FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, DC  20426  
February 1, 2012  

OFFICE OF ENERGY PROJECTS

Project No. 13563-001 – AK
Sweetheart Lake Hydroelectric Project
Juneau Hydropower, Inc.

Subject: Scoping Document 2 for Sweetheart Lake Hydroelectric Project, P-13563

To the Party Addressed:

The Federal Energy Regulatory Commission (Commission) is currently reviewing the Pre-Application Document (PAD) submitted by Juneau Hydropower, Inc. (Juneau Hydropower or applicant) for the licensing of the Sweetheart Lake Hydroelectric Project (Sweetheart Lake Project or project) (FERC No. 13563). The project would be located about 30 air miles and 33 nautical miles southeast of the City of Juneau, Alaska, on the western shore of the mainland just south of the Harding River and at the confluence of Sweetheart Creek and Gilbert Bay. The project would occupy federal lands within the Tongass National Forest, administered by the U.S. Forest Service.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, Commission staff intends to prepare an environmental assessment (EA), which will be used by the Commission to determine whether, and under what conditions, to issue an original license for the project.

Our preliminary review of the scope of environmental issues associated with the proposed licensing of the Sweetheart Lake Project was described in Scoping Document 1 (SD1), issued on August 8, 2011. We requested comments on SD1, held scoping meetings, and conducted an environmental site review on September 7, 2011, and September 8, 2011, to hear the views of all interested agencies and entities on the scope of issues that should be addressed in the EA. Based on the verbal comments that we received at the scoping meetings, and written comments we received throughout the scoping process, we prepared the enclosed Scoping Document 2 (SD2). The enclosed SD2 for the project is intended to serve as a guide to the issues and alternatives to be addressed in the EA. Key changes from SD1 to SD2 are identified in **bold** and *italicized*.

SD2 is being distributed to the Commission’s official mailing list (see section 9.0 of the attached SD2). If you wish to be added to or removed from the Commission’s official mailing list, please send your request by email to efiling@ferc.gov or by mail to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street,
N.E., Room 1A, Washington, DC 20426. All written or emailed requests must specify your wish to be removed or added to the mailing list and must clearly identify the following on the first page: **Sweetheart Lake Hydroelectric Project No. 13563-001.**

You may also register online at [http://www.ferc.gov/esubscription.asp](http://www.ferc.gov/esubscription.asp) to be notified via email of new filings and issuances related to this or other pending projects. For assistance, please contact FERC Online Support at ferconlinesupport@ferc.gov.

SD2 is issued for informational use by all interested parties; no response is required. If you have any questions about SD2, the scoping process, or how Commission staff will develop the environmental document for this project, please contact Jennifer Harper at (202) 502-6136 or Jennifer.Harper@ferc.gov. Additional information about the Commission’s licensing process and the project may be obtained from our website, [http://www.ferc.gov](http://www.ferc.gov).

Enclosure: Scoping Document 2

cc: Mailing List
    Public Files
SCOPING DOCUMENT 2

SWEETHEART LAKE HYDROELECTRIC PROJECT

ALASKA

PROJECT NO. 13563

Prepared for the
Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
Washington, D.C.

January 2012
# TABLE OF CONTENTS

1.0  INTRODUCTION ...................................................................................................... 5

2.0  SCOPING .................................................................................................................. 12
   2.1  PURPOSES OF SCOPING .................................................................................. 12
   2.2  COMMENTS, SCOPING MEETINGS, AND SITE VISIT ....................................... 12

3.0  PROPOSED ACTION AND ALTERNATIVES ................................................... 19
   3.1  APPLICANT’S PROPOSAL ............................................................................... 19
       3.1.2  Proposed Project Access ........................................................................... 24
       3.1.3  Proposed Project Operations ..................................................................... 24
       3.1.4  Proposed Environmental Measures .......................................................... 24
   3.2  ALTERNATIVES TO THE PROPOSED ACTION ......................................... 27
   3.3  NO ACTION ALTERNATIVE ........................................................................... 27

4.0  SCOPE OF CUMULATIVE EFFECTS AND SITE-SPECIFIC RESOURCE
     ISSUES.............................................................................................................................. 28
   4.1  CUMULATIVE EFFECTS.................................................................................. 28
   4.2  RESOURCE ISSUES........................................................................................ 28
       4.2.1  Geologic and Soils Resources ....................................................................... 28
       4.2.2  Water Quantity and Quality .......................................................................... 29
       4.2.3  Aquatic Resources .......................................................................................... 29
       4.2.4  Terrestrial Resources ..................................................................................... 30
       4.2.5  Threatened and Endangered Species ........................................................... 31
       4.2.6  Recreation Resources and Land Use ........................................................... 31
       4.2.7  Aesthetic Resources ....................................................................................... 32
       4.2.8  Cultural Resources ........................................................................................ 32
       4.2.9  Socioeconomics ........................................................................................... 33
       4.2.10 Developmental Resources ............................................................................ 33

5.0  POTENTIAL STUDIES ........................................................................................... 34

6.0  EA PREPARATION SCHEDULE ......................................................................... 40

7.0  PROPOSED EA OUTLINE ..................................................................................... 41

8.0  APPLICABLE COMPREHENSIVE PLANS......................................................... 43

9.0  FERC OFFICIAL MAILING LIST ........................................................................ 43
LIST OF FIGURES

Figure 1. Project Map Overview (Source Juneau Hydropower PAD, 2010) ................. 10
Figure 2. Sweetheart Lake Vicinity Map (Source: Juneau Hydropower PAD, 2010) .... 11
Figure 3. Tunnel and Penstock (Source: Juneau Hydropower, PAD, 2010) ............. 21
Figure 4. Juneau Hydropower proposed facilities (Source: Juneau Hydropower, PAD, 2010) ............................................................ 23

LIST OF TABLES

Table 1. Prefiling ALP Schedule .................................................................................. 9
Table 2. Juneau Hydropower’s Potential Studies. (Source: Juneau Hydropower PAD and Initial Agency Meeting 2010 and Agency comments) ........................................ 34
ACRONYMS AND ABBREVIATIONS

ac-ft   acre-feet
AELP   Alaska Electric Light and Power
ALP   Alternative Licensing Process
Alaska DEC   Alaska Department of Environmental Conservation
Alaska DFG   Alaska Department of Fish and Game
Alaska DNR   Alaska Department of Natural Resources
APE   Area of Potential Effect
cfs   cubic feet per second
Commission or FERC   Federal Energy Regulatory Commission
EA   environmental assessment
EIS   environmental impact statement
Forest Service   U.S. Forest Service
FPA   Federal Power Act
GWh   gigawatt-hours
Juneau Hydropower   Juneau Hydropower Inc.
MW   megawatt
MWh   megawatt-hours
NEPA   National Environmental Policy Act
NMFS   National Marine Fisheries Service
NGO   non-governmental organizations
PAD   Pre-Application Document
PDEA   preliminary draft environmental assessment
PM&E   protection, mitigation, and enhancement measures
SD1   Scoping Document 1
SD2   Scoping Document 2
Sweetheart Lake Project or project   Sweetheart Lake Hydroelectric Project
USFWS   U.S. Fish and Wildlife Service
USGS   U.S. Geological Service
The Federal Energy Regulatory Commission (Commission or FERC), under the authority of the Federal Power Act (FPA),\(^1\) may issue licenses for terms ranging from 30 to 50 years for the construction, operation, and maintenance of non-federal hydroelectric projects. On July 28, 2010, Juneau Hydropower Inc. (Juneau Hydropower) filed a Pre-Application Document (PAD) and Notice of Intent to seek an original license for the 30-megawatt (MW) Sweetheart Lake Hydroelectric Project (Sweetheart Lake Project or project).\(^2\) Juneau Hydropower also submitted a request to FERC to use the Alternative License Process (ALP) on July 28, 2010. The request to use the ALP was granted on September 24, 2010.

