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Gray Davis
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Initial Study and Environmental Checklist Farad Diversion Dam Nevada County, California

INITIAL STUDY

PROJECT BACKGROUND

Sierra Pacific Power Company (SPPC) maintains and operates a hydroelectric power plant in Nevada County near Floriston, California (see Figure 1). Historically, water has been diverted from the Truckee River at the Farad diversion dam, approximately 1.8 miles upstream of the Farad Power Plant, and conveyed to the Farad Power House through an elevated wooden flume (refer to Figure 1). The elevated wooden flume has an approximate conveyance size of 10 feet by 10 feet. SPPC maintains they have rights to 400 cubic feet per second of water at the Farad Power House (*The United States of America vs. Orr Water Ditch Co.*). The diversion structure was originally constructed of wood and rock ballast. In 1963, the structure was rebuilt with an entirely new wood crib and rock structure stepped dam. An inclined weir plate fish ladder was installed near the river right (east) abutment of the structure in the early 1980s. In 1996, a concrete abutment wall was added, connecting the west end of the dam to the concrete intake gate structure. There is approximately 750 linear feet of off-channel diversion canal that conveys the diverted flow from the gate structure to the elevated wooden flume.

On January 1, 1997, the Truckee River crested with a peak flow of approximately 15,000 cfs, corresponding roughly to a 50-year flood event. During that storm, the concrete wall connecting the diversion structure to the dam washed downstream, resulting in failure of the west abutment wall and ultimately the dam. Following the storm, remaining pieces of the dam were removed to minimize safety hazards to river users. The remaining components of the structure include the concrete control structure west of the channel and the concrete abutment east of the channel. At a minimum, the following features require repair or replacement:

- The dam and west abutment require total replacement
- The open conveyance structure immediately downstream of the intake requires repair.
- The fish ladder needs to be replaced.

As described below, the project applicant (Sierra Pacific Power Company) proposes to construct a new type of structure to accomplish the allowed diversion to Farad Power Plant. The proposed design was selected to restore the water diversion function, provide increased reliability with reduced chance of structure failure, enhance fish passage across a wider spectrum of flow conditions, and accommodate recreational boat passage with relative safety.

ENVIRONMENTAL REVIEW

The project is within the State of California and subject to the California Environmental Quality Act (CEQA). The State Water Resources Control Board (SWRCB) is the CEQA Lead Agency responsible for environmental review. The SWRCB is the principal state agency for approving the project based on authority under Section 401 of the Clean Water Act. SPPC will be required to obtain certification under Section 401 of the Clean Water Act for this project. Based on the project description presented in this Initial Study and information in the attached environmental checklist, the SWRCB has determined that preparation of an Environmental Impact Report (EIR) will be required. The project is also subject to the National Environmental Policy Act (NEPA). The US Army Corps of Engineers (USACE) will be the NEPA Lead Agency. The USACE has indicated that the project will be evaluated through preparation of an Environmental Assessment (EA). The USACE will prepare the EA.

PROJECT OBJECTIVES AND ALTERNATIVES

The primary objective of the proposed project is to replace the diversion structure and thereby restore flows to the Farad Power Plant. A secondary objective of the proposed project for SPP is to reduce maintenance and operational costs associated with the diversion and related structures. Several alternatives to the project will be considered in the EIR. One alternative would be no action (i.e., SPPC would not rebuild the dam or build the proposed dam). Another alternative would be reconstruction of the dam in its original location. A third alternative would be construction of the proposed project (the proposed diversion dam). Either of the latter two alternatives - rebuilding the original structure, or constructing the proposed diversion - would require evaluation of flows necessary to protect downstream beneficial uses. Thus, this EIR will consider the flows necessary for aquatic species below the dam in the bypassed reach.

PROJECT DESCRIPTION

The SPPC proposes to construct a diversion structure to replace the storm damaged Farad Diversion Weir. The proposed diversion dam will be located approximately 600 feet upstream of the former location and immediately downstream of the Interstate 80 overcrossing (refer to Figure 2). Shifting the structure to this location is proposed to maintain sufficient elevation for the water diversion while reducing the “drop” on the downstream face of the dam. The proposed structure has been specifically designed to allow for fish and recreational whitewater boat passage at various river levels. The structure would generally consist of grouted rock and boulders. This location is within the reach of the river specified by the diversion entitlement and would not require modification of the existing entitlement.

The proposed diversion dam will provide a combined boat chute/fish passage and debris chute with an adjustable crest. The drop structure chute would be constructed of reinforced concrete, with formed or boulder roughness elements for fish passage. The crest of the chute would be adjustable to maintain a drop of approximately two to three feet, i.e. that necessary to accomplish the water diversion. The drop would be adjustable using “stop logs” or similar devices that could be lowered and raised to accommodate changing stream levels.

The downstream face of the diversion dam is proposed to create suitable locations for fish passage when water levels are sufficiently high to inundate the respective parts of the structure.

The downstream face of the dam would be sloped and faced with boulders that create an irregular bottom suitable for fish movement and resting. At lower river levels, fish would be able to climb the river-left side of the downstream face. When higher water levels “wash out” this passage, a similar but higher passage on the river-right side of the dam would become functional.

