

Barber Dam Hydroelectric Project

FERC No. 4881

Relicensing Study Plan

Summary

Prepared for
Fulcrum, LLC,
a subsidiary of Enel North America, Inc.



Prepared by
McMillen Jacobs Associates
and Stantec

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1 Introduction

On November 29, 2018 Fulcrum, LLC, a subsidiary of Enel North America, Inc., and Ada County, Idaho (herein, the Licensees or Fulcrum/Ada County), filed with the Federal Energy Regulatory Commission (FERC) a Notice of Intent (NOI) to relicense the Barber Dam Hydroelectric Project (Project), a Pre-Application Document (PAD), and a request to use the Traditional Licensing Process (TLP). On February 5, 2019, FERC granted the request to use the TLP. Subsequently, the Licensees held a Joint Agency Meeting and Site Visit on March 21, 2019 and received comments and study requests from interested stakeholders. Collectively, the above milestones complete the first stage of the TLP.

The second stage of the TLP includes performing reasonable and necessary studies to collect additional information not otherwise available. Based on stakeholder comments and study requests submitted following the Joint Agency Meeting and Site Visit, the Licensees have prepared this “high-level” study plan summary. The goal of this study plan summary is to present a brief and general approach for each proposed study to facilitate eventual agreement on the general scope of each proposed study. Once agreement has been reached on the general scope of each study, the Licensees will prepare and distribute detailed study plans for review and comment.

To facilitate discussion with stakeholders, this study plan summary was developed for the following studies:

- Water Quality Monitoring Study
- Sediment Sampling
- Macroinvertebrate Sampling
- Wetland and Wildlife Reconnaissance Surveys
- Downstream Flow Fluctuation Impact Assessment
- Recreation Use and User Preference Study
- Cultural/Historic Resources Study

2 Study Plan Summary

2.1 Water Quality Monitoring Study

Operation of the Barber Dam project utilizes water flows within the Boise River. IDEQ has requested that the Licensees develop water quality monitoring protocols to include flow, temperature, total dissolved gas, dissolved oxygen and nutrient monitoring in the Barber Pool and the tailrace. Boise Public Works (BPW) and the Boise River Enhancement Network (BREN) also provided water quality study recommendations and comments. IDEQ made additional study recommendations related to sediment and flow fluctuation and aquatic habitat studies. These additional study requests are discussed separately below.

To present current baseline water quality data in the draft and final license applications, and to support the water quality certification process, the Licensees propose to collect baseline water quality data to assess attainment of water quality standards and whether the continued operation of the Barber Dam Project effects water quality.

The Licensees, based on the input of stakeholders, propose to:

- Define specific and attainable study goals and objectives for water quality monitoring with a nexus to Project operations;
- Define the spatial extent of the study area, including the location of two proposed water quality monitoring stations, one above and one below Barber Dam;
- Measure water temperature (°C) and dissolved oxygen (mg/L and percent saturation) above and below Barber Dam continuously at half-hourly intervals, for one year, in accordance with IDEQ's study request;
- Measure nutrient concentrations above and below Barber Dam monthly for one year, in accordance with IDEQ's study request;
- Perform two spot measurements for total dissolved gas (TDG) downstream of Barber Dam during the irrigation season;
- Perform visual observations for harmful algal blooms (HABs) in identified HAB-prone areas around the shoreline of the Barber Pool during the critical season (mid- and late-summer) when staff is onsite for other water quality monitoring activities;
- Define quality control procedures including calibration and spot measurements performed once a week at each station;
- Perform calculations of flow data from existing stream flow gages and project operations data; and,
- Provide monitoring and study results in draft and final reports.

2.2 Sediment Sampling

IDEQ, BPW, BREN and the US Army Corps of Engineers (USACE) believe there may be contaminants in the sediment behind the dam and provided recommendations and/or comments regarding sampling for or managing sediments behind Barber Dam.

- Consult with IDEQ to determine sampling goals, methods, and parameters to be tested;
- Obtain and analyze any sediment sampling data that may have been collected during previous repairs on the dam or dredging work, or other existing sources;
- Define the locations for representative core sampling by visually identifying where sediment has been transported, extending a minimum of 100 feet upstream of dam;
- Define which potential contaminants that sediments should be tested for, in accordance with IDEQ's sampling request;

- Collect and analyze three hand-core samples of sedimentation upstream of Barber Dam to characterize the sediment and any contaminants; and,
- Provide sampling results in draft and final reports.

2.3 Macroinvertebrate Sampling

The presence or absence of macroinvertebrates can describe the aquatic life health of a stream system or segment. The Licensees propose the following:

- Consult with IDEQ to determine sampling methods and parameters and existing, available data;
- Collect samples of macroinvertebrates at two locations (one above and one below Barber Dam) within the project boundary;
- Sampling to be performed in conjunction with other Project monitoring or survey efforts; and,
- Provide sampling results in draft and final reports.

