Tacoma Hydroelectric Project
FERC No. 12589

CULTURAL AND HISTORIC RESOURCES

Public Service Company of Colorado

NOVEMBER 2007
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Acronym List

Federal/State Agencies

Advisory Council on Historic Preservation (ACHP)
Colorado Department of Natural Resources (CDNR)
Colorado Water Conservation Board (CWCB)
Colorado Department of Natural and Economic Resources, Division of Environmental Management (CDEM)
Colorado Department of Wildlife (CDOW)
Colorado Division of Water Quality (CDWQ)
Colorado Natural Heritage Program (CNHP)
Colorado State Forest Service (CSFS)
Colorado State Historic Preservation Officer (CSHPO)
Federal Energy Regulatory Commission (FERC)
National Park Service (NPS)
National Weather Service (NWS)
U.S. Department of Interior (DOI)
U.S. Environmental Protection Agency (USEPA)
U.S. Fish and Wildlife Service (USFWS)
U.S. Geological Survey (USGS)
U.S. Department of Agriculture (USDA)
U.S. Forest Service (USFS)

Other Entities

Electra Sporting Club (ESC)
Public Service Company of Colorado (PSCo)

Documents

401 Water Quality Certificate (401 WQC)
American Disabilities Act Accessible Guidelines (ADAAG)
Colorado State Water Quality Standard (COWQS)
Draft Environmental Assessment (DEA)
Environmental Assessment (EA)
Environmental Impact Statement (EIS)
Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG)
Historic Properties Management Plan (HPMP)
Memorandum of Agreement (MOA)
National Wetland Inventory (NWI)
Notice of Intent (NOI)
Notice of Proposed Rulemaking (NOPR)
Preliminary Draft Environmental Assessment (PDEA)
Programmatic Agreement (PA)
Scoping Document (SD)
Shoreline Management Plan (SMP)
**Laws/Regulations**

- Americans with Disabilities Act (ADA)
- Clean Water Act (CWA)
- Code of Federal Regulations (CFR)
- Electric Consumers Protection Act (ECPA)
- Endangered Species Act (ESA)
- Federal Power Act (FPA)
- Fish and Wildlife Coordination Act (FWCA)
- National Environmental Policy Act (NEPA)
- National Historic Preservation Act (NHPA)

**Terminology**

- Area of Potential Effect (APE)
- Cubic feet per second (cfs)
- Degrees Celsius (C)
- Degrees Fahrenheit (F)
- Dissolved oxygen (DO)
- Feet (ft)
- Gallons per day (gpd)
- Geographic Information Systems (GIS)
- Gigawatt Hour (GWh)
- Global Positioning System (GPS)
- Grams (g)
- Horsepower (hp)
- International Symbol of Accessibility (IAS)
- Kilogram (kg)
- Kilowatt (kW)
- Kilowatt-hour (kWh)
- Mean Sea Level (msl)
- Megawatt (MW)
- Megawatt-hours (MWh)
- Micrograms per liter (µg/L)
- Milligrams per liter (mg/L)
- Millimeter (mm)
- Million gallons per day (mgd)
- National Geodetic Vertical Datum (NGVD)
- National Wetlands Inventory (NWI)
- Non-governmental Organizations (NGOs)
- Ounces (oz.)
- Outdoor Recreation Access Route (ORAR)
- Outstanding Remarkable Value (ORV)
- Parts per billion (ppb)
- Parts per million (ppm)
Acronym List

Pounds (lbs.)
Power Factor (p.f.)
Probable Maximum Flood (PMF)
Project Inflow Design Flood (IDF)
Rare, Threatened, and Endangered Species (RTE)
Ready for Environmental Analysis (REA)
Resource Work Groups (RWG)
Revolutions per Minute (rpm)
Rights-of-way (ROW)
San Juan National Forest (SJNF)
Stakeholders (federal and state resource agencies, NGOs, and other interested parties)
Volts (V)
Wastewater treatment plant (WWTP)
1.0 Introduction and Background

Public Service Co. of Colorado (PSCo) owns and operates the Tacoma Hydroelectric Project on Cascade Creek and the Animas River in southwestern Colorado. PSCo is using the Integrated Licensing Process (ILP) to obtain a new operating license for its 100-year-old Project. As part of that process, PSCo is undertaking resource studies in accordance with study plans developed with stakeholders and approved by the Federal Energy Regulatory Commission (FERC) in its Study Plan Determination dated March 24, 2006.

