

# RECLAMATION

*Managing Water in the West*

## **South Canal Hydropower Project**

### **Finding of No Significant Impact**



**February 2011**

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U.S. Department of the Interior, Bureau of Reclamation



United States Department of the Interior  
Bureau of Reclamation  
Western Colorado Area Office  
Grand Junction, Colorado

**FINDING OF NO SIGNIFICANT IMPACT**

**SOUTH CANAL HYDROPOWER PROJECT**

In accordance with the National Environmental Policy Act of 1969, as amended, and the Council on Environmental Quality's Regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR Part 1500-1508), the Bureau of Reclamation (Reclamation) has prepared an Environmental Assessment (EA) for the proposed South Canal Hydropower Project (Project). The EA assessed No Action and Proposed Action Alternatives. Based on the following, Reclamation has determined that the proposed action with implemented environmental commitments will not result in a significant impact on the quality of the human environment or the natural resources of the area. Additional information on the Project is found in the final EA.

**Background**

The Delta Montrose Electric Association (DMEA) and the Uncompahgre Valley Water Users Association (UVWUA) have requested a Lease of Power Privilege (LOPP) to construct and operate a hydropower project on portions of the South Canal of the Uncompahgre Irrigation Project in Montrose County, westcentral Colorado. The South Canal is a major irrigation canal that carries water diverted from the Gunnison River to the Uncompahgre Valley. Gunnison River water is diverted through the Gunnison Tunnel to the South Canal. The Uncompahgre Project was authorized by the Secretary of the Interior on March 14, 1903, under the provisions of the Reclamation Act.

**Purpose and Need**

A LOPP is needed to develop hydropower on the South Canal. Current Federal policy encourages non-Federal development of environmentally sustainable hydropower potential on federal water resource projects. The LOPP will ensure that the development of hydropower will be implemented consistent with established authorities and operation plans of the Uncompahgre Project. The purpose of the Project is to provide a clean, renewable energy source that is locally controlled.

### **No Action Alternative**

Under the No Action Alternative, Reclamation would not issue a LOPP at this time and the hydropower potential at the South Canal would not be realized.

### **Proposed Action Alternative**

Under the Proposed Action, Reclamation will execute a LOPP to construct and operate hydropower facilities along the South Canal. Two powerplants will be constructed at Drops<sup>a</sup> Nos. 1 and 3 along the canal as shown on the map at the end of this document.

At each of the two drops, a diversion structure and forebay will be constructed in the South Canal to carry water to a buried 11-foot diameter steel penstock. The Drop No. 1 penstock will be 1,130 feet in length and the Drop 2 penstock will be 290 feet. The penstocks will lead to powerplants near the bottom of each drop. Each powerplant will have an adjustable blade Kaplan Turbine coupled to a synchronous generator. From the powerplant, water will return to the canal in a riprap-lined tailrace.

Power will be transmitted from Drop 3 to Drop 1 and to an existing line by means of a buried powerline. The existing line will be upgraded to carry power to the East Montrose substation.

The powerplants will only use normal irrigation flows in the South Canal. The Uncompahgre Project was constructed as an irrigation project and irrigation will remain its primary purpose with all other uses playing secondary roles. The hydropower project will have no control over operation of the canal and powerplants will be operated as run-of-the canal plants. During the irrigation season, the Project will divert irrigation flows from the canal, pass them through the powerplants, and return the water to the canal immediately below the powerplants. There will be no increases in diversions from the Gunnison River through the Gunnison Tunnel to the South Canal permitted under the LOPP for the hydropower project. No hydropower production will occur in the November through February period.

An electronic fish barrier will be installed at the entrance to the Gunnison Tunnel to reduce the number of fish lost from the Gunnison River to the Gunnison Tunnel and South Canal. The system will include the use of DC pulse generators and computer control equipment which will be housed in an existing building at the site. The system will be operated during the irrigation season and will be funded and maintained by DMEA and UVWUA.

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<sup>a</sup> There are several locations along the South Canal where the canal “drops” down a short, steep hill. The elevation change in the canal can be used to produce hydropower.

DMEA will also provide funding to reduce impacts to the local fishery in the South Canal and Uncompahgre River; impacts which will result from fewer fish being diverted into the South Canal.

All project features will be constructed on lands under the jurisdiction of Reclamation or the Bureau of Land Management (BLM) or on easements held by DMEA. Pursuant to a Memorandum of Agreement<sup>b</sup> between Reclamation and the BLM, Reclamation has been delegated full jurisdictional responsibility to issue and administer a LOPP, including authorization for all hydroelectric power facilities and associated rights-of-way, on all public lands including those lands under BLM's jurisdiction

### **Draft EA Review and Public Involvement**

A public scoping process was conducted including a meeting held March 9, 2011 in Montrose. Letter and email notification and information on the meeting and on scoping was provided to over 50 local, state, and federal agencies and interested organizations. A news release concerning the meeting was provided to local media and articles were published in the Montrose Daily Press and in the Delta County Independent prior to the meeting. In addition, there was a paid public notice advertisement for LOPP negotiations in the Daily Press and the Delta paper, and there were updates on the Project in DMEA and UVWUA mailings and meetings.