The Sweetheart Lake Project would be located about 30 air miles and 33 nautical miles southeast of the City of Juneau, Alaska, on the western shore of the mainland just south of the Harding River and at the confluence of Sweetheart Creek and Gilbert Bay (Figure 1, 2). The project would occupy federal lands within the Tongass National Forest, administered by the U.S. Forest Service. The proposed project would consist of: (1) the existing Lower Sweetheart Lake, raised from a surface water elevation of 544 feet and a surface area of 1,414 acres to a new surface water elevation of 629 feet and a new surface area of 1,635 acres; (2) an approximately 500-foot-long, 90-foot-high concrete and rock-faced dam, constructed at the outlet of Lower Sweetheart Lake; (3) an intake on the dam connected to a 12-foot-diameter, 10,390-foot-long unlined tunnel; (4) a 9-foot-diameter, 1,650-foot-long penstock installed within the lower 1,650 feet of the tunnel, extending to the powerhouse; (5) a powerhouse containing two new Francis generating units with a total installed capacity of 30 MW; (6) a tailrace discharging flows to Sweetheart Creek; (7) an approximately 0.6-mile long road from the powerhouse to the dock/landing site; (8) a dock/landing site for boat, seaplane, and/or helicopter access, located on the east shore of Gilbert Bay; (9) a 138-kilovolt transmission line that would

\(^1\) 16 U.S.C. § 791(a)-825(r).
\(^2\) On December 14, 2009, the Commission issued a Preliminary Permit (permit) to Juneau Hydropower to study the feasibility of developing a hydroelectric project on Lower Sweetheart Lake. The permit provides Juneau Hydropower protection under the FPA from competitive applications while conducting the studies and processes necessary to complete an application for license. In its Notice of Intent, Juneau Hydropower states that it expects to file the license application with the Commission by December, 2012.
be either 8.9 miles with 5.9 miles of overhead line and 3 miles of submerged line, or 8.4 miles with 0.4 miles of overhead line and 8.0 miles of submerged line; and (10) appurtenant facilities. The proposed Sweetheart Lake Project would have an average annual generation of 136 gigawatt-hours.

<table>
<thead>
<tr>
<th>Generation Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usable Stored Capacity</td>
</tr>
<tr>
<td>Operational Draw-down</td>
</tr>
<tr>
<td>Elevation Drop</td>
</tr>
<tr>
<td>Dam size</td>
</tr>
<tr>
<td>Power Conduit (diameter/length)</td>
</tr>
<tr>
<td>Installed Capacity</td>
</tr>
<tr>
<td>Turbine Type/Number</td>
</tr>
<tr>
<td>Estimated Average Annual Energy</td>
</tr>
</tbody>
</table>

The National Environmental Policy Act (NEPA) of 1969, the Commission’s regulations, and other applicable laws require the Commission to independently evaluate the environmental effects of issuing an original license for the Sweetheart Lake Hydroelectric Project as proposed, and to consider reasonable alternatives to Juneau Hydropower’s proposal. At this time, Commission staff intend to prepare a draft and final environmental assessment (EA). The EA will describe and evaluate the probable effects, including any site-specific and cumulative effects, of the proposed action and alternatives. The EA preparation will be supported by a scoping process to ensure identification and analysis of all pertinent issues. Although our current intent is to prepare a draft and final EA, there is a possibility that an environmental impact assessment (EIS) will be required. The scoping process will satisfy the NEPA scoping requirements, irrespective of whether the Commission issues an EA or an EIS.

Sweetheart Lake Hydroelectric Project Background & Licensing Process to Date

Since the Preliminary Permit was issued on December 9, 2009, the licensing process for the Sweetheart Lake Hydroelectric Project includes the following activities:

- Distribution of a PAD describing the project, the licensing process, and preliminary environmental information, on July 28, 2010. The PAD contains descriptions of existing resources, expected impacts, and possible environmental studies, as known at the time of writing, and is a source of background information. The Juneau Hydropower PAD encompasses the known documentation that exists in the project area and serves as a baseline for subsequent studies.

- Submission to the Commission and consulting agencies of a request to utilize the Alternative Licensing Procedures (ALP) on July 28, 2010. The ALP is a process for licensing which allows the applicant to prepare a preliminary draft environmental assessment (PDEA), in lieu of an Exhibit E, as part of the license application. Subsequently, the use of the ALP process was approved by the Commission on September 24, 2010.

- Submission to the Commission to authorize Juneau Hydropower to conduct Section 106 on behalf of the project on August 13, 2010. Permission to conduct Section 106 consultation allows Juneau Hydropower to initiate consultation with the Alaska State Historic Preservation Officer, appropriate Native Alaskan tribes, and other consulting parties, pursuant to 36 CFR Part 800.2(c)(4) of the regulations implementing Section 106 of the National Historic Preservation Act. On August 24, 2010, FERC granted Juneau Hydropower permission to initiate Section 106 consultation on behalf of the Sweetheart Lake Hydroelectric Project.

- On August 13, 2010, Juneau Hydropower requested that FERC designate it as the nonfederal representative for the purpose of conducting informal consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act and the Magnuson-Stevens Fishery Conservation and Management Act for the Sweetheart Lake Project. On August 20, 2010, the Commission designated Juneau Hydropower as the Commission’s non-federal representative to conduct informal consultation with NMFS and FWS.

- On October 28, 2010, Juneau Hydropower held an initial agency meeting at the U.S. Federal Building in Juneau for the purpose of presenting and obtaining proposed study feedback related to the PAD to Federal and State agencies and Native Alaskan Tribes. Juneau Hydropower and its consultants received agency
comments at this meeting to incorporate in proposed study plans. Subsequent to this meeting, Juneau Hydropower has received insightful comments from many agencies that have been incorporated into study plans. This meeting was recorded on videotape and is available for review.

- On April 12, 2011, Juneau Hydropower held a Roadless issue meeting with representatives for the Forest Service as requested by FERC. Juneau Hydropower and the Forest Service discussed the Land Use Designation and the Roadless Rule issues with regard to the project. Juneau Hydropower will continue to monitor policy guidance from the Forest Service regarding hydropower development and Roadless Rule issues in the Tongass National Forest. Juneau Hydropower will continue to work within the Tongass Land Management Plan and subsequent Roadless Rule guidance on Tongass Forest hydropower development.

- On May 31, 2011, Juneau Hydropower filed its Draft Cultural Study Plan for agency and public comment.

- On July 21, 2011, Juneau Hydropower filed its Draft Terrestrial Resources and Wetland Delineation Study Plan for agency and public comment.

- **On September 7, 2011, Commission staff conducted daytime and evening scoping meetings in Juneau, Alaska.**

- **On September 8, 2011, the applicant, Commission staff, and agency staff attended an environmental site review at the proposed site of the Sweetheart Lake Project.**

- **On October 27, 2011, Juneau Hydropower filed its Final Cultural Study Plan.**

- **On January 13, 2012, Juneau Hydropower filed its Final Recreation Resources Study Plan.**

All documents, meeting video, and submissions from these early licensing activities are available from the Juneau Hydropower website; [www.juneauhydro.com](http://www.juneauhydro.com). In addition, non-video documents are available for public review at the Downtown Juneau Public Library, 292 Marine Way, Juneau, AK 99801.

The exact name, business address and phone number of the person authorized to act as an agent for the applicant is:

Duff W. Mitchell
Business Manager, Juneau Hydropower Inc.
All questions, comments, or correspondence related to the licensing for the project should be directed to Duff W. Mitchell at the above address and filed with the Commission. Changes in this contact information will be notified directly to all interested parties and through announcements in a local newspaper. Table 1 provides a schedule of activities for the prefiling ALP.