2.0 Purpose and Use of Study

The study scope and methods to be employed were defined in FERC’s Study Plan Determination and are incorporated herein by reference.

2.1 Affected Environments

This study investigated the Tacoma Project’s effects on cultural and historic resources and developed documentation to support compliance with Section 106 of the National Historic Preservation Act (NHPA). 1

2.2 National Historic Preservation Act Inventories

The Area of Potential Effect (APE) for the undertaking is defined as (a) all lands and facilities located within the Project Boundary as delineated in FERC’s 2010 License Order, and (b) lands or properties outside the Project Boundary where Project operations and Project-related development or use may cause changes in the character or use of Historic Properties, if any Historic Properties exist.

2.2.1 Project Effects

As the lead federal agency for hydropower relicensing, FERC is responsible for satisfying Section 106 consultation requirements under NHPA. Implementation regulations for Section 106 have been published by the Secretary of the Interior in 36 CFR 800. To accomplish this, FERC needs to document consultation with interested parties on Project effects on historic properties eligible for protection under the NHPA. This consultation must document that FERC has considered the effects of the undertaking (the issuance of a new federal operating license) on historic properties eligible for listing on the National Register of Historic Places (NRHP) and allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on its conclusions.

For historic structures that are part of Project facilities located within the APE, a determination is made as to whether the building or structure is NRHP eligible; and if so, what character-defining features need to be managed during the term of the next license. The Historic Properties Management Plan (HPMP) will then include provisions to avoid or mitigate impacts to these character-defining features during changes that will likely occur to these properties through

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1 Please refer to the study plan for Issue Assessment Nos. 1, 2, 3, and 4—Section 106 of the NHPA—as contained in FERC’s Study Plan Determination dated March 24, 2007.
upgrades, maintenance, and other changes that will need to be made to the properties. FERC and the ACHP issued guidelines on developing HPMPs that specifically recognize that hydroelectric projects are critical energy production facilities. These facilities will need to be upgraded to remain competitive and to continue to produce power in a cost-effective manner rather than museums that need to be maintained in their original constructed condition.

2.2.2 Methods

The study approach generally includes background research (Class I overview) and inventory (Class III inventory) to identify cultural resources within the APE and evaluate them for inclusion on the NRHP. With the overview and inventory data in hand, the Licensee is in a position to proceed directly to the development of the HPMP that considers all eligible or potentially-eligible sites in future management.

For the inventory, three archaeologists conducted a pedestrian survey of the shorelines of Electra Lake and Aspaas Lake during low water in early May 2006. The water level during the inventory is estimated to have been around 8,362 feet (2,549 m), about 15 feet (4.6 m) below the high water level of 8,377 feet (2,553 m). One archaeologist walked just above the lake water, one walked along the high water line, and the third walked between the other two. The survey transects, therefore, followed the natural contours of shorelines. At no time were transects spaced greater than 15 m (50 feet) apart. Most of the examined shoreline exhibited extremely rocky conditions, with all soil long since eroded. Particular attention was paid to cutbanks on the upper edges of the high water shoreline, which retained intact sediment deposits that could be viewed in profile. In this fashion, 132.6 acres of shoreline were subjected to pedestrian survey at 100 percent intensity. Lengthy portions of lakeshore were viewed from a motor boat and determined to be unsurveyable because they were treacherously steep and consisted of unstable boulders or talus from which all sediment had been eroded away. Because these portions had been relatively steep ridge slopes prior to the construction of the reservoir, they possessed little or no potential for cultural resources sites even before they were disturbed by over a century of erosion and wave action. A total of 35.6 acres of shoreline was examined from the boat but not actually walked. In addition, 78.2 acres were examined away from the lake shores within the Project Boundary that were believed to have high potential for prehistoric cultural resources. These areas were level to gently sloping, may have been in close proximity to natural water sources, were not so heavily vegetated that at least a small percentage of the ground surface could be seen, and typically consisted of benches, terraces, or ridge saddles or crests.