2.4 Wetland and Wildlife Reconnaissance Surveys

Wetlands and streams provide significant habitat to wildlife in riparian systems. The area around the Barber Dam Project, in particular the Barber Pool, is a uniquely natural setting in an increasingly urbanized area. The Barber Pool Advisory Council (BPAC) is currently undertaking a vegetation study to update its 2002 Barber Pool Conservation Area Master Plan. The Licensees propose to perform reconnaissance-level foot surveys within the project boundary. Project surveys will observe for rare, threatened or endangered (RTE) species, other protected species (e.g. Migratory Bird or Bald and Golden Eagle Protection Acts), and invasive vegetation species.

- Identify target species, characteristics and habitat types;
- Perform desktop mapping of habitat within the project boundary, utilizing the BPAC's recent mapping effort of the Barber Pool and other existing, available data;
- Perform wetland and wildlife observations within the project boundary in conjunction with other Project monitoring or survey efforts, and;
- Provide survey results in draft and final reports.

2.5 Downstream Flow Fluctuation and Habitat Impact Assessment

Operations of the Barber Dam Project that result from power interruptions can cause or contribute to alterations of downstream river flow, which may impact irrigation diversions and riverine habitat downstream of the Project. The Licensees propose to assess the effects of fluctuating flows on water level, wetted perimeter, and mean channel current velocity at selected locations downstream of the project using a combination of modeling and field measurement techniques.

The Idaho Department of Fish and Game (IDFG) requests studying the effects of Project operations on downstream flow and aquatic resources (i.e. habitat and aquatic species). The Idaho Department of Water Resources (IDWR) requests performing an analysis of structural and/or operational changes that could be made to the project to address the Project's downstream impacts. Other studies and comments regarding project flows and recommendations that operational or structural solutions be considered for the Project were made by numerous commenters, including: BPW, BREN, Idaho Conservation League (ICL), IDEQ, several irrigators, and Idaho Foundation for Parks and Lands (IFPL).

In general, the Licensees, in consultation with stakeholders, propose to:

- Consult with IDFG, IDWR, IDEQ and other interested parties to determine specific data needs to understand project operations, power interruptions, and effects on water users;
- Define specific and attainable study goals and objectives;
- Define the spatial extent of the study area;
- Define the study methodology and two target study periods (irrigation and non-irrigation season);
- Define hydraulic modeling techniques, and scenarios for modeling;
- Define number and locations of transects to be used for hydraulic model calibration and/or habitat assessment;
- Perform hydraulic model simulation and analyses;
- Perform habitat analyses based on the results of the hydraulic model and water level monitoring data;
- Perform calculations of flow data from existing gages and project generation;
- Incorporate IDEQ's Beneficial Use Reconnaissance Program (BURP) protocol for fish and aquatic habitat;
- Incorporate additional existing groundwater/aquifer data not included in the PAD; and,
- Provide monitoring and study results in draft and final reports.

2.6 Recreation Use and User Preference Study

The Barber Dam Project provides facilities for public recreational use and enjoyment including a canoe/kayak takeout and stairway, a graveled portage footpath trail, and directional signage. Both the Idaho Department of Parks and Recreation (IDPR) and the National Park Service (NPS) requested a recreation use and user preference study. Additional requests/recommendations came from Boise City Parks and Recreation, BREN, the ICL and the IFPL. IDPR and NPS recommend this study in order to match demand with potential facilities improvements within the project boundary. Therefore, the Licensees propose to:

- Define specific and attainable study goals and objectives (e.g. functionality, usability, avenues for improvement);
- Consult with IDPR, NPS, and other interested parties to determine specific data needs to understand project recreational use and needs;
- Define the study methodology and duration of study including targeted (summer/winter) field work, surveys, outreach, and professional assessment; and,
- Provide study results in draft and final reports.

2.7 Cultural/Historical Resources Study

Neither the SHPO nor the Tribes requested a study to survey the historic properties within the project boundary, although other commenters provided information and recommendations. The Licensees propose to:

- Conduct Section 106 consultation with the SHPO and Tribes to determine specific data needs;
- Perform additional archival research, as needed;
- Conduct field survey and document all previously recorded and newly discovered resources within the area of project effects (APE) and evaluate them for listing on the National Register, as needed;
- Identify and assess project effects on identified cultural resources; and,
- Provide study results in draft and final reports that exclude confidential information, and a Privileged report containing confidential information.

3 Literature Cited

Barber Pool Advisory Council. Barber Pool Vegetation Mapping Needs RFP. January 2019.

Idaho Department of Environmental Quality. 2017. Beneficial Use Reconnaissance Program Field Manual for Streams. June 2017.

Idaho Department of Environmental Quality. 2015. Lower Boise River TMDL, Total Phosphorus Addendum. August. 2015.

U.S. Army Corps of Engineers, Walla Walla District. 2002. Barber Pool Conservation Area Master Plan. Submitted to The Friends of the Barber Pool Conservation Area. September 2002.