Table 1. Prefiling ALP Schedule

<table>
<thead>
<tr>
<th>Activity</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAD/NOI/ALP Request</td>
<td>July 28, 2010</td>
</tr>
<tr>
<td>FERC granted Juneau Hydropower’s request to be the designated non-federal representative for ESA consultation</td>
<td>August 20, 2010</td>
</tr>
<tr>
<td>FERC granted Juneau Hydropower’s request to initiate Section 106 consultations</td>
<td>August 24, 2010</td>
</tr>
<tr>
<td>FERC approved use of the ALP</td>
<td>September 24, 2010</td>
</tr>
<tr>
<td>Juneau Hydropower received Forest Service SUP</td>
<td>October 28, 2010</td>
</tr>
<tr>
<td>Juneau Hydropower conducted Initial Agency Meeting</td>
<td>October 28, 2010</td>
</tr>
<tr>
<td>Scoping Document 1 issued</td>
<td>August 8, 2011</td>
</tr>
<tr>
<td>Scoping Meeting</td>
<td>September 7, 2011</td>
</tr>
<tr>
<td>Site Visit</td>
<td>September 8, 2011</td>
</tr>
<tr>
<td>Scoping Document 2</td>
<td>Winter 2011/2012</td>
</tr>
<tr>
<td>Study Planning</td>
<td>2010-2011</td>
</tr>
<tr>
<td>Study Execution</td>
<td>2011-2012</td>
</tr>
<tr>
<td>Engineering Studies</td>
<td>2011-2012</td>
</tr>
<tr>
<td>Draft License Application (DLA) to Stakeholders</td>
<td>Late Summer/Fall 2012</td>
</tr>
<tr>
<td>Agencies, Tribes, Stakeholders Comment on DLA</td>
<td>Late Fall 2012</td>
</tr>
<tr>
<td>Final License Application filed with FERC</td>
<td>November 30, 2012</td>
</tr>
</tbody>
</table>
Figure 1. Project Map Overview (Source Juneau Hydropower PAD, 2010)
Figure 2. Sweetheart Lake Vicinity Map (Source: Juneau Hydropower PAD, 2010)
2.0 SCOPING

This Scoping Document 2 (SD2) is intended to advise all participants as to the proposed scope of the EA and to seek additional information pertinent to this analysis. This document contains: (1) a description of the scoping process; (2) a description of the proposed action and alternatives; (3) a preliminary identification of environmental issues and proposed studies; (4) a request for comments and information; (5) a proposed EA outline; and (6) a preliminary list of comprehensive plans which would be applicable to the project.

2.1 PURPOSES OF SCOPING

Scoping is the process used to identify issues, concerns, and opportunities for enhancement or mitigation associated with a proposed action. According to NEPA, the process should be conducted early in the planning stage of the project. The purposes of the scoping process are as follows:

- invite participation of federal, state and local resource agencies, Indian tribes, non-governmental organizations (NGOs), and the public to identify significant environmental and socioeconomic issues related to the proposed project;
- determine the resource issues, depth of analysis, and significance of issues to be addressed in the EA;
- identify how the project would or would not contribute to cumulative effects in the project area;
- identify reasonable alternatives to the proposed action that should be evaluated in the EA;
- solicit, from participants, available information on the resources at issue, including existing information and study needs; and
- determine the resource areas and potential issues that do not require detailed analysis during review of the project.

2.2 COMMENTS, SCOPING MEETINGS, AND SITE VISIT

The Commission issued SD1 on August 8, 2011, and requested that interested parties file their comments by October 7, 2011. On September 7, 2011, Commission
staff conducted a daytime and an evening scoping meeting in Juneau, Alaska. An environmental site review of the project site was held on September 8, 2011. Notices of all meetings were published in local newspapers and in the Federal Register. A court reporter recorded and transcribed both of the scoping meetings.

During the meetings and the following comment period, the Commission received comments on the applicant’s Pre-Application Document (PAD), the scoping meetings, and SD1. Written comments were received from the following agencies and individuals:

<table>
<thead>
<tr>
<th>COMMENTING PARTY</th>
<th>COMMENT DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathy Munoz</td>
<td>October 3, 2011</td>
</tr>
<tr>
<td>Forest Service</td>
<td>October 7, 2011</td>
</tr>
<tr>
<td>Alaska Department of Fish and Game (Alaska DFG)</td>
<td>October 7, 2011</td>
</tr>
<tr>
<td>National Park Service</td>
<td>October 7, 2011</td>
</tr>
<tr>
<td>U.S. Fish and Wildlife Service</td>
<td>October 11, 2011</td>
</tr>
<tr>
<td>NOAA</td>
<td>October 11, 2011</td>
</tr>
</tbody>
</table>

SD1 was revised to address comments relating to the scope of environmental issues. This document, SD2, presents the issues and alternatives to be analyzed in the EA. It is not the purpose of the SD2 to identify or evaluate all of the recommended and/or potential protection, mitigation, and enhancement measures (PME measures). The scoping document summarizes the applicant’s proposed measures because they are part of the proposed action that is the subject of the environmental analysis. Key changes to SD1 are identified in bold and italic type.

General comments or concerns raised that call for a response and issues that were not adopted are summarized below by topic. The summary, however, does not include every oral and written comment made during the scoping process. For instance, we do not address comments that are statements of opinion regarding operation of the project, general statements of support for the project that do not require a response in this document, study plans, or minor editorial corrections. The complete filings are available for review in the Commission’s e-library located on the web at www.ferc.gov.

**Project Design and Alternatives**

Comment: NOAA and the Forest Service state that they would like to see greater detail for the design of the downstream fish passage facility and the tailrace. The FWS would like to see evidence of successful deployment of smolt transport at other hydropower facilities to assist with the evaluation of the suitability of the downstream fish passage at Sweetheart Lake. The Forest Service states that “[t]he powerhouse...
location needs to be described more completely before analysis can begin on potential effects to the anadromous and personal-use fishery.” The Forest Service also states that they want a description of the screening and/or other methods to prevent resident fish from entering the penstock.

Response: Additional information on project facilities will be filed in the project record as it becomes available during implementation of the ALP studies and through completion of other ALP milestones. Project facilities will need to be described in the Draft License Application and Final License Application in sufficient detail to permit Commission staff and others to evaluate the environmental effects of the proposed action as required by NEPA. NOAA, FWS, and the Forest Service will have multiple opportunities to comment on the adequacy of the information throughout the ALP, including any relevant study reports, and the Draft and Final License Application review stages.

Comment: The FWS requests that the applicant evaluate a proposed alternative that would return flows above the barrier falls. The FWS also states that the applicant should design all transmission lines for the project in compliance with the recommendations in the “Suggested Practices for Avian Protection on Powerlines: The State of the Art in 2006” to minimize impacts of the project transmission line on birds. The Forest Service also states that the applicant’s proposed environmental measures should be modified to include Avian Power Line Interaction Committee standards and design recommendations.

Response: We do not evaluate the appropriateness of project alternatives at this time. An analysis of the need for, costs, and benefits of any recommended alternatives or protection, mitigation, and enhancement measures would be included in the NEPA document after the specific recommendations have been filed with the Commission in response to the REA notice. However, the applicant has proposed to evaluate the effects of the transmission line on avian species in the project area.

Cumulative Effects

Comment: The Forest Service states that it is its practice to analyze all affected resources for direct, indirect, and cumulative effects. It also requests that the Commission address any effects that the Sweetheart Lake project may have on the adjacent Tracy Arm-Fords Terror Wilderness Area.

Response: We have added project effects on the Tracy Arm-Fords Terror Wilderness as an issue to this SD2.
In regard to cumulative effects, we only evaluate cumulative effects for those resource areas that would be cumulatively affected by the project together with other effects from past, present, or reasonably foreseeable future actions. The Forest Service does not provide any specific information on past, present, or reasonably foreseeable future actions and their corresponding effects on any resource issues identified in this SD2. Therefore, we have insufficient information to expand the cumulative effects analysis at this time. We will expand the cumulative effects analysis if new information is made available suggesting that resources may be cumulatively affected by the project.

**Study and Information Requests**

Comment: The Forest Service’s comment letter made multiple requests for studies to address information needs for fisheries, botanical, and cultural resources.

Response: We do not evaluate study requests at this time. Under the Alternative License Process, the applicant is encouraged to work closely with resource agencies during prefiling to develop study plans that will provide the necessary information needed for agencies to fulfill their statutory obligations. To date, the applicant has submitted the Terrestrial Resources and Wetland Delineation Study Plan for review and is in the process of finalizing the aquatics resources study plan. Aquatics, botanical, and cultural resources are all addressed as issues for evaluation in the EA. The Commission will determine whether sufficient information exists in the project record to conduct the required environmental analysis after review of the Draft and Final License Applications and APEA.

**Environmental Resources**

**Geology and Soils**

Comment: The Forest Service states that the applicant should conduct a thorough geologic survey and a geotechnical evaluation. It also states that plans and locations of potential storage and/or disposal sites for excavated material and/or waste rock should be approved by the Forest Service prior to placement or relocation on Forest Service lands.

Response: Section 4.41(g)(3)(i) of the Commission’s regulations requires that the applicant submit an assessment of the suitability of the site based on geological and subsurface investigations as part of its supporting design report, which is due to be filed with the Final License Application. The applicant will need to identify the locations of storage and disposal sites for excavated materials as part of its proposed action in the
Final License Application.