Elsewhere where cultural resource inventories were performed, 100-foot-wide (30-m-wide) corridors were examined. These areas included the flume, siphon, and pipeline portions of the Cascade Creek Flume and Pipeline and designated access roads to the flume in the Cascade Creek area; along Little Cascade Creek, access roads below Electra Lake leading to Forebay Lake and the edge of the Animas River Canyon; and the Canyon Creek Pipeline. In most cases, archaeologists walked parallel transects spaced at 15 m (50 feet) intervals along both sides of the linear alignment. When Little Cascade Creek entered Columbine Lake, archaeologists walked along the west side of the lake; below the upper dam on the lake, both the east and west sides of the lake were walked. Below the outlet of Columbine Lake, both sides of Little Cascade Creek were examined to Aspaas Lake except where slopes were dangerously steep. In addition, specific built features were documented, including the Tacoma Power Plant and three residential structures on its grounds, the
Cascade Creek Flume diversion structure, and the Canyon Creek Pipeline diversion. These were visited directly. While recording the components of the Tacoma Power Plant, a 2.6-acre parcel of SJNF land was inventoried that included several residential structures associated with the plant. This inventory was performed by two archaeologists walking parallel transects spaced at 15 m (50 feet) intervals. The tramway between the Tacoma power plant and Forebay Lake was also to have been documented. However, only the lower tramway structure has survived. The upper tramway structure no longer exists and the intervening tramway towers have not survived on the extremely steep slope of the Animas River Canyon. The steep slopes of the canyon precluded physically walking the route of the tramway, but viewing the route from above and below did not detect any tramway structures on the slope. The lower tramway structure was recorded as a component of the Tacoma power plant complex.

When artifacts or cultural features were encountered, the surrounding area was intensively inspected to determine whether a site or an isolated find was represented. Sites were defined as five or more artifacts, in relatively close proximity to one another, exceeding 50 years old. Loci with four or less artifacts were classified as isolated finds. Sites may also encompass features, structures, rock art, or facilities that lack artifacts, exceeding 50 years of age. Cultural resources were recorded on the appropriate Colorado State site forms and plotted on the area USGS quadrangle maps. A Global Positioning System (GPS) unit capable of submeter accuracy was used to plot site locations and was used to assist in the preparation of site maps. Photographs were taken of each site for descriptive purposes and to aid in site relocation. Sites were evaluated for eligibility for inclusion on the NRHP in terms of the specific criteria presented in the preceding section. Isolated finds are regarded as not eligible for inclusion on the NRHP, as they do not satisfy any of the requirements for listing. No artifacts were collected during the Project inspection.

2.2.3 Results

The cultural resource inventories resulted in the examination of 330.5 acres, comprising 271.2 acres of private land and 59.3 acres of SJNF land. This resulted in the recor dation of eight new sites, the rerecording of three previously recorded sites, and the recor dation of five new segments of three linear sites. During the Electra and Aspaas Lake shorelines inventory, 164.1 acres of private and 4.2 acres of SJNF land were inventoried, resulting in the recordation of two historic sites (5LP7952 and 5LP7953) and six historic isolated finds (5LP7945-7950), all on private land. Site 5LP7952 is recommended as not NRHP eligible, and site 5LP7953 is recommended as NRHP eligible. An attempt to find the site of the historic Cascade House was unsuccessful.