The draft EA was distributed for review on December 20, 2011 with a review period extending to January 30, and availability of the EA was announced through news releases in local papers. In addition to agencies, organizations, and interested individuals, availability of the EA was announced to landowners along the South Canal.

Approximately 30 comment letters or emails were received on the draft EA. Comments were received from:

- National Park Service
- Fish and Wildlife Service
- Bureau of Land Management
- Colorado Parks and Wildlife
- Colorado River District
- High Country Citizens' Alliance
- Trout Unlimited
- RIGS Fly Shop
- Interested Individuals

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<sup>b</sup> Contract No. 10-LM-4A-00020 between Bureau of Land Management Uncompahgre Field Office and Bureau of Reclamation, January 12, 2010.

Most comments were supportive of development of hydropower on the South Canal for economic and clean energy related reasons. Some of the comment letters were concerned, however, with the loss or reduction of the fishery and associated recreation in the South Canal and with the effects on the fishery of the Uncompahgre River. Some commentors believed fishing in the canal was not appropriate or not a concern.

Other comments were supportive of plans to reduce the movement of fish from the Gunnison River through the Gunnison Tunnel to the South Canal. Comment letters also supported commitments to not increase diversions from the Gunnison River for hydropower although the commitment should be better defined to avoid significant impacts.

Comments and responses are summarized in the final EA.

### **Summary of Findings**

The No Action Alternative does not meet the purpose and need as described above. Under the proposed action, Reclamation will issue a LOPP to permit the hydropower facilities. Below is a summary of findings from the final EA associated with construction, operation, and maintenance of the Project.

**Hydrology and Water Operations:** There are no changes to water operations predicted under the No Action alternative for the Uncompahgre Project. Irrigation diversions from the Gunnison River vary from year to year due to water availability, weather patterns, crop and land use patterns, and other factors; and this variability will continue with or without the hydropower project. In the long-term, changes in climate or major changes in cropping or land use patterns may affect irrigation diversions and water use patterns.

Under the hydropower project alternative, water in the South Canal diverted for irrigation will also be used for hydropower production. Operations of the Uncompahgre Project will not change. There will be no increase in diversions from the Gunnison River solely for hydropower use permitted under the LOPP, and hydropower production will not be permitted from November through February.

**Energy and Socioeconomic Conditions:** The hydropower project will produce an estimated 26,900 megawatt-hours (MWh) of energy per year and will help meet regional power demands in the future. Power will be distributed through DMEA facilities to over 27,000 members in Montrose, Delta, and Gunnison Counties. The project will provide DMEA an opportunity to help diversify its generating portfolio and to meet legislatively-mandated requirements for renewable energy sources. UVWUA will receive revenues from the project for use on the Uncompahgre Project.

There will be construction employment and spending on goods, services, and materials during the construction period with an overall increase in the level of income in the county during the

construction phase. This will benefit local communities and businesses, as well as increase tax revenues from taxes collected on these purchases. UVWUA and DMEA predict one full-time additional permanent staff to operate and maintain the new hydropower facilities and possibly three part time workers.

Existing water supplies and related economic benefits for the Uncompahgre Project will not be affected by hydropower development during construction or operation.

Fish and Wildlife Resources and Recreation: The Project will operate using only the irrigation flows of the Uncompahgre Project. Diversions from the Gunnison River will not change due to the hydropower project and, in addition, hydropower production will not be permitted in the November through February period. Based on these plans and commitments, habitat conditions in the Gunnison River, a Gold Medal fishery, will not change.

With the installation of the electronic fish barrier at the entrance to the Gunnison Tunnel, loss of brown and rainbow trout from the Gunnison River will be reduced although probably not eliminated. This reduction of fish diverted into the Gunnison Tunnel and South Canal will benefit both the recreational fishery in the Gunnison River upstream and downstream from the Gunnison Tunnel and the fishery management programs supported by the reach of the river above the Gunnison Diversion Dam because fewer fish, estimated to be numbering in the thousands, will be lost to the tunnel.

These benefits are part of a tradeoff because there will be an accompanying loss of fishing success in the South Canal and there will also be effects on the Uncompahgre River. Recreational fishing and snagging in the South Canal will be correspondingly reduced or lost as the number of fish diverted into the canal will be reduced. It is predicted that some fish will continue to be diverted into the canal; however, there will be a percentage of mortality to fish that might enter the canal and go through the turbines at Drop No. 1 and Drop No. 3. There is fish survival through turbines and this will allow some fish to survive in the canal during the irrigation season.

