



April 28, 2023

**VIA E-FILING**

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, DC 20426

**RE: Solomon Gulch Hydroelectric Project (FERC No. 2742)  
Filing of Notice of Intent, Pre-Application Document and TLP Request**

Dear Secretary Bose:

Pursuant to Section 15(b)(1) of the Federal Power Act, 16 U.S.C. § 808(b)(1) 5, Copper Valley Electric Association, Inc. (CVEA) is electronically filing with the Federal Energy Regulatory Commission (FERC or Commission) the Notice of Intent to File a License Application (NOI), which includes a request for the use of FERC's Traditional Licensing Process (TLP), and the Pre-Application Document (PAD), for the relicensing of the Project.

CVEA is the licensee for the 12 MW Solomon Gulch Hydroelectric Project (Project) (FERC No. 2742), located on Solomon Lake near Valdez, Alaska. The Project's original license was issued on June 21, 1978 and expires on May 31, 2028.

#### **Document Distribution**

In accordance with the Commission's regulations at 18 CFR Sections 5.5(c) and 5.6(a)(1), CVEA is providing a copy of the NOI and PAD via email to appropriate federal and state agencies, Alaska Native tribes, local governments, and members of the public likely to be interested in the proceeding, as set forth on the attached distribution list. All materials related to this NOI and PAD are also available on CVEA's relicensing website: [www.cvea.org](http://www.cvea.org). Additionally, notice of this filing was published in the *Copper River Record*, a weekly newspaper published in the Copper River Census Area of Alaska, and announced on *KVAK Radio E-News*, in the Chugach Census Area of Alaska, the week of April 24, 2023.

The PAD includes a one-line diagram for the Project that meets the definition of Critical Energy Infrastructure Information (CEII) pursuant to FERC's June 23, 2003 Order No. 630-A. Consistent with that order, the Licensee is filing the one-line diagram as CEII under separate cover.

### **Proposed Joint Agency Meeting and Site Visit, August 15, 2023**

CVEA understands that the Commission will public notice the filing of the NOI and PAD, and will then issue a Notice of Commencement (NOC) no later than 60 days of the filing date. If the Commission's NOC approves the use of the TLP, CVEA will hold a Joint Agency Meeting (JAM) and site visit of the Project between 30 to 60 days of the issuance of the Commission's NOC. If use of the TLP is approved, CVEA currently proposes to hold the Joint Agency Meeting and site visit on August 15, 2023. The process, plan and schedule section of the PAD (Section 2.0) lists the anticipated schedule and regulatory milestones of the relicensing.

### **Non-Federal Representative**

Pursuant to 18 CFR § 5.5(e), CVEA requests to be designated as the Commission's non-federal representative in relicensing the Project for purposes of consultation under: (1) Section 7 of the Endangered Species Act (ESA), 16 USC § 1536, and the joint agency ESA implementing regulations at 50 CFR Part 402; (2) Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR 600.920; and (3) Section 106 of the National Historic Preservation Act (NHPA), 54 USC § 306108, and the NHPA implementing regulations at 36 CFR Part 800.

### **Request to Utilize the Traditional Licensing Process**

CVEA is concurrently submitting a request to use the Commission's Traditional Licensing Process (TLP). CVEA believes use of the TLP will provide the most efficient and effective relicensing approach for the Project. The following sections outline how use of the TLP will: a) comply with the criteria outlined in 18 CFR §5.5 (C)(1)(ii)(A-F); b) benefit the participants to the process; and c) provide FERC with the information needed to complete its licensing obligations:

- CVEA is not proposing to change the Project's existing mode of operation or change existing Project facilities that have provided a reliable source of energy to local customers. Additionally, resource agencies involved in the relicensing process have a baseline knowledge of the Project because of CVEA's informal consultation efforts leading up to filing of this NOI and PAD. The consultation included:<sup>1</sup>
  - a PAD Questionnaire sent to the Distribution List in August 2022, and in February 2023 for additional/updated contacts;
  - informal informational meetings with USFWS, ADF&G and NMFS to discuss the upcoming relicensing process, plan and schedule in early April 2023; and
  - consultation with the agencies and SHPO, and notice to the tribes, during filing of a separate non-capacity amendment, in October 2022 for removal from the project boundary of 108.16 miles of the Project's transmission line that no longer meets the definition of primary transmission as defined in Federal Power Act (FPA) Section 3(11).
- Initial consultation has not identified any controversial issues with the Solomon Gulch relicensing effort, especially since there are no proposed changes to Project facilities or operations. CVEA anticipates collaborative relationships with resource agencies and stakeholders throughout the relicensing process.
- The resource issues anticipated at the Project are limited and not expected to be complex, as the Project footprint is small, the Project is a typical high-head project

located upstream of a natural anadromous fish barrier, and the Licensee is not planning to propose any changes to the Project or its operation.

- The likelihood of timely license issuance is high due to preemptive informal stakeholder communications and the fact that there are limited resource issues identified around the Project area.
- The likelihood of timely license issuance is also high because the Licensee has committed to timely execution of the TLP process in accordance with the relicensing process, plan and schedule (as outlined in the PAD).
- The Solomon Gulch Project is likely to be a non-complicated Project undergoing relicensing thus, it is a good candidate for the TLP which, if approved by the Commission, should reduce the effort required of the agencies, municipalities, other stakeholders, and the FERC, to effectively participate in the process while still ensuring opportunity for involvement, collaboration, and timely issuance of a new license.

**Provide Comments to FERC on the Request to Use the TLP**

CVEA inquired with the parties expected to participate in the relicensing process to discuss use of the TLP for the Project (Distribution List). A summary of preliminary outreach contacts and consultation made by CVEA is located in the PAD (Appendix C – Consultation Documentation). To date, there have been no objections to the proposed use of the TLP. Pursuant to 18 CFR §5.3(d)(1), CVEA requests that agencies and interested parties to which the request has been distributed provide comments on the request to the Commission, to use the TLP, within 30 days.

CVEA hereby respectfully requests that the Commission notice the filing of CVEA’s Solomon Gulch Project NOI, approve the filing of its PAD, grant non-federal representative status and consultation authority to CVEA, and grant the request to use the TLP.

Should you have any questions or comments related to the NOI, PAD, or any other information presented above, please contact Wayne McKinzey, Chief Operating Officer, at (907) 835-4301 or at [wmckinzey@cvea.org](mailto:wmckinzey@cvea.org).

Sincerely,



Travis Million, CEO  
Copper Valley Electric Association

cc: Distribution List  
Coreen Palacios and Wayne McKinzey, CVEA  
Finlay Anderson, Betsy McGregor and Fatima Oswald, Kleinschmidt Associates

Attachments: Distribution List, Notice of Intent and Pre-Application Document for the Solomon Gulch Hydroelectric Project

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**Lewiston Falls Hydroelectric Project (FERC No. 2302)  
Relicensing Distribution List**

**Federal Agencies**

Lauren Townson  
Environmental Protection Specialist  
Federal Energy Regulatory Commission  
(FERC)  
888 1<sup>st</sup> St. NE  
Washington, DC 20426  
[Lauren.Townson@ferc.gov](mailto:Lauren.Townson@ferc.gov)

Roberta Budnik  
Project Manager  
US Army Corps of Engineers  
101 Army Pentagon  
Washington, DC 204226  
[roberta.k.budnik@usace.army.mil](mailto:roberta.k.budnik@usace.army.mil)

Sean McDermott  
Anchorage Office Supervisor  
National Oceanic and Atmospheric  
Administration (NOAA)  
Habitat Conservation Division  
Alaska Region  
[sean.mcdermott@noaa.gov](mailto:sean.mcdermott@noaa.gov)

Douglass Cooper  
Branch Supervisor  
U.S. Fish And Wildlife Service (FWS)  
Ecological Services Branch  
4700 BLM Road  
Anchorage, AK 99507  
[douglass\\_cooper@fws.gov](mailto:douglass_cooper@fws.gov)

Carol Mahara  
Ecological Services – Biologist  
U.S. Fish And Wildlife Service (FWS)  
4700 BLM Road  
Anchorage, AK 99507  
[carol\\_mahara@fws.gov](mailto:carol_mahara@fws.gov)

Regional Directors  
Bureau of Indian Affairs  
US Department of the Interior  
P.O. Box 25520  
Juneau, AK 99802-5520

**State Agencies**

Leah Ellis  
FERC Hydropower Coordinator  
Alaska Department of Fish And Game  
(ADF&G)  
333 Raspberry Road  
Anchorage, AK 99518  
[leah.ellis@alaska.gov](mailto:leah.ellis@alaska.gov)

Megan Marie  
Alaska Department of Fish And Game  
(ADF&G)  
P.O. Box 115526  
1255 W. 8th Street  
Juneau, AK 99811-5526  
[megan.marie@alaska.gov](mailto:megan.marie@alaska.gov)

Sarah Meitl  
Review and Compliance Coordinator  
Alaska State Historic Preservation Office  
Alaska Department of Natural Resources  
Office of History & Archaeology  
550 West 7th Avenue, Suite 1310  
Anchorage, AK 99501  
[sarah.meitl@alaska.gov](mailto:sarah.meitl@alaska.gov)

Mckenzie Johnson  
Archaeologist I  
Alaska State Historic Preservation Office  
550 W 7th Ave., Suite 1310  
Anchorage, AK 99501  
[mckenzie.johnson@alaska.gov](mailto:mckenzie.johnson@alaska.gov)

Carol Hasburgh  
Natural Resource Coordinator  
Alaska Department of Natural Resources  
P.O. Box 111020  
Juneau, AK 99811  
[carol.hasburgh@alaska.gov](mailto:carol.hasburgh@alaska.gov)

Carl Reese  
Statewide Hydroelectric Coordinator  
Alaska Department of Natural Resources  
P.O. Box 111020  
Juneau, AK 99811  
[carl.reese@alaska.gov](mailto:carl.reese@alaska.gov)

Henry Brooks  
Natural Resource Manager II  
Alaska Department of Natural Resources  
Water Management Unit  
550 W. 7<sup>th</sup> Ave. Suite 1360  
Anchorage, AK 99501  
[henry.brooks@alaska.gov](mailto:henry.brooks@alaska.gov)

Ben Wagner  
Dam Safety Engineer  
Alaska Department of Natural Resources  
Division of Mining, Land & Water, Dam  
Safety and Construction Unit  
550 West 7th Avenue, Suite 1020  
Anchorage, AK 99501  
[ben.wagner@alaska.gov](mailto:ben.wagner@alaska.gov)

Bryan Carey  
Director of Owned Assets; Statewide  
Hydroelectric Coordinator  
Alaska Energy Authority  
813 W Northern Lights Blvd.  
Anchorage, AK 99503  
[bcarey@aidea.org](mailto:bcarey@aidea.org)

Jon Wendel  
Program Manager  
Alaska Department of Environmental  
Conservation  
Division of Water - Compliance Program  
410 Willoughby Avenue – Suite 105  
Juneau, AK 99801-1795  
[jon.wendel@alaska.gov](mailto:jon.wendel@alaska.gov)

Jim Rypkema  
Program Manager  
Alaska Department of Environmental  
Conservation  
Division of Water - Compliance Program  
410 Willoughby Avenue – Suite 105  
Juneau, AK 99801-1795  
[Jim.Rypkema@alaska.gov](mailto:Jim.Rypkema@alaska.gov)

**Tribes/ANSCA Corporations**

Joe Bovee  
Vice President Land and Resources  
Ahtna, Inc.  
Glennallen, AK 99588  
[jbovee@ahtna-inc.com](mailto:jbovee@ahtna-inc.com)

Ahtna Heritage Foundation  
115 Richardson Hwy Mile  
Glennallen, AK 99588  
[office@ahtnaheritage.org](mailto:office@ahtnaheritage.org)

Alaska Native Heritage  
8800 Heritage Center Dr.  
Anchorage, AK 99504  
[Centerinfo@alaskanative.net](mailto:Centerinfo@alaskanative.net)

Chuck Totemoff  
Chairman, President & CEO  
Chenega Corporation  
3000 C Street, Suite 301  
Anchorage, AK 99503  
[chuck.totemoff@chenega.com](mailto:chuck.totemoff@chenega.com)

Josie Hickel  
CEO  
Chugach Alaska Corporation  
and the Chugach Heritage Foundation  
3800 Centerpoint Dr., Suite 1200  
Anchorage, AK 99503  
[Josie.hickel@chugach.com](mailto:Josie.hickel@chugach.com)

D Phillips  
Chugach Alaska Corporation  
and the Chugach Heritage Foundation  
3800 Centerpoint Dr., Suite 1200  
Anchorage, AK 99503  
[dphillips@chugach.com](mailto:dphillips@chugach.com)

Angela Butler  
Deputy Director Administrative Offices  
Eyak Corporation  
P.O. Box 1388  
110 Nicholoff Way  
Cordova, AK 99574  
[info@eyakcorp.com](mailto:info@eyakcorp.com)

Brendon Cain  
Eyak Corporation  
615 E. 82nd Ave, Suite 300  
Anchorage, AK 99518  
[bcain@eyakcorp.com](mailto:bcain@eyakcorp.com)

Tatitlek IRA Council  
Native Village of Tatitlek  
P.O. Box 171,  
503 Copper Mountain Road  
Tatitlek, AK 99677

Roy Totemoff  
CEO  
Tatitlek Corporation  
561 East 36th Ave  
Anchorage, AK 99503  
[rtotemoff@tatitlek.com](mailto:rtotemoff@tatitlek.com)

Angela Totemoff  
Tatitlek Corporation  
561 East 36th Ave  
Anchorage, AK 99503  
[atotemoff@tatitlek.com](mailto:atotemoff@tatitlek.com)

Ken Vlasoff  
Board of Directors Vice President  
Tatitlek Corporation  
561 East 36th Ave  
Anchorage, AK 99503  
[mvasoff@tatitlek.com](mailto:mvasoff@tatitlek.com)

Valdez Native Tribe  
P.O. Box 1108  
1750 Zurich Loop Rd  
Valdez, AK 99686  
[office@valdeznativetribe.org](mailto:office@valdeznativetribe.org)

Anna Bateman  
Tribal Administrator  
Valdez Native Tribe  
P.O. Box 1108  
1750 Zurich Loop Rd  
Valdez, AK 99686  
[anna.b@valdeznativetribe.org](mailto:anna.b@valdeznativetribe.org)

Larry Evanoff  
Chairman  
Native Village of Chenega  
P.O. Box 8079  
Chenega Bay, AK 99574

Daniel Olsen  
Tribal Council Chairman  
Native Village of Eyak  
P.O. Box 1388  
110 Nicholoff Way  
Cordova, AK 99574  
[info@Eyak-nsn.gov](mailto:info@Eyak-nsn.gov)

Native Village of Kluti Kaah  
 P.O. Box 68  
 Mile 104 Richardson Highway  
 Copper Center, AK 99573

Native Village of Tazlina  
 P.O. Box 87  
 Mile 110.5 Richardson Highway  
 Glennallen, Ak 99588

Gulkana Village Council  
 Native Village of C'ulc'e Na'  
 P.O. Box 254  
 Mile 127 Richardson Highway  
 Gakona, AK 99586

Native Village of Gakona  
 P.O. Box 102  
 Mile 4.8 Tok Cuttoff  
 Gakona, A 99586

Native Village of Chitina  
 P.O. Box 31  
 Mile 34.5 Edgerton Highway  
 Chitina, AK 99566

**Local Non-Governmental**

Dan Gilson  
 Environmental Coordinator  
 Alyeska Pipeline  
 3700 Centerpoint Dr.  
 Anchorage, AK 99503  
[Dan.Gilson@alyeska-pipeline.com](mailto:Dan.Gilson@alyeska-pipeline.com)

Sandra Johns  
 Alyeska Pipeline  
 3700 Centerpoint Dr.  
 Anchorage, AK 99503  
[Sandra.Johns@alyeska-pipeline.com](mailto:Sandra.Johns@alyeska-pipeline.com)

Sharon Scheidt  
 Mayor  
 City of Valdez  
 PO Box 307  
 212 Chenega Avenue  
 Valdez, AK 99686  
[sscheidt@valdezak.gov](mailto:sscheidt@valdezak.gov)

Sheri Pierce  
 City Clerk  
 PO Box 307  
 212 Chenega Avenue  
 Valdez, AK 99686  
[spierce@valdezak.gov](mailto:spierce@valdezak.gov)

Ken Wilson  
 PRCS Director  
 City of Valdez  
 Parks and Recreation  
 PO Box 307  
 Valdez, AK 99686  
[kwilson@valdezak.gov](mailto:kwilson@valdezak.gov)

Kate Huber  
 Director of Planning  
 City of Valdez  
 PO Box 307  
 212 Chenega Avenue  
 Valdez, AK 99686  
[khuber@valdezak.gov](mailto:khuber@valdezak.gov)

Bruce Wall  
 Senior Planner  
 City of Valdez  
 PO Box 307  
 Valdez, AK 99686  
[bwall@valdezak.gov](mailto:bwall@valdezak.gov)



**Additional Parties**

Mike Wells  
Executive Director  
VFDA Administrative Office  
Valdez Fisheries Development  
Association, Inc.  
Solomon Gulch Hatchery  
PO Box 125  
1815 Mineral Creek Loop Road  
Valdez, AK 99686  
[mike.wells@valdezfisheries.com](mailto:mike.wells@valdezfisheries.com)

Travis Million  
Copper Valley Electric Association, Inc.  
Mile 187 Glenn Highway  
P.O. Box 45  
Glennallen, AK 99588  
(907) 822-3211  
[TMillion@cvea.org](mailto:TMillion@cvea.org)

Robert Dunning  
AK Department of Transportation  
(AKDOT)  
PO Box 507  
Valdez, AK 99686  
[robert.dunning@alaska.gov](mailto:robert.dunning@alaska.gov)

Rob Unger  
Hatchery Manager  
Valdez Fisheries Development  
Association, Inc. (VFDA)  
Solomon Gulch Hatchery  
PO Box 125  
1815 Mineral Creek Loop Road,  
Valdez, AK 99686  
[rob.unger@valdezfisheries.com](mailto:rob.unger@valdezfisheries.com)

**Licensee**

Coreen Palacios  
Copper Valley Electric Association, Inc.  
Mile 187 Glenn Highway  
P.O. Box 45  
Glennallen, AK 99588  
(907) 822-8301  
[CPalacios@cvea.org](mailto:CPalacios@cvea.org)

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**BEFORE THE UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION**

COPPER VALLEY ELECTRIC ASSOCIATION, INC.

PROJECT NO. 2742

**NOTICE OF INTENT  
TO FILE APPLICATION FOR NEW LICENSE  
SOLOMON GULCH HYDROELECTRIC PROJECT (FERC No. 2742)**

**APRIL 28, 2023**

Pursuant to 18 C.F.R. Section 5.5 of the Federal Energy Regulatory Commission's (FERC or Commission) regulations at Title 18 of the Code of Federal Regulations (CFR), Copper Valley Electric Association, Inc. (CVEA), Licensee, owner and operator of the Solomon Gulch Hydroelectric Project, FERC No. 2742 (Project), located in Valdez, AK, hereby gives notice and declares its intent to apply for a new license for the Project.

In accordance with 18 C.F.R. Section 5.5, the following information is provided.

**1. The Applicant's Name and Address:**

Coreen Palacios  
Copper Valley Electric Association, Inc.  
Mile 187 Glenn Highway  
P.O. Box 45  
Glennallen, AK 99588  
Phone: (907) 822-8301  
Email: [CPalacios@cvea.org](mailto:CPalacios@cvea.org)

Copies of all correspondence should also be sent to:

Fatima Oswald  
Regulatory Consultant  
Kleinschmidt Associates  
1500 NE Irving Street, Suite 550  
Portland, OR 97232  
Telephone: (971) 337-3841  
Email: [Fatima.Oswald@kleinschmidtgroup.com](mailto:Fatima.Oswald@kleinschmidtgroup.com)

**2. Project Number:**

Solomon Gulch Hydroelectric Project, FERC No. 2742

**3. License Expiration Date:**

The Commission issued a 50-year license to operate the Solomon Gulch Hydroelectric Project by Order dated June 21, 1978. The license is for a 50-year period effective June 21, 1978 and terminates May 31, 2028. CVEA will file its Application for New License on or before May 31, 2026.

**4. Applicant's Statement of Intention to File an Application for a New License:**

CVEA (Licensee) intends to file an application for a new license for the Solomon Gulch Hydroelectric Project (Project) located on Solomon Gulch Creek near the city of Valdez in the (Chugach Census Area) of Alaska.

CVEA is requesting use of FERC's Traditional Licensing Process (TLP).

**5. Principal Project Works Include:**

- A reservoir with a total drainage area of approximately 19.7 square miles with a minimum elevation of 615 feet mean sea level (msl)<sup>1</sup> to maximum elevation of 693.5 feet msl at the Probable Maximum Flood (PMF). The normal maximum reservoir level is elevation 685 feet msl with a surface area of 660 acres. The maximum total storage volume at normal maximum pool elevation is 31,560 acre-feet.
- A main rockfill dam approximately 400-feet long, 115-feet high with asphaltic concrete face located at the outlet of Solomon Lake.
- A 365-foot long saddle dike, or auxiliary dam, with a maximum height of approximately 65 feet. The saddle dike's right abutment connects with the left abutment of the concrete spillway.
- A concrete spillway with a length of 450 feet with a nominal crest elevation of 685 feet msl.
- Two 48-inch diameter intake pipes with slide gate facilities and a trash rack.
- A low-level outlet works inlet on two penstocks on the downstream of the main dam intake for two, 48-inch diameter, concrete-encased steel penstocks at elevation 600 feet msl.

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<sup>1</sup> All figures are noted in NGVD29.

- Two penstocks which are controlled by two motor-operated butterfly valves located in a valve house at elevation 590 feet msl, located downstream of the dam.
- A 70-foot-long by 60-foot-wide powerhouse with reinforced concrete substructure with a structural steel frame and pre-cast concrete panel superstructure with two Francis-type turbine/generator units with a total rated capacity of 12 megawatts (MW).
- A substation located on the powerhouse, as well as an approximate 110 mile long transmission line that runs from the Project near Valdez to Glennallen.
  - On October 31, 2022, CVEA submitted a non-capacity license amendment to FERC<sup>2</sup> proposing to remove from the Project Boundary 108.16-miles of the transmission line that no longer meet the definition of primary transmission as defined in Federal Power Act (FPA) Section 3(11) (CVEA 2022). If this amendment is approved, the termination point for the primary transmission line would terminate 1.68 miles away from the Project at the Petro-Star Switch Building.
- A tailrace that is separated by two concrete walls to allow the dewatering of individual units and their respective position of the tailrace.
- Two pipes approximately 300 feet long that supply water to the nearby Solomon Gulch Hatchery, owned and operated by the Valdez Fisheries Development Association (VFDA).

## 6. **Project Location:**

State: Alaska  
Census Area: Chugach  
Town: Valdez  
Stream or body of water: Solomon Gulch Creek

The Project dam is located in the Chugach Census Area in Alaska, south-southeast across Port Valdez from the city of Valdez, Alaska on Solomon Gulch Creek.

## 7. **Installed Plant Capacity:**

Two Francis-type turbine/generator units with a total rated capacity of 12 megawatts (MW).

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<sup>2</sup> FERC Accession Number: 20221031-5387.

**8. The Names and Mailing Addresses of Entities Listed in 18 C.F.R. § 5.5(b)(8):**

- i. *Every county in which any part of the project is located, and in which any Federal facility that is used or to be used by the project is located:*

The State of Alaska does not have a County structure.

The Project is located entirely within the City of Valdez of Alaska.

- ii. *Every city, town, or similar political subdivision:*  
A. *In which any part of the project is or is to be located and any Federal facility that is or is to be used by the project is located:*

The Project and Project-related transmission lines to the Petro Star Switch Building are located within the corporate boundary of the City of Valdez, an incorporated home rule city. Additional transmission lines run approximately 108 miles to the town of Glennallen.

City of Valdez  
212 Chenega Avenue  
P.O. Box 307  
Valdez, AK 99686

Town of Glennallen

- B. *That has a population of 5,000 or more people and is located within 15 miles of the existing or proposed project dam:*

There are not any cities, towns, or political subdivisions with a population of 5,000 or more people within 15 miles of the Project.

- iii. *Every irrigation district, drainage district, or similar special purpose political subdivision likely to be interested in, or affected by, this notification:*

There are no irrigation or drainage districts or similar special purpose political subdivisions associated with or in the general area of the Project that own, operate, or maintain or use any Project facility.

- iv. *Every other political subdivision in the general area of the project or proposed project that there is reason to believe would be likely to be interested in, or affected by, the notification:*

There is no other political subdivision in the general area of the Project that there is reason to believe would be likely to be interested in, or affected by, this notification.

v. *Affected Indian Tribes:*

Indian Tribes potentially interested in the Project relicensing proceedings include:

Native Village of Tatitlek  
Tatitlek IRA Council  
P.O. Box 171  
503 Copper Mountain Road  
Tatitlek, AK 99677

Native Village of Kluti Kaah  
P.O. Box 68  
Mile 104 Richardson Highway  
Copper Center, AK 99573

Native Village of Tazlina  
P.O. Box 87  
Mile 110.5 Richardson Highway  
Glennallen, AK 99588

Native Village of C'ulc'e Na'  
P.O. Box 254  
Mile 127 Richardson Highway  
Gakona, AK 99588

Native Village of Gakona  
P.O. Box 102  
Mile 4.8 Tok Cutoff  
Gakona, AK 99586

Native Village of Chitina  
P.O. Box 31  
Mile 34.5 Edgerton Highway  
Chitina, AK 99566

Valdez Native Tribe  
P.O. Box 1108  
1750 Zurich Loop Rd  
Valdez, AK 99686

**9. Whether the Application is for a Power or a Non-Power License:**

The Project license application is for a power license.

Furthermore, in accordance with 18 CFR. Section 5.5, the Licensee must distribute to appropriate federal, state, and interstate resource agencies, tribes, local governments, and members of the public likely to be interested in the proceeding this notification of intent.

The Distribution List includes a listing of the notified agencies, tribes, local governments and other potentially interested parties.

The information required to be made available to the public pursuant to 18 C.F.R. Section 16.7 is located at the Copper Valley Electric Association, Inc. Office at Mile 187 Glenn Highway, P.O. Box 45, Glennallen, AK 99588 and will also be available on CVEA's public relicensing website: [www.cvea.org](http://www.cvea.org).

All correspondence and service of documents relating to this Notification of Intent and subsequent proceedings should be addressed or emailed to:

Coreen Palacios  
Copper Valley Electric Association, Inc.  
Mile 187 Glenn Highway  
P.O. Box 45  
Glennallen, AK 99588  
Phone: (907) 822-8301  
Email: [CPalacios@cvea.org](mailto:CPalacios@cvea.org)

Fatima Oswald  
Regulatory Consultant  
Kleinschmidt Associates  
1500 NE Irving Street, Suite 550  
Portland, OR 97232  
Telephone: (971) 337-3841  
Email: [Fatima.Oswald@kleinschmidtgroup.com](mailto:Fatima.Oswald@kleinschmidtgroup.com)



## **10. Designation for Non-Federal Representation:**

Pursuant to 18 CFR § 5.5(e), CVEA requests to be designated as the Commission's non-federal representative in relicensing the Project for purposes of consultation under: (1) Section 7 of the Endangered Species Act (ESA), 16 USC § 1536, and the joint agency ESA implementing regulations at 50 CFR Part 402; (2) Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR 600.920 and (3) Section 106 of the National Historic Preservation Act (NHPA), 54 USC § 306108, and the NHPA implementing regulations at 36 CFR Part 800.