Aquatics

Comment: NOAA states that it will be important to know the location, timing, and use of the habitat in Sweetheart Creek above and below the tailrace as well as the hydrology of Sweetheart Lake and Creek, including the timing, magnitude, and year to year variability.

Response: We identify project effects on fisheries resources in Sweetheart Creek as an issue in this SD2. The specific hydrologic study needs that will be addressed by the applicant during the ALP prefiling process.

Terrestrial

Comment: The Forest Service states that project effects on wildlife may occur beyond the project boundary.

Response: The applicant’s Final Terrestrial Resources and Wetland Study Plan states that they will take into account Wildlife Analysis Areas (WAA’s) and Value Comparison Units (VCU’s) for consideration in completing a Biological Evaluation/Wildlife Analysis document. The study area includes all proposed Project facilities along Lower Sweetheart Lake, Sweetheart Creek and proposed transmission line routing. The Commission will consider all reasonable effects to wildlife in the environmental assessment.

Comment: The Forest Service states that they need additional information on the Terrestrial Connectivity Plan.

Response: We anticipate that the information requested will become available at or before Juneau Hydro files the Final License Application.

Threatened and Endangered Species

Comment: The Forest Service states that Humpback whales and Steller sea lions are present in the project area.

Response: We updated the SD2 to include these species.

Recreation and Land Use
Comment: The NPS stated that the applicant should consult with all classes of recreational users, not just guides and outfitters, to assess the kinds of recreational opportunities in the project area.

Response: The SD2 has been updated to include both commercial and non-commercial recreation users in the evaluation of effects on recreation resources.

Comment: Alaska DFG expressed concern regarding potential restrictions on public access for recreation (motorized and non-motorized) that may result from the project.

Response: Motorized public access to the project area is not proposed; however the SD2 has been updated to include effects of the project on public access.

Aesthetics

At the scoping meeting, Ms. Angel Drobnica (Southeast Alaska Conservation Council) asked whether the project would allow for sufficient flow over the barrier falls to maintain scenic values.

Response: Juneau Hydro indicated at the meeting that the flow would be reduced substantially but that the effects on scenic value were unclear and would be better understood after more flow data are collected. The SD2 has been updated to specifically include the potential effect of the flow diversion on the scenic quality of the barrier falls.

Climate Change

Comment: The Forest Service asks how this project addresses the projected changes associated with global climate change.

Response: Attempting to analyze how the project may be affected by future climate change would be too speculative given the state of the science at this time. However, we encourage the applicant and agencies to consider high and low water years when making flow proposals, recommendations, and terms and conditions.

Consultation

Comment: The Forest Service states that Juneau Hydro should include any recent discussions with Alaska Electric Light and Power (AELP) in the project operations discussion of SD2.
Response: AELP is a signatory to the project’s communications protocol and has filed comments on the preliminary permit requesting that the applicant investigate capacity upgrades to transmit the power to the service area. At this early stage of the ALP, we anticipate that consultation with AELP will be an ongoing process and any potential changes to the project configuration as a result of the consultation process would be reflected in the Draft and Final License Application.
3.0 PROPOSED ACTION AND ALTERNATIVES

In accordance with NEPA, the environmental analysis will consider the following alternatives, at a minimum: (1) the no-action alternative, (2) the applicant's proposed action, and (3) alternatives to the proposed action.

3.1 APPLICANT’S PROPOSAL

3.1.1 Proposed Project Facility Features and Boundary

The project description and the data presented herein are derived from the preliminary permit application and the PAD that were developed from the 1947 Federal Power Commission report titled, “Water Powers of Southeast Alaska” and the 1962 report by the U.S. Department of Interior, Geological Survey Water Supply Paper 1530 entitled Water Power Resources near Petersburg and Juneau, Southeast Alaska.

Juneau Hydropower has proposed the project boundary in the preliminary permit application and identified in Figure 2. The FERC boundary for the project would extend approximately 350 feet from all project features for public safety and critical energy infrastructure security measures.

In the following descriptions, elevations (El) are relative to low mean sea level. Vertical and horizontal distances are in English units. Directions near streams are left or right, looking downstream.

Reservoir.

The project would impound Lower Sweetheart Lake, which has an existing surface elevation of 544 feet and surface area of 1,414 acres, creating a new surface elevation of 629 feet and surface area of 1,635 acres. The result would create both added storage of approximately 129,693 acre-feet of additional storage, and add approximately 85 feet of gross head, for a total of approximately 600 feet of head.

The proposed project operation would fluctuate the surface elevation of the new impounded reservoir about 60 feet annually, creating an active storage capacity of approximately 93,500 acre-feet.

Dam.

A new dam approximately 500 feet long and 90 feet high, composed of a concrete
core and rock face, would be constructed at the outlet of Lower Sweetheart Lake.

**Spillway.**

An overflow relief spillway would be provided for discharge from the storage reservoir as well as a low flow control device to provide for minimum stream flows as necessary.

**Tunnel.**

Water would be withdrawn via an intake structure located at the upper tunnel portal at elevation 550 feet on the north bank of Lower Sweetheart Lake. The intake and upstream tunnel portal, as currently configured, would be located just upstream of the dam. The 12-foot-diameter, 10,390-foot-long tunnel would be constructed at a 4.8-percent grade. The upper 8,740 feet would be unlined, and the lower 1,650 feet would be lined. The lower tunnel portal would be at elevation 29 feet, adjacent to the powerhouse.

**Penstock.**

The lower section of the 12-foot-diameter tunnel would be lined with a 9-foot-diameter steel penstock, connecting to the powerhouse. The penstock would be 1,650 feet long. There would be a rock trap in the tunnel just upstream of the penstock.
Powerhouse.

The powerhouse would be located at elevation 29 feet, at or near the elevation of the barrier falls of Sweetheart Creek. The powerhouse location is approximately 2,000 feet east of the confluence of Sweetheart Creek and Gilbert Bay. The exact location of the powerhouse will be determined through the study process. The powerhouse would be approximately 60 feet wide, 100 feet long, and 35 feet high, and constructed with concrete walls and potentially a metal or metal/concrete roof. Depending on architectural and engineering considerations, Juneau Hydropower would propose to build the powerhouse into the hillside to minimize disturbances, allow infrastructure to blend in with surroundings, and to mitigate noise emitting from operations. Juneau Hydropower’s goal would be to eliminate scenic and audio disturbance in the area of powerhouse operations. Juneau Hydropower would also consider installing a 20 foot or greater barrier mound, consisting of a rock-layered berm topped with soil and naturally seeded with local plants to blend in with the natural surroundings around the powerhouse and switchyard. The powerhouse would have two Francis turbines, each with a total rated head of roughly 600 feet, a designed flow capacity of 300 to 400 cubic feet per second (cfs), and a capacity of 15 MW each.

Tailrace.
Discharge from the turbines would be directed by a short tailrace into Sweetheart Creek, below the barrier falls. The tailrace would be concrete with a possible rock facade to blend with its natural surroundings. The tailrace would also be designed to enhance the naturally-occurring anadromous fish spawning habitat.

**Transmission lines.**

There are two options for the project transmission line segments: Option T-1 would consist of a submarine-overhead combination 138-kV transmission line accessed by a road or by helicopter; and Option T-2 would consist of a primarily submarine line, with a small overhead section. Both transmission options would start at the powerhouse and end at a connection point into an existing 138-kV line running from Snettisham Hydropower facility to Juneau.

Option T-1 includes the following transmission line segments: (1) a 0.4–mile-long overhead transmission line from the powerhouse to a new dock on the east shore of Gilbert Bay; (2) a 1.5-mile-long submarine transmission line from the dock to the west shore of Gilbert Bay; (3) a 5.5-mile-long overland transmission line along the west shore of Gilbert Bay, around Sentinel Point, along the south shore of Port Snettisham (bay); (4) a 1.5-mile-long submarine transmission line across the entrance to the north shore of Port Snettisham (bay) at a location just east of Mist Island; and (5) a connection onshore into the existing 138-kV transmission line.

