrush-grass stands; less often in pinyon-juniper woodlands	Summer resident, breeding	See assessment under Sensitive Species Section.
Grasshopper sparrow <i>Ammodramus savannarum</i>	Open grasslands and cultivated fields	UFO is outside known range	
Chestnut-collared longspur <i>Calcarius ornatus</i>	Open grasslands and cultivated fields	Spring migrant, non-breeding	
Black rosy-finch <i>Leucosticte atrata</i>	Open country including mountain meadows, high deserts, valleys, and plains; breeds/ nests in alpine areas near rock piles and cliffs	Rare winter resident, non-breeding	
Brown-capped rosy-finch <i>Leucosticte australis</i>	Alpine meadows, cliffs, and talus and high-elevation parks and valleys	Summer residents, breeding	
Cassin's finch <i>Carpodacus cassinii</i>	Open montane coniferous forests; breeds/ nests in coniferous forests	Year-round resident, breeding	

¹ U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at <<http://www.fws.gov/migratorybirds/>>].

² Cornell Lab of Ornithology. All about birds: bird guide. <<http://www.allaboutbirds.org/guide/>> Accessed 05/15/2009.

³ San Juan Institute of Natural and Cultural Resources. Colorado Breeding Bird Atlas. Fort Lewis College, Durango, Colorado. <<http://www.cobreedingbirdatlasii.org/>> Accessed: 05/15/2009.

⁴ Assessment based on UFO files and GIS data, partner data, and local knowledge.

⁵ ESA delisted species.

⁶ Non-listed subspecies/ population.

⁷ ESA candidate species.

**MEMORANDUM OF AGREEMENT
BETWEEN
BUREAU OF RECLAMATION, WESTERN COLORADO AREA OFFICE
AND COLORADO STATE HISTORIC PRESERVATION OFFICER
REGARDING THE SOUTH CANAL DROP 4 HYDROPOWER PROJECT,
UNCOMPAHGRE PROJECT, 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, the Bureau of Reclamation (Reclamation) as lead Federal agency has determined that the Project will have an adverse effect on the South Canal (5MN1851.7 and 5MN1851.8). 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 Criterion C; and

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

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), Reclamation has notified the Advisory Council on Historic Preservation (Council) of its adverse effects determination and provided 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

1. Reclamation shall ensure that the following measures are carried out:

- a. Prior to any modifications associated with this undertaking, Reclamation will ensure that the segments of the South Canal (5MN1851.7 and 5MN1851.8) are 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, October 2007).
- b. Reclamation will ensure that South Canal Tunnel 3 Construction Camp (5MN10212) is not affected. The site's boundary will be flagged and avoided during construction.
- c. Documentation will include mapping and photographic documentation of those portions of the historic property 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.
- d. Reclamation will supplement the Level II Documentation with a descriptive and historical narrative. The narrative will synthesize the existing documentation on file and describe the canal in the context of the development and history of the Uncompahgre Project area. The narrative will include photographs of the landscape features taken during the cultural resources survey. A Summary Report for the recorded segment, which includes the Level II Documentation and the narrative, will be prepared.
- e. The documentation will include basic measured drawings to scale on archival paper. The drawings will give the basics on size and shape of the resource. The drawings can be in pencil or archival ink. A site map will be included, and should include topographic elevations. The map will be prepared using data collected with a GPS with submeter accuracy.

The Summary Report will be prepared within one year of the execution of this MOA.

2. Monitoring: 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.
3. Dispute Resolution: Should the SHPO object within 30 days to any documentation provided for its review pursuant to this agreement, Reclamation shall consult with the SHPO to resolve the objection. If Reclamation determines the objection cannot be resolved Reclamation shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation the Council will:
 - a. Advise the agency that the Council concurs in the agency's proposed response to the objection, whereupon the agency will respond to the objection accordingly;

- b. Provide the agency with recommendations, which the agency shall take into account in reaching a final decision regarding its response to the objection; or
 - c. Notify the agency that the objection will be referred for comment pursuant to 36 CFR § 800.7(a)(4), and proceed to refer the objection and comment. The agency shall take the resulting comment into account in accordance with 36 CFR § 800.7(c)(4).
4. Amendment and Termination: Any signatory to this agreement may request that it be amended, whereupon the parties will consult to reach a consensus on the proposed amendment. Where no consensus can be reached, the agreement will not be amended.
5. Duration: This MOA will be null and void if its stipulations are not carried out within five (5) years from the date of its execution. At such time, and prior to work continuing on the undertaking, Reclamation shall either (a) execute a MOA pursuant to 36 CFR § 800.6, or (b) request, take into account, and respond to the comments of the Council under 36 CFR § 800.7. Prior to such time, Reclamation may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation 4 above. Reclamation shall notify the signatories as to the course of action it will pursue.
6. In the event that Congress amends Section 106 of the NHPA or in the case of substantial changes to 36 CFR Part 800, the parties to this agreement will consider whether it would be appropriate to amend the agreement. Any signatory to this agreement may terminate it by providing thirty (30) days notice to the other parties, provided that the signatories and concurring parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.
7. Failure to Carryout Terms: Failure to carry out the terms of this MOA requires that Reclamation again request the Council's comments in accordance with 36 CFR Part 800. If Reclamation cannot carry out the terms of the MOA, it will not take or sanction any action or make an irreversible commitment that would result in an adverse effect to the historic property covered by the MOA or that would foreclose the Council's considerations of modifications or alternatives that could avoid or mitigate the adverse effect on the properties until the commenting process has been completed.