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# PRE-APPLICATION DOCUMENT

SOLOMON GULCH HYDROELECTRIC PROJECT  
FERC No. 2742



Source: CVEA

*Submitted by:*

**Copper Valley Electric Association  
Valdez, Alaska**

*Prepared by:*

**Kleinschmidt**

April 2023

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- Appendix B Distribution List
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- Appendix D Single Line Diagram – Filed Separately as CEI

## DEFINITIONS OF TERMS, ACRONYMS, AND ABBREVIATIONS

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### A

ac-ft	Acre-Feet
AAC	Alaska Administrative Code
ACCS	Alaska Center for Conservation Science
ADEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AHR	Alaska Home Railway
AHRS	Alaska Heritage Resource Survey
AKNHP	Alaska Natural Heritage Program
Allison Creek Project	Allison Creek Hydroelectric Project
AMH	Alaska Marine Highway
ANS	Aquatic nuisance species
APSC	Alyeska Pipeline Services Company
ASG	Alaska Shorebird Group

### B

BCC	Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BLM	United States Bureau of Land Management
BMP	best management practice
BPIF	Boreal Partners in Flight

### C

°C	degrees Celsius
CEII	Critical Energy Infrastructure Information
CFR	Code of Federal Regulations
cfs	cubic feet per second
CFR	Code of Federal Regulations
CPQ	Coastal Project Questionnaire
CVEA, Applicant, or Licensee	Copper Valley Electric Association, Inc.
CR&NR	Copper River and Northwest Railway
CZMA	Coastal Zone Management Area

### D

DLA	Draft License Application
DOE	Determination of Eligibility

DPS	Distinct Population Segment
DWF	Dry Weather Flood
<b>E</b>	
EA	Environmental Assessment
EAP	Emergency Action Plan
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPT	EPT richness (the combined taxa from the orders <i>Ephemeroptera</i> (mayflies), <i>Plecoptera</i> (stoneflies), and <i>Trichoptera</i> (caddisflies))
ESA	Endangered Species Act
<b>F</b>	
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FLA	Final License Application
FOIA	Freedom of Information Act
ft.	Feet
<b>G</b>	
GMU	Game Management Unit
<b>I</b>	
IPaC	Information for Planning and Conservation
<b>K</b>	
Kaf	Chugach flysch
Kafv	Volcanic rocks of the Chugach accretionary complex
kV	kilovolt
kW	kilowatt
<b>M</b>	
MBTA	Migratory Bird Treaty Act
mi.	Mile(s)
msl	mean sea level
MW	megawatt
<b>N</b>	
NAWCP	North American Waterbird Conservation Plan



NAWMP	North American Waterfowl Management Plan
NEPA	National Environmental Policy Act
NGO	Non-governmental Organization
NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Administration
NOI	Notice of Intent
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
<b>O</b>	
OHA	Office of History and Archaeology
<b>P</b>	
PAD	Pre-Application Document
PM&E	Protection, Mitigation, and Enhancement
PMF	Probable Maximum Flood
Project	Solomon Gulch Hydroelectric Project
<b>Q</b>	
Qs	Unconsolidated surficial deposits, undivided
<b>R</b>	
ROW	Right(s)-of-way
RS 2477	Revised Statute 2477
RV	Recreational Vehicle
<b>S</b>	
SCADA	Supervisory Control and Data Acquisition
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SGCN	Species of Greatest Conservation Need
Signal Corps	United States Army Signal Corps
Solomon Gulch Project	Solomon Gulch Hydroelectric Project, FERC No. P-2742
<b>T</b>	
TAPS	Trans Alaska Pipeline System
TCP	Traditional cultural properties
TLP	Traditional Licensing Process
TWUA	Temporary Water Use Authorization

**U**

U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service
USGS	U.S. Geologic Service

**V**

VFDA	Valdez Fisheries Development Association Inc.
VMT	Valdez Marine Terminal

**W**

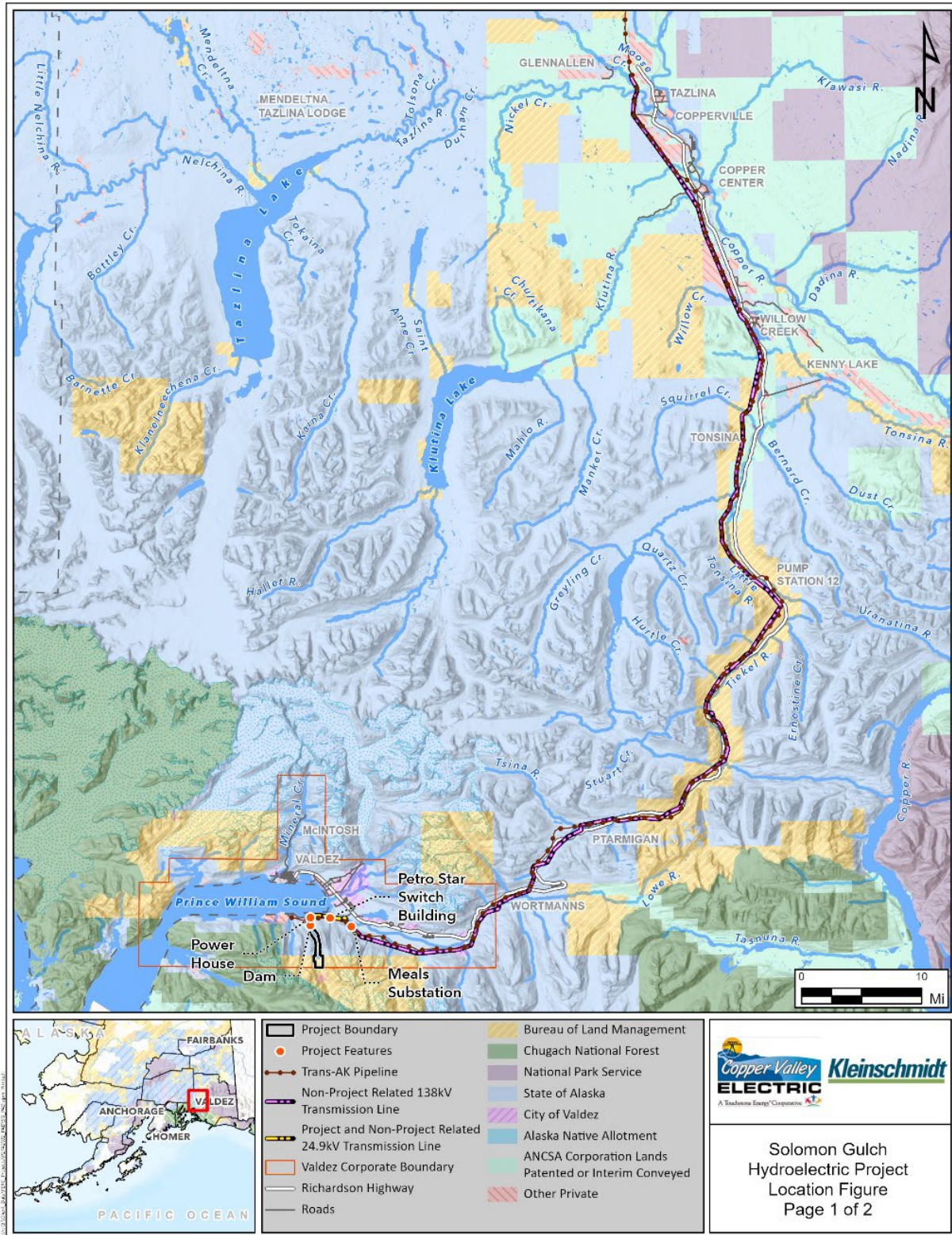
WAMCATS	Washington Alaska Military Cable and Telegraph System
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## 1.0 INTRODUCTION

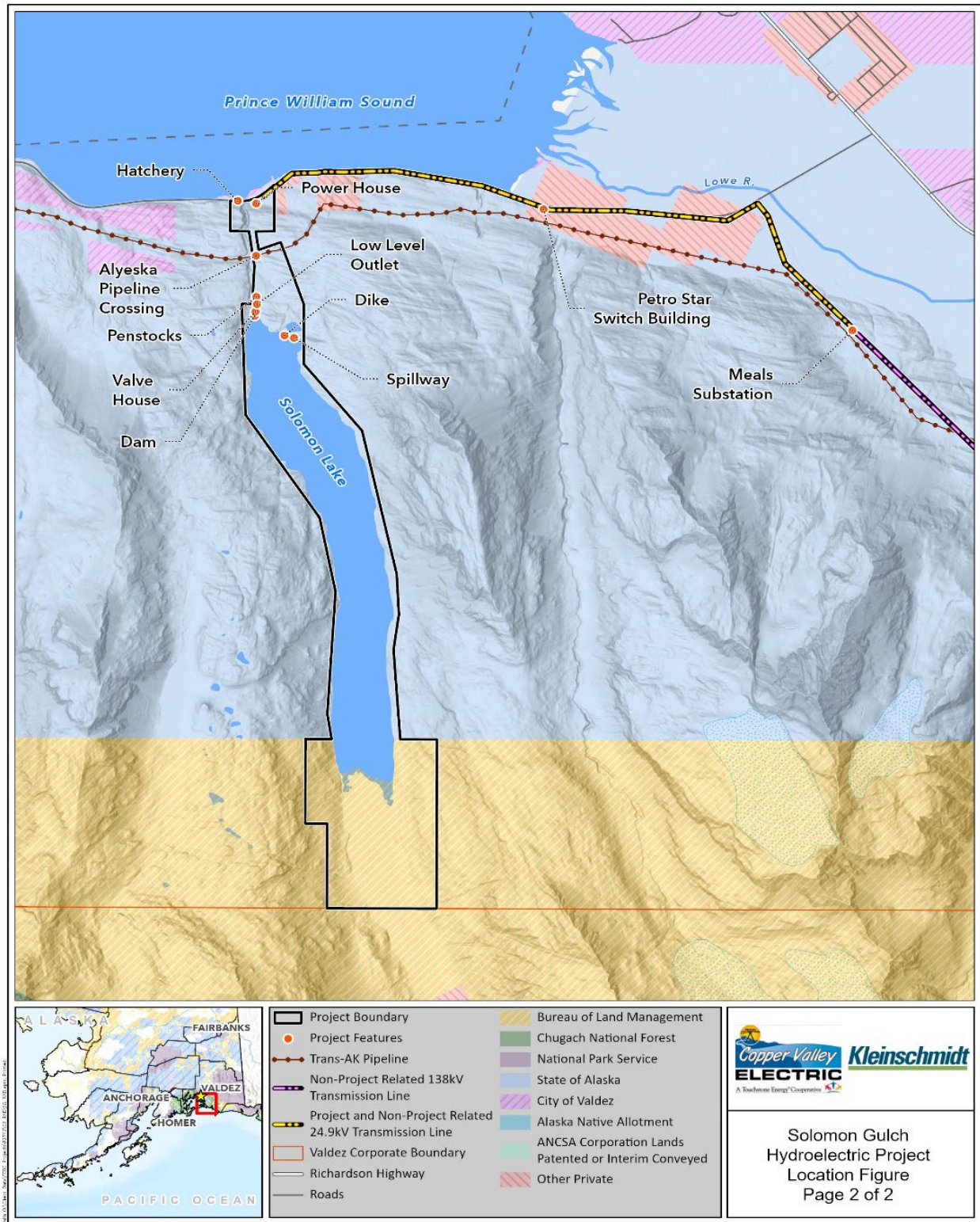
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Copper Valley Electric Association, Inc., (CVEA, Applicant, or Licensee) hereby files with the Federal Energy Regulatory Commission (FERC) its Pre-Application Document (PAD) for relicensing of the existing 12-megawatt (MW) Solomon Gulch Hydroelectric Project (Solomon Gulch Project or Project), FERC Project No. 2742. The Solomon Gulch Project is a major project located on Solomon Lake near Valdez, Alaska (Figure 1-1 and Figure 1-2). CVEA is the current licensee, owner, and operator of the Solomon Gulch Project. The original license was issued on June 21, 1978, for a term of 50 years, and expires on May 31, 2028 (Appendix A). CVEA intends to file an application for a new license from FERC prior to May 31, 2026, two years before the license expiration date, as required by FERC regulations.

The current Project Boundary includes: Solomon Gulch Reservoir (also known as Solomon Lake) and surrounding lands; the dam, saddle dike, spillway, penstocks, powerhouse and associated appurtenant facilities; 1.68 miles of 24.9-kV transmission line extending from the powerhouse switchyard to the Petro Star Switch Building at the Petro Star Valdez Refinery; and 108.16 miles of transmission line, extending from the Petro Star Switch Building to the Meals Substation (where it increases to 138 kV), to a substation adjacent to Pump Station 11 near Glennallen, Alaska. Land ownership within the current Project Boundary is a mix of federal, state, municipal, and privately-owned lands.



**Figure 1-1 Solomon Gulch Hydroelectric Project Location Showing the Non-Project-Related Transmission Line**



**Figure 1-2 Solomon Gulch Hydroelectric Project Location**

On October 31, 2022, CVEA submitted a non-capacity license amendment<sup>1</sup> proposing to remove from the Project Boundary the 108.16-mile transmission line that extends from the Petro Star Switch Building to the substation adjacent to Pump Station 11 near Glennallen because this portion of the transmission line no longer meets the definition of primary transmission as defined in Federal Power Act (FPA) Section 3(11) (CVEA 2022). Since the Project was built in the early 1980s, the 108.16-mile section of transmission line has supported other tie-ins, projects, and electrical needs. The Petro Star Switch Building is now a point of interconnection and distribution for several other sources of power for the CVEA system, including the Allison Creek Hydroelectric Project (FERC No. 13124), a co-generation plant located at the Petro Star Refinery, and the Valdez Diesel Plant.

Within the Project Boundary, the United States Bureau of Land Management (BLM) administers 440 acres of lands at the southern end of the Solomon Gulch Reservoir and 462.2 acres of lands along the 108.16-mile transmission line right-of-way (ROW). Removing the 108.16-mile segment of the transmission line from the Project Boundary would remove the 462.2 acres of federal land subject to annual charges pursuant to Article 42 of the License.

CVEA's proposed license amendment is currently under review by FERC. Accordingly, this PAD addresses both CVEA's proposed Project Boundary and the 108.16-mile-long section of transmission line proposed for removal from the official FERC Solomon Gulch Project Boundary (referred to as the non-project related transmission line in this document). CVEA will plan relicensing activities (including studies) to reflect the current license, however, will make provisions to change the scope of those activities, consistent with any FERC action on the proposed amendment.

CVEA is providing this PAD as required by Title 18 § 5.6 and §16.8 of the U.S. Code of Federal Regulations (CFR). This PAD accompanies CVEA's Notice of Intent (NOI) to seek a new license for the Solomon Gulch Project. CVEA is simultaneously distributing this PAD and NOI to federal and state resource agencies, local governments, Alaska Native tribes, non-governmental organizations (NGOs), members of the public, and other parties potentially interested in the relicensing proceeding. Appendix B provides the distribution list of the NOI and PAD. As specified in 18 CFR 5.6 (c) and (d) the PAD provides FERC and

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<sup>1</sup> FERC Accession Number: 20221031-5387.

the entities listed above with summaries of existing, relevant, and reasonably available information related to the Solomon Gulch Project that is in CVEA's possession or was obtained through due diligence.

By filing the NOI and PAD, CVEA is initiating the formal start of the FERC relicensing process for the Solomon Gulch Project. CVEA is simultaneously requesting use of the Traditional Licensing Process (TLP). A formal request for authorization to use the TLP is included in the cover letter filed with this PAD.

## **1.1 Document Purpose**

This PAD was prepared in compliance with 18 CFR Part 5, which defines the form and content requirements of the document. The purpose of the PAD is to provide FERC, federal and state agencies, and other interested stakeholders with existing background information related to project facilities and operational, engineering, economic, and environmental aspects of the Project. The PAD defines pertinent Solomon Gulch Project issues and potential study needs. In accordance with the regulations, the PAD and associated NOI will be filed with FERC and distributed to federal and state resource agencies, local governments, relevant tribal entities, NGOs, and other interested parties. In addition, by filing the NOI and PAD with FERC, CVEA is requesting and initiating the FERC TLP to relicense the Solomon Gulch Project.

FERC's regulations require that a licensee exercise due diligence in obtaining and including existing relevant and reasonably available information about the Project and related resources. To accomplish this, CVEA conducted searches of publicly available databases including peer-reviewed journal articles, reference books, and the internet, and reviewed its own files for relevant information. CVEA also contacted appropriate federal and state governmental agencies, municipal representatives, NGOs, and others potentially having relevant information. Finally, CVEA distributed a comprehensive PAD Questionnaire designed specifically to identify existing, relevant, and reasonably available information related to the Solomon Gulch Project. Appendix C provides a summary of preliminary outreach contacts and consultation made by CVEA in preparing this PAD.

The information presented in this PAD provides parties interested in this relicensing the information necessary to review existing information about Project resources; identify issues and related information needs; develop study requests and study plans; and to

analyze CVEA's Application for New License (License Application) that will be filed with FERC on or before May 31, 2026. The PAD is a precursor to the environmental analysis section of the License Application and eventually to FERC's Scoping Documents and Environmental Impact Statement (EIS) or Environmental Assessment (EA) under the National Environmental Policy Act (NEPA).

## **1.2 Agents for Copper Valley Electric Association, Inc.**

The following persons are authorized to function as agent for the Applicant pursuant to 18 CFR § 5.6(d)(2)(i):

Travis Million  
Copper Valley Electric Association, Inc.  
Mile 187 Glenn Highway  
P.O. Box 45  
Glennallen, AK 99588  
Phone: (907) 822-3211  
Email: [TMillion@cvea.org](mailto:TMillion@cvea.org)

Coreen Palacios  
Copper Valley Electric Association, Inc.  
Mile 187 Glenn Highway  
P.O. Box 45  
Glennallen, AK 99588  
Phone: (907) 822-8301  
Email: [CPalacios@cvea.org](mailto:CPalacios@cvea.org)

## **1.3 PAD Content**

This PAD follows the content and form requirements of 18 CFR § 5.6 (c) and (d), with minor changes in form for enhanced readability and is organized as follows:

- Table of Contents; List of Tables; List of Figures; List of Photos; List of Appendices; and Definitions of Terms, Acronyms, and Abbreviation;
- Section 1.0 – Introduction and Background Information;
- Section 2.0 – Process Plan and Schedule per 18 CFR § 5.6(d)(1);
- Section 3.0 – Project Location, Facilities, and Operations, per 18 CFR § 5.6(d)(2);
- Section 4.0 – General Description of the River Basin, per 18 CFR § 5.6(d)(3)(xiii);



- Section 5.0 – Description of the Existing Environment, per 18 CFR § 5.6(d)(3)(ii)-(xii);
- Section 6.0 – Preliminary Issues and Studies for each Resource Area, Description of Impacts, Issues, Study and Information Needs, Resource Measures, and Existing Plans, per 18 CFR § 5.6(d)(3) and (4);
- Appendices
  - Appendix A – Project License and License Amendments
  - Appendix B – Distribution List
  - Appendix C – Consultation Documentation-PAD Questionnaire; A summary of the contacts made by CVEA and consultation undertaken in preparing this PAD
  - Appendix D – Single Line Diagram – Filed Separately as CEII

Information containing Critical Energy Infrastructure Information (CEII) pursuant to FERC's June 23, 2003 Order No. 630-A or confidential financial information as defined by 18 CFR §388.112 is filed as an appendix under separate cover to FERC only.

## **1.4 References**

CVEA. 2022. Application for Amendment of License of the Solomon Gulch Hydroelectric Project No. 2742 to amend the Project boundary (Exhibit K), modify the Project Description (Exhibit M), and update the Annual Charges (Article 42). Filed with FERC on October 31, 2022.

Federal Energy Regulatory Commission (FERC). 1978. Order Issuing License (Major) Solomon Gulch Project No. 2742. Issued June 21, 1978.

## **2.0 PROCESS, PLAN AND SCHEDULE [§ 5.6 (D)(1)]**

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In the NOI, CVEA requests FERC's approval to use the TLP for the Solomon Gulch Project. The TLP has three major stages. In general, the first stage involves coordination between the applicant, resource agencies, affected Alaska Native tribes, and the public, and includes the sharing of Project information, notification of interested parties, and study planning and implementation using the PAD. The second stage involves study implementation and additional data gathering as well as development of a Draft License Application (DLA) and review of the DLA by resource agencies and optionally, FERC. The third stage commences with the filing the Final License Application (FLA), whereby FERC initiates its own review and public comment process, ultimately issuing a license for the Solomon Gulch Project. Table 2-1 depicts the regulatory milestones of the TLP. CVEA intends to follow the proposed process plan and schedule (as noted in Table 2-1), using the procedures and timeframes set forth in 18 CFR § 16.8 (TLP) and based upon filing the NOI and PAD on April 28, 2023 and FERC's approval to use the TLP for relicensing the Solomon Gulch Project.

All subsequent dates given are derived from the NOI and PAD filing date and final application filing date of May 31, 2026. Additionally, in developing the proposed process plan and schedule, CVEA included timeframes for Formal Dispute Resolution (18 CFR § 16.8) even though any study disputes may be resolved through informal dispute resolution. Because there is some flexibility in the dates given, the proposed process plan and schedule is subject to change throughout the relicensing proceeding. CVEA will keep an updated schedule on the Solomon Gulch Project's relicensing website located at: [www.cvea.org](http://www.cvea.org).

**Table 2-1 Proposed Process Plan and Schedule<sup>1</sup>**

Activity <sup>2,3</sup>	Responsible Party	Timeframe	Regulation	Dates <sup>4,5</sup>
<b>Stage I</b>				
File NOI/PAD, Request for TLP, and Newspaper Notice	CVEA	At least 5 years but no more than 5.5 years prior to license expiration	18 CFR § 5.5; § 5.6; § 5.3(d); 16.6; § 16.8	4/28/2023
Comments on the request to use the TLP due to FERC	Stakeholders	30 days after TLP request submittal	18 CFR § 5.3	5/28/2023
FERC Issues Notice of Commencement & Approves Use of TLP	FERC	60 days after PAD filed	18 CFR § 5.8; § 16.8	6/27/2023
Provide FERC/Agencies/Public with Notification of Joint Meeting Location & Timing	CVEA	15 days prior to Joint Agency Meeting	18 CFR § 16.8 (b)(3)	7/31/2023
Hold Joint Agency/Public Meeting & Site Visit	CVEA	30-60 days after FERC Approval of TLP	18 CFR § 5.8 & § 16.8 (b)(3)	8/15/2023
File copy of Joint Agency record with FERC	CVEA	Promptly following the Joint Meeting, as available	18 CFR § 16.8 (b)(4)	
Comments on PAD/Study Requests	FERC/ Stakeholders	60 days after Joint Agency Meeting	18 CFR § 16.8 (b)(5)	10/14/2023
Issue Draft Study Plan	CVEA			11/21/2023
Comments on Draft Study Plan	FERC/ Stakeholders			1/18/2024
Finalize Study Plan	CVEA			3/22/2024
Dispute Resolution as Necessary		Within 45 days of deadline for filing comments on PAD	18 CFR § 16.8 (b)(6)	
<b>Stage II</b>				
Conduct First Season Studies	CVEA	Begin approx. 150 days after study requests	18 CFR § 16.8 (c)	2024
Issue Draft Study Report	CVEA		18 CFR § 16.8 (c)	Winter 2025
Conduct Second Season Studies (if necessary)	CVEA		18 CFR § 16.8 (c)	2025

Activity <sup>2,3</sup>	Responsible Party	Timeframe	Regulation	Dates <sup>4,5</sup>
Submit Draft License Application	CVEA	Approximately 150 days before Final License Application	18 CFR § 16.8 (c)(4)	12/30/2025
Comments on Draft License Application	FERC/ Stakeholders	90 days from Draft Application submittal	18 CFR § 16.8 (c)(4)	3/30/2026
Dispute Resolution as Necessary			18 CFR § 16.8 (c)(6)	
<b>Stage III</b>				
Submit Final License Application	CVEA	At least 24 months before the existing license expires	18 CFR § 16.8 (d); 16.9 (b);	5/31/2026
License Expiration				5/31/2028

<sup>1</sup> The proposed process plan and schedule assumes that FERC approves CVEA's request to use the TLP to relicense the Solomon Gulch Project.

<sup>2</sup> Activities shaded in blue are relicensing steps not specifically required by the TLP process, though CVEA plans to undertake them.

<sup>3</sup> Activities shaded in gray are not necessary if there are no study disputes.

<sup>4</sup> If the due date falls on a weekend or holiday, the deadline is the following business day.

<sup>5</sup> The schedule is subject to change throughout the relicensing proceeding.

## 2.1 Joint Agency and Public Meeting, and Site Visit

As set forth in the TLP regulations, and assuming FERC approves CVEA's use of the TLP, CVEA will schedule a Joint Agency and Public Meeting on August 15, 2023, including an opportunity for a site visit, with all pertinent resource agencies, Alaska Native tribes, NGOs, and members of the public. CVEA will provide stakeholders with written notice of the time and place of the joint meeting and a written agenda at least 15 days in advance of the meeting. Pursuant to 18 CFR §16.8(b)(3), the joint meeting will be held no earlier than 30 days and no later than 60 days from the date of FERC approval of use of the TLP. CVEA will confirm the location and time of the meeting and site visit with the distribution list upon receiving notification from FERC regarding the TLP request. If FERC does not approve the use of the TLP, FERC will schedule a scoping meeting pursuant to 18 CFR § 5.8(d).

## **2.2 Communication and Document Distribution**

CVEA's goal is to maintain open communication during the licensing process and to provide public access to relevant Solomon Gulch Project relicensing information. CVEA anticipates distribution of relevant documents, submittal of comments, and correspondence will be largely conducted electronically, either by electronic filing of documents with the FERC or via e-mail distribution. CVEA will maintain documentation of all electronic correspondence as part of formal agency consultation proceedings.

Relicensing documents can be downloaded from CVEA's Solomon Gulch Project relicensing website at: [www.cvea.org](http://www.cvea.org). All requests for hard copies of relicensing documents should be sent to Ms. Coreen Palacios and should clearly indicate the document name, publication date, and FERC Project No. 2742. A reproduction charge and postage costs may be assessed for hard copies requested by the public.

Coreen Palacios  
Copper Valley Electric Association, Inc.  
Mile 187 Glenn Highway  
P.O. Box 45  
Glennallen, AK 99588  
Phone: (907) 822-8301  
Email: [CPalacios@cvea.org](mailto:CPalacios@cvea.org)

Relicensing documents are available to the public through the FERC eLibrary, a records information system on the Internet that contains documents submitted to and issued by the FERC. The eLibrary can be accessed through the FERC's homepage, at <http://www.ferc.gov>, or directly at <https://elibrary.ferc.gov/eLibrary/>. Documents filed with FERC as part of the Solomon Gulch Project relicensing process are available for viewing and printing via eLibrary by searching under the Solomon Gulch Project's docket P-2742. Interested parties can subscribe to the Docket P-2742 for the Solomon Gulch Project under eSubscription on FERC's website to receive notices of issuance and filings by e-mail.

## **2.3 Restricted Documents**

Certain Solomon Gulch Project-related documents are restricted from public viewing in accordance with FERC regulations. CEII (defined under 18 CFR § 388.113) are materials related to the design and safety of dams and their appurtenant facilities, as well as information that is necessary to protect national security and public safety, are restricted.

Anyone seeking CEII information from FERC must file a CEII request. FERC's website is <https://www.ferc.gov/ceii> and contains additional details related to CEII. CEII documents associated with Appendix D of this PAD have been filed separately with FERC.

Additional restricted materials include Privileged Information associated with protecting sensitive information, such as the location of rare, threatened, or endangered species, and sensitive archaeological or other culturally significant properties. Anyone seeking this information from FERC must file a Freedom of Information Act (FOIA) request. Instructions for FOIA are available on FERC's website at <https://www.ferc.gov/foia-privacy-act-and-ceii>.

## **2.4 TLP Participation**

CVEA provides this PAD to representatives of federal and state agencies, local governments, Alaska Native Tribes, NGOs, members of the public, and other parties potentially interested in the relicensing proceedings (Appendix B). Any party that would like to be added to or removed from the distribution list should send a written request to:

Fatima Oswald  
Regulatory Consultant  
Kleinschmidt Associates  
1500 NE Irving Street, Suite 550  
Portland, OR 97232  
Telephone: (971) 337-3841  
Email: Fatima.Oswald@kleinschmidtgroup.com

## **2.5 Comments on PAD and Study Requests**

In accordance with FERC's regulations (18 CFR § 16.8 (b)(5)) and the TLP, relicensing participants may provide comments on the PAD and identify resource studies for consideration, as outlined in Table 2-1 above. Comments on the PAD and study requests will be due 60 days after the Joint Agency Meeting. Participants should consider the following criteria in making any study requests:

- Describe the goals and objectives of each study proposal and the information to be obtained.
- If applicable, explain the relevant resource management goals of the agencies or Alaska Native Tribes with jurisdiction over the resource to be studied.