The number of fish that eventually travel through the canal to the Uncompahgre River or West Canal will also be reduced and this will affect fish numbers in the Uncompahgre River, particularly between the South Canal and the M&D Canal. Colorado Parks and Wildlife plans to increase stocking of whirling disease resistant subcatchable rainbow trout in the Uncompahgre River in response to the hydropower project in order to reduce Uncompahgre River impacts.

Effects on vegetation and terrestrial wildlife will be minor and reduced through plans for site restoration and revegetation.

Threatened and Endangered Species: Reclamation has informally consulted with the Fish and Wildlife Service and there will be no effect on endangered or threatened species or their habitat due to the development of any of the features of the hydropower project. There are no species

present in areas that will be affected by construction and there will be no changes in river flows or water quality that could affect the downstream endangered fish.

Cultural Resources: A Memorandum of Agreement with the State Historic Preservation Officer will direct avoidance and mitigation of cultural resource impacts. The hydropower project will adversely affect segments of the South Canal which is listed on the National Register of Historic Places.

Indian Trust Assets and Environmental Justice: There have been no Indian Trust Assets or sacred sites identified in the impact area. There are no disproportionate adverse effects on minority or low income populations or Indian Tribes.

Air Quality and Noise: As with other hydropower projects, there will be a beneficial offset of emissions of carbon dioxide and other green house gases. Carbon dioxide emissions will be reduced by an estimated 47,000,000 pounds per year. Turbine/generator noise is expected to be inaudible from any nearby dwellings. Therefore, with the elimination of cascading water, the overall project effect will be to reduce noise levels compared to existing conditions.

Public Safety: Traffic control will be coordinated during construction and fencing will be installed for public safety and protection of facilities.

### **Environmental Commitments**

The following measures will be implemented and followed by DMEA and UVWUA and their 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.

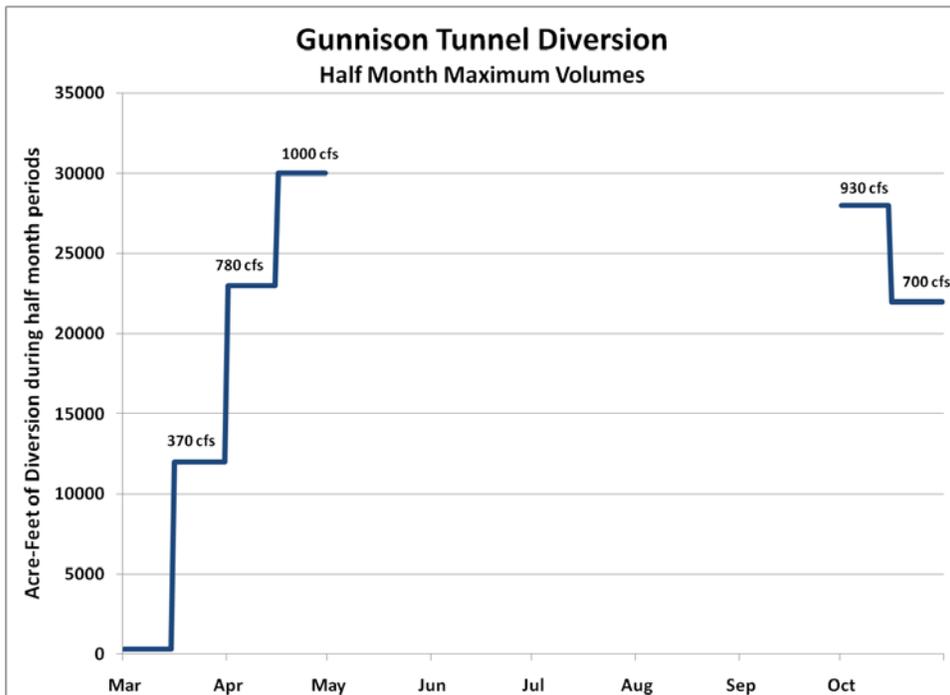
- The construction and operation of the hydropower project will not interfere with the irrigation supplies or maintenance of the Uncompahgre Project nor with water supplies for Fairview Reservoir.
- Existing access roads will be used. No new access roads constructed.
- Erosion-control Best Management 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 sites to reduce the spread of noxious and unwanted weeds.
- Topsoil, where available, will be stockpiled during construction for later use in revegetation. Disturbed areas will be recontoured to reduce erosion and facilitate establishment of vegetation. Disturbed areas will be reseeded. The plan for revegetation and related erosion control/recontouring and implementation will require approval by Reclamation.
- Dust control 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.
- DMEA 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. Montrose County permits will be acquired for portions of the powerline.
- In the event of discovery of evidence of possible cultural or paleontological resources, the contractor shall immediately cease all ground-disturbing activities in the vicinity and notify Reclamation and work shall not be resumed until approved by Reclamation.
- Remnants of the Montrose Hydraulic Laboratory features on the north/east side of the canal will not be disturbed by the Project.
- Cultural mitigation measures agreed to in a Memorandum of Agreement with the Colorado State Historic Preservation Officer will be completed by DMEA and UVWUA.
- 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. The results of such inventory will be forwarded to the SHPO according to standards of the Colorado SHPO and the Secretary of the Interior Standards and Guidelines. If no cultural resources are found during the inventory, the project may proceed within the area inventoried. If eligible historic properties are discovered, Reclamation will consult with the SHPO according to 36 CFR Part 800 on eligibility, effect, and resolution of effect. No construction work will occur at or near the historic property until this consultation is completed.
- Powerhouses and substations will be non-reflective and painted to blend with background.
- DMEA will fund and operate an electronic fish barrier to be constructed and operated at the entrance to the Gunnison Tunnel to deter fish from entering the tunnel from the Gunnison River. The barrier will be operational before the spring of 2014.
- DMEA will work with Colorado Parks and Wildlife to fund access or habitat improvement to mitigate lost fishing opportunities along the South Canal and Uncompahgre River. DMEA will fund up to \$300,000 towards the fee purchase or perpetual fishing access leases of a local property that is deemed by Colorado Parks and Wildlife to be suitable for fishing and recreation or toward aquatic habitat improvement on the Uncompahgre River. If other funds become available to assist in the purchase or lease of a local property, the \$300,000 commitment can be reduced by the amount of other party funds and the commitment will be considered fulfilled. If a mitigation plan cannot be initiated within 30 months from the date of the final EA, DMEA will make a \$300,000 contribution to a mitigation fund as agreed to between Colorado Parks and Wildlife and DMEA.
- Any new or upgraded powerlines will be designed and constructed “raptor proof”. Powerlines will be constructed in accordance to standards outlined in “Suggested Practices for Avian Protection on Powerlines: The State of the Art in 2006” (Avian