Option T-2 includes the following transmission line segments: (1) a 0.4–mile-long overhead transmission line from the powerhouse to a new dock on the east shore of Gilbert Bay; (2) an 8.0–mile-long submarine transmission line from the dock along the west side of Gilbert Bay, around Sentinel Point, southwest in the middle of the entrance to the north shore of Port Snettisham (bay) at a location just east of Mist Island; and (3) a connection onshore into the existing 138-kV transmission line.

---

4 The Snettisham Hydropower project was built by the U.S. Army Corps of Engineers in 1979 and sold to the state of Alaska in 1988. It is now owned by the Alaska Industrial Development and Export Authority. This project does not fall under FERC’s jurisdiction. All power from the project is purchased by Alaska Electric Light and Power for power needs in the Juneau area.
Figure 4. Juneau Hydropower proposed facilities (Source: Juneau Hydropower, PAD, 2010)
3.1.2 Proposed Project Access

Generating Facilities

Stephens Passage separates the project from the nearest town of Juneau, Alaska. The only access for either construction or long-term operation and maintenance of the project would be via boat or aircraft. A new approximately 0.6-mile-long road would be constructed from a new dock/landing location on the eastern shore of Gilbert Bay to the powerhouse. Construction access to the powerhouse and lower tunnel would be provided by boat, seaplane and/or helicopter in association with the proposed road from the dock to the powerhouse location. Construction access to the dam site would be through the tunnel, and seaplane and/or helicopter.

Transmission Line

Access to construction sites for transmission facilities near Gilbert Bay would also be via floatplane or boat, and staging would be provided by a floating construction material barge in Gilbert Bay.

3.1.3 Proposed Project Operations

The project would supplement energy generated by Alaska Electric Light and Power’s (AELP) hydroelectric and diesel generation facilities and also possibly serve electrical needs beyond the Alaska Electric Light and Power service district. The Sweetheart Lake Hydroelectric Project could be used to meet base load or peaking load, depending on reservoir management and frequency control. In any case, generation would be optimized by following a rule curve reflecting seasonal inflow, spill capacity and drawdown limitations. Final project and system load configuration would be determined in further feasibility studies. The proposed project would have an installed capacity of 30.0 MW and would have an average annual generation of 136 gigawatt hours.

The project would be designed to primarily operate as an unmanned facility. However, the powerhouse would also incorporate the ability to manually operate the powerhouse. Project operation would be monitored and controlled in conjunction with operating agreements and control systems that would be designed to integrate with AELP.

3.1.4 Proposed Environmental Measures
Juneau Hydropower has identified specific measures to protect and enhance environmental resources of the project area. See section 5.0 of this document for a description of the proposed studies.

Geologic and Soil Resources

- Develop and implement an Erosion and Sediment Control Plan, which would include provisions for protection of any borrow areas within the lake basin.

Aquatic Resources

- Develop and implement downstream fish passage for salmon smolts stocked by Douglas Island Pink and Chum’s Snettisham hatchery.
- Design the tailrace to potentially expand salmon spawning habitat at Sweetheart Creek
- Develop and implement a Water Management Plan, including scheduled instream flow releases to Sweetheart Creek.
- Develop a baseline study of Gilbert Bay, Sweetheart Creek, and Sweetheart Lake
- Develop and implement a Spill Prevention, Control, and Containment Plan
- Effects of electromagnetic frequencies from submerged transmission lines on aquatic species.

Terrestrial Resources

- Develop and implement a Terrestrial Connectivity Plan for wildlife habitat.
- Develop and implement a Vegetation Management Plan that would also include monitoring of invasive plants.
- Preserve as much vegetation as possible and, as necessary, to re-vegetate disturbed areas using a native seed.
- Construct the powerhouse “in-ground” to minimize wildlife habitat impacts, to the extent that it is engineering feasible.
• **Implement avian protection measures for all above-ground transmission line poles.**

• Adopt goshawk/raptor nesting protocols around all goshawk/raptor nests to minimize disturbance of nesting pairs and their young (per Fish and Wildlife).

**Threatened and Endangered Species**

No PM&E measures are proposed for threatened and endangered species at the project. The potential need for PM&E measures will be evaluated during the licensing process.

**Recreation and Land Use**

• Construct *and refurbish* trails to *and around* Sweetheart Creek anadromous area, *possibly utilizing* rock removed from the tunnel construction, for seasonal sport and subsistence fishermen harvesting Sweetheart sockeye. *Other enhancements may also be considered through consultation with the Forest Service.*

**Cultural Resources**

Potential cultural resource PM&E measures will be identified and evaluated following determination of project-related effects.

**Aesthetic Resources**

• Develop and implement a Scenery Management Plan.

• To the extent that it is feasible, construct the powerhouse “in-ground” to mitigate and minimize aesthetic and sound impacts and/or use reclaimed rock from the tunnel excavation to construct a mound around the powerhouse and tunnel to blend the structures with the surroundings. *If a mound is constructed, it would be vegetated with a compost material or other alternate material and reseeded with native vegetation.*

• Design the tailrace to blend with the existing habitat at Sweetheart Creek.

• Construct the powerhouse access road and transmission line from the dock to the powerhouse behind the shore side tree line to minimize aesthetic impacts.
• Develop and implement a Hazardous Substances Plan

**Socioeconomics**

Potential socioeconomic resource PM&E measures will be identified and evaluated following determination of project-related effects.

**Additional plans and measures proposed**

• Develop and implement a Fire Prevention Plan

• Develop and implement a Safety During Construction Plan, *which will include wildlife interaction avoidance and safety.*

### 3.2 ALTERNATIVES TO THE PROPOSED ACTION

The EA will consider and analyze all recommendations for operation or facility modifications, as well as for PM&E measures identified by Commission staff, Federal and State resource agencies, Native Alaskan tribes, NGO’s, and the public.

### 3.3 NO ACTION ALTERNATIVE

Under the no-action alternative, the Commission would deny a license for the proposed Sweetheart Lake Hydroelectric Project. The project would not be built and there would be no change to the existing environment. The no-action alternative is the Commission’s baseline’s environmental conditions for comparison with other alternatives.
4.0 SCOPE OF CUMULATIVE EFFECTS AND SITE-SPECIFIC RESOURCE ISSUES

4.1 CUMULATIVE EFFECTS

According to the Council on Environmental Quality's regulations for implementing NEPA (50 C.F.R. 1508.7), a cumulative effect is the effect on the environment that results from the incremental effect of the action when added to other past, present and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time, including hydropower and other land and water development activities.

Based on information in the PAD and preliminary staff analysis, we have not identified any resources that would be cumulatively affected by the proposed construction and operation of the project.

4.2 RESOURCE ISSUES

In this section, we present a preliminary list of environmental issues to be addressed in the EA. We have identified these issues, which are listed by resource area, by reviewing the PAD and the Commission’s record for the proposed Sweetheart Lake Hydroelectric Project. This list is not intended to be exhaustive or final, but contains those issues raised to date that could have substantial effects. After the scoping process is complete, we will review the list and determine the appropriate level of analysis needed to address each issue in the EA.

4.2.1 Geologic and Soils Resources

- Effect of project construction, operations, and maintenance on geology and soils resources, including slope stability, erosion control, and impacts to wetlands.

- Effects of project construction, operations, and maintenance on reservoir shoreline erosion and bank stability.

- Effects of project construction, operations, and maintenance on existing mineral claims and mining areas.

- Effects of transmission line construction on geology and soil resources.
• Evaluation of the potential of borrow rock to produce acid, metal, or other toxic material leachate during project construction and operations.

• Effects of onsite and offsite disposal of waste rock excavated during project construction.

• Effects of inundation of local borrow rock during project construction and operations.

• Location of potential local borrow sites and the effects of using any local borrow rock during project construction.

4.2.2 Water Quantity and Quality

• Effects of project construction, operation, and maintenance on nutrients, erosion, sedimentation, and turbidity levels of Lower Sweetheart Lake, Sweetheart Creek, and Gilbert Bay.

• Effects of project construction, operation, and maintenance on changes to nutrients, water temperature, dissolved oxygen, dissolved gas levels, and rock leachate of Lower Sweetheart Lake, Sweetheart Creek, and Gilbert Bay.

• Effects of contamination via accidental releases of fuels, lubricants, and other wastes from construction equipment, machinery and operations on Lower Sweetheart Lake, Sweetheart Creek, and Gilbert Bay water quality.

• Effects of project construction and operation on Sweetheart Creek flows.