- If the requestor is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.
- Describe existing information concerning the subject of the study proposal, and the need for additional information.
- Explain any nexus between Project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.
- Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.
- Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The requestor should also describe any available cost-share funds or in-kind services that the sponsor of the request may contribute towards the study effort.

Email or mail completed study requests in MS Word or PDF format to (email preferred):

Coreen Palacios  
Copper Valley Electric Association, Inc.  
Mile 187 Glenn Highway  
P.O. Box 45  
Glennallen, AK 99588  
(907) 822-8301  
[CPalacios@cvea.org](mailto:CPalacios@cvea.org)

Fatima Oswald  
Regulatory Consultant  
Kleinschmidt Associates  
1500 NE Irving Street, Suite 550  
Portland, OR 97232  
(971) 337-3841  
[Fatima.Oswald@kleinschmidtgroup.com](mailto:Fatima.Oswald@kleinschmidtgroup.com)



## **2.6 FERC Communication**

FERC has presently assigned Lauren Townson of its staff to serve as an advisor during the Solomon Gulch Project proceeding. For questions related to FERC communications, please contact Lauren Townson at [Lauren.Townson@ferc.gov](mailto:Lauren.Townson@ferc.gov) or 202-502-8572.

## **3.0 PROJECT LOCATION, FACILITIES, AND OPERATIONS [§ 5.6 (D)(2)]**

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### **3.1 Solomon Gulch Project Location and Overview**

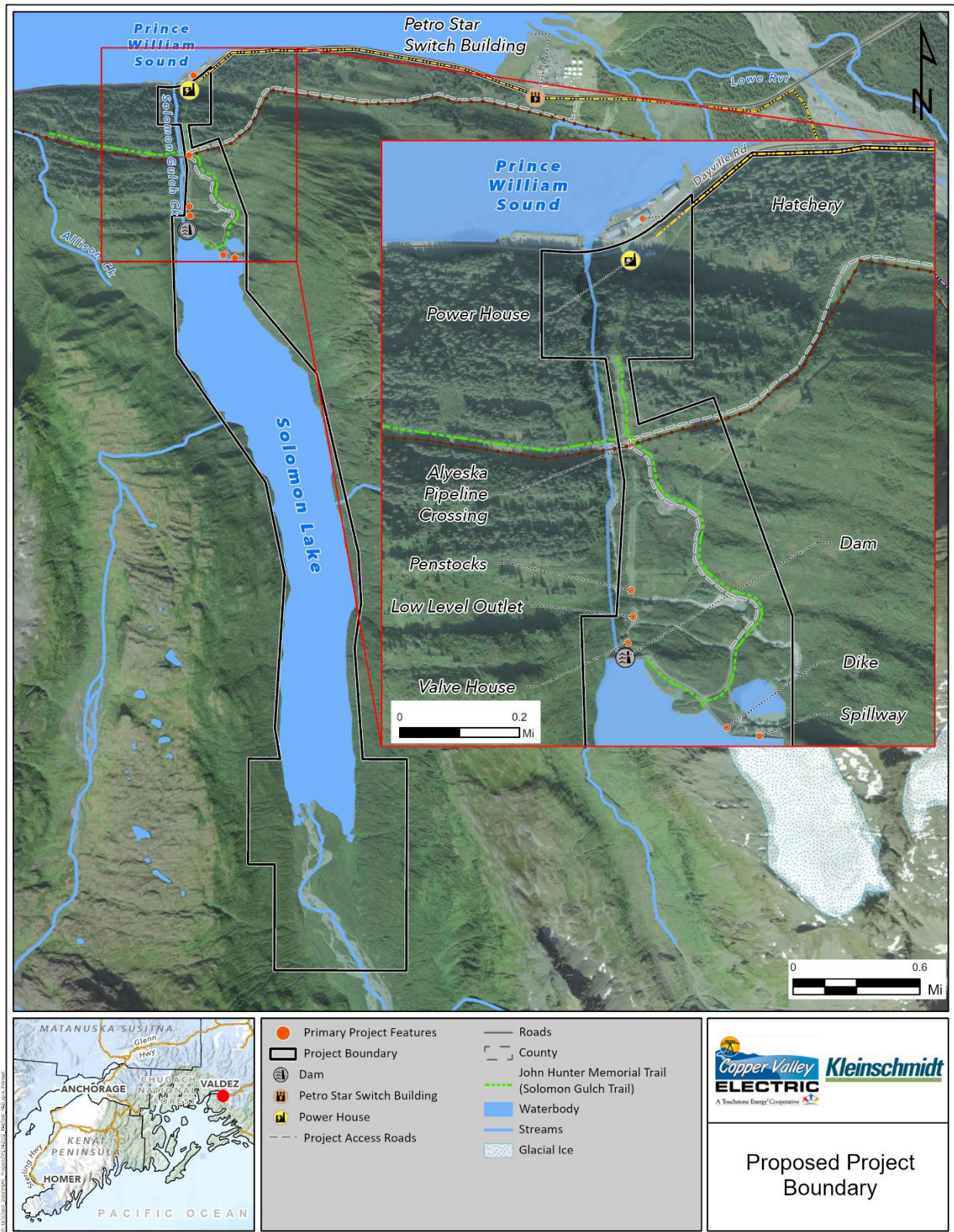
CVEA owns and operates the Solomon Gulch Project, FERC No. 2742. The 12-MW project is situated on Solomon Gulch Creek and has a usable capacity area of 31,560 acre-feet. The Solomon Gulch Project is located on the south side of Port Valdez, opposite of the city of Valdez, approximately four miles east of the Valdez Marine Terminal. The powerhouse is near tidewater and is adjacent to Dayville Road, approximately 14-highway-miles from the city of Valdez. The Project provides energy for Valdez and the Copper River Basin. The Solomon Gulch Project was constructed by CVEA from June 1978 to the spring of 1982. Subsequent to construction, ownership was transferred to the Alaska Power Authority (thereafter called the Alaska Energy Authority), and then to the Four Dam Pool Power Agency on January 31, 2002. In January 2009, CVEA regained ownership and became the FERC licensee, responsible for Project operation and maintenance. CVEA has operated the Project since it became operational in January 1982. CVEA owns and operates one additional hydroelectric project nearby, in the adjacent drainage approximately 2 miles west of the Project – the 2013 FERC licensed 6.5 MW Allison Creek Hydroelectric Project (Allison Creek Project), FERC No. 13124.

A map of the Solomon Gulch Project Area and Project facilities is presented in Figure 3-1, Figure 3-2, and Figure 3-3. These figures represent the Project Boundary without the non-project related transmission line. CVEA, at the time of this writing via the non-capacity amendment filed with FERC on October 31, 2022, is proposing to remove from the Project Boundary the 108.16-mile transmission line that extends from the Petro Star Switch Building to the substation adjacent to Pump Station 11 near Glennallen because this portion of the transmission line no longer meets the definition of primary transmission as defined in Federal Power Act (FPA) Section 3(11); see Section 1.0. If FERC approves the proposed non-capacity amendment, the 108.16-mile transmission line from the Meals Substation to Glennallen would be removed from the Project Boundary. The alignment of the 108.16-mile-long non-project related transmission line is depicted in Section 1.0, Figure 1-1.

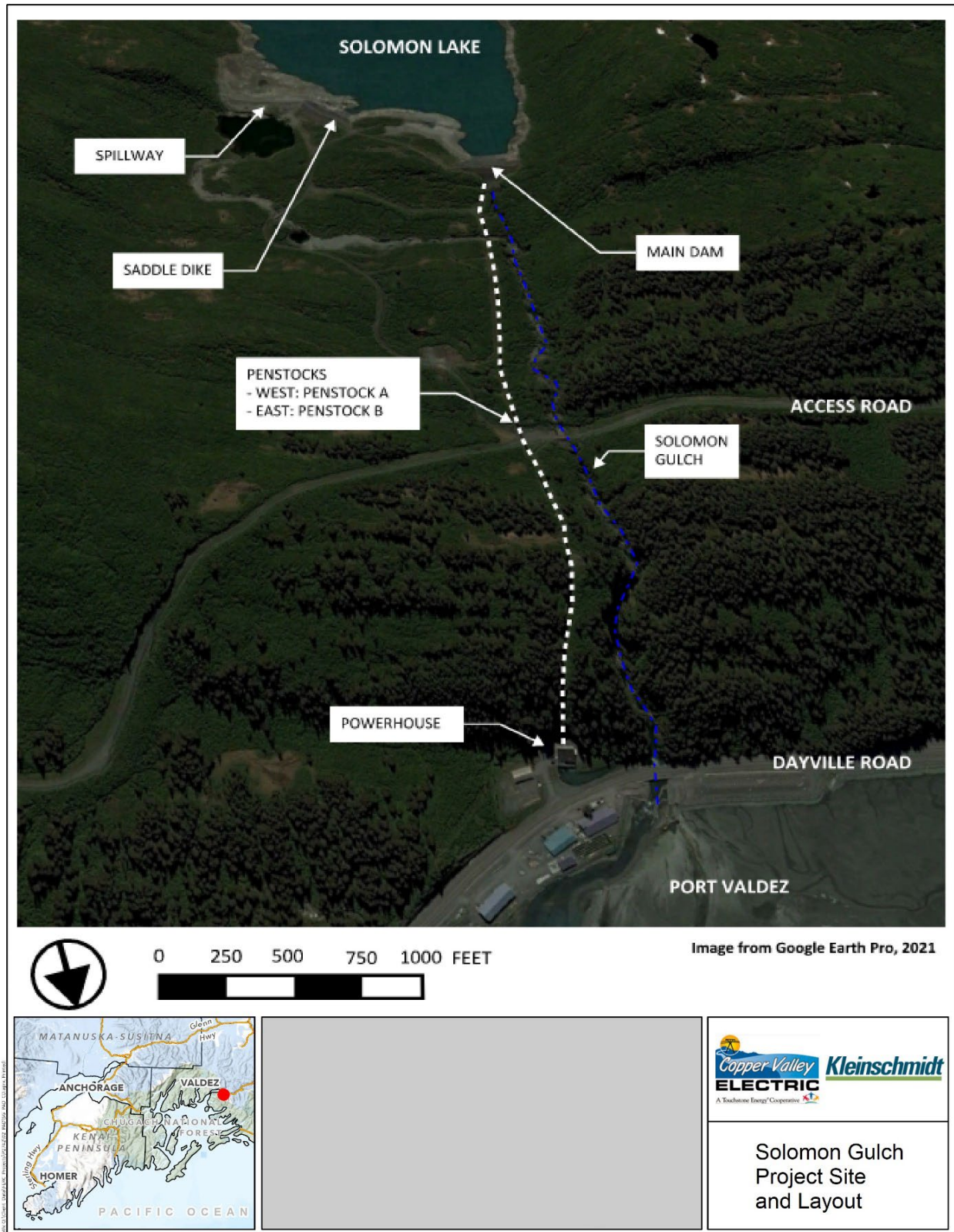


**Figure 3-1<sup>2</sup> Solomon Gulch Hydroelectric Project Boundary**

<sup>2</sup> The Project Boundary does not show the 108.16-mile-long transmission line from the Petro Star Switch Building to the substation adjacent to Pump Station 11 near Glennallen, AK. CVEA filed a non-capacity amendment with FERC on October 31, 2022 to remove this portion of the transmission line from the Project Boundary because it no longer meets the definition of primary transmission as defined in Federal Power Act (FPA) Section 3(11).



**Figure 3-2 Solomon Gulch Hydroelectric Project Area/Facilities**



**Figure 3-3 Solomon Gulch Project Site and Layout Map**

### 3.2 Description of Existing Project Facilities

The Solomon Gulch Project contains the following existing facilities:

- A reservoir with a total drainage area of approximately 19.7 square miles with a minimum elevation of 615 feet mean sea level (msl)<sup>3</sup> to maximum elevation of 693.5 feet msl at the Probable Maximum Flood (PMF). The normal maximum reservoir level is elevation 685 feet msl with a surface area of 660 acres. The maximum total storage volume at normal maximum pool elevation is 31,560 acre-feet.
- A main rockfill dam approximately 400 feet long, 115 feet high with asphaltic concrete face located at the outlet of Solomon Lake.
- A saddle dike, or auxiliary dam, 365 feet long with a maximum height of approximately 65 feet. The saddle dike's right abutment connects with the left abutment of the concrete spillway.
- A concrete spillway with a length of 450 feet with a nominal crest elevation of 685 feet msl.
- A substation located on the powerhouse, as well as a 1.68-mile-long, 24.9-kilovolt (kV) transmission line.<sup>4</sup>
- Two 48-inch diameter intake pipes with slide gate facilities and a trash rack.
- A low-level outlet works consisting of two 30-inch-diameter steel branch pipes connecting to two 48-inch diameter concrete-encased steel penstocks with 45-degree elbows approximately 400 feet downstream of the reservoir at elevation 600-feet msl.
- Two penstocks located downstream of the dam, which are controlled by two 30-inch motor-operated ball valves located in a valve house at elevation 590 feet msl.
- A 70-foot-long by 60-foot-wide powerhouse with reinforced concrete substructure with a structural steel frame and pre-cast concrete panel superstructure with two Francis-type turbine/generator units with a total rated capacity of 12 MW.
- A tailrace that is separated by two concrete walls to allow the dewatering of individual units and their respective position of the tailrace.

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<sup>3</sup> All figures are noted in NGVD29.

<sup>4</sup> As noted in Section 1, the specifics of this transmission line are subject to revision as CVEA pursues a non-capacity license amendment to remove 108.16 miles of the transmission line that no longer meet the definition of "primary transmission" as defined by the Federal Power Act.

- Two pipes approximately 300 feet long that supply water to the nearby Valdez Fisheries Development Association (VFDA) Hatchery, owned and operated by the (VFDA).

### 3.2.1 Reservoir

The reservoir, known as Solomon Gulch Reservoir or Solomon Lake (Photo 3-1), has a total drainage area of approximately 19.7 miles. The reservoir level fluctuates from a minimum elevation of 615 feet msl to the normal maximum pool elevation of 685 feet msl. At the normal maximum reservoir elevation of 685 feet msl the surface area is 660 acres and the maximum total storage volume is 31,560 acre-feet.



**Photo 3-1 Solomon Gulch Project Reservoir (northern end)**

### 3.2.2 Main Embankment Dam

The main embankment dam (Photo 3-2) is a zoned compacted rockfill structure with an impervious asphaltic-concrete membrane on the upstream face. The dam was constructed with three zones: Zone I is composed of 8-inch maximum size material placed in 3-foot wide by 2-foot-thick lifts compacted by a 10-ton vibratory roller. Zone II materials are 18-

inch maximum size rock fill placed in 2-foot-thick lifts with the same compaction requirements as Zone I. The majority of the dam body is composed of Zone II material. Zone III material, used to construct a berm at the toe of the dam, is “oversized rock” placed in 3-foot lifts by “D8 or larger tractor.”

The upstream face of the dam has a 1.7 to 1 height to volume slope with a minimum design membrane thickness of 12 inches placed on top of a 4-inch crushed aggregate leveling course. The downstream slope has a 1.4 to 1 slope. The embankment section is 115-feet-high with a crest elevation of 690 feet. A 5-foot-high concrete parapet wall is constructed along the upstream crest to elevation 695 feet msl. The crest length is 386 feet.



**Photo 3-2 Solomon Gulch Project Main Embankment Dam and Valve House**

### **3.2.3 Spillway**

The spillway (Photo 3-3) is an ungated, post-tensioned, concrete ogee weir with low concrete splitters located along the crest for aeration of the nappe at low flows. The spillway has a length of 450 feet with a nominal crest elevation of 685 feet msl. The left end



of the spillway crest is 1-foot higher (elevation 686 feet msl) than the nominal crest elevation (elevation 685 feet msl) and transitions to the nominal crest elevation in 100 feet. On the left side of the spillway, downstream of the crest, a wing wall was added to redirect flows away from the toe area of the saddle dike. The spillway discharges into Spillway Creek, a natural channel, joining Solomon Gulch Creek downstream of the main dam.



**Photo 3-3 Solomon Gulch Project Spillway and Saddle Dike**

### **3.2.4 Saddle Dike**

An embankment saddle dike is constructed between the left end of the spillway (Photo 3-3) and a high natural rock promontory between the dike structure and the main dam. The dike is built to the same design and specifications as the main dam except it has no berm located on the downstream slope. It is smaller than the main dam with a maximum fill height of 65 feet and a crest length of 365 feet.

### **3.2.5 Intake Structure**

A rectangular section of the concrete in the dam was removed and two 48-inch-diameter pipes were installed. Before the dam was constructed, the pipes were extended beyond the downstream toe and both pipes were encased in concrete within the limits of the rockfill. The concrete entrance to the pipes was formed in a standard bell-mouth design

to reduce entrance losses and maintain an even flow into the pipes. The entrance was provided with slide gate facilities and a trash rack. Butterfly valves were installed in the power conduit at the downstream toe of the rockfill dam. A typical butterfly valve house (Photo 3-4) was constructed.



**Photo 3-4 Solomon Gulch Project Valve House**

### **3.2.6 Penstock and Outlet Works**

A concrete outlet structure located at the upstream toe of the main dam is the intake for two, 48-inch-diameter, concrete-encased steel penstocks at elevation 600 feet msl and one 48-inch-diameter steel low-level reservoir outlet conduit at elevation 606 feet msl. The original Low-Level Outlet Works (LLOW) conduit was plugged with concrete during the summer of 1990 because of concerns over possible deterioration and potential collapse of the exposed steel pipe under the dam. A new LLOW was constructed in 2011, consisting of two new 30-inch-diameter steel branch pipes connecting to the 48-inch-diameter penstocks with 45-degree elbows approximately 400 feet downstream of the reservoir (Photo 3-5). Each penstock has one new branch pipe, with flow controlled by a new 30-inch ball valve.

The two, 48-inch-diameter penstocks convey water a distance of approximately 3,785 feet to the powerhouse located near tidewater (Photo 3-6). The penstocks have over-velocity

monitors to warn the powerhouse of a potential ruptured penstock and to automatically close the associated main valve.

A minimum in-stream flow of 2 cubic feet per second (cfs) is required for the protection of fish resources in Solomon Gulch Creek. To provide this flow, there is an 8-inch bypass valve at the valve house which is controlled and monitored for flow via the Supervisory Control and Data Acquisition (SCADA) system. The 8-inch bypass discharges just below the new dam seepage weir and above the weir that monitors the combined dam seepage and bypass flow. Stream flow is currently determined by a gage installed by CVEA in December 2022, effectively replacing the U.S. Geological Survey (USGS) gage located upstream of the Alyeska Bailey Bridge and downstream of the valve house (USGS Gage number 15225997). CVEA's newly installed gage is being verified for accuracy and is expecting confirmation by August 31, 2023.



**Photo 3-5 Solomon Gulch Project Low Level Outlet Works**



**Photo 3-6 The Two Solomon Gulch Project Penstocks**

### **3.2.7 Powerhouse**

The powerhouse (Photo 3-7) has a reinforced concrete substructure with a structural steel frame and pre-cast concrete panel super structure. The structure is 70-feet-long and 60-feet-wide and is founded principally on rock. The powerhouse's downstream northwest corner foundation was partially built on compacted fill. The powerhouse contains two Francis-type turbine/generator units with a total rated capacity of 12 MW.

Unit 1 was overhauled in 2010, and Unit 2 was overhauled in the summer and fall of 2012. The governors for both units were replaced with digital governors in the spring of 2012.



**Photo 3-7 Solomon Gulch Project Powerhouse (Two Project Penstocks on Left)**

### **3.2.8 Tailrace**

Tailwater is controlled by a low concrete weir which is located just downstream of the powerhouse, approximately 15 feet above tidewater. The tailrace is separated with two concrete walls to allow the dewatering of individual units and their respective portion of the tailrace.

### **3.2.9 Hazard Potential Classification**

The dam is classified as “high hazard” potentially based on the dam break and inundation studies provided in the Emergency Action Plan (EAP), which noted that a dam failure could potentially affect the VFDA Hatchery and the public near the Dayville Road Bridge. The VFDA Hatchery is staffed 24 hours per day and has visitor facilities. The Dayville Road Bridge is the main access to the VMT. Given the short distance between the dam and these structures, each of these structures could be subjected to inundation in a matter of minutes (calculated at 5 minutes) should there be a sudden failure.

The inundation maps for the Solomon Gulch Project were updated June 13, 2022. The PMF event is considered the worst-case scenario for sudden catastrophic dam failure. Due to the short distance between the dam and the mouth of the creek and the steep slope

of the creek below the dam, the travel times are short (5 minutes or less) for both PMF and Dry Weather Flood (DWF) cases. There has been no recent upstream or downstream development that has occurred that would affect the hazard potential or EAP workability.

### **3.2.10 Power Conduits**

The power conduits or penstocks follow closely and nearly parallel to the creek from the dam to the powerhouse. The terrain is one of rhythmically repeated round ridges separated by shallow valleys. The ridges are aligned normal to the direction of flow. The penstocks pass over the Trans-Alaska Oil Pipeline at Station 19+91. The penstocks contain air inlet and outlet valves consistent with penstock design. All low points contain 4-inch drain valves and several manholes are installed for inspection entrances. Steel pipes with diameters of 48-inches are used. The pipes are all welded. In general, the pipe is laid above grade and in straight runs between points of angle change. Expansion joints compensate for temperature change. The pipe rests on saddles at appropriate spacing for the diameter and wall thickness of the pipe. To the extent required for heads too great for the Chatanika Pipe, a 48-inch by 0.462-inch wall thickness pipe owned by Alyeska Pipeline Company was used.

### **3.2.11 Reservoir Normal Maximum Water Surface Area, Elevation, and Gross Storage Capacity**

The Solomon Gulch Reservoir, also known as Solomon Lake, has a total drainage area of approximately 19.7 square miles with a minimum elevation of 615-feet msl to maximum elevation of 693.5-feet msl at PMF. The normal maximum reservoir level is elevation 685-feet msl with a surface area of 660 acres. The maximum total storage volume at normal maximum pool elevation is 31,560 acre-feet.

### **3.2.12 Description of Turbines and Generators and Installed (Rated) Capacity**

#### **3.2.12.1 Existing Turbines and Generators**

The generators are vertical shaft, water-wheel driven types, with thrust bearings, guide bearings, static exciters, voltage regulators, and open type ventilating systems. The rating and characteristics of the generators are as follows in Table 3-1:

**Table 3-1 Rating and Characteristics of the Generators**

Rating and Characteristics of the Generators	
Capacity, KVA	7,500
Power Factor	0.80
Frequency, Cycles	60
Number of Phases	3
Voltage between Phases	4,160
Speed, RPM	900
Short Circuit Ratio	Unity
Line Charging KVA, over	6,000
Efficiency, $\frac{3}{4}$ Load	96%
Sub-transient Reactance	30%

The generators have Class B insulation and the maximum temperature rise for both the armature and field windings to not exceed 60 degrees Celsius (°C). Each generator has a weight times radius squared (WR<sup>2</sup>) value of not less than 65,000 pounds-feet-squared. The armature winding is wye connected and the neutral is solidly grounded or grounded through a grounding transformer, in case it is required to limit the line to ground fault current.

### 3.2.12.2 Turbines

The Solomon Gulch Project utilizes vertical shaft, single runner, Francis type turbines; the turbine ratings and operating conditions to develop 6,000 kW at the generator shaft are as provided in Table 3-2:

**Table 3-2 Turbine Ratings and Operating Conditions to Develop 6,000 kW at the Generator Shaft**

Turbine Ratings and Operating Conditions to Develop 6,000 kW at the Generator Shaft	
Rating	8,500 hp
Rating at the best gate	7,000 hp
Net effective head	620 feet
Efficiency at the best gate speed	900 RPM

Notes:   hp horsepower  
           rpm revolutions per minute

The 30-inch inlet diameter scroll case is flange-connected to the penstock branch line at the control valve. Through it, the water is delivered to the turbine blades and passed down through the steel draft tube of the manufacturer's design.

### **3.2.13 Transmission Lines**

The total transmission line in the current license is approximately 110 miles and runs from the Project near Valdez to Glennallen, Alaska. Concurrent with the relicensing, CVEA has initiated a non-capacity license amendment to remove 108.16 miles of transmission line east of the Petro Star Switch Building as it no longer meets the definition of "Project" specified in the Federal Power Act (FPA) of 1920 (as amended 2018), Section 3(11). For purposes of this PAD, this 108.16-mile-long portion of the transmission line is referred to as the non-project-related transmission line.

A single line diagram, filed separately as CEI, is noted as Appendix D.

#### **3.2.13.1 Project-Related Transmission Lines and Substation**

The 24.9-kV transmission line extends 1.68 miles from the powerhouse switchyard to the Petro Star Switch Building located across Dayville Road from the Petro Star Valdez Refinery.

#### **3.2.13.2 Non-Project-Related Transmission Lines and Substation**

The Non-Project-related Transmission Line consists of 108.16 miles of transmission line, extending from the Petro Star Switch Building to the nearby Meals Substation (where it steps up from 24.9 kV to 138 kV), to a substation adjacent to Pump Station 11 near Glennallen, allowing for, when the Project was built, connection of the Valdez-Glennallen electrical systems. The Petro Star Switch Building is now a point of interconnection and distribution for several other sources of power, including the Allison Creek Hydroelectric Project (FERC No. 13124), a co-generation plant located at the Petro Star Refinery, and the Valdez Diesel Plant.



### 3.2.14 Energy Production (Estimate of Dependable Capacity, Average Annual, and Average Monthly Energy Production)

The dependable capacity, in MWs, and the average annual, and average monthly energy production in kilowatt hours (kWh) for the Solomon Gulch Project is provided in Table 3-3.

**Table 3-3 Dependable Capacity of the Solomon Gulch Project**

Dependable Capacity (MW)	Average Annual Energy Production (kWh)	Average Monthly Energy Production (kWh)
12	42,448	3,537.3

### 3.3 Current Project Operation, Including any Daily or Seasonal Ramping Rates, Flushing Flows, Reservoir Operations, and Flood Control Operations

Solomon Lake is drawn down in the winter when inflows are low and fills during summer from snow melt. In a typical water year, the reservoir fills by November 1. Between November 1 and May annually, when inflow to the reservoir is low, the reservoir is drawn down approximately 70 feet. From May to September, melting snows fill the reservoir again. CVEA maintains a minimum continuous flow of 2 cfs in Solomon Gulch Creek and another minimum continuous flow of 2 cfs at the head of the artificial tailrace channel.

### 3.4 Current Net Investment

As of December 31, 2021, CVEA had incurred an original cost investment of \$8,304,047, accumulated depreciation of \$3,385,019, with a net book value of \$4,919,027 for the Solomon Gulch Project. In addition, CVEA insures the Solomon Gulch Project for \$44,207,093.

### 3.5 Summary of Generation and Outflow Records

Table 3-4 provides the annual gross generated megawatt hours (MWh) at the Project for the past five years (2018-2022). As observed in the table, annual gross generation ranged from 36,891 to 53,665 MWh between 2018 and 2022, with an average annual generation of 42,618 MWh during the period examined. The monthly average generation from 2017

through 2021 ranged from 1,816 MWh during the month of April to a peak of 5,771 MWh during the month of August (Table 3-5).

Table 3-6 provides the total system outflow in acre-feet at the Project for the past five years (2018-2022), with an average annual outflow of 84,394 ac-ft during the period examined.