Power Line Interaction Committee. 2006). See [http://www.aplic.org/SuggestedPractices2006\(LR-2watermark\).pdf](http://www.aplic.org/SuggestedPractices2006(LR-2watermark).pdf).

- Under the hydropower project alternative, water in the South Canal diverted for irrigation will also be used for hydropower production. There will be no increase in diversions from the Gunnison River solely for hydropower use permitted under the LOPP, and hydropower production will not be permitted from November through February.

During the early and late irrigation seasons, in order to prevent an increase in diversion volumes exclusively for hydropower production, guidelines have been developed to limit the volume of water diverted through the Gunnison Tunnel during the early and late season months but still allow flexibility for irrigation needs. These guidelines were developed by determining the one-half month volumes that will not be greater than the 10 percent level of exceedence for the 1991-2010 period of diversions through the Gunnison Tunnel. The volume guidelines were developed for one-half month periods between March 1 and April 15 and between October 1 and October 31. In other words for each of these half month periods, the guidelines state the volume diverted by the Gunnison Tunnel will not be greater than what has historically occurred in the highest 10 percent of the time between 1991 and 2010. A graphical representation of these volume guidelines is shown below.



As an example, diversions in the second half of March will be limited to a volume of 12,000 acre-feet which is approximately equal to the volume produced by a constant

diversion rate of 370 cfs. For the first half of April the diversion volume will be limited to 23,000 acre-feet which corresponds to a constant diversion rate of 780 cfs. It is not the intent of this environmental commitment to limit diversions for irrigation purposes, as there may be a need to increase irrigation diversions in the future if cropping patterns change or if climate conditions become warmer or drier. However, diversions during the time periods mentioned above will be evaluated by Reclamation after each irrigation season to determine whether the one-half month volumes were exceeded. If diversions during these time periods cannot be justified as for irrigation purposes only, the lessee will be considered in default of the LOPP as described in Section 20 (a) (1) of the LOPP.

- 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.

### Conclusions

Based on a review of comments received and analysis of environmental impacts, Reclamation concludes that issuance of a LOPP and construction and operation of the South Canal Hydropower Project, with implementation of the above described environmental commitments, will not have a significant impact on the quality of the human environment or the natural resources in the Project area.

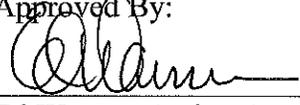
This Finding of No Significant Impact has, therefore, been prepared and is submitted to document environmental review and evaluation of the proposed action in compliance with the National Environmental Policy Act of 1969, as amended.

Prepared By:

  
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Steve McCall  
Environmental and Planning Group

2/24/2012  
Date

Approved By:

  
\_\_\_\_\_  
Ed Warner, Acting Area Manager

2-24-12  
Date