4.2.3 Aquatic Resources

• Effects of project construction, operation, and maintenance (e.g., sedimentation, disturbance, modification) on physical habitat of Lower Sweetheart Lake, Sweetheart Creek and Gilbert Bay and the effective areas of inundation (approximately 100 feet above the highwater mark).

• Effects of project operation and water level fluctuations on fish species and habitats in Lower Sweetheart Lake.

• Effects of project operation, including alterations to existing flow regime
and food web of Sweetheart Creek, on aquatic communities in Sweetheart Lake and Gilbert Bay.

- Effects of submarine transmission line construction on aquatic biological communities in Gilbert Bay

- Effects, if any, of submarine transmission line construction on fish and shellfish communities in Gilbert Bay

- Effects of project construction and operation on marine mammals in Gilbert Bay and Port Snettisham.

- The effects of project construction, operation, and maintenance on outmigration of sockeye juveniles from Lower Sweetheart Lake.

- The effects to fish communities in Sweetheart Creek and Gilbert Bay from potentially changing the survival rate of sockeye juveniles that outmigrate from Sweetheart Lake.

- The effects of raising the elevation of Sweetheart Lake on fisheries resources in Sweetheart Lake and spawning areas and creeks upstream of Sweetheart Lake.

- The effects of electromagnetic frequency from submerged transmission lines on aquatic species in Gilbert Bay.

4.2.4 Terrestrial Resources

- Effects of habitat loss and alteration (broken out by habitat type) from construction of the dam, power tunnel, penstock, powerhouse, switchyard, transmission line, access roads, and appurtenant facilities on wildlife and plant species, with particular emphasis on Forest Service sensitive species and state-listed species.

- Effects of noise, improved access from project access roads, and increased human presence on wildlife, with particular emphasis on Forest Service sensitive species and state-listed species.

- Effects of project construction, operation and maintenance on migratory and shore birds in and adjacent to the project area.
- Effects of the new substation and transmission line on the potential for raptor and other bird electrocutions and collisions.

- Effects of project construction and operation (lake level fluctuations) on Lower Sweetheart Lake (including at Upper Sweetheart Lake Creek) and Sweetheart Creek shoreline vegetation and/or habitats used by wildlife species.

- Effects of project construction and operation (lake level fluctuations, project roads, and facilities) on distribution and abundance of invasive plant species.

- Effects of project construction, operation, and maintenance on ESA candidate species, sensitive species, state-listed species, and species of interest to agencies.

- Effects of project construction, operation, and maintenance of the transmission line on intertidal and shoreline communities, and habitats.

### 4.2.5 Threatened and Endangered Species

- Effects of project construction and operation on federally listed threatened and endangered species that may occur in the project area, including humpback whales and steller sea lions.

- The effects of electromagnetic frequency from submerged transmission lines on threatened and endangered species in Gilbert Bay.

### 4.2.6 Recreation Resources and Land Use

- Effects of project construction and operation on the nearby Tracy Arm-Fords Terror Wilderness.

- Adequacy of existing recreation facilities and public access within the project boundary to meet current and future (over the term of a new license) recreational demand.
Effects on recreation resources and public access in the vicinity of the project, including semi-remote recreation opportunities and water-based recreation in Gilbert Bay for both commercial and non-commercial users.

Feasibility of providing new recreation facilities or improving existing facilities located within the project boundary.

The effect of construction, operation, and maintenance of a transmission line on recreation resources.

Evaluate the compatibility of the project with the semi-remote land use designation for this area, and the compatibility of the project with the Roadless Area Conservation Rule.

Effects of project construction, operation, and maintenance on other land use activities, including hunting and trapping, in the vicinity of the project.

4.2.7 Aesthetic Resources

Effects of project construction, facilities, maintenance, and operation on the aesthetic values in the vicinity of the project, including Lower Sweetheart Lake, Sweetheart Creek, areas visible from Gilbert Bay, and areas along the transmission line corridor.

Effects of noise and lighting in the project area resulting from construction, operation, and maintenance of the project.

Effects of flow diversions on aesthetics of the barrier falls immediately upstream of the proposed project tailrace.

4.2.8 Cultural Resources

Effects of project construction, operation, and maintenance on the project’s area of potential effects (APE).
• Effects of project construction, operation, and maintenance on historic and archeological resources that are listed or considered eligible for inclusion in the National Register of Historic Places.

• Effects of project construction, operation, and maintenance on properties of traditional religious and cultural importance to Native Alaskan tribes.

4.2.9 Socioeconomics

• Effects of project construction and operation on local, tribal, and regional economies.

• Effects of the submarine cable transmission route on commercial harvesters of salmon, crab, and shrimp.

• Effects of the project on local guides and outfitters.

• Effects of project construction, operation, and maintenance on personal use and/or subsistence resources (hunting, fishing, and gathering) and associated areas.

4.2.10 Developmental Resources

• Effects of any recommended environmental measures on project generation and economics.

• Effects of project construction, operation, and maintenance on the project’s economics.

• Qualitative effects of project operation on the need for power and use of fossil fuels in Southeast Alaska.

• Effects of the submerged transmission line on navigation in Gilbert Bay and Port Snettisham.
5.0 POTENTIAL STUDIES

Depending upon the findings of studies completed by Juneau Hydropower and the recommendations of the consulted entities, Juneau Hydropower will consider, and may propose other measures to enhance environmental resources affected by the project as part of the proposed action. Juneau Hydropower’s proposed studies are summarized in the following table:

Table 2. Juneau Hydropower’s Potential Studies. (Source: Juneau Hydropower PAD and Initial Agency Meeting 2010 and Agency comments)