**Table 3-4 Total Annual System Generation (MWh) at the Solomon Gulch Project from 2018 to 2022**

2018	2019	2020	2021	2022	Average Annual
42,661	53,665	36,891	41,659	38,213	42,618

Source: CVEA

**Table 3-5 Total Mean Monthly System Generation (MWh) at the Solomon Gulch Project from 2017 to 2021**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2,013	2,071	2,119	1,816	3,167	3,408	4,695	5,771	4,532	5,031	4,208	3,080

Source: CVEA

**Table 3-6 Total System Outflow Records (Acre-Feet) at the Solomon Gulch Project from 2018 to 2022**

2018	2019	2020	2021	2022	Average Annual
85,700	103,521	72,894	82,743	77,110	84,394

Source: CVEA

### 3.6 Current License Requirements

By Order dated June 21, 1978, the FERC issued a license for the Solomon Gulch Hydroelectric Project to CVEA (Appendix A-Project License). The 50-year license went into effect on June 1, 1978 and expires on May 31, 2028. The license is subject to the terms and conditions set forth in FERC Form L-2 (revised October 1975) entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States." These terms were designated as Articles 1 through 32. The license is also subject

to the following special conditions set forth as additional articles summarized in Table 3-7 below. Any updates to the below articles are also listed.

**Table 3-7 Solomon Gulch Project License Requirements**

License Article	Requirement
Article 33	The Licensee shall, in cooperation with the Alyeska Pipeline Corporation, locate those transmission line structures that would be adjacent to the Corporation’s oil pipeline right-of-way (ROW) on the service road side of the pipeline and shall locate the transmission line so that it crosses the pipeline only where the pipeline is below grade.
Article 34	The Licensee shall avoid or minimize any disturbance caused by construction and maintenance of the project works to the natural, scenic, historical, and recreational values of the area, blending project works with the natural view, and revegetating, stabilizing, and landscaping the construction areas located outside the area of the project reservoir. Within one year from issuance of this license, the Licensee shall submit to the Commission its detailed plan to avoid or minimize any disturbance to such values of the area caused by construction and maintenance of the project works; this plan shall be prepared after consultation with a professional land use planner, the Bureau of Land Management, and the Alaska department of Natural Resources; and this plan shall give due consideration to the provisions of the Commission Order No. 414, issued November 27, 1970. The Commission reserves the right to prescribe any changes in the plan that the public interest may warrant.
Article 35	Licensee shall consult with the National Geodetic Survey to determine if any bench marks, triangulation stations, or travers stations will be affected by project construction, and shall, prior to commencement of construction, formulate plans and provide funds in a reasonable amount to relocate any affected stations or bench marks.
Article 36	Licensee shall construct facilities, or employ techniques needed and appropriate to prevent rock dust, fines, and other sediments, as well as wastes, from entering Solomon Gulch Creek and other streams, including those along the transmission line rights-of-way, during construction of the project works. Licensee shall submit a plan for handling sediment and wastes to the Regional Engineer, Federal Energy Regulatory Commission, San Francisco, for approval before beginning construction.
Article 37	Licensee shall, in consultation with the Regional Director of the National Marine Fisheries Service of the U.S. Department of Commerce, develop measures to avoid or minimize the effects of project construction and operation on the permanent biological baseline monitoring station located in the intertidal zone east of the proposed project powerhouse.

<b>License Article</b>	<b>Requirement</b>
Article 38	<p>Licensee shall file, within one year from the date of issuance of the license, a revised Exhibit S, prepared in accordance with the Commission's Rules and Regulations, which shall include, among other things: a proposal for a study to determine the effect, if any, of project operation on salmon spawning activities near the mouth of Solomon Gulch Creek, and a detailed assessment of critical wildlife habitat areas that would be affected by the construction and maintenance of the project transmission line. The exhibit shall also contain a proposal of appropriate measures to prevent or minimize disruptions to wildlife and wildlife habitat from construction and maintenance of the project transmission lines and their rights-of-way.</p> <p>FERC approved a revised Exhibit S (Effects of the Project on Fish and Wildlife Resources) on 11/19/1980.</p>
Article 39	<p>Licensee shall, in the interest of protecting the fishery resources of Solomon Gulch Creek, release sufficient flows from the project dam to maintain a continuous minimum flow of 3.5 cfs, or a flow equal to the natural inflow to the project reservoir, whichever is less, as measured at the crest of the Solomon Gulch Creek Falls. After the project begins operating, the Licensee, in cooperation with the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service shall evaluate that minimum flow to determine its adequacy and any modification that might be needed to protect the spawning areas. Within five years after the project begins operating, Licensee shall (1) file the results of that evaluation and (2) file for Commission approval plans for any proposed modification of that minimum flow.</p> <p>Article 39 was revised on 12/28/1987 to the following: The licensee shall maintain minimum flows of 2 cfs at the head of the Project tailrace and 2 cfs at the base of the of the lower falls of Solomon Gulch Creek, for the protection of fish resources in the tailrace and creek. These flows may be temporarily modified if required by operating emergencies beyond the control of the licensee and for short periods upon mutual agreement of ADFG. [This supersedes FERC Order Amending Flows 10/28/1980].</p>

License Article	Requirement
Article 40	<p>The Licensee shall, prior to the commencement of any construction or development of any project works or other facilities at the project, consult and cooperate with the State Historic Preservation Officer (SHPO) to determine the need for, and extent of, any archeological survey and any mitigative measures that may be necessary. The Licensee shall provide funds in a reasonable amount for such activity. If any previously unrecorded archeological sites are discovered during the course of construction, construction activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the sites, and the Licensee shall consult with the SHPO to develop a mitigation plan for the protection of significant archeological resources. If the Licensee and the SHPO cannot agree on the amount of money to be expended on archeological work related to the project, the Commission reserves the right to require the Licensee to conduct, at its own expense, any archeological work found necessary.</p>
Article 41	<p>Pursuant to Section 10(d) of the Act, after the first 20 years of operation of the project under the license, the rate as computed below shall be the specified rate of return on the net investment in the project for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One-half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account as of the end of each fiscal year: Provided that, if and to the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year or years after the first 20 years of operation under the license, the amount of any surplus earnings accumulated thereafter until absorbed, and one-half of the remaining surplus earnings, if any, thus cumulatively computed, shall be set aside in the project amortization reserve account; and the amounts thus established in the project amortization reserve account shall be maintained until further order of the Commission.</p> <p>The annual qualified reasonable rate of return shall be the sum of the weighted cost components of long-term debt, preferred stock, and the cost of common equity as defined herein. The weighted cost component for each element of the reasonable rate of return is the product of its capital ratios and cost rate. The current capital ratios for each of the above elements of the rate of return shall be calculated annually based on an average of 13 monthly balances of amounts properly includable in the Licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rates for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the treasury Department's 10-year constant</p>

License Article	Requirement
	maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).
Article 42	<p>The Licensee shall pay the United States the following annual charge, effective as of the first day of the month in which this license is issued:</p> <p>(a) For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable annual charge as determined by the Commission in accordance with the provisions of its regulations, in effect from time to time. The authorized installed capacity for that purpose is 16,000 horsepower.</p> <p>(b) For the purpose of recompensing the United States for the use, occupancy and enjoyment of its lands an amount the Commission will determine later.</p>
	<p>(b) FERC Order dated 1/26/1993:</p> <p>For the purpose of recompensing the United States for the use, occupancy, and enjoyment of its lands, an amount as may be determined from time to time pursuant to the Commission's regulations. The acreage of land for such purpose is as follows:</p> <p style="padding-left: 40px;">(i) The acreage for land other than for transmission line ROW is 440.0.</p> <p style="padding-left: 40px;">(ii) The acreage for land for transmission line ROW is 462.2.</p>
Article 43	The Licensee shall, to the satisfaction of the Commission's authorized representative, install and operate any signs, lights, sirens, or other safety devices below the powerhouse, and any signs, lights or other safety devices above the powerhouse intakes, that may reasonably be needed to warn the public of fluctuations in flow from the project and protect the public in its recreational use of project lands and waters.
Article 44	Licensee shall file with the Commission, implement, and modify when appropriate, an emergency action plan designed to provide an early warning to upstream and downstream inhabitants and property owners if there should be an impending or actual sudden release of water caused by an accident to, or failure of, project structures. That plan shall be submitted prior to initial filling of the project reservoir and shall include, but not be limited to, instructions to be provided on a continuing basis to operators and attendants for actions they are to take in the event of an emergency; detailed and documented plans for notifying law enforcement agents, appropriate Federal, State, and local agencies, operators of water-related facilities, and those residents and owners of properties that could be endangered; and actions that would be taken to reduce the inflow to the reservoir, if possible, by limiting the outflow from upstream dams or control structures. Licensee shall also submit a summary of the study used as a basis for determining the areas that may be affected by an emergency, including criteria and assumptions used. Licensee shall monitor any changes in upstream or downstream conditions which may influence possible flows or affect areas susceptible to damage, and shall promptly

License Article	Requirement
	make and file with the Commission appropriate changes in the emergency action plan. The Commission reserves the right to require modifications to the plan submitted.
Article 45	The Licensee shall file with the Commission's Regional Engineer and the Director, Office of Electric Power Regulation, one copy each of the contract drawings and specifications prior to start of construction. The Director, Office of Electric Power Regulation, may require changes in the plans and specifications to assure a safe and adequate project.
Article 46	The Licensee shall submit, for Commission approval prior to the start of construction, Exhibit L drawings showing the final design of the project works. The spillway as shown on the revised Exhibit L drawings shall be adequately sized to pass a flood resulting from a combined runoff of probable maximum precipitation plus snowmelt. The rockfill used to construct the dam shall be adequately compacted. The dam as shown on the revised Exhibit L drawings shall be designed to be stable under a design earthquake commensurate with earthquake activity in the area.
Article 47	The Licensee shall retain a Board of three or more qualified, independent, engineering consultants to review the design, specifications, and construction of the project for safety and adequacy. The names and qualifications of the Board members shall be submitted to the Director, Office of Electric Power Regulation, for approval. Among other things, the Board shall assess the geology of the project site and surroundings; the design, specifications and construction of the dikes, dam, spillway, powerhouse, electrical and mechanical equipment involved in water control and emergency power supply; the filling schedule for the reservoir; the construction inspection program; and construction procedures and progress. The Licensee shall submit to the Commission copies of the Board's report on each meeting. Reports reviewing each portion of the project shall be submitted prior to or simultaneously with the submission of the corresponding Exhibit L final design drawings. The Licensee shall also submit a final report of the Board upon completion of the project. The final report shall contain a statement indicating the Board's satisfaction with the construction, safety, and adequacy of the project structures.
Article 48	The Licensee shall construct the project transmission lines using non-specular conductors.
Article 49	The Licensee, within one year following the date of commencement of operation of the project, should file a revised Exhibit F and, for Commission approval, revised Exhibits J, K, L, and M as necessary to show the project as finally constructed and located.

License Article	Requirement
Article 50	The Licensee shall commence construction of the project within two years of the date of issuance of the license, and shall thereafter in good faith and with due diligence prosecute and complete the construction of project works within four years after commencement of construction.
Article 51	Prior to starting construction of the Meals-Glennallen 138-kV transmission line, Licensee shall in cooperation and consultation with the Alyeska Pipeline Service Company (APSC) identify areas where there could be electrical interference with, or hazards to, the operation of the APSC pipeline, and also identify any safety hazards which may result from joint use of the pipeline corridor. Licensee shall provide, in cooperation with and at no cost to APSC, satisfactory methods for the mitigation of any potential hazards and possible electrical interference. If Licensee and APSC cannot agree on appropriate methods for mitigating any potential hazards to, or interference with, the APSC pipeline, the Commission may prescribe methods for mitigation.
Article 52	The Licensee shall install and thereafter maintain sufficient meters or other measuring device on all licensed transmission facilities for the purpose of determining the magnitude, direction and time of power flows on those transmission facilities. The number, character, and locations of meters or other measuring devices, and the method of their operation, shall at all times be satisfactory to the Commission or its authorized representative. The Licensee shall keep accurate and sufficient records of the foregoing information to the satisfaction of the Commission, or its authorized representative, and shall make those records available at any time and in any form as the Commission may reasonably prescribe.

### 3.7 Compliance Summary

A review of the FERC record for the Project found that there were deviations to Article 39 that were considered violations of the License by FERC. Those violations took place in 1989, 1990, and 1991 (Article 39).<sup>5</sup> These incidents were reported by CVEA, fully investigated by FERC, and measures put in place to prevent reoccurrence in the future.

Otherwise, CVEA has operated the Project in accordance with the terms and conditions of the license. The Project has been subject to the Commission’s standard operational and environmental inspections. Following these inspections, the Licensee has implemented

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<sup>5</sup> FERC Accession Number: 19911204-0116.



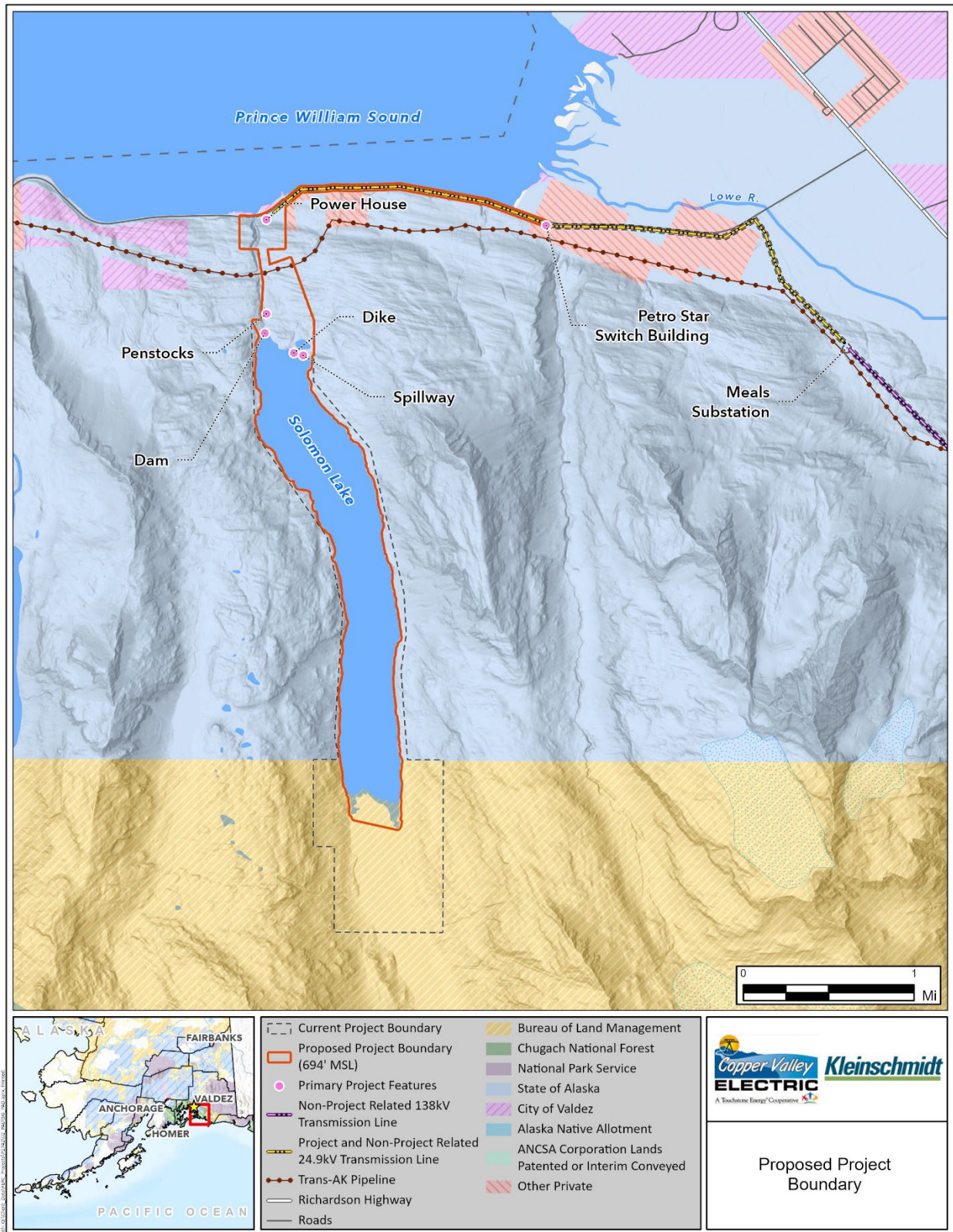
and completed all necessary actions to address any Commission comments and recommendations.

### **3.8 Description of New Facilities, Components to be Constructed, Plans for Future Development or Rehabilitation of Project, and Changes in Project Operation**

There are no new facilities or Project components that are planned to be constructed, nor are there plans for future development or rehabilitation of the Project,<sup>6</sup> nor are there any changes planned to Project operations. During relicensing, CVEA will be proposing to reduce the Project Boundary in the vicinity of the reservoir from the current broader boundary which includes lands that are not necessary for Project Operations down to the area that encompasses the PMF at an elevation of 694 feet msl (Figure 3-4).

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<sup>6</sup> The powerhouse substation is currently being replaced by a new substation located just east of the powerhouse, to be completed by the end of 2023.



**Figure 3-4 Solomon Gulch Proposed Project Boundary**

### **3.9 References**

Retherford, Robert W. Associates. 1976. Solomon Gulch Hydroelectric Project No. 2742-Alaska: Application for License. Exhibit M.

Federal Energy Regulatory Commission (FERC). 1978. Order Issuing License (Major): Solomon Gulch Project No. 2742-Alaska.

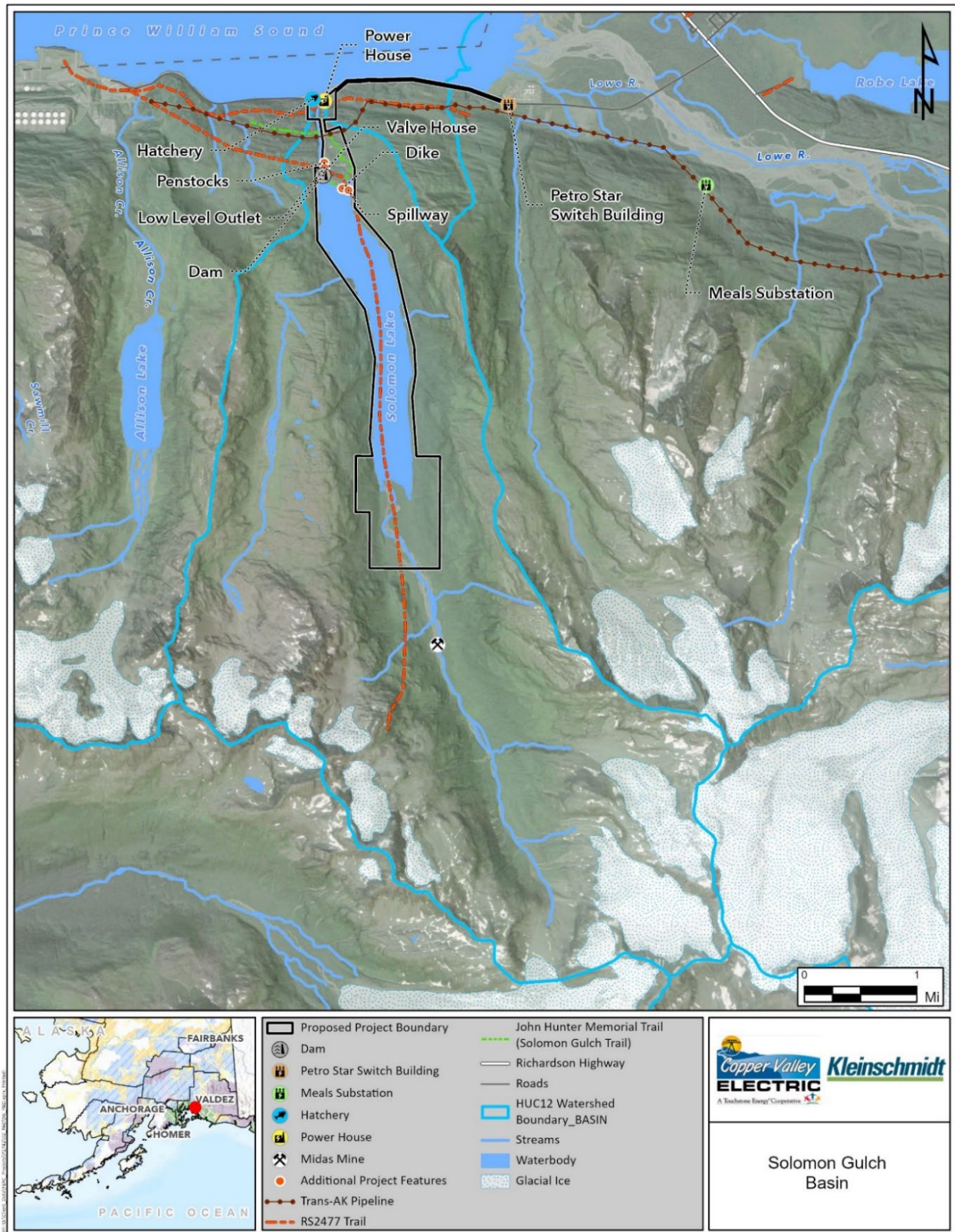
Kleinschmidt Associates. 2017. Seventh Part 12D Safety Inspection Report: Solomon Gulch Hydroelectric Project, FERC No. 2742-Alaska.

## **4.0 GENERAL DESCRIPTION OF THE RIVER BASIN**

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### **4.1 River Basin Description [§ 5.6 (d)(3)(xiii)]**

Solomon Gulch Creek flows north from glacially-fed headwaters originating in the Chugach National Forest to the southeast side of Port Valdez. The basin lies within the Chugach Mountains physiographic province (Wahrhaftig 1965), which forms an extremely rugged barrier along the north coast of the Gulf of Alaska (Figure 4-1). The entire range was covered with glacial ice during advances of late Pleistocene-age (Coulter et al. 1965). The upper basin is void of tree cover and consists of light groundcover over boulders left over from glacial retreat. The creek flows approximately 8 miles from its headwaters to Solomon Lake. Upstream of the Solomon Lake outlet, the valley floor is broad and covered in alluvial deposits of silt, sand, and gravel. Downstream of Solomon Lake, the channel flows through a densely vegetated canyon, with near vertical side slopes and a steep gradient, marked by a constant succession of plunge pools and small cascades that preclude anadromous fish. Solomon Gulch Creek flows approximately 3,800 feet from the Main Dam at the lake outlet to tidewater.



**Figure 4-1 Solomon Gulch Watershed**

#### **4.1.1 Area of River Basin and Sub-basin and Length of Stream Reaches**

Solomon Lake has a total drainage area of approximately 19.7 square miles. Solomon Gulch Creek headwaters originate at the base of several small glaciers at elevations of 3,000 to 4,000 feet. The creek flows northerly for approximately 5 miles through a wide valley before entering Solomon Lake at an elevation ranging from 615 feet to 685 feet, depending on the normal reservoir pool level. The watershed above the lake is partially covered with glaciers and a significant amount of snow accumulates during the winter. Solomon Lake extends approximately 3 miles to its outlet at the Main Dam. A 4-mile-long unnamed glacially-fed tributary enters Solomon Lake from the west. From the lake outlet, Solomon Gulch Creek flows approximately 3,800 feet before entering Port Valdez.

#### **4.1.2 Major Land and Water Use in the Solomon Gulch Project Area**

Development along the south side of Port Valdez is limited to the VFDA Hatchery, Solomon Gulch Project, Allison Creek Hydroelectric Project, Trans-Alaska Pipeline System (TAPS), Alyeska Pipeline Terminal, and Allison Point Campground. Access to the area is provided by Dayville Road, which crosses Solomon Gulch Creek near tidewater. TAPS, which is placed in an excavated trench and encased in concrete, crosses Solomon Gulch Creek approximately halfway between Port Valdez and the Main Dam.

The SGH, located at the mouth of Solomon Gulch Creek on the north side of Dayville Road, is owned and operated by the Valdez Fisheries Development Association Inc. (VFDA) and is not part of the Solomon Gulch Hydroelectric Project. Constructed in 1982, the VFDA Hatchery produces Pink and Coho salmon to support the area's commercial, sport, and subsistence fisheries (VFDA 2022). A seasonal weir is installed during the summer months to direct returning salmon into the VFDA Hatchery fish ladder to be used for broodstock. VFDA has an agreement with CVEA to use discharge water from the Solomon Gulch Hydroelectric Plant (CVEA and VFDA 2015). The VFDA Hatchery also receives water from Solomon Gulch via the VFDA-owned and operated Falls Creek Diversion, located upstream from the lowermost waterfalls approximately 600-feet-upstream from the mouth of the creek.

The Solomon Gulch Project access road, penstocks, and powerhouse run along the east side of Solomon Gulch Creek from the Main Dam on Solomon Lake downstream to the south side of Dayville Road. The John Hunter Memorial Trail, the only recreational facility

in the Project area, extends approximately two miles from Dayville Road across the TAPS ROW and on to the Solomon Lake Dam site and spillway. CVEA constructed a 10'x20' pavilion in 2019 near the dam to provide a dry location for recreators to rest, eat and enjoy the scenery.

Approximately 90 percent of the Solomon Gulch Creek flows are used by the Solomon Gulch Project. In a typical water year, the reservoir fills by November 1. Between November 1 and May annually, when inflow to the reservoir is low, the reservoir is drawn down approximately 70 feet. From May to September, melting snows, melting glaciers, and rainfalls fill the reservoir again. CVEA and VFDA work cooperatively to maintain a minimum continuous flow of 2 cfs, as natural flows allow, in Solomon Gulch Creek downstream to the base of the lowermost waterfall to provide for fish resources.

Above the Solomon Gulch dam site, the Project area consists of undeveloped state and BLM-managed lands. There is a Revised Statute (RS) 2477 ROW (Granby Road) that provided access from tidewater to the historic Midas Mine, which is located outside of the Project Boundary, approximately 1.5-miles upstream of the reservoir. The mine ceased operating in 1919 (ADNR 2022). Portions of the Solomon Gulch Project access road and the John Hunter Memorial Trail are established upon the RS 2477 ROW, which is also partially inundated by the reservoir. Beyond that, Granby Road is overgrown and many traces of the road have completely disappeared. Recreational use of the area is described in Section 5.7.

### **4.1.3 Dams and Diversion Structures in the Basin**

As described in Section 3.0, the Solomon Gulch Project includes two rockfill embankment dams, including the 115-foot-high Main Dam and the 55-foot-high Saddle Dike located approximately 3,800 feet upstream of Port Valdez, impounding up to 31,500 acre-feet of water, creating Solomon Lake. A Certificate of Appropriation was issued for the Project in 2002 (ADL 67278), for 100,000 acre-feet of water per year for purposes of power generation. Conditions of the appropriation require providing a minimum flow of 2 cfs at the head of the tailrace and maintaining a minimum flow of 2 cfs at the base of the Solomon Gulch Creek lower falls to the marine waters of Port Valdez for protection of fish resources in the tailrace channel and creek. In December 2022, ADNR increased CVEA's water rights appropriated under ADL 67287 by 25,000 acre-feet per year, as requested by CVEA (LAS 33984) to 125,000 acre-feet to meet an increase in demand for water for energy

production. There are no diversions, surface water rights or wells in the basin upstream of the Solomon Gulch Project (ADNR 2022).

CVEA and VFDA have a water use agreement (2015). The VFDA Hatchery receives much of its water from the Solomon Gulch powerplant by various routes controlled by CVEA. In addition, VFDA also has water rights junior to CVEA to use 4 cfs of Solomon Gulch Creek water June 15 through October 14 and 2 cfs from October 15 through June 14 (LAS 1142). VFDA constructed and operates a diversion (Falls Creek Diversion) at the top of the lowermost falls of Solomon Gulch Creek and controls water diversion from that structure by an assemblage of valves and piping. CVEA and VFDA work cooperatively to maintain the required minimum instream flows at the base of the lower falls. Between October 15 and June 14, when flows approach 2.5 cfs at the top of the falls, as measured by the new CVEA gage effectively replacing (as of August 31, 2023) the Alyeska Bailey Bridge gage (USGS Gage number 15225997), VFDA ceases diverting water from the Falls Creek Diversion (CVEA and VFDA 2015).