A water intake would be constructed on the right-right side of the diversion structure. The intake is designed to minimize intake water velocity and angled so as to pass debris toward the low-water chute. This self-cleaning design will reduce debris accumulation at the intake and parallel-oriented fiberglass debris rack is proposed to keep debris and boaters out of the intake.

A 750± foot long conveyance structure is proposed between the dam and the existing off-channel canal. The structure would be constructed of 10-foot by 10-foot concrete box conduit with a wall thickness of approximately 18 to 24 inches. The structure would be founded on bedrock or on caissons drilled to bedrock and covered by approximately two to four feet of rock to protect it from rock slides originating on adjacent slopes. The off-channel canal will be restored to provide a low-velocity pool before water enters the flume. A fish screen running the length of this pool will direct fish away from the flume and to a discharge back to the river.

PROJECT CONSTRUCTION PROCESS

Project construction will unavoidably pose an elevated the potential for short-term adverse environmental impacts, particularly to the aquatic environment of the Truckee River.

Accordingly, proposed implementation of the project is phased to allow construction of the in-stream components during periods of traditionally low seasonal flows, i.e. late fall and early spring. However, because construction is dependent upon specific low water conditions implementation of the project could be delayed several seasons until suitable conditions occur. The general process for construction of the proposed diversion consists of the following steps:

1. Site preparation and excavation of an off-channel bypass to divert the river around the diversion site during construction would be initiated prior to the first low-flow season. The bypass would be located east of the river, between the diversion site and Interstate 80. Equipment and supplies would be staged for construction as soon as suitable low-water conditions occur.
2. A temporary barrier would be placed across the river during the first available low-flow period. This barrier would consist of k-rail, sand bags, or other suitable materials used to temporarily divert the river through the off-channel bypass. A dewatering system consisting of pumps and baker tanks would be installed to keep the construction site dry and to capture and neutralize any contaminated water. A rock foundation would be grouted into the empty riverbed below the temporary diversion but upstream of the permanent site. This foundation will be necessary to support a more elaborate temporary diversion needed later in the construction process. Construction of this foundation is expected to require most of a single low-flow season. Following completion of this foundation, equipment would be removed, the bypass channel blocked, and the site secured. Further in-stream construction would wait until the next suitable low-flow season.

3. Preparatory actions, such as delivery of equipment and supplies, would be implemented between low flow seasons. Equipment and supplies would not be staged within the floodplain until the risk of seasonal flooding had passed. Whenever possible, equipment would be staged immediately prior to commencement of construction.
4. As soon as appropriate low-flow conditions occur, a temporary diversion would be placed on the previously constructed foundation. This diversion structure will consist of rock-filled containers or similar modular blocks that can be lowered into the riverbed with a crane, resulting in minimal disturbance. The existing bypass channel would be reopened, and the river flow would again be diverted around the future site of the permanent diversion. A dewatering system consisting of pumps and baker tanks would be installed to keep the construction site dry and to capture and neutralize contaminated water. Temporary barriers and sediment fencing will be installed to prevent inadvertent downstream discharge into the river from the project site. As needed, the off-channel canal may be used as a settling area for treated water prior to discharge back into the river.
5. After the project site is suitably dewatered, construction of the permanent diversion structure and associated facilities would commence. This activity would include movement of construction vehicles within the dewatered reach of the riverbed. The diversion structure would be grouted into bedrock and permanently anchored to the riverbed. The conveyance conduit and associated facilities would be constructed along the dry riverbed from the diversion site to the off-channel canal. The canal would be restored to its previous function as a holding pool in front of the flume. The fish screen would be installed in the canal. Following construction, the riverbed would be restored and covered with suitable rock, gravel, and boulders. The temporary diversion would be lifted from the river and the bypass would be closed, refilled, and restored. The project includes a revegetation and soil stabilization program along the banks. Signs will be posted warning boaters of the diversion, and a path will be constructed to accommodate those recreational boaters desiring to walk around the diversion.

AGENCIES EXPECTED TO USE THE EIR

The following agencies are expected to use the EIR as the primary environmental documentation for issuance of the identified permits. The USACE will reference the EIR during preparation of a NEPA Environmental Assessment prior to issuance of Nationwide Permits (wetlands) under Section 404 of the Clean Water Act. The following list is subject to revision based on information obtained during preparation of the EIR and/or comments received during the environmental review process.

Local Agencies

Nevada County – *Grading Permit and Building Permit*

State Agencies

California Department of Fish and Game – *Streambed Alteration Agreement*

California Regional Water Quality Control Board, Lahontan Region – *Waste Discharge Requirements*

California State Water Resources Control Board – *Clean Water Act Section 401 Certification*

California Department of Transportation – *Caltrans Encroachment Permit (temporary and permanent)*

Federal Agencies

United States Army Corps of Engineers – *Clean Water Act Section 404 Compliance: Nationwide Permit 3 (Maintenance), Nationwide Permit 27 (Wetland and Riparian Restoration and Creation Activities), and Nationwide Permit 33 (Temporary Construction, Access, and Dewatering)*

U.S. Fish and Wildlife Service – *Notification required. No permits identified at this time.*

U.S. Forest Service – *unknown permitting requirement. The slope above the project site is within the national forest. Some level of authorization is likely required to allow the stabilization actions on that slope.*

Certification

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this initial evaluation to the best of my ability, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date _____ Signature _____

Printed Name _____

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