<table>
<thead>
<tr>
<th>Resource Area and Issue</th>
<th>Summary of General Proposed Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geologic and Soil Resources</td>
<td></td>
</tr>
<tr>
<td>Geotechnical study</td>
<td>Conduct a query with the U.S. Bureau of Land Management for any mineral claims prior to building any structures or otherwise blocking access to potentially valuable deposits. Contact any active mining claim owners that exist near the Project area boarders.</td>
</tr>
<tr>
<td></td>
<td>Conduct historical area mining research records, government research and studies to locate and assess suitability of rock for tunneling, in ground powerhouse, infrastructure development, safety issues associated with rock formation as well as locating rock that is suited for material usage.</td>
</tr>
<tr>
<td></td>
<td>Examine non-invasive suitability of rock is safe and of sufficient grade for use in development, infrastructure and construction. Examine bedrock, soils, slope material for construction feasibility. Examine uses of and disposition of rock from tunnel and infrastructure.</td>
</tr>
<tr>
<td></td>
<td>Examine effects of land clearing and ground-disturbing activities during access to, use of, and restoration of project construction sites (including borrow areas, disposal sites, laydown areas, dock access road, transmission line, etc.) on erosion, sedimentation, and shoreline slope stability</td>
</tr>
<tr>
<td>Water Quality and Quantity</td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Water quantity study</strong></td>
<td>Perform hydrologic studies of seasonal streamflow in Sweetheart Creek and Lower Sweetheart Lake. These studies may be based on field data and combined with historical US Geological Service stream data and referenced with measured data in nearby basins.</td>
</tr>
<tr>
<td></td>
<td>Examine and evaluate whether instream flow or lake level regimes adopted during licensing would affect existing permanent and conditional water rights in the potentially-affected waters.</td>
</tr>
<tr>
<td></td>
<td>Evaluate and document exact location of barrier falls and relationship for Alaska Fish and Game water reservation for the anadromous reach of Sweetheart Creek.</td>
</tr>
<tr>
<td><strong>Water quality study</strong></td>
<td>Examine the characterization of the temperature, dissolved oxygen, turbidity of waters affected by the project. Study will examine potential impact and mitigation of potential construction and operational effects on water quality. These water parameters are measured either continuously or periodically (seasonally, daily or weekly), using modern equipment capable of high accuracy and reliability. Water quality surveys will be conducted on Lower Sweetheart Lake.</td>
</tr>
<tr>
<td></td>
<td>Review possible impacts on salt water marine life from changes in timing of freshwater inputs to include ice formation into Gilbert Bay.</td>
</tr>
<tr>
<td>Aquatic Resources</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic resource studies</strong></td>
<td>Conduct baseline surveys of fish species, their habitats and general life histories in potentially-affected Lower Sweetheart Lake. Additionally, study plans will include assessing seasonal water fluctuations, access to inlet streams, analyze inundation areas. Study plans for these surveys will be developed in consultation with Alaska state and federal resource agencies, including Alaska Department of Fish and Game (ADFG), Alaska Department of Environmental Conservation (ADEC), U.S. Forest Service (USFS), National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS).</td>
</tr>
<tr>
<td><strong>Lower Sweetheart Lake</strong></td>
<td>Analyze effects of raising water levels and fluctuations of Lower Sweetheart Lake under proposed operations. Evaluate potential for fish entrainment and impingement at intake. Document populations; identify resident species spawn habitat; identify and quantify littoral zone inundation with increased reservoir; evaluate design of downstream passage facility for sockeye smolt.</td>
</tr>
<tr>
<td><strong>Sweetheart Creek</strong></td>
<td>Fisheries studies may include, but not be limited to creek observations for summer and fall anadromous and determination of resident fish surveys to estimate population, distribution, and spawning area utilization and timing. Examine water flow requirements for salmon spawning and relationships between stream flows, stream temperatures and life cycle habitat; inventory and map existing stream habitat;</td>
</tr>
<tr>
<td><strong>Marine Areas</strong></td>
<td>Studies in these areas will attempt to estimate the marine invertebrate and botanical resources in areas potentially-affected by the project’s submarine transmission line and possible changes to fresh water discharge and affects into Gilbert Bay.</td>
</tr>
<tr>
<td><strong>Smolt Line Outmigration passage</strong></td>
<td>Evaluate proven Alaskan designs for downstream passage facilities for salmon smolt and analyze adaption of these systems to Sweetheart Creek put and take salmon fishery.</td>
</tr>
<tr>
<td>Terrestrial Resources</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Wildlife Study and Surveys</strong></td>
<td>Conduct wildlife surveys. Wildlife-related study plans will be developed with input from Alaska state and federal resource agencies, including Forest Service, Alaska Fish and Game, US Fish and Wildlife Service, Non-governmental organizations, and Native Alaskan tribes. Wildlife issues include but are not limited to: 1) assemble existing information on distribution, abundance, seasonal habitat and movement patterns of wildlife in project area; 2) conduct aerial and ground surveys to determine feasibility of conducting baseline surveys; 3) general visual observations of birds, bird calling and other forms of documentation; 4) Bald Eagle/Goshawk nest site survey in and around project infrastructure locations; 5) quantify existing habitats in project area; 6) evaluate effects of infrastructure on wildlife, access to wildlife, distribution and patterns of wildlife; and 7) evaluate effects on migratory and shore birds.</td>
</tr>
<tr>
<td><strong>Botanical study</strong></td>
<td>Conduct Botanical Study. Botanical study consists of baseline surveys for potentially-affected botanical resources, according to study plans approved by the Forest Service, Alaska Fish and Game and perhaps other agencies. Typically, baseline plan surveys include: 1) aerial inventories of vegetative type, primarily from existing imagery; 2) foot surveys, to ground-truth the aerial inventories; 3) a preliminary jurisdictional determination, to determine location, type, function and extent of wetlands, uplands, and water of the US in the project area; and 4) prior to construction, the Juneau Hydropower will conduct sensitive plant surveys according to Forest Service prescriptions in potentially-affected areas delineated in the project final design.</td>
</tr>
</tbody>
</table>
### Threatened and Endangered Species

No studies proposed.

### Recreation Resources and Land Use

| Recreational use survey and analysis | Juneau Hydropower will use information obtained from guides and outfitters in its socioeconomic survey to obtain areas of concern for recreational users of Gilbert Bay and Sweetheart Creek and impacts on boat anchorage, impact on dispersed recreation and impacts on icing in Gilbert Bay. |

### Aesthetic Resources

| Aesthetic resource study | Juneau Hydropower will research existing aesthetic resource information including existing US Forest Service plans to distinguish aesthetic impacts in the various potentially-affected areas. Viewshed analysis may be required to evaluate infrastructure improvements and their effects from Port Snettisham and Gilbert Bay. All constructed project features will be evaluated relative to US Forest Service and other stakeholder prescriptions for maintenance of aesthetic values from various viewing points to include soundscape and illumination. Juneau Hydropower will conduct computer generated depictions of proposed infrastructure seeking to mitigate visual impact of affected areas. This issue derives primarily from concern for US Forest Service visual quality standards in Project boundary area. Visual effects of an overhead transmission line would also be considered, depending on the final design. Examine noise effects during construction and operation. Examine effects of installation and maintenance of salmon outmigration system on scenery and aesthetic values. |
Cultural resource study | Juneau Hydropower intends to inventory cultural resources in an Area of Potential Effects (APE) to document the existence of cultural resources within areas which might be affected by project-related construction, road building or other ground disturbance. These surveys will be in two stages: Stage 1 will be less-intensive reconnaissance surveys designed to define the direct and indirect impact area of the project and the potential of the areas for containing sites. Stage 2 surveys will be conducted in those areas identified in the Stage 1 surveys as having a reasonable likelihood of containing sites. The scope of all surveys work will be determined in consultation with the Alaska State Historic Preservation Office, the US Forest Service, Native Alaskan Tribes, and other stakeholders.

Socioeconomic

| Explore impacts of personal and commercial opportunities on fish and wildlife harvested. |
| JHI intends to interview and survey guides and outfitters that take clients to Project area to register concerns, impacts and areas of potential mitigation. |
6.0 EA PREPARATION SCHEDULE

At this time, we anticipate the need to prepare a draft and final EA. The draft EA will be sent to all persons and entities on the Commission’s service and mailing lists for the Sweetheart Lake Hydroelectric Lake Project. The EA will include our recommendations for operating procedures, as well as environmental protection and enhancement measures that should be part of any license issued by the Commission. All recipients will then have 30 days to review the EA and file written comments with the Commission. All comments on the draft EA filed with the Commission will be considered in preparation of the final EA.

The major milestones, including those for preparing the EA, are as follows:

Major Milestone: Pre Filing
Scoping Meetings                   Target Date  August, 2011
Site Visit                         August, 2011
Field Studies                      March, 2011 thru October, 2012
License Application Filed          November 30, 2012

Major Milestone: Post filing
FERC Issues ready for Environmental Analysis Notice Target Date  February, 2013
Deadline for Filing Comments, Recommendations and Agency Terms and Conditions/Prescriptions  April, 2013
FERC Issues Draft EA               July, 2013
Deadline for Filing Preliminary Agency Recommendations August, 2013
Final EA Issued                    November, 2013

If Commission staff determines that there is a need for additional information or additional studies, the issuance of the Ready for Environmental Analysis notice could be delayed. If this occurs, all subsequent milestones would be delayed by the time allowed for Juneau Hydropower to respond to the Commission’s request.
7.0 PROPOSED EA OUTLINE

The preliminary outline for the Sweetheart Lake Hydroelectric Project EA is as follows:

TABLE OF CONTENTS
LIST OF FIGURES
LIST OF TABLES
ACRONYMS AND ABBREVIATIONS
EXECUTIVE SUMMARY

1.0 INTRODUCTION
   1.1 Application
   1.2 Purpose of Action and Need for Power
      1.2.1 Purpose of Action
      1.2.2 Need for Power
   1.3 Statutory and Regulatory Requirements
      1.3.1 Federal Power Act
         1.3.1.1 Section 18 Fishway Prescriptions
         1.3.1.2 Section 4(e) Conditions
         1.3.1.3 Section 10(j) Recommendations
      1.3.2 Clean Water Act
      1.3.3 Endangered Species Act
      1.3.4 Coastal Zone Management Act
      1.3.5 National Historic Preservation Act
      1.3.6 Magnuson-Stevens Fishery Conservation and Management Act
      1.3.7 Other Regulatory Requirements
   1.4 Public Review and Comment
      1.4.1 Scoping
      1.4.2 Interventions
      1.4.3 Comments on the Application
      1.4.4 Comments on Draft EA (Final EA only)

2.0 PROPOSED ACTION AND ALTERNATIVES
   2.1 No-action Alternative
   2.2 Proposed Action
      2.2.1 Proposed Project Facilities
      2.2.2 Project Safety
      2.2.2 Proposed Project Operation
      2.2.3 Proposed Environmental Measures
      2.2.4 Modifications to Applicant’s Proposal—Mandatory Conditions
   2.3 Staff Alternative
   2.4 Staff Alternative with Mandatory Conditions
2.5 Alternatives Considered but Eliminated from Detailed Analysis