In addition to these water rights, Alyeska Pipeline Services Company (APSC) has a temporary water use authorization (TWUA P2018-19) to withdraw up to 35,000 gallons per day from Solomon Gulch near TAPS (ADNR 2022).



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## **5.0 DESCRIPTION OF EXISTING ENVIRONMENT**

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### **5.1 Geology and Soils [§ 5.6 (D)(3)(ii)]**

#### **5.1.1 Description of Geological Features**

##### **5.1.1.1 Bedrock Lithology**

The bedrock formation in the gulch of the Solomon Gulch Project Boundary is within the geologic series known as the Valdez Group. This group is composed primarily of interbedded slate and graywackes, argillite, and arkosic sandstones with some igneous intrusives, and volcanics (FERC 1978). The Valdez Group is folded and deformed; it is metamorphosed to grades ranging from laumontite to amphibolite (or hornblende hornfels) facies. The eastern portion of the Valdez Group (which is associated with the location of the Solomon Gulch Project) contains mainly mid-to upper-greenschist facies, with the development of amphibolite facies locally north of Port Fidalgo (Dumoulin 1987).

USGS identified the generalized geologic unit associated with the Solomon Gulch Project as the Chugach accretionary complex. This grouping includes the following units:

- Chugach flysch (Upper Cretaceous),
- Volcanic rocks of the Chugach accretionary complex (Upper Cretaceous), and
- Sitka graywacke, undivided (Cretaceous) (however Sitka graywacke is limited to Baranof, Chicagof, Kruzof, and Yakobi Islands and therefore unlikely present in the Solomon Gulch Project) (Wilson et al 2015a).

The Chugach flysch and the volcanic rocks of the Chugach accretionary complex are described below and illustrated in Figure 5-1.

In the area along the non-project-related transmission line the bedrock formation is primarily composed of “unconsolidated surficial deposits, undivided” (Qs). This bedrock is composed predominantly of alluvial, colluvial, marine, lacustrine, eolian, and swamp deposits, glacial and periglacial deposits, and glacially scoured bedrock that may be covered with thin, glacially derived deposits (Wilson et al 2015b). To a lesser extent, the area along the non-project-related transmission line contains Chugach flysch, Talkeetna formation, and volcanic rocks of Chugach accretionary complex.

#### **5.1.1.1.1 Chugach Flysch (Kaf)**

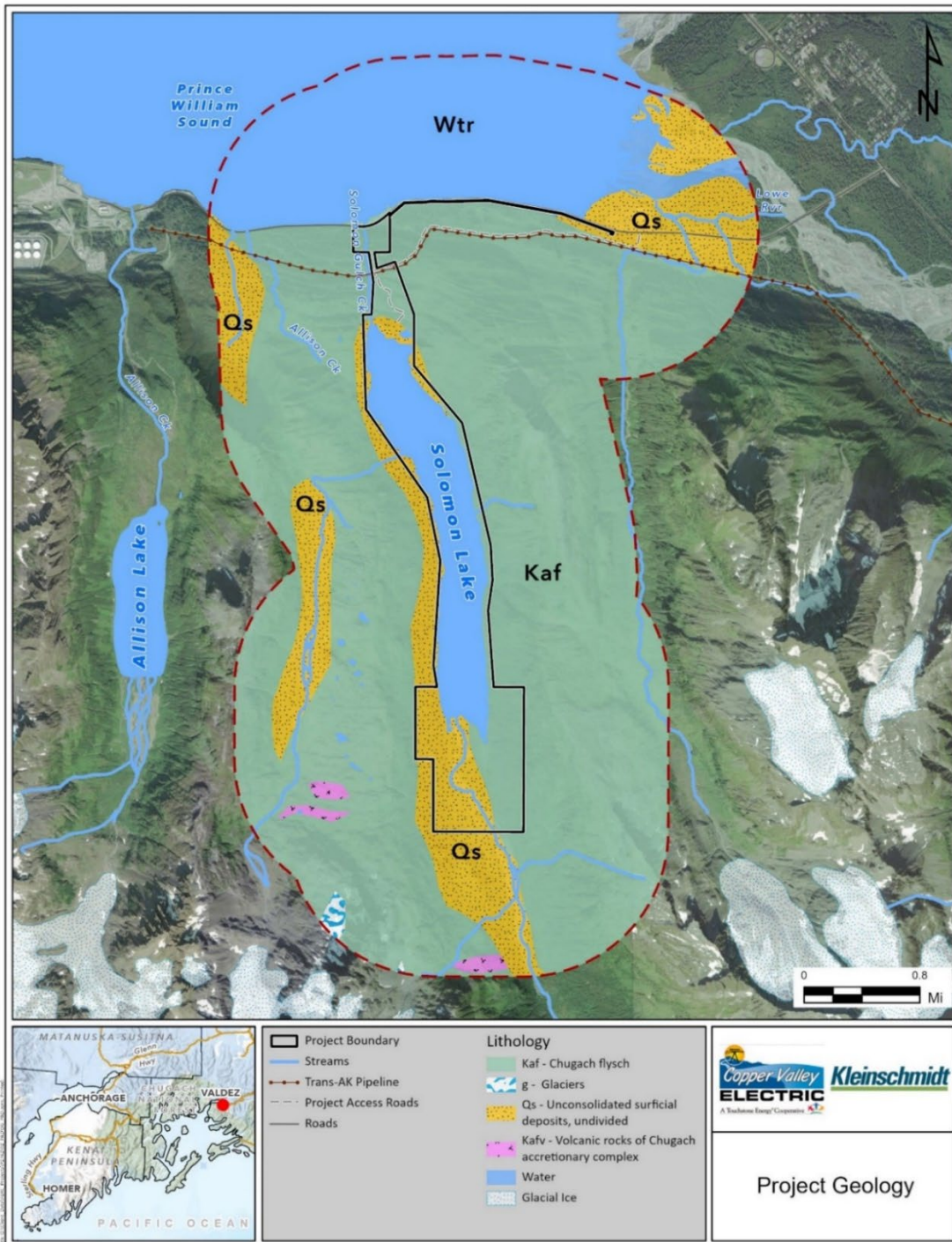
Chugach flysch (Kaf) is an extensive geologic unit which extends from southeast Alaska to the western end of the Alaska Peninsula. For purposes of the Solomon Gulch Project, it is known to occur in the Valdez Group. Formations of this unit generally consist of very fine- to medium-grained, medium-light-gray to medium-dark-gray, highly indurated, lithic graywacke, and siltstone that generally increases in metamorphic grade to the northeast. The Valdez Group is locally metamorphosed to amphibolite facies in the northeastern part of its exposure range (Wilson et al. 2015b).

The Valdez Group consists of dark-gray, thin- to thick-bedded, moderately to poorly sorted sandstone, siltstone, and mudstone flysch which metamorphosed to laumontite to mid-greenschist facies; the sandstone is fine- to coarse-grained and mainly composed of plagioclase, quartz, and igneous rock fragments. This unit is a thick sequence of rhythmically alternating, multiply deformed, metamorphosed sandstone-siltstone turbidites which occur in beds generally ranging from a few centimeters to a few meters thick and occasionally in massive beds as much as tens of meters thick. A point count analysis by Dumoulin (1987) showed Valdez Group sandstone contains 6 to 30 percent quartz, 23 to 45 percent feldspar, and 28 to 68 percent lithic fragments; lithic fragments are dominantly volcanic rocks. Proportion of lithic fragments decreases from west to east, as feldspar and quartz increase. Conglomeratic sandstone containing clasts of quartzite, intermediate and felsic volcanic rocks, and rare sandstone, limestone, and granitic rocks is uncommon but widely distributed, occurring at base of some sandstone beds. In some places, primary sedimentary structures such as graded bedding, current-ripple cross-lamination, convolute bedding, and sole markings are preserved (Wilson et al. 2015b).

#### **5.1.1.1.2 Volcanic Rocks of Chugach Accretionary Complex (Kafv)**

Volcanic rocks of the Chugach accretionary complex (Kafv) are composed of tholeiitic metabasalt, massive greenstone, and basaltic metatuff, including local pillow lava, pillow breccia, and gabbroic dikes and sills typically interbedded with flysch of the Valdez Group and Sitka Graywacke. Metabasalt forms rugged, nearly massive outcrops, whereas semischistose metatuff forms more subdued outcrops. Metamorphic grade ranges from prehnite-pumpellyite to lower greenschist facies. Basalt and basaltic tuff north of Cross Sound are deformed and regionally metamorphosed as high as amphibolite facies.

Common rock types include schist, gneiss, and amphibolite with volcanic rocks in Valdez Group to northwest suggests a Cretaceous age (Wilson et al. 2015b).



Source: Wilson et al 2015a.

**Figure 5-1 Bedrock Geology Within the Project Boundary and Surrounding Project Area**

### **5.1.1.2 Stratigraphy**

The Chugach accretionary complex covers the area where the Solomon Gulch Project is located. The two geologic units within this complex that cover the area where the Project is located (Kaf and Kafv) are composed of rocks from the late Cretaceous period (Wilson et al. 2015).

### **5.1.1.3 Structural Features**

The rock units within the Valdez Group at the Project exhibit a well-developed foliation which strikes east-west and dips steeply to the north. They are strongly jointed, with the most prominent set oriented perpendicular to the foliation. Most of the immediate area's terrain reflects this jointing. The major joints in north-south trends can be seen in the streams on the southern side of Port Valdez, which generally parallel Solomon Gulch Creek (FERC 1978).

### **5.1.1.4 Glacial Features**

The Solomon Gulch Project is located within the area of the Chugach Mountains, which are heavily glaciated. Some portions of these mountains still contain icefields. The Worthington Glacier (approximately 4-miles-long and 0.5-mile-wide) is located 0.75 mile from the non-project related transmission line about thirty miles from the Petro Star Switch Building (FERC 1978).

### **5.1.1.5 Unconsolidated Deposits**

In the Solomon Creek Basin, the unconsolidated deposits show little chemical alteration. They are primarily composed of argillite, slate and quartz with lesser amounts of feldspar, epidote, chlorite, mica, and magnetite (FERC 1978). Approximately 77% of the bedrock in the non-project-related transmission line right-of-way is composed of "unconsolidated surficial deposits, undivided" (Qs) (Wilson et al 2015b).

### **5.1.1.6 Mineral Resources**

Known mineral resources in the Solomon Gulch Project Area include copper, gold, silver, sand, and gravel. Commercial mining activities near the Project have been historically focused on copper. Approximately 0.75-mile upstream from the current Solomon Gulch Project Boundary is the former Midas Mine, which was in operation from approximately

1907 to 1920. It produced relatively low-grade copper ore, with the best testing at 9.7 percent. Now inoperative, the mine is on privately-owned land. The All American mining prospect was located approximately 0.5-miles southeast of the Midas Mine. During a period of significant gold deposit exploration in the Valdez area in the early 1900s, some placer claims were located in the Solomon Gulch, and some gold was extracted. A search of public records in 1978 found that there have been 12 unpatented mining claims located within the Solomon Gulch Project Boundary over the years (FERC 1978).

### **5.1.2 Description of Soil Types**

The soils in the Solomon Gulch Creek Basin were derived entirely from within the Valdez Formation. The soils are young, shallow, unconsolidated deposits with little chemical alteration and are principally composed of argillite, slate and quartz with lesser amounts of feldspar, epidote, chlorite, mica, and magnetite present. Color of the soil is much the same as its parent material, ranging from dark greens to light greys. Fertility in the soils is low and contain little organic matter. High rainfall and supplementary heavy snowpack as well as short daylight hours in this steep-walled north-south canyon are not particularly conducive to rapid soil development and heavy vegetation. The fir and spruce stands that cover the benches of the lower valley, below approximate elevation of 350-feet, have the most well-developed soils and are of the greatest commercial importance (RWRA 1976).

The unconsolidated deposits in Solomon Gulch include alluvial, glacial, and colluvial deposits. In places, these individual types of deposit merge into one another and are not easily differentiated. Solomon Gulch is divided into three areas: the lower valley, the lake and its shoreline, and the upper valley. The transmission line corridor is described separately in Section 5.1.2.4.

#### **5.1.2.1 Lower Valley**

The valley floor/lower basin is mostly composed of relatively flat-lying alluvial deposits of silt, sand, and gravel. The soil cover is thin, scarcely covering the glacially smoothed rock near the lake and the precipitous hillsides that rise above Port Valdez. This scarcity is due to an apparently rapid retreat of ice from Solomon Gulch in the recent geologic past, perhaps as little as 5,000 years ago. The soil ranges from 0.5-inch to 1.5-inches in depth over most of the terrain and overlies relatively fresh bedrock. Locally, hollows and troughs in the bedrock such as the glacially carved channels mentioned above have allowed

deposition of thicker deposits of soil. The greater portion of these deposits are primarily organic in nature. Glacial outwash and drift or windblown loess usually underlie the organic cover although this layer is sometimes quite thin. On hilltops or hillsides there is usually a thin (0.5 inch or 1 to 2 inches) deposit of fine windblown material accumulated over the bedrock with 6 inches to 1 foot of organic mat on top. In gullies or troughs or on benches the organic cover may increase to several feet overlying 1-foot or 2-feet of silty gravel (RWRA 1976).

### **5.1.2.2 Lake and Shoreline**

The surficial deposits beneath the lake and along its shoreline are dominated by a silty sand delta that has formed at its inlet. This delta has built out approximately 1000-feet into the lake; the lake remains shallow for a considerable distance beyond the visible edge of the delta. No data is available on the depth of the lake or the sediments on its bottom. As in the upper valley, talus, and coarse alluvial fans are present along the sides of the valley floor. These deposits occur quite frequently along either side of the lake and are exposed between outcrops of bedrock (RWRA 1976).

A low bedrock barrier crosses the gulch at the damsite (FERC 1978). Downstream, the irregular shaped valley descends steeply to the bay. In this area, there are very thin and local unconsolidated deposits over-lying bedrock. An occasional pocket of sand and gravel, till or local slope wash material is about all that appears to be present. Glacially carved channels paralleling the bedrock strike may be present where the rock formations are softer and more easily erodible. These could be filled with any of the above-mentioned materials (RWRA 1976).

### **5.1.2.3 Upper Valley**

The surficial materials of the upper valley are chiefly represented by alluvium which forms the nearly flat valley bottom. This flat bottom is nearly a 0.5-mile-wide at the head of Solomon Lake. The material is primarily sand and gravel with silt becoming increasingly abundant down-valley. The exact depth of this alluvial fill is unknown; however, it is probably at least 100-feet-thick. Talus and alluvial fans dropping from the steep valley walls further contribute to the surficial materials in the upper valley. Near the glaciers and the headwaters of the river, alluvium gives way to glacial moraines and irregular dumps of material derived directly from the glacier. The numerous small tributaries of the upper

basin have added to the soil composition of the basin (FERC 1978). Although scrub willow and alder (*Alnus* spp.) grow luxuriantly in the vicinity of Solomon Lake and some cottonwood grows in the upper valley, the soil can hardly be called fertile (RWRA 1976).

#### **5.1.2.4 Transmission Lines**

The transmission lines and associated ROW cross a wide stretch of land. The project related transmission line from the powerhouse switchyard to the Petro Star Switch Building and the non-project related transmission line from the Petro Star Switch Building to Meals Substation and from Meals Substation to Old Town Substation, are situated on bedrock and alluvial sands and gravels. The soils in the non-project related transmission ROW from the Meals Substation to the Little Tonsina River contain stream sand and gravel, glacial till and stratified drift, colluvium, and bedrock. From the Little Tonsina River northward to Glennallen, the soils in the ROW cross soils of the Copper River Basin – characterized as glaciolacustrine clay, silt, and sand, fluvial silt, sand, and gravel, colluvium, and swamp deposits. Permafrost can occur within this portion of the non-project related transmission line. At some points, permafrost may be more than 30-feet-below the surface (FERC 1978).

#### **5.1.3 Description of Reservoir Shorelines and Stream Banks**

Solomon Gulch has been described as a “steep-sided gorge with a very steep gradient.” The areas around the gulch have also been characterized as “steep” with several areas of bedrock exposure (RWRA 1976).

The steep slopes which flank Solomon Lake are covered with dense thickets of alder. Other common plant species on the reservoir slopes are salmonberry (*Rubus spectabilis*), blueberry (*Vaccinium alaskaense*), and devils club (*Opopanax horridus*) (RWRA 1976). At higher elevations on these slopes, the vegetation communities are dominated by low-growing, alpine vegetation. Due to the filling of the reservoir during the summer months, the dense vegetation growth on the portion of the exposed slopes directly above the reservoir is significantly hindered but the slopes are generally stable (Photo 5-1 and Photo 5-2).





**Photo 5-1 Solomon Lake Shoreline**



**Photo 5-2 Solomon Lake Shoreline**

#### **5.1.4 Earthquakes**

The Solomon Gulch Project is located in Southern Alaska, which is known as one of the most seismically active regions in the entire world. Richter magnitudes associated with events in the Solomon Gulch Project vicinity can range from 7.0 in the area from Glennallen to Willow Lake and 8.5 in the area from Willow Lake to Valdez. The latter region has historically experienced frequent, sizable earthquakes not yet identified with individual faults (FERC 1978).

The epicenter of the Good Friday Earthquake of March 27, 1964, the most destructive earthquake (magnitude of 9.2 on the Richter scale) ever recorded in Alaska, was located 45 miles west of Valdez. Major damage within the Town of Valdez was caused by a submarine landslide triggered by the earthquake (AEC 2022). As a result of this destruction, Valdez was relocated to a more geologically stable area 4 miles to the west. The damage to on-shore structures as a result of historical earthquake-related sea waves indicates what could occur to low-elevation Solomon Gulch Project structures such as the powerhouse (FERC 1978).

#### **5.1.5 Permafrost**

There is no permafrost in the vicinity of Solomon Gulch Project except the frozen rock and debris directly associated with the glaciers. Late seasonal frost may persist into June (RWRA 1976). Permafrost can occur within the portion of the non-project-related transmission line from the Little Tonsina River northward to Glennallen. At some points, permafrost may be more than 30 feet below the surface (FERC 1978).

#### **5.1.6 Flooding**

The Federal Emergency Management Agency (FEMA) created flood maps which show how likely it is for an area to flood. The flood zones within the Solomon Gulch Project Boundary are recorded in FEMA Flood Insurance Rate maps 0200940300D, 0200940283D, and 0200940284D. The bounds of the existing waterbodies of Solomon Gulch Creek, Solomon Lake, and the Solomon Lake Runoff Pond are all characterized as Zone A areas. Zone A areas are defined by FEMA as “Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage” (FEMA 2022). Because they have a 1 percent annual chance of flooding, these areas are considered high risk according to FEMA. All other lands within the Solomon Gulch Project Boundary are classified as Zone

X areas. Zone X areas are “determined to be outside the 500-year flood and protected by levee from 100-year flood” and considered areas of minimal flood hazard (FEMA 2022).

The extent of FEMA mapping is limited to the Valdez Corporate Boundary which ends east of Wortmanns. Where FEMA mapping is available, the non-project related transmission line ROW area is zoned as X except where it crosses Browns Creek. A majority of the streams and rivers in the vicinity of the non-project related transmission line are glacier fed, and thus have the potential to outburst flood where glacier ice dams water. If the glacier ice which is used to contain the waters of a lake become unstable while water enters the lake in the form of rain or runoff, the ice dam may become overtopped due to the rising water levels. The water can then erode the ice dam and drain the lake rapidly, causing flooding in nearby areas.

### **5.1.7 Landslides, Avalanches and Erosion**

Seismic vibrations of the 1964 Good Friday Earthquake triggered innumerable subaerial landslides and avalanches as well as subaqueous slides throughout an area of some 100,000 square miles of Southcentral Alaska. The landslides included a wide variety of falls, slides, and flows involving bedrock, surficial deposits and snow or ice. The greatest concentration was in the rugged mountains north and west of the earthquake epicenter. No evidence was found of major recent landslides of any type in the Solomon Gulch Project Area. Creep, solifluction, frost wedging, and some chemical weathering all contribute to the erosion of the slopes and outcrops in the area but their effect is of little significance. Generally, the vegetated slopes of the area are stable (RWRA 1976).

Geologic maps for the Solomon Gulch Project area indicate that the bedrock (Valdez Formation) is very hard, competent material, and shaped by glaciation. Although there are steep slopes, especially along the east side of the reservoir where slopes can range from 45% (24 degrees) to 90% (42 degrees), and some rockslides, no massive land/rockslides are shown on geologic maps of the area. Some erosion areas have been observed along the eastern slope that may be due to rockfall, snowmelt and channeling, or other aspects, but these appear to be shallow failures, and the energy of the rockfall is dissipated by the brush and flattening of the slope at the toe, reducing the energy transmitted into the reservoir that could lead to any damaging waves. A survey of the reservoir rim conducted in July 2017 found no areas of concern relative to prominent

joints or faults that could produce a large rock mass plummeting into the reservoir and resulting in a catastrophic wave (Kleinschmidt 2017).

The Solomon Gulch Project is operated with limited impoundment fluctuations. As a result, the potential for erosion in the Solomon Gulch Project impoundment or other impacts to geologic and soil resources is minimal. In addition, the perimeter is densely vegetated above the normal maximum pool elevation.

### 5.1.8 References

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## **5.2 Water Resources [§ 5.6 (d)(3)(iii)]**

Solomon Gulch Creek lies within the Eastern Prince William Sound Hydrologic Unit Code 19020201 (USGS 2022) and the Coastal Western Hemlock-Sitka Spruce Forest EPA Level III Ecoregion (Gallant et al. 2010). This ecoregion extends along the southeastern and southcentral Alaska coast lines and the landscape has been shaped by intense glaciation during late advances of the Pleistocene. The area typically experiences large amounts of precipitation and has the mildest winter temperatures in Alaska (Gallant et al. 2010).

### **5.2.1 Solomon Gulch Drainage Area**

The Solomon Gulch watershed is located in the coastal Chugach Mountain Range and is approximately 19.7 square miles (USGS 2022). Like many basins draining into Prince William Sound, the Solomon Gulch Creek drainage is short and steep.

### **5.2.2 Solomon Gulch Stream Characterization**

Solomon Gulch headwaters originate at the base of several small glaciers at elevations of 3,000 feet to 4,000 feet and flow northerly approximately 8 miles to Solomon Lake. The Solomon Gulch Project is located at the mouth of Solomon Lake. Solomon Lake reservoir varies between 300 and 660 acres in size, depending on natural flow and Project operations. The natural channel below the lake is deeply incised and very steep, dropping from approximate elevation of 615 feet msl to tidewater over a distance of 3,800 feet. The lower reach is composed mostly of bedrock and includes a series of waterfalls that create barriers to fish migration. The tailrace empties into an approximately 300-foot-long artificial channel before entering tidewater.

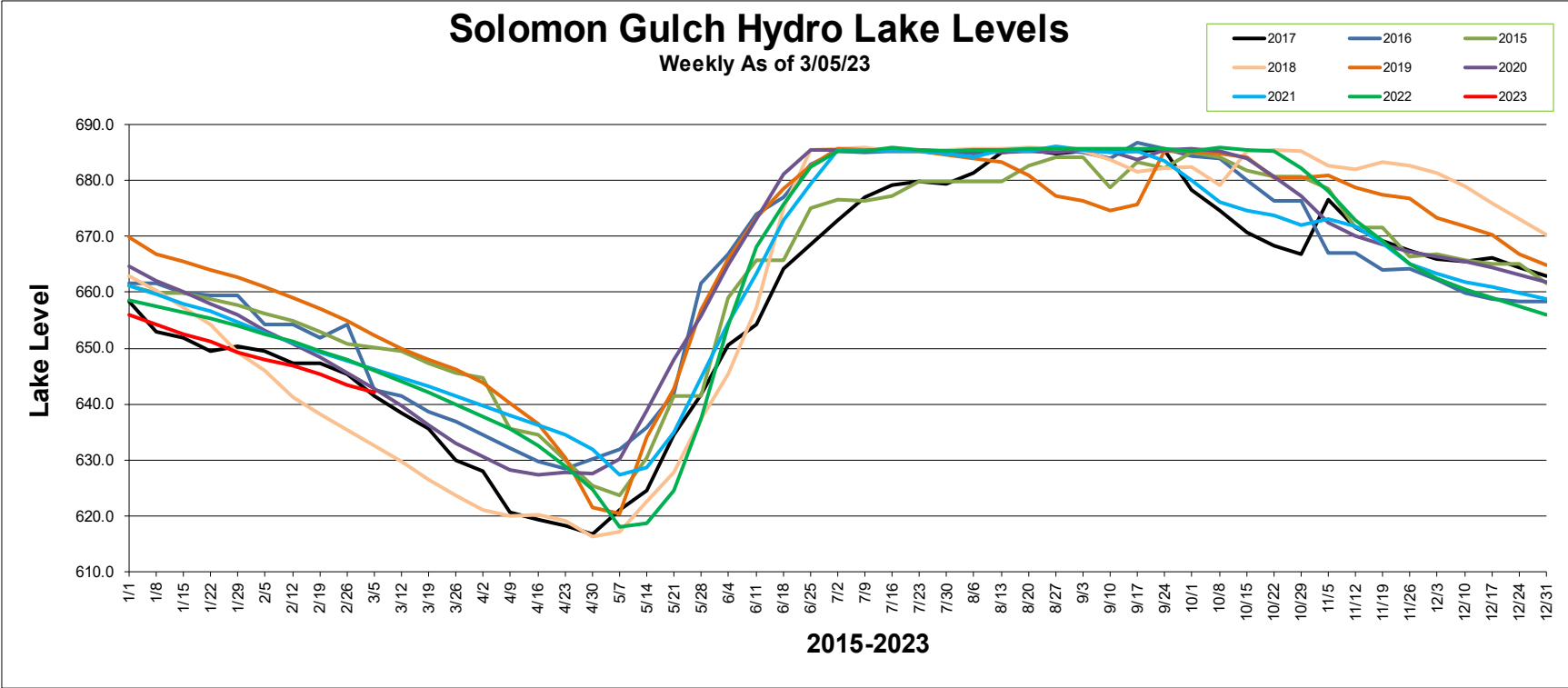
### **5.2.3 Solomon Gulch Flow Characteristics**

The runoff pattern for streams in the Prince William Sound are characterized by two periods of high runoff. High flows occur during late June and July from snowmelt and in later summer/early fall from a combination of peak rains and glacier melt. The highest precipitation occurs in the fall, while spring has the lowest average rainfall.

Solomon Gulch basin responds rapidly to summer and fall rainstorms. Due to the underlying tight bedrock and overlying thin soil layer, groundwater interaction in Solomon Gulch is negligible within the Project area (FPC 1978). Precipitation storage in

the basin is captured by temporary storage in the lake, snowfall retention, and glacier influence (CVEA 2011).

Solomon Lake water surface elevations are shown in Figure 5-2. Water diverted for power generation draws the lake level down during winter months. In spring, the lake is refilled from snow and glacial melt. By early July, the lake begins to overtop the spillway (elevation of 685 feet msl) in most years. From the spillway, water flows through a small lake and then an approximately 0.4-mile-long spillway channel until it rejoins the main Solomon Gulch Creek channel below the dam.



**Figure 5-2 Solomon Lake Water Surface Elevation Levels (2015-2023)**



While in operation, a minimum flow of 2 cfs, or the amount of natural inflow if less than 2 cfs, is maintained in the natural Solomon Gulch Creek channel by an 8-inch bypass valve at the valve house that discharges between the new dam seepage weir and the weir that monitors the combined dam seepage and bypass flow. A minimum of 2 cfs of water is also released at the head of the tailrace channel.