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

Colorado State Historic Preservation Office

By: _____ Date:
Edward C. Nichols, State Historic Preservation Officer

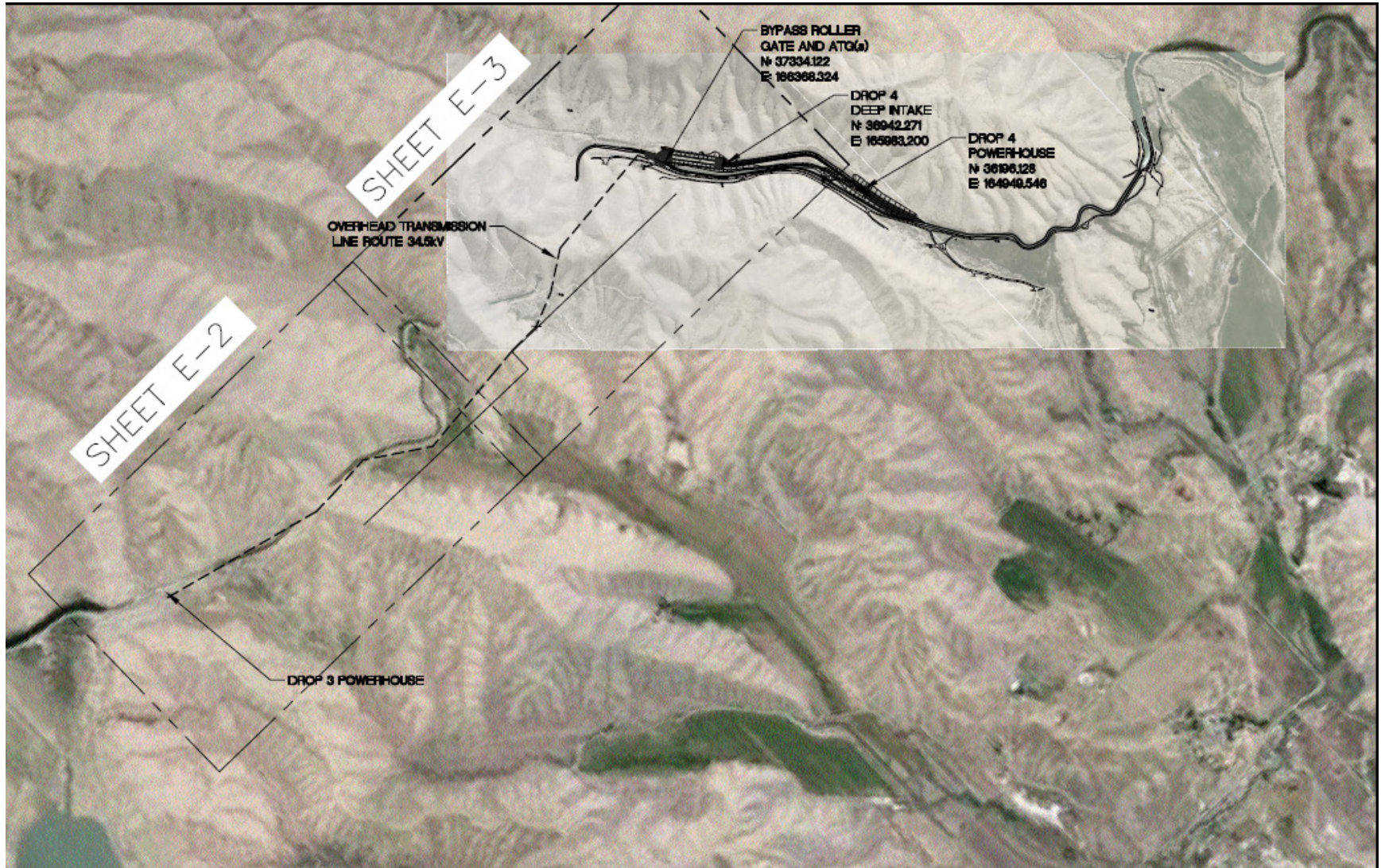
Bureau of Reclamation, Western Colorado Area Office

By: _____ Date:
Ed Warner, Area Manager

Uncompahgre Valley Water Users Association

By: _____ Date:
Steve Fletcher, Manager

ATTACHMENT A



ATTACHMENT D – Comment Letter



COLORADO
Parks and Wildlife

Department of Natural Resources

Montrose Office
2300 S. Townsend Avenue
Montrose, CO 81401
P 970.252.6000 | F 970.252.6053

August 8, 2014

Ed Warner
Area Manager
Bureau of Reclamation
Western Colorado Area Office
445 West Gunnion Ave, Suite 221
Grand Junction, CO 81501

RE: Draft Environmental Assessment, South Canal Drop 4 Hydropower Project

Dear Mr. Warner,

Thank you for the opportunity to comment on the draft Environmental Assessment (EA) for the South Canal Drop 4 Hydropower Project. Colorado Parks and Wildlife (CPW) has visited the site of the proposed project, and have a few concerns with possible impacts to wildlife.

The area of the proposed project lies inside CPW mapped winter range for mule deer, and is occupied by chuckar and Gambel's quail. To offset impacts to wildlife the following steps could be taken;

1. Minimizing construction, operations and maintenance from December 1st, through April 31st each year, to reduce impacts to wintering mule deer.
2. Minimize impacts to shrubs and other ground cover. Gambe'sl quail and chuckar rely on the shrubs for feeding, nesting and cover.

Again, thank you for the opportunity to comment on the draft Environmental Assessment for the South Canal Drop 4 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, Brian Mcgee-Land Use Coordinator, Patt Dorsey-SW Region Manager, John Holst-Energy Liaison