3.0 ENVIRONMENTAL ANALYSIS
   3.1 General Description of the Creek Basin
   3.2 Scope of Cumulative Effects Analysis
      3.2.1 Geographic Scope
      3.2.2 Temporal Scope
   3.3 Proposed Action and Action Alternatives
      3.3.1 Geologic and Soil Resources
      3.3.2 Aquatic Resources
      3.3.3 Terrestrial Resources
      3.3.4 Threatened and Endangered Species
      3.3.5 Recreation and Land Use
      3.3.6 Cultural Resources
      3.3.7 Aesthetic Resources
      3.3.8 Socioeconomics
   3.4 No-action Alternative

4.0 DEVELOPMENTAL ANALYSIS
   4.1 Power and Economic Benefits of the Project
   4.2 Comparison of Alternatives
   4.3 Cost of Environmental Measures

5.0 CONCLUSIONS AND RECOMMENDATIONS
   5.1 Comparison of Alternatives
   5.2 Comprehensive Development and Recommended Alternative
   5.3 Unavoidable Adverse Effects
   5.4 Recommendations of Fish and Wildlife Agencies
   5.5 Consistency with Comprehensive Plans

6.0 FINDING OF NO SIGNIFICANT IMPACT (OR OF SIGNIFICANT IMPACT)

7.0 LITERATURE CITED

8.0 LIST OF PREPARERS

APPENDICES
8.0 APPLICABLE COMPREHENSIVE PLANS

Section 10(a)(2)(A) of the Federal Power Act (FPA), 16 U.S.C. section 803 (a)(2)(A), requires the Commission to consider the extent to which a project is consistent with Federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.

On April 27, 1988, the Commission issued Order No. 481-A, revising Order 481, issued October 26, 1987, establishing that the Commission will accord FPA section 10(a)(2)(A) comprehensive plan status of any Federal or state plan that: (1) is a comprehensive study of one or more of the beneficial uses of a waterway or waterways; (2) specifies the standards, the data, and the methodology used; and (3) is filed with the Office of the Secretary of the Commission.

Juneau Hydropower has reviewed the List of Comprehensive Plans issued August 2009 and notes that the following plans may be affected by the proposed Sweetheart Lake Hydroelectric Lake Project. The following state and federal management plans were identified as potentially relevant to the Sweetheart Lake Hydroelectric Project development. During subsequent licensing stages, further investigations into relevant plans will be conducted. Agencies are requested to review this list and inform the Commission staff of any changes. If there are other comprehensive plans that should be considered for this list that are not on file with the Commission, or if there are more recent versions of the plans already listed, they can be filed for consideration with the Commission according to 18 C.F.R. 2.19 of the Commission’s regulations. Please follow the instructions for filing a plan at http://www.ferc.gov/industries/hydropower/gen-info/licensing/complan.pdf.

1. Juneau Coastal Management Plan. City and Borough of Juneau, Alaska Department of Natural Resources. 2006;


9.0 FERC OFFICIAL MAILING LIST
The list below is the Commission’s official mailing list for the Sweetheart Lake Project (P-13563). If you want to receive future mailings for this project and you did not receive notice of these meetings from the Commission, please send your request by mail to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street, NE, Room 1A, Washington, DC 20426. All written requests to be added to the Commission’s mailing list must clearly identify the following on the first page: “Sweetheart Lake Hydroelectric Project No. 13563”. You may use the same method to remove your name from the Commission’s mailing list for this project.

Also, please notify Juneau Hydropower Inc. if you would like to be placed on their Distribution List for this project at duff.mitchell@juneauhydro.com. Copies of a request to be placed on the Distribution List will be on the table at both public meetings on September 7, 2011.

Register online at http://www.ferc.gov/esubscribenow.htm to be notified via email of new filings and issuances related to this or other pending projects. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll free (806) 208-3676, or for TTY, (202) 502-8659.

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monte D Miller</td>
<td>ADFG Statewide Hydropower Coordinator</td>
</tr>
<tr>
<td></td>
<td>Alaska Department of Fish and Game</td>
</tr>
<tr>
<td></td>
<td>Division of Sport Fish/RTS</td>
</tr>
<tr>
<td></td>
<td>333 Raspberry Rd.</td>
</tr>
<tr>
<td></td>
<td>Anchorage, ALASKA 99518-1565</td>
</tr>
<tr>
<td>Scott Willis</td>
<td>Alaska Electric Light &amp; Power Company</td>
</tr>
<tr>
<td></td>
<td>5601 Tonsgard Ct</td>
</tr>
<tr>
<td></td>
<td>Juneau, ALASKA 99801-7201</td>
</tr>
<tr>
<td>Duff Mitchell</td>
<td>Business Manager</td>
</tr>
<tr>
<td></td>
<td>Juneau Hydropower, Inc.</td>
</tr>
<tr>
<td></td>
<td>PO Box 22775</td>
</tr>
<tr>
<td></td>
<td>Juneau, ALASKA 99802</td>
</tr>
<tr>
<td>Thomas Meyer</td>
<td>General Counsel</td>
</tr>
<tr>
<td></td>
<td>NOAA</td>
</tr>
<tr>
<td></td>
<td>PO Box 21109</td>
</tr>
<tr>
<td></td>
<td>Juneau, ALASKA 99801</td>
</tr>
<tr>
<td>Susan H Walker</td>
<td>Marine Resources Specialist</td>
</tr>
<tr>
<td></td>
<td>NOAA</td>
</tr>
<tr>
<td></td>
<td>PO Box 21668</td>
</tr>
<tr>
<td></td>
<td>Juneau, ALASKA 99802-1668</td>
</tr>
<tr>
<td>Office of Environmental Policy and Compliance (USDOI)</td>
<td></td>
</tr>
<tr>
<td>Regional Environmental Office</td>
<td></td>
</tr>
<tr>
<td>3601 C St, #1100</td>
<td>Anchorage, ALASKA 9950-5947</td>
</tr>
</tbody>
</table>
| Governor of Alaska    | Office of Solicitor-
<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
</table>
| **RE: FERC Projects** | **Office of the Governor of Alaska**
|                       | PO Box 110001                               |              |
|                       | Juneau, ALASKA 99811-0001                    |              |
|                       | Juneau                                       |              |
| **John Burke**        | **US Army Corps of Engineers**
| General Manager       | District Engineer, Juneau                    |              |
|                       | 8800 Glacier Hwy, Ste 106                    |              |
|                       | Juneau, ALASKA 99801-8079                    |              |
| **Frances E Mann**    | **US Fish and Wildlife Service**
| Branch Chief, Conservation | Room G-61 | 1011 East Tudor MS 331 |  |  |
|                       | U.S. Fish & Wildlife Service                |              |
|                       | 605 W. 4th Ave., Room G-61                  |              |
|                       | Anchorage, ALASKA 99501                     |              |
| **Richard Enriquez**  | **Steve Brockmann**                          |              |
| U.S. Fish & Wildlife Service | Room  #201 | Fish & Wildlife Service, Region 1 |  |  |
|                       | 3000 Vintage Blvd.                          |              |
|                       | Juneau, ALASKA 99801-7100                   |              |
|                       | UNITED STATES                               |              |
| **BRAD POWELL**       | **Teresa Trulock**                           |              |
| FOREST SUPVR          | **USDA Forest Service**                      |              |
|                       | USDA Forest Service                          |              |
|                       | TONGASS NATIONAL FOREST                      |              |
|                       | FEDERAL BUILDING                             |              |
|                       | KETCHIKAN, ALASKA 99901                     |              |
| **Dawn Collinsonworth** | **Roger Birk**                          |              |
| Attorney              | **USDA Forest Service**                      |              |
|                       | PO Box 21628                                 |              |
|                       | Juneau, ALASKA 99802-1628                   |              |
|                       | UNITED STATES                               |              |
| **Margaret J Beilharz** | **Hydrologist**                           |              |
|                       | USDA Forest Service - Tongass NF             |              |
|                       | 57600 McKenzie Hwy                           |              |
|                       | McKenzie Bridge, OREGON 97413                |              |