There were two USGS gages used to monitor Solomon Gulch Creek discharge (Figure 5-3). USGS Gage 15225996 (Solomon Tailrace) is located just downstream of the powerplant tailrace pool approximately 350 feet upstream from the mouth of Solomon Gulch. Discharge reported from the USGS Gage 15225996 represents the flow through the Solomon Gulch Power Plant turbines. Water for the VFDA Hatchery is diverted upstream from the gage and is not included in the discharge values reported for USGS Gage 15225996 (USGS 2022a). This gage is being replaced by CVEA with flow sensors in each penstock, expected to be effective August 31, 2023. USGS Gage 15225997 (Solomon Gulch at Top of Falls) was located on Solomon Gulch Creek approximately 72 feet above the Alyeska Pipeline Service Company Bridge, 150 feet upstream from the top of falls, and 0.3 miles upstream from the mouth of Solomon Gulch Creek. This gage has been replaced by a new CVEA-installed gage, effective August 31, 2023. The discharge measured at the CVEA gage site represents controlled releases from CVEA's bypass valve and flow over the spillway (0.5 miles upstream), plus inflow between the spillway and gage (USGS 2022b). Water is diverted for the VFDA Hatchery at the Falls Creek Diversion, located 1,150 feet downstream from the CVEA gage.



**Figure 5-3 Map of Solomon Gulch Creek and USGS Stream Gages at Alyeska Bailey Bridge (15225997) and Downstream of the Hydroelectric Plant Tailrace (15225996)**

#### **5.2.4 Solomon Gulch Flow Duration Curves**

The monthly daily mean flows measured at the tailrace (USGS Gage 15225996) ranged from 67 cfs in April to 184 cfs in July during water years 1987 through 2021, with monthly maximum daily flows ranging from 183 cfs to 268 cfs over the same period (Table 5-1).

At the top of the falls (USGS Gage 15225997), daily mean flows in Solomon Gulch Creek averaged 10 cfs or less between November and May (Table 5-2). Daily mean flows as low as 2 cfs were recorded in every month of the year during water years 1987 through 2021. Flows through the natural channel typically peak in late August through early October, with maximum daily flows ranging from 1,970 cfs to 2,600 cfs over the period of record. The magnitude of higher flow events in Solomon Gulch Creek is variable among years. Maximum daily mean flows have ranged from as low as 23 cfs in 1996 and 46 cfs in 2015, to as high as 2,500 cfs in 2007 and 2,600 cfs in 2012 (USGS 2022b).

Over the 1987 – 2021 period of record at USGS Gages 15225997 and 15225996 combined, the average daily stream flow ranged from 78 cfs to 289 cfs (Table 5-3). Flows peak in late August through early October, with maximum daily flows ranging from 2,116 cfs to 2,693 cfs over the period of record.

Monthly exceedance data for the period is provided in Figure 5-4 in increments of 10 percent for Solomon Gulch USGS Gages 15225997 and 15225996 combined. The hydrograph shows a pattern of four high-flow months, July through October.

**Table 5-1 Daily Mean Flow Characteristics of Solomon Gulch Creek at USGS Gage 15225996 at Tailrace by Month (1987-2021)**

Solomon Gulch – Tailrace													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>Period of Record: 34 years (October 1, 1986 – September 30, 2021)</b>													
<b>min</b>	30	0	0	0	0	39	65	37	33	37	42	31	0
<b>90%<sup>1</sup></b>	48	47	45	30	54	108	122	123	83	70	58	52	54
<b>median</b>	71	72	72	64	117	189	191	186	167	146	78	72	101
<b>mean</b>	74	74	72	67	127	175	184	179	156	142	91	78	118
<b>10%<sup>1</sup></b>	101	109	102	106	208	223	238	230	206	205	144	111	209
<b>max</b>	211	183	217	249	245	257	268	264	245	259	232	230	268

<sup>1</sup> exceedance  
 Source: USGS 2022a.

**Table 5-2 Daily Mean Flow Characteristics of Solomon Gulch Creek at USGS Gage 15225997 at Top of Falls by Month (1987-2021)**

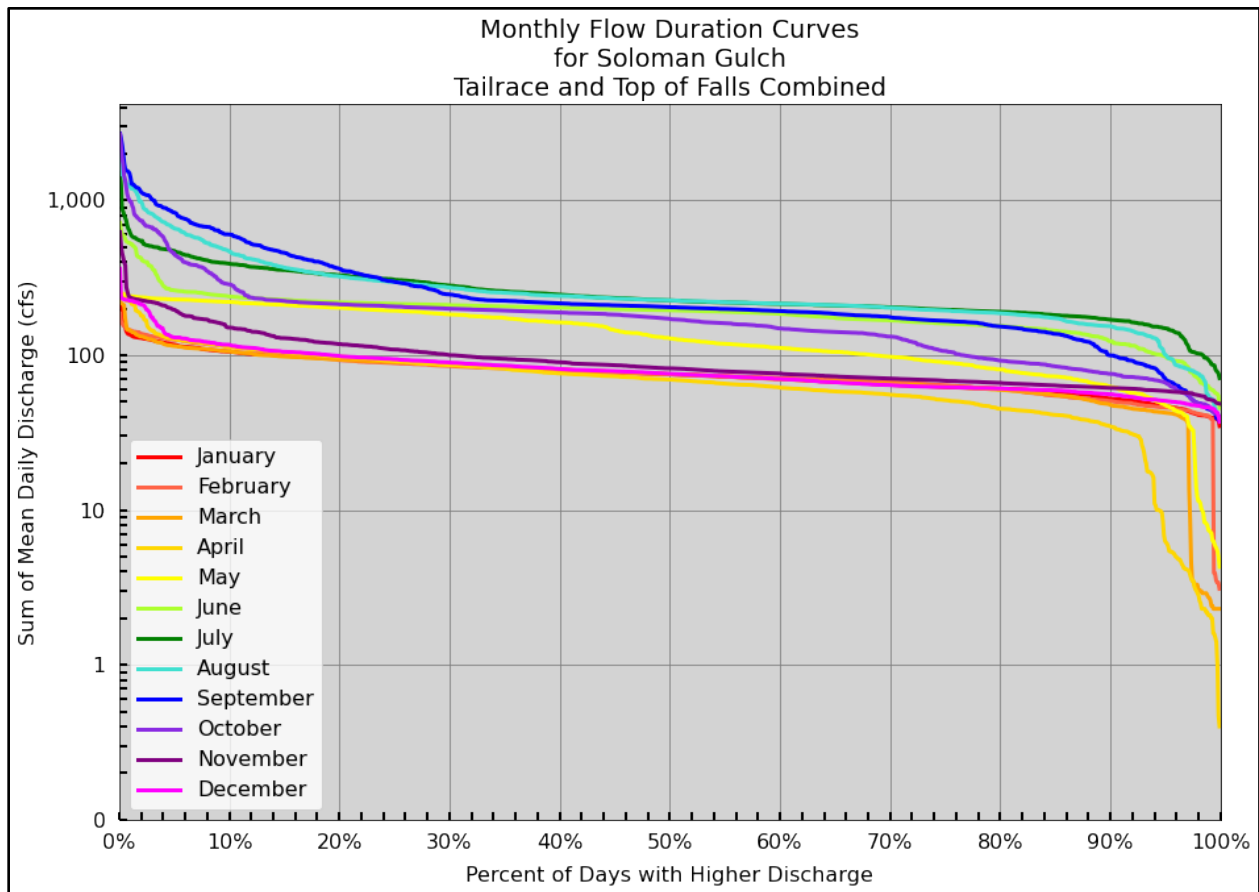
Solomon Gulch – Top of Falls													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>Period of Record: 34 years (October 1, 1986 – September 30, 2021)</b>													
<b>min</b>	0	0	0	0	2	2	2	2	1	1	1	1	0
<b>90%<sup>1</sup></b>	2	2	2	2	5	3	2	2	3	2	2	2	2
<b>median</b>	3	3	2	3	9	4	4	11	8	4	3	3	4
<b>mean</b>	3	3	3	4	10	17	75	103	132	53	6	4	35
<b>10%<sup>1</sup></b>	6	5	4	9	17	16	235	299	436	128	8	6	70
<b>max</b>	39	13	30	36	40	500	1400	1970	2600	2500	421	161	2600

<sup>1</sup> exceedance  
 Source: USGS 2022b.

**Table 5-3 Daily Mean Flow Characteristics of Solomon Gulch Creek Based on USGS Gage 15225996 at Tailrace and USGS Gage 15225997 at Top of Falls Combined by Month (1987-2021)**

Solomon Gulch – Tailrace and Top of Falls Combined													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>Period of Record: 34 years (October 1, 1986 – September 30, 2021)</b>													
<b>min</b>	34	3	2	0	4	45	71	40	37	40	48	37	0
<b>90%<sup>1</sup></b>	52	50	47	34	62	126	169	154	99	75	61	56	58
<b>median</b>	75	75	75	69	128	195	225	226	204	171	82	75	106
<b>mean</b>	78	78	76	72	138	193	260	282	289	196	97	83	154
<b>10%<sup>1</sup></b>	105	113	105	112	220	239	388	465	601	286	150	116	254
<b>max</b>	214	185	220	254	255	715	1507	2116	2693	2677	624	362	2693

<sup>1</sup> exceedance  
 Source: USGS 2022a and USGS 2022b.



Source: USGS 2022a, 2022b.

**Figure 5-4 Daily Mean Flow Exceedance Curves for Solomon Gulch Creek USGS Gage 15225996 at Tailrace and USGS Gage 15225997 at Top of Falls Combined for Water Years 1987 Through 2021**

### 5.2.5 Existing and Proposed Uses of Project Waters

CVEA holds a state of Alaska water rights certificate (ADL 67278) to divert 100,000 acre-feet of water from the dam site for purposes of generating power. In December 2022, ADNR increased CVEA’s water rights appropriated under ADL 67287 by 25,000 acre-feet per year, as requested by CVEA (LAS 33984). Conditions of the appropriation require providing a minimum flow of 2 cfs at the head of the tailrace channel and maintaining a minimum flow of 2 cfs at the base of the Solomon Gulch Creek lower falls to the marine waters of Port Valdez for protection of fish resources in the tailrace and creek.

VFDA also has water rights for purposes of operating the VFDA Hatchery under permit number LAS 1142 and uses water under a water sharing agreement with CVEA (CVEA and CFDA 2015). The VFDA Hatchery receives much of its water from the powerplant by

various routes controlled by CVEA. In addition, VFDA operates the Falls Creek Diversion located at the top of the lowermost falls of Solomon Gulch, approximately 300 feet upstream from the mouth of the creek.

CVEA's certificate allows VFDA, by way of a State of Alaska Junior Appropriation of Water, to divert water from above the lower falls in Solomon Gulch Creek and CVEA's water rights certificate restricts either CVEA or VFDA from diminishing flows in Solomon Gulch Creek below 2 cfs at the base of the lowermost falls, as natural stream flows allow (CVEA and VFDA 2015). The cumulative use of the CVEA Solomon Gulch Project and the VFDA Hatchery cannot exceed the combined limits of ADL 67278 and LAS 1142 and the minimum instream flow required by these water rights must be maintained. When flows at the CVEA gage at the top of the falls approach 2.5 cfs, VFDA ceases diverting water from the Falls Creek Diversion (CVEA and VFDA 2015).

In addition, APSC has a temporary water use authorization (TWUA P2018-19) that expires January 2024 to withdraw up to 35,000 gallons per day from Solomon Gulch near TAPS (ADNR 2022).

There is no known use of water above Solomon Lake.

## **5.2.6 Relevant Federally Approved Water Quality Standards**

The State of Alaska does not have programs in effect related to the FERC requirements regarding FERC-licensed hydropower projects for compliance with the Federal Power Act 401 Water Quality Certifications nor compliance with the Coastal Zone Management Act (CZMA) Section 307 regarding Determination of Consistency of a proposed federal action with the State Coastal Zone Management Program. This section discusses the status of the State of Alaska requirements.

### **5.2.6.1 Water Quality Certification Pursuant to Section 401 of the Federal Water Pollution Control Act (Clean Water Act)**

The FERC regulation of 18 CFR 4.34(b)(5) requires Applicants for Licenses under section 401(a)(1) of the Clean Water Act to "file within 60 days of the issuance of the notice of ready for environmental analysis: (A) a copy of the water quality certification; (B) a copy of the request for certification, including proof of the date on which the certifying agency received the request; or (C) evidence of waiver of water quality certification..."

The State of Alaska Department of Environmental Conservation (ADEC) issued a water quality certificate for the Solomon Gulch Project on November 8, 1976, which was provided to the U.S. Environmental Protection Agency (FERC 1978).

#### **5.2.6.2 Determination of Consistency with Section 307 of the Coastal Zone Management Act**

Prior to July 1, 2011, the state of Alaska promulgated an approved Alaska Coastal Management Program, including the requirement that applicants for FERC license prepare and file a Coastal Project Questionnaire (CPQ) and request for consistency with the state, and also include a copy of the CPQ within an application filed with FERC.

On July 7, 2011, the Department of Commerce, National Oceanic Atmospheric Administration (NOAA) issued a Notice regarding the Alaska Coastal Management Program (ACMP) Withdrawal from the National Coastal Management Program Under the CZMA. There is no state department in effect to apply for a determination of consistency with Section 307.

#### **5.2.7 Existing Water Quality Information**

Water quality data from Solomon Gulch Creek and the Project is limited. As is typical of glacially-fed streams, during periods of high flows from summer snow melt, the stream carries a high silt load, and likely a greater amount of nutrients, solutes and dissolved gas. Pre-project monitoring found the water in the Solomon Gulch Project Area to be high in calcium or sodium bicarbonate and low in dissolved solids. Data collected in the basin prior to construction indicate very high water quality (FPC 1977).

ADFG collected water quality data during fish sampling at Fish Inventory Site JPOS101A01, located at the Alyeska bridge crossing over Solomon Gulch, in June, July and August 2002 (ADFG 2023). Over the three sampling events, the water temperature ranged from 5.0 to 9.8 °C and the dissolved oxygen (DO) exceeded 11 ppm (Table 5-4).

**Table 5-4 Solomon Gulch Water Quality Data at Alyeska Bridge Crossing (2002)**

Parameter	Sampling Month		
	Jun 4	Jul 2	Aug 28
Water temperature (° Celsius)	5.0	7.40	9.80
Dissolved oxygen (ppm)	11.5	11.06	12.01
Conductivity (µS/cm)	17.0	188.00	2.00
Turbidity (NTU)	1.0	5.00	40.00
pH	--	6.57	7.63

Source: ADFG 2023.

Based on pre-project monitoring, the temperature inflows to Solomon Lake seldom exceed 4 °C and because the retention time of the inflow is brief, it is not expected that there is any seasonal thermal stratification of the lake (FPC 1977). Post-project water temperature monitoring conducted from March 1982 through February 1986 downstream of the lake outlet (Roberson 1987) found the mean annual temperature to be 4.13 °C, with an average of 4.02 °C during months of salmon egg incubation (August through April) (Table 5-5). Pre-project water temperature measured 1979 to 1981 averaged 3.74 °C annually and 3.57 °C during egg incubation (Roberson 1987). Post-project monitoring also found water clarity to be consistently less turbid downstream of the Solomon Gulch Project than during the pre-project period and significantly less fines in deposition areas (Roberson 1987).

**Table 5-5 Mean Monthly Water Temperature Downstream of Solomon Lake Outlet (1982-1986)**

Solomon Gulch Mean Monthly Water Temperature (° Celsius)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2.3	1.9	2.1	2.6	3.0	3.2	7.2	9.5	7.2	4.7	3.3	2.7

Source: Roberson 1987.

The VFDA Hatchery uses various sources of discharge water from the Solomon Gulch Hydroelectric Plant, as well as limited use of the Falls Creek Diversion, to rear salmon and control the rate of egg development and growth. Table 5-6 below shows water temperature data from the penstock source of water as measured once daily in the hatchery raceways from 2015 through 2022. While the water temperatures in the VFDA



Hatchery raceways are influenced by air temperature and solar radiation, they are similar to those measured in Solomon Gulch downstream of the lake outlet in the 1980s. The VFDA Hatchery uses water from the Fall Creek Diversion during the fall, which is typically about 0.7 °C cooler than the penstock-sourced water at that time of year, to slow egg development (R. Unger, pers. comm. August 5, 2022).

**Table 5-6 Daily VFDA Hatchery Raceway Temperatures from Water Sourced from the Solomon Gulch Hydroelectric Plant Penstocks (2015-2022)**

Solomon Gulch – Tailrace and Top of Falls Combined													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>min</b>	1.1	1.0	0.0	0.9	0.5	2.6	4.8	5.6	7.0	2.0	1.0	1.2	1.1
<b>mean</b>	2.3	2.0	1.5	1.4	2.2	4.8	6.6	8.6	9.2	6.8	3.6	2.7	2.3
<b>max</b>	3.4	2.8	2.7	2.3	5.0	6.1	9.6	11.4	11.3	9.1	5.9	4.0	3.4

Source: VFDA Solomon Gulch Hatchery (R. Unger, unpublished data. October 10, 2022).

Total suspended solids (TSS) and pH are measured monthly by VFDA Hatchery staff at the hatchery intake. From 2019 through October 2022, the average monthly pH ranged from 6.8 to 7.2 and the TSS ranged from 1.1 to 20.1 mg/L (R. Unger, unpublished data. October 10, 2022).

### 5.2.8 Reservoir Surface Area, Volume, and Substrate Composition

The reservoir, known as Solomon Gulch Reservoir or Solomon Lake, has a total drainage area of approximately 19.7 miles. The reservoir level fluctuates from the minimum elevation (615 feet) to the normal maximum reservoir elevation (685 feet). At the normal maximum reservoir level the surface area of the lake is 660 acres. The maximum total storage volume at normal maximum pool elevation is 31,560 acre-feet.

### 5.2.9 Gradient of Affected Downstream Reaches

The Solomon Gulch Project is located on Solomon Gulch Creek which flows into Port Valdez from the south. The upper part of the creek is a high elevation glacier-carved hanging valley that is truncated by the south wall of the much deeper Port Valdez fiord. In its lower reach, Solomon Gulch Creek descends approximately 610-feet in elevation over a distance of 3,800 feet, having an overall average gradient greater than 16 percent, as it flows in a succession of rapids, cataracts, cascades and waterfalls into Port Valdez.

The channel itself is mostly bedrock, although the more gently sloping parts of the streambed are covered by gravel- to boulder-sized material (USGS 1988). Solomon Gulch Creek enters Port Valdez near its eastern end a little over a mile west of the Lowe River tidal flat.

#### **5.2.10 Non-Project-Related Transmission Line**

The major streams crossed by the non-project-related portion of the transmission line include the Lowe, Tonsina, Klutina, and Tazlina rivers. The Lowe River, fed by over a dozen glaciers, forms a large braided delta at the east end of Port Valdez. Lowe River flows range from about 150 to 500 cfs from late fall to early spring when the river is clear and peak at about 5,500 cfs in July and early August. The flows fluctuate June through September as heat waves and lasting rain pass through the Valdez area. The Tonsina, Klutina, and Tazlina rivers are glacially fed tributaries to the Copper River which flows into the Gulf of Alaska east of the town of Cordova.

### 5.2.11 References

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### **5.3 Fish and Aquatic Resources [§ 5.6 (d)(3)(iv)]**

#### **5.3.1 Existing Aquatic Habitat within the Solomon Gulch Project Area**

Solomon Gulch Creek originates from glaciers to the south and empties into a broad north-south trending valley. Most of the valley floor is relatively flat-lying alluvial deposits of silt, sand and gravel. In the upper basin, numerous small tributaries have added to the accumulation, forming deltas at their junctions with the valley. Solomon Lake varies from approximately 660 acres in size between early-July and late-September to approximately 300 acres in size by early-May. At full pool, the maximum depth of the reservoir is 100 feet.

Downstream of the damsite, the valley narrows and the creek descends steeply from approximate 600-feet in elevation down to tidewater at Port Valdez. The steep gradient throughout this reach, and numerous waterfalls and cascades with intermittent step pools create barriers for fish. Alaska Department of Fish and Game (ADFG) Fish Inventory Site JPOS101A01 is located in Solomon Gulch Creek in the vicinity of the Alyeska Bridge crossing. During 2002 fish sampling conducted on June 4, July 2 and August 28, the bankfull width of the channel was about 15.0 m and the wetted width varied from 8.0 m to 2.0 m to 15.0 m, respectively, and the dominant substrate was boulder and cobble Photo 5-3. The lowermost cascading waterfall, depicted in Photo 5-4, occurs just south of Dayville Road where the creek reaches tidewater and creates a complete upstream barrier to anadromous fish (ADFG 1987, 2022a).



Source: Valdez Convention & Visitor's Bureau, Inc. 2022.

**Photo 5-3 Solomon Gulch Creek at ADFG Fish Inventory Site JPOS101A01 at Alyeska Bridge crossing July 2, 2002**



Source: Valdez Convention & Visitor's Bureau, Inc. 2022.

**Photo 5-4 Fish Barrier at the Mouth of Solomon Gulch Creek at Tidewater**

Approximately 90 percent of the flows from the lake enter the penstocks, powerhouse, and tailrace channel that empties through a culvert beneath Dayville Road into Port Valdez. The tailwater releases from the powerhouse create an approximately 300-foot-long artificial stream (Photo 5-5).

As part of the original Project license (Article 38), FERC required submittal of a revised Exhibit S to include a proposal for a study to determine the effects of Project operations, if any, on spawning salmon near the mouth of Solomon Gulch Creek. Article 39, proposed maintenance of a minimum instream flow of 3.5 cfs in Solomon Gulch Creek, which was later revised to 9 cfs, and for CVEA, ADFG, NOAA Fisheries, and USFWS to evaluate flow data after the Project began operations and to recommend changes to the minimum flows to protect the spawning areas. Accordingly, ADFG evaluated the change in water temperature pre- and post-operations, salmon egg survival in the tailrace channel, spawning gravel composition, and spawning salmon counts and recommended a re-allocation of the minimum flow requirements (Roberson 1987).

Roberson concluded that the impacts of the Project on water and spawning gravels in Solomon Gulch Creek were not significant while the increases in viable spawning area in the tailrace and less fines within the natural spawning reaches were positive impacts (Roberson 1987). The Solomon Gulch Hatchery, which became operational at the same time as the Project, resulted in significant increases in the abundance of Pink, Chum and Coho salmon. Roberson found that evaluation of the Project effects on adult salmon abundance could not be completed because of the large number of hatchery returns to the area, but that egg-to-fry survival and condition of the fry from redds excavated in the tailrace channel appeared to be excellent (Roberson 1987). And flow data indicated that, during turbine operation, the flow in Solomon Gulch Creek satisfied fish spawning and rearing requirements. Based on these studies, Roberson recommended the following flow requirements:

- 2 cfs in Solomon Gulch Creek at the base of the lowermost falls (CVEA)
- 2 cfs at the head of the tailrace channel (CVEA)
- 3 cfs at the head of the lowermost falls allocated to VFDA Oct-Apr
- 1 cfs at the head of the lowermost falls allocated to VFDA May-June
- 5 cfs at the head of the tailrace/turbine bypass lines allocated to VFDA

Roberson also recommended augmentation of the spawning habitat for Pink and Chum salmon in the tailrace channel by adding gravel. Gravel was added to the tailrace in 1988. This provided spawning habitat for several years but the current has washed out the gravel over time (Parry et al. 1993).

VFDA has an agreement with CVEA to use discharge water from the Solomon Gulch power plant for the VFDA Hatchery (CVEA and VFDA 2015). VFDA also owns and operates the Falls Creek Diversion located at the top of the lowermost falls. The diversion is not included in the FERC Project Boundary. CVEA and VFDA work cooperatively to maintain a minimum continuous flow of 2 cfs in the creek below the diversions, as natural stream flows allow, to protect fishery resources.



**Photo 5-5 Solomon Gulch Hydroelectric Powerhouse and Tailrace, Solomon Gulch Hatchery, and the Mouth of Solomon Gulch Creek**

### **5.3.2 Anadromous Fish Species of Solomon Gulch**

The Prince William Sound supports healthy runs of Chinook (*Oncorhynchus tshawytscha*), Sockeye (*O. nerka*), Coho (*O. kisutch*), Pink (*O. gorbuscha*), and Chum salmon (*O. keta*), and sea-run Dolly Varden (*Salvelinus malma*). In the Solomon Gulch drainage,

anadromous fish distribution is limited to the intertidal area at the mouth. There are several cascading waterfalls which form complete barriers to anadromous fish, including one at the mouth of the creek where it meets tidewater (Photo 5-4).

The ADFG Anadromous Water Catalogue indicates the presence of spawning and rearing Coho and Pink salmon and spawning Chum Salmon in the intertidal area up to the anadromous barrier at the mouth of Solomon Gulch Creek (ADFG 2022a). Historically, there was an alluvial fan at the mouth that provided a spawning area for a small number of Pink and Chum Salmon, but the area was destroyed by the 1964 earthquake (Robert W. Retherford Associates 1976).

Coho Salmon cannot successfully spawn in intertidal areas but adults may use the area downstream of the VFDA Hatchery weir (Photo 5-6 and Photo 5-7), located in the intertidal area at the mouth of the Solomon Gulch Basin north of Dayville Road. Coho Salmon are not native to Solomon Gulch Creek; the Coho Salmon adults that return to the VFDA Hatchery each year originated from the Corbin Creek stock (Stopha 2013). Prior to construction of the SGH, Coho Salmon (from other Port Valdez tributaries) were observed in the intertidal area feeding on Pacific Herring (*Clupea pallasii*) during periods of high tide (Robert W. Retherford Associates 1976). Limited Coho Salmon spawning was documented by ADFG in the artificial tailrace channel following the 1988 input of suitable spawning gravels (Parry et al. 1993). But Coho Salmon adults are no longer passed upstream of the VFDA Hatchery weir. Juveniles may use the intertidal area and the tailrace channel year-round for rearing.





**Photo 5-6 Temporary Fish Weir and VFDA Hatchery Looking East Northeast from the Parking Area**



Source: Valdez Convention & Visitor's Bureau, Inc. 2022.

**Photo 5-7 Temporary Fish Weir and VFDA Hatchery Entrance for Fish in the Foreground Looking West Southwest from the Hatchery**

ADFG estimated 90 to 800 Chum Salmon spawned in the historic intertidal alluvial fan area prior to the 1964 earthquake (Pirtle 1977), while only 10 spawning Chum Salmon were documented in 1973 (CVEA 2011). Limited Chum Salmon spawning was documented in the tailrace channel for a few years following gravel augmentation in 1988. However, this gravel washed out over the years and Chum Salmon adults are not passed upstream of the VFDA Hatchery weir. In the 1980s through early 1990s, VFDA Hatchery reared Chum Salmon originating from the Crooked Creek stock. VFDA discontinued the program in 1995 due to difficulty in consistently meeting egg-take goals and relinquished their permitted Chum Salmon capacity in 1999 (Stopha 2013). Based on communication with the VFDA Hatchery Manager, individual Chum Salmon adults have been observed by VFDA Hatchery personnel at the hatchery only once every few years over the past decade (R. Unger, pers. Comm. August 5, 2022). Chum Salmon adults return to their natal streams after 3 to 6 years weighing between 7 and 18 pounds and spawn in freshwater or intertidal areas (ADFG 2016). It is unlikely that Chum Salmon spawn in the limited intertidal area downstream of the VFDA Hatchery weir. Chum Salmon fry emerge from the gravel and immediately migrate out to saltwater from March through July and feed in near shore areas.

In the years following the 1964 earthquake and prior to the construction of the VFDA Hatchery in 1982, ADFG estimated that an average of 200 to 500 Pink Salmon spawned in the intertidal zone during odd-numbered years (FPC 1977), with as many as 1,500 adults in 1975 (CVEA 2011). Pink Salmon have a 2-year life cycle with discrete odd- and even-year populations that do not interbreed. Pink Salmon spawning was prolific in the tailrace channel for several years following the gravel augmentation project (Parry et al. 1993).

Pink Salmon are the only salmon adults passed above the VFDA Hatchery temporary weir. As part of SGH's permit, 2,000 Pink Salmon adults are passed upstream of the weir each year to spawn naturally in the intertidal area between the hatchery and the creek's anadromous barrier (R. Unger pers. Comm. August 5, 2022). No other species of salmon are passed above the weir. They typically reach 3.5 to 4 pounds by the time they return for spawning in the summer and grow to a maximum of approximately 6 pounds. They begin moving into Port Valdez in mid-June, peak in early July, and can be found in the bay into August. They spawn in fresh water and intertidal areas. The eggs hatch from December through February and the fry emerge from the gravel from March through April and migrate to estuaries to rear and feed near the shore (ADFG 2016).