Examination of additional lands in the vicinity of Electra Lake that fit the criteria for high potential for prehistoric sites resulted in the examination of an additional 78.2 acres of private land and 11.8 acres of SJNF land. This resulted in the recordation of two historic sites (5LP1258.4 and 5LP7951). Site 5LP1258.4, a segment of the Animas City to Silverton Toll Road, was found on private land and is considered a contributing segment of the officially NRHP eligible linear site. Site 5LP7951 is historic pits on both private and SJNF land; it is recommended as not NRHP eligible. Survey of the access roads below Electra Lake that reached Forebay Lake and the edge of the Animas River Canyon resulted in the inventory of 13.9 acres of SJNF land and the recordation of a single historic residential site (5LP8187) that is recommended as not NRHP eligible.
The inventory of Little Cascade Creek involved the examination of 19.6 acres of private land and 4.6 acres of SJNF land. Because of steep terrain, an additional 1.7 acres of private land and 0.9 acres of SJNF land could not be walked but are considered cleared for cultural resources, resulting in a total of 21.3 acres of private land and 5.5 acres of SJNF land being inventoried. As a result of the inventory, the remains of two historic dams on Columbine Lake (5LP8184 and 5LP8185) were recorded on private land; neither is recommended as NRHP eligible. The inventory of the route of the Cascade Flume and siphon, the portion of the Cascade Flume pipeline that passed through land that had not been previously inventoried, and access roads to the Cascade Flume resulted in the examination of 6.7 acres of private land and 19.1 acres of SJNF land. This resulted in the recordation of the Cascade Flume, siphon, and head works (5SA1176.2, .3, and .4), two summer homes (5SA1099 and 5SA1136), the Public Service Company maintenance building (5SA1185), and a historic isolated find (5SA1186), all on SJNF land. The pipeline portion of the Cascade Flume is buried and had been previously recorded as 5SA1176.1/5LP7927 (Horn 2006); it is on both private and SJNF land and is officially NRHP eligible. The Cascade Flume and Pipeline siphon (5SA1176.2), flume (5SA1176.3), and head works (5SA1176.4) are all recommended as contributing elements of the officially significant linear site. Both of the summer homes (5SA1099 and 5SA1136) are recommended as NRHP eligible, but the maintenance building (5SA1185) is recommended as not NRHP eligible. Cultural resource work at the Tacoma Power Plant resulted in the recording of the power plant, four residences, an animal shed, the bridge across the Animas River, the lower tram house structure, a work shed, and several recent structures all as components of site 5LP1316. The site is on both private and SJNF land and is officially NRHP eligible. At the same time, a segment of the Durango & Silverton Narrow Gauge Railroad (5LP302.2) was recorded, a 2.6-acre parcel of SJNF land that contained several of the buildings recorded as part of 5LP1316 was examined, and the route of the Canyon Creek Pipeline was examined, resulting in the recordation of the pipeline as site 5LP8186. The railroad grade segment (5LP302.2) is on both private and SJNF land; the railroad is both a National Historic Landmark and is listed on the NRHP. The inventory of the Canyon Creek Pipeline route resulted in the inventory of 0.9 acres of private land and 2.2 acres of SJNF land. The pipeline was recorded as 5LP8186 and is recommended as not NRHP eligible.

2.2.4 Analysis and Discussion

The cultural resource inventory has been submitted for consultation to the Colorado State Historic Preservation Officer (SHPO) and the San Juan National Forest (USFS). Though both agencies have accepted the findings of the inventory, consultation on the final version of the APE needs to occur. PSCo is preparing a map showing the APE that was agreed upon at the HPMP meeting held on October 2, 2007. Attendees to the meeting were PSCo, FERC, SHPO, the USFS, and the Electra Sporting Club. The final APE definition was also agreed upon at this meeting. During this meeting, the draft HPMP was discussed and participants will provide comments and suggested changes. The draft HPMP was developed using the FERC and ACHP published guidelines and will include distinctions for and definitions of routine maintenance, major maintenance, and emergency operations.