Dolly Varden, which exhibit either an anadromous or resident life history (ADFG 2008; Northcote 2010), may also use the intertidal area for feeding. Some Dolly Varden adults may be small enough to pass through the VFDA Hatchery weir. Dolly Varden adults have been observed in the tailrace channel. However, this species does not spawn in intertidal areas. Sea-run Dolly Varden feed in near-shore habitats on amphipods, small fish, and salmon eggs, if available (ADFG 2022b), and have been observed in the area (Parry et al. 1993).

The VFDA Hatchery was established to support commercial, sport, and subsistence fisheries in the Valdez area. A seasonal weir is installed annually to guide adult salmon to be used for broodstock into the hatchery via a fish ladder (Photo 5-7). The VFDA Hatchery is currently permitted to take 270 million Pink Salmon eggs (donor stocks from Siwash, Gregorioff, and Gorge creeks and Indian River) and 2 million Coho Salmon eggs (donor stock from Corbin Creek) annually. While the VFDA Hatchery is also permitted to rear 300,000 Chinook Salmon eggs for off-site release, these eggs are collected at other hatcheries from Cook Inlet donor stocks; the VFDA Hatchery has not reared Chinook Salmon since 1993 (Stopha 2013, VFDA 2022b).

On average, approximately 410,000 Pink Salmon are collected for broodstock at the VFDA Hatchery from late June through July and a little over 1,000 Coho Salmon adults are retained during early September (VFDA 2022b). To minimize intermixing of the VFDA Pink Salmon hatchery stock with Prince William Sound wild stocks, broodstock selection has emphasized the earliest returning adults.

The VFDA Hatchery releases approximately 250 million Pink Salmon fry and 1.8 million Coho Salmon smolts from saltwater net pens every year (VFDA 2022a). This includes the release of 20,000 Coho Salmon smolts from saltwater net pens in Boulder Bay near the village of Tatitlek to support sport and subsistence salmon harvest in that area.

Adult returns can vary widely from year to year. On average, approximately 15.8 million Pink Salmon adults and 83,000 Coho Salmon adults return annually (VFDA 2022a). As part of cost recovery to fund the VFDA Hatchery operations, approximately 3 million Pink Salmon are harvested from Port Valdez and approximately 15,000 surplus Coho Salmon adults are retained at the VFDA Hatchery (VFDA 2022b). The remainder of the returning adults are primarily harvested by commercial purse seine fishermen followed by sport

fishers. Port Valdez and the Valdez Arm support the largest component of the Pink and Coho Salmon sport fisheries in the Prince William Sound.

### **5.3.3 Resident Fish Species of Solomon Gulch**

Solomon Lake is completely fed by runoff from summer snow melt, and fish are not able to migrate upstream of the multiple falls in Solomon Gulch Creek downstream from the damsite or Solomon Gulch Dam. Therefore, Solomon Lake does not inhabit fish.<sup>7</sup>

Resident fish species that are present or likely to be present within Solomon Gulch Creek and the Project Boundary downstream from Solomon Lake include the southern form of resident Dolly Varden, Slimy Sculpin (*Cottus cognatus*), and Ninespine Stickleback (*Pungitius pungitius*) (CVEA 2011). The ADFG Aquatic Freshwater Fish Inventory database indicates the presence of threespine stickleback in Solomon Gulch (ADFG 2023). However, no fish were observed or collected during ADFG backpack electrofishing surveys or minnow trapping conducted in Solomon Gulch Creek in pool habitat near the Alyeska pipeline bridge crossing (Fish Inventory Site JPOS101A01) in June, July, and August of 2002 (ADFG fish inventory database).

Dolly Varden are abundant and widely distributed throughout their range. ADFG reported a small population of Dolly Varden in the lower section of Solomon Gulch Creek (FPC 1977). Dolly Varden mature at 5 to 6 years and spawn between September and November over gravel beds. They can spawn multiple times during their lifetime (ADFG 2022b). The eggs hatch in 4 to 5 months depending on water temperature and alevin remain in the gravel for an additional month or two. The fry emerge April to May and migrate to slow water areas along stream margins (ADFG 2022b). Juveniles primarily feed on winged insects, and larvae of mayflies and midges, as well as crustaceans and small fish as they get larger (ADFG 2022b).

### **5.3.4 Benthic Macroinvertebrates and Freshwater Mussels**

Naumon and Kernodle (1977) conducted surveys for aquatic macroinvertebrates in Allison Creek and Solomon Gulch Creek in the early 1970s and found typical specimens endemic to cold-water streams in Alaska. There have been no recent macroinvertebrate sampling efforts in Solomon Gulch Creek, but the adjacent Allison Creek Basin is similar. Benthic

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<sup>7</sup> FERC Accession Number 19780621-4000

macroinvertebrates were sampled from riffles in Allison Creek lower in the system adjacent to the pumphouse and near the Allison Lake outlet on July 6, 2009 (CVEA 2011). Macroinvertebrate community metrics such as total taxa richness, EPT richness (the combined taxa from the orders *Ephemeroptera* (mayflies), *Plecoptera* (stoneflies), and *Trichoptera* (caddisflies)), percent EPT, and percent *Diptera* were documented for the sample sites.

The EPT richness index provides an estimate of water quality based on the combined abundance of mayflies, stoneflies, and caddisflies, three major orders of stream insects that have a low tolerance for water pollution, compared to the total number of macroinvertebrates sampled. At the lower sample sites near the pumphouse, the average EPT richness index was 5.4 out of 14 total taxa and 53 percent of the macroinvertebrates were EPT taxa while *Diptera* (true flies), which are generally tolerant of higher levels of pollutants in streams, made up 46 percent (CVEA 2011). Mayflies comprised nearly 92 percent of the EPT taxa sampled at the lower site. At the upper sample site near the Allison Lake outlet, the mean EPT richness was significantly less, 2.8 out of 8 total taxa collected. EPT taxa made up 15 percent of the macroinvertebrates sampled and *Diptera*, primarily midges, made up 81 percent (CVEA 2011).

### **5.3.5 Invasive Aquatic Species**

In general, southern areas of Alaska are subject to higher risk of invasions from aquatic nuisance species (ANS) because of the warmer climate, more developed lands, more disturbed habitats, and road access. In addition, ports with high volume of marine commercial traffic, such as Port Valdez, are at a higher risk of invasions from ANS (ADFG 2002).

ADFG developed the Alaska Aquatic Nuisance Species Management Plan in 2002 (ADFG 2002) which includes an overview of invasive species in Alaska and relevant laws, regulations, and projects. There are no freshwater invasive aquatic species present in the Solomon Gulch Basin. There is one non-indigenous fish species and two crabs that could be present in marine and intertidal habitats of Port Valdez in the future. Several tunicates (*Didemnum vexillum*, *Botrylloides violaceus*, and *Botryllus schlosseri*) and a species of seaweed (*Sargassum muticum*) are also invasive in Alaska (ADFG 2022f).

Atlantic Salmon (*Salmo salar*) are often raised in densely populated hatcheries. Atlantic Salmon that escape their net pens in British Columbia and Washington have dispersed as far north as the Bering Sea and have been found in Southeast Alaska, the Gulf of Alaska, and the Copper River (USGS 2022). Atlantic Salmon can pose a threat to native salmon and trout through competition for spawning and rearing habitat and can potentially spread disease and parasites to salmon fisheries (ADFG 2002; Alaska Public Lands Information Centers 2022).

The European Green Crab (*Carcinus maenas*), a native to Europe and Northern Africa and an invasive species established populations in temperate marine environments around the world, including the eastern Pacific Coast as far north as British Columbia. The species was first detected in Alaska at the Annette Islands Reserve in July 2022 (ADFG 2022c). A wide variety of dispersal mechanisms are attributed to the European Green Crab's spread, such as aquaculture, aquarium trade, live food trade, ballast water and hull fouling, and local currents (PWSRAC 2004). While not yet documented in Prince William Sound or Port Valdez, the most pressing pathway for spread further north into Alaska through natural transport of larvae in ocean currents from the established populations in British Columbia (ADFG 2022c). It has the ability to survive in a wide variety of environmental conditions and their range is predicted to spread northward as ocean temperatures trend warmer than average.

Chinese Mitten Crabs (*Eriocheir sinensis*) have become established along the eastern Pacific Coast and have been detected as far north as Prince of Wales Island in Southeast Alaska (USEPA 2017). They are a catadromous species that can migrate hundreds of miles upstream and have the potential to displace native fauna and feed on salmonid eggs, negatively impacting recruitment (ADFG 2002).

### **5.3.6 Temporal and Spatial Distribution of Fish and Aquatic Communities**

As described above, salmon species and sea-run Dolly Varden distribution is limited to the intertidal area of the Solomon Gulch Basin. While Coho and Chum Salmon may use the intertidal area, no adults are passed above the hatchery weir. Of the salmonid species, only Chum and Pink Salmon successfully spawn in intertidal areas and Pink Salmon are the only salmon adults passed upstream of the the VFDA Hatchery weir to spawn naturally. Adult salmonids may be present late June through early fall. Juvenile anadromous

salmonids and intertidal fish such as herring and crescent gunnel may use the near shore area for feeding.

Resident freshwater fish species are limited to the Solomon Gulch Creek reach between the dam site and Port Valdez. No fish species have been documented within or above Solomon Lake. The water is very cold with low nutrient levels and little to no productivity.

### **5.3.7 Essential Fish Habitat at Solomon Gulch**

The North Pacific Fishery Management Council develops Fishery Management Plans to identify Essential Fish Habitat (EFH) in Alaska. Most of or all of Port Valdez extending to the mouth of the Solomon Gulch Creek is classified as EFH for both mature and juvenile Coho, Pink, Chum, and Sockeye Salmon as well as immature Chum and Sockeye Salmon. The entire port is classified as EFH for mature Chinook Salmon, but EFH for immature Chinook Salmon is limited to the area beyond 0.75-mile-offshore from the mouth of Solomon Gulch Creek (NOAA 2018). No EFH is designated in the Solomon Gulch Creek or the Solomon Gulch Project Boundary (NOAA 2018).

### **5.3.8 Non-Project-Related Transmission Line**

Resident populations of Dolly Varden occur in the Lowe River system which is also an important production area for Sockeye, Pink and Chum salmon (ADFG 2023b), with much of the spawning occurring in small tributaries (Retherford 1976). The Lowe River also supports Coho and Chinook salmon (ADFG 2023b). Other streams crossed by the non-project-related transmission line that flow directly into Port Valdez support Pink and Chum salmon in their lower reaches, primarily within the intertidal zone; streams that do not have barriers also support Coho Salmon.

The Tonsina, Klutina, and Tazlina support sizable runs of Sockeye, Chinook and Coho salmon (Retherford 1976; ADFG 2023c, 2023d, 2023a). The Little Tonsina supports runs of Chinook and Coho Salmon as well as Arctic Grayling (ADFG 2023c). Rearing Coho Salmon have also been found in the lower reaches of Squirrel Creek, another tributary to the Tonsina River that lies within the ROW (ADFG 2023C). In addition to salmon, the Tazlina River supports a population of Steelhead Trout (ADFG 2023A). Resident fishes include Dolly Varden, Burbot, and Lake Trout.

EFH is designated in the portions of these rivers that are crossed by the non-project-related transmission line ROW where salmon occur.



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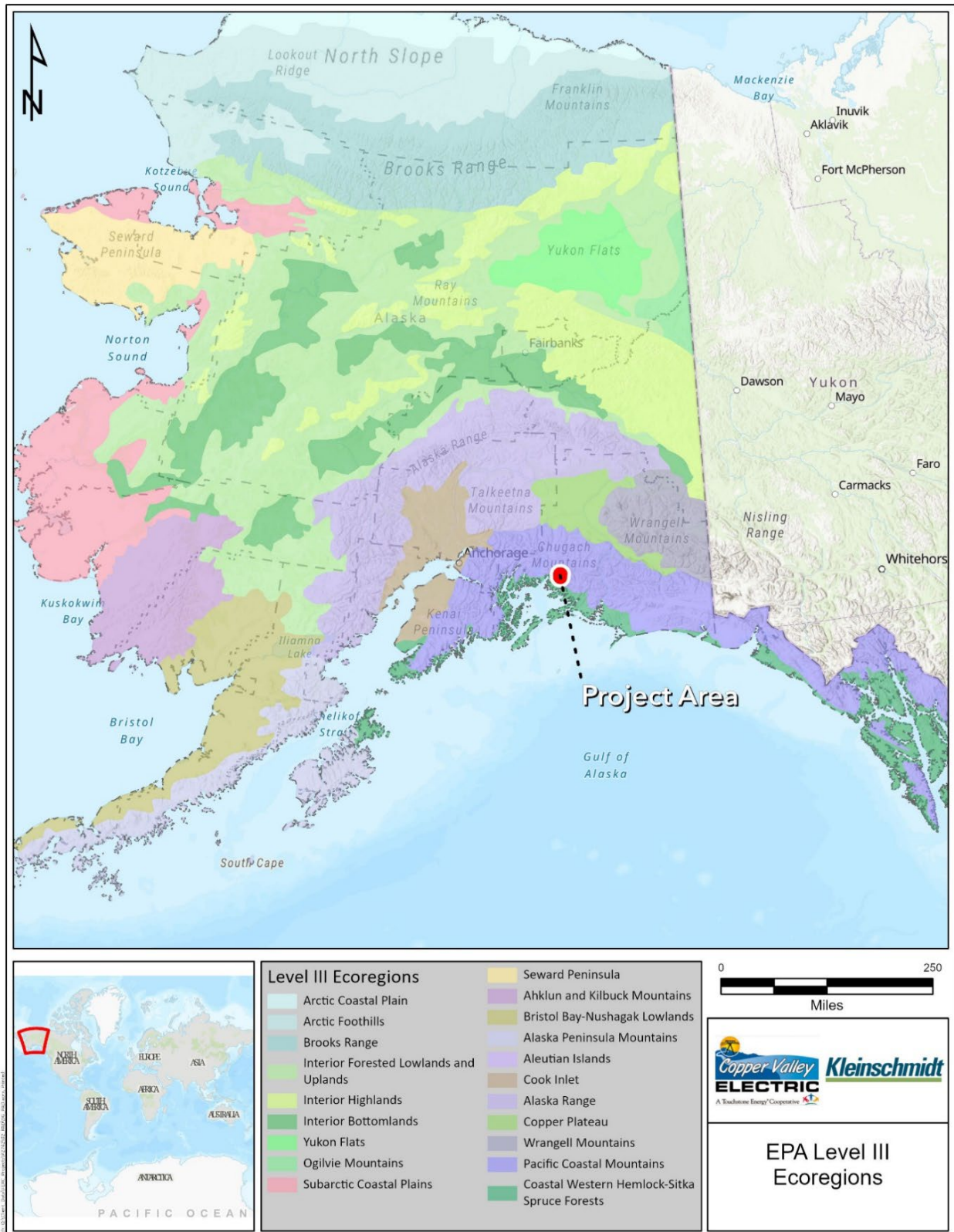
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#### **5.4 Wildlife and Botanical Resources [§ 5.6 (d)(3)(v)]**

The Solomon Gulch Project lies within the Coastal Western Hemlock-Sitka Spruce Forests ecoregion (Level III-120) of Alaska and the biogeographic region of Southcentral Alaska (Figure 5-5). Located along the southcentral and southeastern shores of Alaska, this ecoregion is a result of recent intense glaciation, and is defined by deep, narrow bays, steep valley walls that expose a lot of bedrock, and thin moraine deposits on hills and in valleys. Additionally, irregular coastline, high sea cliffs, and deeply dissected glacial moraine deposits covering the lower slopes of valley walls are evidence of the ecoregion.

The Solomon Gulch Project Area includes six physiographic zones: Alpine, Subalpine, Riverine, Lacustrine, Upland, and Coastal zones. Elevation, slope, aspect, and available soils largely dictate the plant communities present. At the highest elevations in the mountains, along ridges, cliffs, and steep upper slopes, partially vegetated and barren alpine rock predominates. Alpine vegetation, dominated by dwarf Ericaceous scrub (mountain heath) and patchy low willow (*Salix* spp.) and alder (*Alnus viridis*) scrub communities, occurs just below the exposed rock areas (CVEA 2011). The vegetation in these areas often is interspersed with colluvium and large boulders. At lower elevations, alpine dwarf-scrub gradually merges into a Subalpine zone where tall alder scrub strongly dominates on the mountain slopes (CVEA 2011). The Subalpine zone is the most common physiographic region in the Project Boundary and includes the entire area surrounding Solomon Lake. The steep slopes around the lake support tall shrub, mixed forb, and mountain heath. The Riverine communities include open water, barrens near active stream channels, and alder and willow thickets in frequently disturbed areas with gravelly/sandy soils south of the reservoir. The Lacustrine zone consists of Solomon Lake. The Upland zone includes the lower forested slopes adjacent to Solomon Gulch Creek below the dam and along the coast, which is mainly composed of coniferous forests dominated by Sitka spruce (*Picea sitchensis*) and, secondarily, western hemlock (*Tsuga heterophylla*). The Coastal zone encompasses areas directly influenced by tidewater at the mouth of Solomon Gulch Creek and downstream of the tailrace channel outflow (CVEA 2011).



**Figure 5-5 EPA Level III Ecoregions of Alaska**

#### **5.4.1 Upland Habitat(s) and Plants in the Solomon Gulch Project Vicinity**

##### **5.4.1.1 Solomon Lake Project Boundary**

The slopes surrounding Solomon Lake are dominated by dense thickets of alder (*Alnus* spp.) as well as salmonberry (*Rubus spectabilis*), blueberry (*Vaccinium* spp.), and devils club (*Oplopanax horridus*) while higher elevations provide habitat for low-growing, dry alpine species. The upper end of Solomon Lake consists of willows (*Salix* spp.) with some black cottonwood (*Populus trichocarpa*) trees. The southern end of the lake consists of wet meadows interspersed with alder thickets. The northern portion of the Solomon Gulch Project, along Solomon Gulch Creek and near the shore, consists of a coastal forest of Sitka spruce with an understory of devils club, alder, and salmonberry (FERC 1978).

##### **5.4.1.2 Non-Project-Related Transmission Line**

The non-project-related transmission line ROW generally follows the route of the Trans-Alaska Pipeline, running parallel with the Richardson Highway for much of its length. The transmission line ROW follows the Lowe River from its mouth at Port Valdez to Thompson Pass; this area is dominated by black cottonwood and Sitka spruce. The transmission line ROW then crosses the Lowe River and ascends Thompson Pass. The pass is above the timberline and vegetation consists of matted woody plants, sedges, and low growing heath plants. Northeast of Thompson Pass, the ROW descends to the Copper River Valley which supports black spruce (*Picea mariana*) and white spruce (*Picea glauca*) that grow in stands interspersed with dense willow and alder thickets (FERC 1978).

#### **5.4.2 Wetlands**

Wetlands are discussed in Section 5.5.

#### **5.4.3 Animal Species in the Solomon Gulch Project Vicinity**

A variety of wildlife species typical of the Coastal Western Hemlock-Sitka Spruce Forests ecoregion of Alaska inhabit the forested, wetland, and aquatic habitats of the Solomon Gulch Project Vicinity. According to published documentation, approximately 32 mammal species (Table 5-7) and 87 bird species (Table 5-8) are known or likely to occur within the Solomon Gulch Project Boundary. There are no known occurrences of amphibians near Solomon Lake and only one species potentially located along the transmission line ROW

according to the Alaska Center for Conservation Science (ACCS) data (ACCS 2022a). No known reptiles are located near the Solomon Gulch Project.

#### **5.4.3.1 Mammals**

There are approximately 32 species of mammals likely to occur in the Solomon Gulch Project area, ranging from small to large mammals, such as rodents, furbearers, carnivores, and ungulates (Table 5-5). As part of its 2015 Wildlife Action Plan, ADFG evaluated the status of wildlife populations and developed a list of Species of Greatest Conservation Need (SGCN). Multiple criteria are used to designate a species as SGCN, including species whose population is small, declining, or under significant threat ("at-risk" species); species that are culturally, ecologically, or economically important; species that function as sentinel species (indicators of environmental change); and stewardship species (species with a high percentage of their North American or global populations in Alaska) (ADFG 2015). The list of mammals includes their SGCN status and the reason(s) why ADFG identified the species as SGCN. Several species of small mammals in the Solomon Gulch Project area are designated as SGCN stewardship (Arctic ground squirrel, tundra vole and collared pika), sentinel (shrews and little brown bat), culturally significant (snowshoe hare), or ecologically important (red squirrel, northern bog lemming, hare, pika, voles) species (Table 5-5). Species that are hunted or trapped in Alaska that have adequate funding available to ADFG for research, management and protection and are not currently listed or petitioned for listing under the Endangered Species Act (ESA) are excluded from the SGCN list (ADFG 2015).

Larger mammals are discussed in the sections below. Available information on mammal populations came from surveys conducted for the nearby Allison Lake Hydroelectric Project (CVEA 2011) and ADFG survey and inventory of large mammals and furbearers by Game Management Unit (GMU). Solomon Lake is located within GMU 06D, which includes the drainages west of the Copper River, and west of a line from Flag Point to Cottonwood Point, and drainages east of the Rude River and drainages into the eastern shore of Nelson Bay and Orca Inlet (Figure 5-6). The non-project-related transmission line ROW lies within ADFG GMU 06 from the Petro Star Switch Building to approximately Thompson Pass, where the ROW descends into the Copper River Basin and into GMU 13D. In general, with the exception of mountain goats (*Oreamnos americanus*), mammal populations in GMU 13D are similar to those located in GMU 06 within favorable habitats.

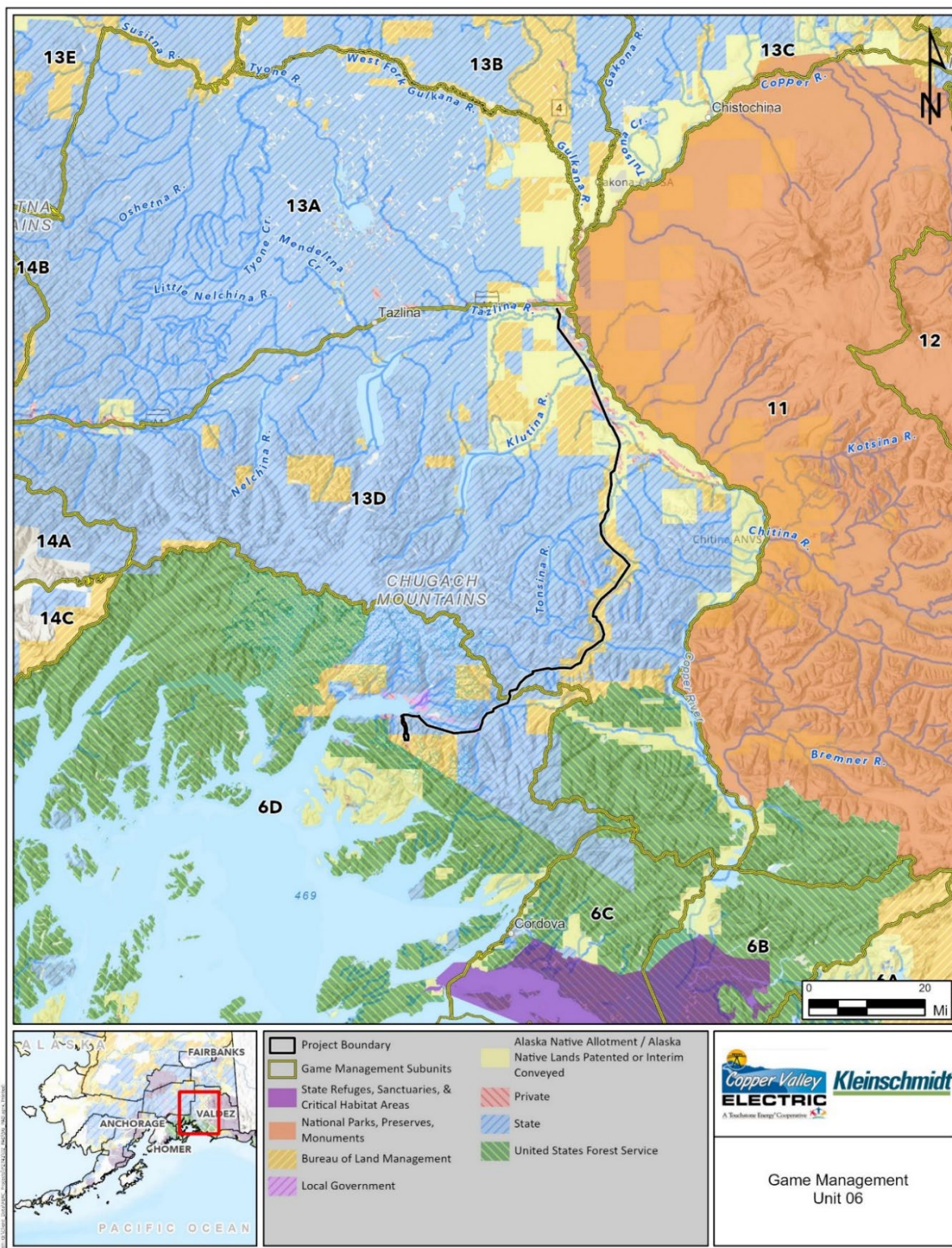
**Table 5-7 Mammal Species Known or Likely to Occur within the Project Area**

Scientific Name	Common Name	ESA Listed or Petitioned	IUCN Species of Concern	NatureServe Global Concern	Stewardship Species	Sentinel Species	Culturally Important	Economically Important	Ecologically Important es
<b>Beavers and Porcupines</b>									
<i>Castor canadensis</i>	Beaver								
<i>Erethizon dorsatum</i>	Porcupine								
<b>Squirrels</b>									
<i>Marmota caligata</i>	Hoary Marmot								
<i>Spermophilus parryii</i>	Arctic Ground Squirrel				X				
<i>Tamiasciurus hudsonicus</i>	Red Squirrel								X
<b>Lemmings</b>									
<i>Synaptomys borealis</i>	Northern Bog Lemming								X
<b>Voles and Deermice</b>									
<i>Myodes rutilus</i>	Northern Red-backed Vole								X
<i>Microtus oeconomus</i>	Tundra Vole				X				X
<b>Hares and Pikas</b>									
<i>Lepus americanus</i>	Snowshoe Hare						X		X
<i>Ochotona collaris</i>	Collared Pika				X				X
<b>Shrews</b>									
<i>Sorex cinereus</i>	Masked Shrew								
<i>Sorex hoyi</i>	Pygmy Shrew								
<i>Sorex monticolus</i>	Dusky Shrew					X			
<i>Sorex palustris</i>	American Water Shrew					X			
<i>Sorex tundrensis</i>	Tundra Shrew								
<i>Sorex yukonicus</i>	Tiny Shrew					X			
<b>Bats</b>									
<i>Myotis lucifugus</i>	Little Brown Bat					X			
<b>Felids and Canids</b>									
<i>Lynx canadensis</i>	Lynx								
<i>Canis lupus</i>	Gray Wolf								
<i>Canis latrans</i>	Coyote								
<i>Vulpes vulpes</i>	Red Fox								



Scientific Name	Common Name	ESA Listed or Petitioned	IUCN Species of Concern	NatureServe Global Concern	Stewardship Species	Sentinel Species	Culturally Important	Economically Important	Ecologically Important es
<b>Bears</b>									
<i>Ursus arctos</i>	Brown Bear								
<i>Ursus arctos horribilis</i>	Grizzly Bear								
<i>Ursus americanus</i>	Black Bear								
<b>Weasels and Otters</b>									
<i>Gulo gulo</i>	Wolverine								
<i>Lontra canadensis</i>	River Otter								
<i>Martes americana</i>	Marten								
<i>Mustela erminea</i>	Short-tailed Weasel (Ermine)								
<i>Mustela nivalis</i>	Least Weasel								
<i>Mustela vison</i>	Mink								
<b>Bovines</b>									
<i>Oreamnos americanus</i>	Mountain Goat								
<b>Deer and Moose</b>									
<i>Alces alces</i>	Moose								
<i>Odocoileus hemionus sitkensis</i>	Sitka Black-tailed Deer								

Source: Heller 1910, Manville and Young 1965, MacDonald and Cook 2001 as cited in CVEA 2011; and ADFG 2015.



**Figure 5-6 Alaska Department of Fish and Game, Game Management Units of the Solomon Gulch Project Boundary (GMU 6D) and the Non-Project - Related Transmission Line (GMU 6D and 13D)**

#### **5.4.3.1.1 Black Bear**

Black bear (*Ursus americanus*) are common in GMU 06, except on Hinchinbrook and Montague islands and several smaller islands in Prince William Sound as well as Kayak and Middleton islands along the North Gulf of Alaska Coast. Density is lowest in eastern Prince William Sound where the Solomon Gulch Project is located (Westing 2022a). Black bear in the area primarily eat vegetation in the early spring, especially in areas with early emergent vegetation. Grasses (*Poaceae*), sedges (*Cyperaceae*), skunk cabbage (*Lysichiton americanus*), and horsetail (*Equisetum arvense*) are important food sources for the black bear. Fish, especially salmon (*Salmonidae*), and berries are an important food source in the summer and fall. Males in GMU 06D use beaches to feed upon once emerging from their dens after winter. Females typically remain along south-facing slopes and avalanche chutes.

Most of the black bear harvest in GMU 06 occurs in 06D (75 to 90 percent) due to the high density of bears located near the high densities of humans. Management goals for the black bear population is 350 to 400 bears with less than 30 percent of females occurring in GMU 06D. A minimum average male skull size of 17 inches (10 to 15 years of age) is also a management objective (Westing 2022a). A formal plan for black bear management has not been developed for GMU 06. Black bear harvest for GMU 06D was just over 200 bears in 2017. This number was greater than half of the numbers compared to 2005 to 2012 but an increase from harvest numbers from 2013 to 2016 (Westing 2022a). Black bear likely use the entirety of the Solomon Gulch Project area, including the upper basin and forested habitats between Solomon Gulch and Allison Creek to the west. Security guards at the Valdez Marine Terminal commonly reported black bear in Solomon Gulch Creek and along Dayville Road and the Valdez Pipeline access road, particularly during the salmon-spawning seasons (CVEA 2011; R. Unger pers. comm. August 5, 2022).

#### **5.4.3.1.2 Brown Bear/Grizzly Bear**

Brown bear (*Ursus arctos*) and grizzly bear (*Ursus arctos horribilis*) inhabit most of GMU 06 except for the islands and mainland in the west Prince William Sound and Middleton Island. Distribution is largely attributed to the presence of water bodies with abundant salmon. In addition to salmon, brown bears eat berries, grasses, sedges, cow parsnip (*Heracleum maximum*), carrion, and roots. They also prey upon Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) opportunistically as well as moose (*Alces alces*). Brown

bear numbers on Montague Island and in the coastal habitat to the southeast of Alaska, where the Solomon Gulch Project is located, likely has a medium density of brown bear, with 40 to 175 bears per 1,000-square kilometers. Logging activity in GMU 06D may have resulted in a decrease in black bear numbers as old-growth stands are important habitat for coastal bears. Much of the land scheduled for timber harvest in GMU 06D was protected, thus eliminating the large-scale habitat loss occurring in the area of Prince William Sound (Westing 2022b). A formal plan for brown bear management has not been developed for GMU 06.

#### **5.4.3.1.3 Gray Wolf**

Gray wolves (*Canis lupus*) are endemic to the mainland areas of GMU 06. Mountain goats are a primary ungulate (hooved) prey; however, wolves along the coast often supplement their diet with salmon, beaver (*Castor canadensis*), marine mammals, and other seasonally abundant species. Successful introductions of Sitka black-tailed deer (GMU 06D) and moose (GMU 06C) to the region brought additional wolf prey. In 2006, ADFG estimated that Unit 6D has only 4–6 wolves in 2 packs (Crowley 2006), down from 10–14 wolves in 3 packs in 2001 (Crowley 2003), but added that pack size and distribution in Unit 6D remains speculative (CVEA 2011). The average annual wolf harvest in GMU 06 from 1995 to 2014 was 7 wolves. There are no applicable wildlife management plans for wolves or the species on which they depend in GMU 06 (Westing 2022d).

#### **5.4.3.1.4 Mountain Goat**

Mountain goats are native to the mountains of south coastal Alaska, including those surrounding Port Valdez. Goat populations in coastal Alaska are limited principally by winter severity (mainly snow depth) and the availability of suitable habitat (Fox et al. 1989). Mountain goats are considered a management indicator species by the USFS (CVEA 2011).

Within GMU 06, mountain goats only inhabit the mainland along with Bainbridge, Culross, and Knight islands. Their preferred habitat consists of steep escape terrain with refugia from predators located next to forage areas. Mountain goats utilize avalanche chutes and low south-facing slopes during the spring and high elevation alpine and subalpine habitat once most of the snowpack has melted during the summer. They spend the winter in heavily forested areas or windswept slopes with minimal snow cover. Mountain goats have been known to descend to forested coastlines during some heavy snow events.

Goats consume a wide variety of foods including alder, rhizomes, new shoots of ferns, early emergent sedges, and forbs. During the winter, food sources are limited to, but may include conifers, mosses, lichens, shrubs, forbs, ferns, and grasses.

The population in GMU 06 has fluctuated widely over the past 70 years, primarily due to winter severity, hunting, and predation, but is currently considered to be stable (Crowley 2008). In 1998, management strategies were established for GMU 06 to maintain a GMU-wide minimum population of 2,400 goats. Two important elements for implementation of this objective were registration permit hunts, allowing careful monitoring of harvest distribution and magnitude, and improved aerial survey methods for obtaining trend information. Aerial surveys were conducted in 2017 within the vicinity of the Solomon Gulch Project, and 176 goats were observed with 90 percent of the group consisting of older goats and yearlings. The estimated number of goats in GMU 06 at the end of 2017 was between 3,500 and 4,000 goats. A formal plan for mountain goat management has not been developed for GMU 06 (Westing 2022c).

#### **5.4.3.1.5 Sitka Black-tailed Deer**

Sitka black-tailed deer were introduced to GMU 06 between 1916 and 1923. At least 24 deer were released on Hawkins and Hinchinbrook islands in southern Prince William Sound near the community of Cordova and quickly spread out to occupy vacant habitat on most islands and adjacent mainland in Prince William Sound. Almost the entire deer population in the region occurs within GMU 06D where all state monitoring efforts are focused. Sitka black-tailed deer in GMU 06 are at the northern end of their habitat range and can thrive in the region due to the mild, maritime climate conditions in Prince William Sound. The deer can forage and shelter during winter in the snow-shading canopies of old-growth forests. Forbs, blueberry stems, and kelp are important food sources for deer in the region (Westing 2018a). The summer and winter home ranges for the species vary from 30 to 1,200 acres, with migratory deer having larger annual home ranges than resident deer.

During the winter, spatial distribution of deer is influenced by snow depth (ADFG 2022a). Snow depth and duration are the most important limiting factors to deer, followed by wolf predation, timber harvest, management, and hunting (Crowley 2007b). Old-growth spruce forest is critical wintering habitat because the tree canopy intercepts the snow, allow for greater access to needed forage (CVEA 2011). Deer habitat within the vicinity of

Solomon Lake is marginal. There are currently no management plans specific to deer, but the mandated population objective is 24,000-28,000 deer with a harvest objective of 2,200-3,000. However, there is no current estimate of the Sitka black-tailed deer population size as of 2017 (Westing 2018a).

#### **5.4.3.1.6 Moose**

Moose generally make seasonal movements between calving, rutting, and wintering areas. Rutting and breeding occur during late-September and early October for most populations in Alaska, and calves are born during the spring. Moose feed on willow, birch (*Betula* spp.), and aspen (*Populus* spp.) twigs during the fall and winter and move to areas where they can graze on low lying vegetation during the spring. Moose are commonly found near aquatic habitats in the summer months, where they often feed on vegetation in shallow ponds and wetlands (ADFG 2022b).

The only endemic moose populations in GMU 06 occur in the Lowe River drainage at the east end of Port Valdez, numbering approximately 40 animals total as of 2018, and Kings Bay in western Prince William Sound. A formal management plan for moose in GMU 06 does not exist, but current goals and objectives are in place that were formed through consultation with local ADFG advisory council (Westing 2018b).

#### **5.4.3.1.7 Furbearers**

Coyotes (*Canis latrans*) occur in low numbers in GMU 06, mainly where wolves are uncommon (CVEA 2011). Red foxes (*Vulpes vulpes*) are rare in GMU 06, possibly having been displaced by coyotes (Crowley 2007a). ADFG requires sealing of the hides of marten (*Martes americana*), wolverine (*Gulo gulo*), and lynx (*Lynx canadensis*). Marten were reported as common and stable to increasing in abundance in GMU 06 in 2007. They prefer forested habitats and are not likely to be abundant in the Project area (CVEA 2011).

Wolverines were reported as present in GMU 06 at low to moderate densities and stable (Crowley 2007a). Wolverines travel in search of food, with large home ranges in Southcentral Alaska estimating between 115 to 230-square miles for females and 270 to 380-square miles for males. Studies conducted in Southcentral Alaska found that wolverines tend to stay at higher elevations during the summer and lower elevations during the winter due to the varying food availability. Wolverines are opportunistic scavengers, primarily relying on carrion in the winter, which in this case, are the remains

of moose and caribou killed by wolves and hunters or animals that have died of natural causes. Wolverines feed on small and medium-sized animals throughout the remainder of the year, including voles, squirrels, snowshoe hares, and birds. Wolverines are valued as a fur resource and approximately 550 wolverines are harvested state-wide in Alaska each year (ADFG 2022d).

Lynx have been reported as rare or absent from GMU 06 (Crowley 2007a). Lynx depend on the snowshoe hare population as their primary food source, which is cyclical in numbers. No snowshoe hares or lynx were observed during the 2008-2010 field efforts for the licensing of the nearby Allison Creek project (CVEA 2011).

#### **5.4.3.1.8 Aquatic Furbearers**

River otters (*Lontra canadensis*) and mink (*Mustela vison*) are reportedly common with stable populations in GMU 06 (Crowley 2007a). River otters occur in aquatic and marine shoreline habitats where they consume mainly fish and invertebrates (Larsen 1983). They are common throughout most of GMU 06 and were reported as the most abundant carnivore in Prince William Sound (Crowley 2007a). They are likely to use the shoreline at the mouth of Solomon Gulch Creek, especially during salmon spawning. However, they are unlikely to occur in the Solomon Lake area due to the absence of fish. Mink inhabit the shores of streams, lakes, and marine coastlines, where they prey on fish and aquatic invertebrates, birds, and small mammals (Johnson 1985). Mink are common in most of GMU 06 and numbers may be limited by harvest (Crowley 2007a). Beavers (*Castor canadensis*) occur exclusively in association with woody vegetation and fresh water habitats, including streams, rivers, impoundments, and lakes, from sea level to alpine zones (CVEA 2011). They eat a variety of plants but their distribution is limited by the winter availability of woody plants, particularly cottonwood, aspen, willow, and alder. Beaver habitat is relatively limited in GMU 06D; their presence in the Solomon Lake Project area is likely absent or rare.

#### **5.4.3.2 Birds**

The Solomon Gulch Project vicinity includes habitat for multiple bird species, including waterfowl, upland game birds, waterbirds, raptors, shorebirds, gulls, and passerines. A species list was generated from multiple sources (Table 5-8). The list includes 87 species

of the nearly 150 species known to occur within the Port Valdez area;<sup>8</sup> uncommon migrants and species occurring only in marine habitats were excluded (ADFG 2015, 2022e; ASG 2019; BLM 2019; Cornell 2022; CVEA 2011; Kushlan et al. 2002; NAWMP 2018; Rosenberg et al. 2016; USFWS 2011, 2022a, 2022b; Warnock 2017). Solomon Lake provides habitat for several species of waterbirds and shorebirds. Adjacent forest and scrub areas provide habitat for land bird species and several species of raptors, shorebirds, seabirds, and upland birds.

Waterfowl and shorebirds include mergansers (*Anatidae*), loons (*Gavia* spp.), grebes, gulls (*Laridae*), and the greater yellowlegs (*Tringa melanoleuca*). Many shorebirds that winter in the area utilize the flats at the head of Port Valdez. Two species of seabirds (Kittlitz's and Marbled murrelets) may nest in alpine or forest habitats in the Solomon Gulch Project vicinity or traverse the area between nesting and feeding areas (CVEA 2011). Common Murres winter in Port Valdez, but do not use inland or terrestrial habitats. Pigeon Guillemots are present in Port Valdez during summer months and nest in steep, creviced marine shoreline rock faces and outcroppings (Ewins 1993). Common upland songbirds include the black-capped chickadee (*Poecile atricapillus*), fox sparrow (*Passerella iliaca*), dark-eyed junco (*Junco hyemalis*), kinglets (Regulidae), and warblers (Parulidae).

Twelve species of raptors potentially breed in or migrate through the Solomon Gulch Project area (CVEA 2011). All of these species are protected under the Migratory Bird Treaty Act<sup>9</sup> (MBTA) and eagles are further protected under the Bald and Golden Eagle Protection Act<sup>10</sup> (BGEPA). Bald eagles (*Haliaeetus leucocephalus*) commonly breed in Port Valdez, typically in large Sitka spruce or black cottonwood trees along the coast where fish are present, and over winter in congregations where open water with fish and waterbird prey occur (CVEA 2011). Two active Bald eagle nests were documented in forested habitats along Dayville Road near Solomon Gulch during raptor surveys conducted in 2009. Golden eagles (*Aquila chrysaetos*) are rare breeders along the coast, but typically nest on alpine cliffs similar to the habitat present in the Solomon Gulch drainage (CVEA 2011). Other raptor species that likely breed or may be year-round residents in the Solomon Gulch Project area include Northern Goshawk (*Accipiter gentilis*), Red-tailed Hawk (*Buteo jamaicensis*), Peregrine Falcon (*Falco peregrinus*), Great-horned

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<sup>8</sup> Sixty-nine species have been observed at the VFDA Hatchery by members of the public (eBird 2022).

<sup>9</sup> Migratory Birds Treaty Act of 1918 (MBTA) (16 U.S.C. 703-12)

<sup>10</sup> Bald and Golden Eagle Protection Act of 1940 (BGEPA) (16 U.S.C. 668-668d)



Owl (*Bubo virginianus*), Boreal Owl (*Aegolius funereus*), and Northern Saw-whet Owl (*Aegolius acadicus*) (CVEA 2011). Possible breeders also include Sharp-shinned Hawk (*Accipiter striatus*), Gyrfalcon (*Falco rusticolus*), Merlin (*Falco columbarius*), and Northern Harrier (*Circus cyaneus*).

In general, migratory birds primarily nest in Southcentral Alaska from April 15 through July 15 in forested areas, and from May 1 through July 15 in treeless habitats. Seabirds nest from May 1 through approximately September 5, whereas eagles may nest two or more months earlier than other birds (March 1 through August 31; USFWS 2022a).

As indicated in Table 5-8, several of the bird species known or likely to occur within the Solomon Gulch Project vicinity are identified as special status species by state and/or federal agencies. The U.S. Fish and Wildlife Service (USFWS) identifies Birds of Conservation Concern (BCC) as species, subspecies, and populations that are not federally-listed as threatened or endangered, but that may become candidates for federal listing without additional conservation actions being taken (USFWS 2011). The list includes birds identified as deserving protection under the Migratory Bird Treaty Act<sup>11</sup> (MBTA) and the Bald and Golden Eagle Protection Act<sup>12</sup> (BGEPA), managed by the USFWS. The BLM designates sensitive species and their habitats "to promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA." Candidates for this designation include native species that may be found on BLM-administered lands (BLM 2019). As previously described, ADFG maintains a list of SGCN species, including species that are: at-risk, stewardship, culturally important, economically important, ecologically important or sentinel.

Additional plans that include conservation statuses for bird species include the North American Waterfowl Management Plan (NAWMP), the North American Waterbird Conservation Plan (NAWCP), the Boreal Partners in Flight (BPIF) Working Group Landbird Conservation Plan, and the Alaska Shorebird Group (ASG) Conservation Plan.

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<sup>11</sup> Migratory Birds Treaty Act of 1918 (MBTA) (16 U.S.C. 703-12)

<sup>12</sup> Bald and Golden Eagle Protection Act of 1940 (BGEPA) (16 U.S.C. 668-668d)

**Table 5-8 Bird Species Known or Likely to Occur in the Vicinity of the Solomon Gulch Project Area, excluding Uncommon Migrants and Species only Occurring in Marine Habitats.**

Scientific Name	Common Name	Status or Expected Status in Solomon Gulch Project Area <sup>1</sup>	Lists Species as Conservation Concern
Auks			
<i>Brachyramphus brevirostris</i>	Kittlitz's Murrelet	Breeder	USFWS; BLM; NAWCP
<i>Brachyramphus marmoratus</i>	Marbled Murrelet	Breeder	USFWS; NAWCP
<i>Uria aalge</i>	Common Murre	Breeder	USFWS
Blackbirds, Finches, Crossbills, Grosbeaks, and Redpoll			
<i>Acanthis flammea</i>	Common Redpoll	Resident; Breeder	ADFG
<i>Leucosticte tephrocotis</i>	Gray-crowned Rosy-finch	Breeder	---
<i>Pinicola enucleator</i>	Pine Grosbeak	Resident; Breeder	ADFG
<i>Spinus pinus</i>	Pine Siskin	Resident; Breeder	ADFG
Ducks, Geese, and Swans			
<i>Anas platyrhynchos</i>	Mallard	Summer Resident; Fall Migrant <sup>2</sup>	USFWS; NAWMP
<i>Branta canadensis</i>	Canada Goose	Possible Breeder; Summer Resident; Fall Migrant <sup>2</sup>	USFWS; BLM; ADFG; NAWMP
<i>Clangula hyemalis</i>	Long-tailed Duck	Resident	USFWS; ADFG; NAWMP
<i>Histrionicus</i>	Harlequin Duck	Possible Breeder; Summer Resident	NAWMP
<i>Melanitta americana</i>	Black Scoter	Summer Resident	USFWS; ADFG; NAWMP
<i>Melanitta deglandi</i>	White-winged Scoter	Fall Migrant	USFWS; NAWMP
<i>Melanitta perspicillata</i>	Surf Scoter	Fall Migrant	USFWS; NAWMP
<i>Mergus merganser</i>	Common Merganser	Fall Migrant	---
<i>Mergus serrator</i>	Red-breasted Merganser	Fall Migrant	USFWS
Grouse and Ptarmigans			
<i>Canachites canadensis</i>	Spruce Grouse	Resident; Breeder	---
<i>Lagopus leucura</i>	White-tailed Ptarmigan	Resident; Breeder	---
<i>Lagopus muta</i>	Rock Ptarmigan	Resident; Breeder	---

Scientific Name	Common Name	Status or Expected Status in Solomon Gulch Project Area <sup>1</sup>	Lists Species as Conservation Concern
<b>Gulls, Terns, and Jaegers</b>			
<i>Larus argentatus</i>	Herring Gull	Resident	ADFG
<i>Larus canus</i>	Mew Gull	Resident	ADFG
<i>Larus glaucescens</i>	Glaucous-winged Gull	Resident	ADFG
<i>Rissa tridactyla</i>	Black-legged Kittiwake	Resident	USFWS; ADFG
<b>Kingfishers and Woodpeckers</b>			
<i>Leuconotopicus villosus</i>	Hairy Woodpecker	Resident; Breeder	---
<i>Megaceryle alcyon</i>	Belted Kingfisher	Resident; Breeder	ADFG
<i>Picoides dorsalis</i>	American Three-toed Woodpecker	Resident; Breeder	ADFG
<b>Kinglets, Creepers, Flycatchers, and Wrens</b>			
<i>Certhia americana</i>	Brown Creeper	Resident; Breeder	ADFG
<i>Cinclus mexicanus</i>	American Dipper	Resident; Breeder	---
<i>Contopus cooperi</i>	Olive-sided Flycatcher	Breeder	USFWS; BLM; ADFG; BFIF
<i>Corthylio calendula</i>	Ruby-crowned Kinglet	Breeder	ADFG
<i>Regulus satrapa</i>	Golden-crowned Kinglet	Breeder	ADFG
<i>Troglodytes hiemalis</i>	Winter Wren	Resident; Breeder	---
<b>Longspurs, Buntings, and Sparrows</b>			
<i>Junco hyemalis</i>	Dark-eyed Junco	Breeder	ADFG
<i>Melospiza melodia</i>	Song Sparrow	Resident; Breeder	ADFG
<i>Passerculus sandwichensis</i>	Savannah Sparrow	Breeder	ADFG
<i>Passerella iliaca</i>	Fox Sparrow	Breeder	ADFG
<i>Plectrophenax nivalis</i>	Snow Bunting	Resident; Possible Breeder	ADFG
<i>Spizelloides arborea</i>	American Tree Sparrow	Breeder	---
<i>Zonotrichia atricapilla</i>	Golden-crowned Sparrow	Breeder	ADFG
<b>Loons and Grebes</b>			
<i>Gavia adamsii</i>	Yellow-billed Loon	Fall Migrant <sup>2</sup>	USFWS; BLM; ADFG
<i>Gavia immer</i>	Common Loon	Fall Migrant <sup>2</sup> ; Breeder	USFWS
<i>Gavia pacifica</i>	Pacific Loon	Fall Migrant <sup>2</sup>	---
<i>Gavia stellata</i>	Red-throated Loon	Fall Migrant <sup>2</sup> ;	USFWS; BLM; ADFG; NAWCP

Scientific Name	Common Name	Status or Expected Status in Solomon Gulch Project Area <sup>1</sup>	Lists Species as Conservation Concern
Nuthatches, Chickadees, and Swallows			
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	Breeder	---
<i>Poecile atricapillus</i>	Black-capped Chickadee	Resident; Breeder	ADFG
<i>Poecile rugescens</i>	Chestnut-backed Chickadee	Resident; Breeder	ADFG; BPIF
<i>Sitta canadensis</i>	Red-breasted Nuthatch	Resident; Breeder	---
<i>Trachycineta bicolor</i>	Tree Swallow	Breeder	ADFG
Oystercatchers and Plovers			
<i>Charadrius semipalmatus</i>	Semipalmated Plover	Breeder	---
<i>Haematopus bachmani</i>	Black Oystercatcher	Breeder; Migrant	USFWS; ADFG; ASG
<i>Pluvialis dominica</i>	American Golden-plover	Breeder; Migrant	USFWS; ADFG
Raptors			
<i>Accipiter gentilis</i>	Northern Goshawk	Breeder	---
<i>Accipiter striatus</i>	Sharp-shinned Hawk	Possible Breeder	---
<i>Aegolius acadicus</i>	Northern Saw-whet Owl	Resident; Breeder	---
<i>Aegolius funereus</i>	Boreal Owl	Resident	ADFG
<i>Aquila chrysaetos</i>	Golden Eagle	Resident; Breeder	USFWS; ADFG
<i>Bubo virginianus</i>	Great Horned Owl	Resident; Possible Breeder	---
<i>Buteo jamaicensis</i>	Red-tailed Hawk	Breeder	ADFG
<i>Circus hudsonius</i>	Northern Harrier	Migrant	ADFG
<i>Falco columbarius</i>	Merlin	Possible Breeder; Migrant	---
<i>Falco peregrinus</i>	Peregrine Falcon	Migrant	ADFG
<i>Falco rusticolus</i>	Gyrfalcon	Resident; Possible Breeder	ADFG
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Resident; Breeder	USFWS; ADFG

Scientific Name	Common Name	Status or Expected Status in Solomon Gulch Project Area <sup>1</sup>	Lists Species as Conservation Concern
<b>Sandpipers</b>			
<i>Actitis macularius</i>	Spotted Sandpiper	Breeder	ADFG
<i>Gallinago delicata</i>	Wilson's Snipe	Breeder	ADFG
<i>Limnodromus griseus</i>	Short-billed Dowitcher	Breeder; Migrant	USFWS; ADFG; ASG
<i>Limosa haemastica</i>	Hudsonian Godwit	Migrant; Breeder	USFWS; BLM; ADFG
<i>Phalaropus lobatus</i>	Red-necked Phalarope	Migrant	USFWS; ASG
<i>Tringa flavipes</i>	Lesser Yellowlegs	Migrant	USFWS; ADFG
<i>Tringa incana</i>	Wandering Tattler	Breeder	ADFG
<i>Tringa melanoleuca</i>	Greater Yellowlegs	Migrant	---
<b>Swifts and Hummingbirds</b>			
<i>Corvus caurinus</i>	Northwestern Crow	Resident; Breeder	---
<i>Corvus corax</i>	Common Raven	Resident; Breeder	ADFG
<i>Cyanocitta stelleri</i>	Steller's Jay	Resident; Breeder	ADFG
<i>Perisoreus canadensis</i>	Gray Jay	Resident; Breeder	ADFG
<i>Pica hudsonia</i>	Black-billed Magpie	Resident; Breeder	---
<i>Selasphorus rufus</i>	Rufous Hummingbird	Breeder	USFWS; ADFG; BPIF
<b>Thrushes</b>			
<i>Catharus guttatus</i>	Hermit Thrush	Breeder	---
<i>Ixoreus naevius</i>	Varied Thrush	Breeder	ADFG; BPIF
<i>Turdus migratorius</i>	American Robin	Breeder	---
<b>Waxwings, Pipits, and Warblers</b>			
<i>Anthus rubescens</i>	Buff-bellied Pipit	Breeder	ADFG
<i>Cardellina pusilla</i>	Wilson's Warbler	Breeder	ADFG
<i>Leiothlypis celata</i>	Orange-crowned Warbler	Breeder	ADFG
<i>Parkesia noveboracensis</i>	Northern Waterthrush	Breeder	---
<i>Setophaga petechia</i>	Yellow Warbler	Breeder	---
<i>Setophaga townsendi</i>	Townsend's Warbler	Breeder	ADFG

Sources: ADFG 2015, 2022e; ASG 2019; BLM 2019; Cornell 2022; CVEA 2011; Kushlan et al. 2002; NAWMP 2018; Rosenberg et al. 2016; USFWS 2011, 2022a, 2022b; Warnock 2017

<sup>1</sup>Status is uncertain for many species because Solomon Gulch Project-specific data is limited. Resident= species uses area year-round but not necessarily for breeding; Breeder= species breeds in area; Migrant = species only visits the area during migration in spring and/or fall.

<sup>2</sup> These species are likely to use Solomon Lake, perhaps only for brief periods, during migration.

### **5.4.3.3 Amphibians and Reptiles**

Of the six amphibian species that occur in Alaska, there are no known occurrences of amphibians near the Solomon Lake Project Boundary according to ACCS data (ACCS 2022a). The wood frog (*Lithobates sylvaticus*) is found in suitable habitat within the Copper River Basin (ACCS 2022a), through which the non-project-related transmission line ROW traverses. Wood frogs are widespread and relatively common in Alaska (ADFG 2022c). The only reptiles in Alaska are marine (four sea turtle species), and they are not known to occur in the vicinity of the Solomon Gulch Project.

### **5.4.4 Invasive Plant and Wildlife Species**

Non-native species whose introduction cause or is likely to cause economic or environmental harm or harm to human health are considered “invasive species” (Presidential Executive Order 13112). Invasive species can change ecosystems by altering habitat composition, competing with native species for resources, changing predator/prey relationships, reducing productivity, or otherwise disrupting natural ecological functions. Invasive species may also cause economic effects through increased expenditures and may even threaten human health and safety (Habitatattitude 2022).

The University of Alaska Anchorage Center for Conservation Science maintains the non-native plant species list for Alaska, with valuable summary information on 410 invasive plants that have or may become established. Table 5-8 includes the 30 plants with the highest invasiveness scores. No non-native plants have been reported within the Solomon Lake area; however, several species have been reported across the port in Valdez and along the Richardson Highway leading from Valdez (AKNHP 2023), which is in the vicinity of the non-project-related transmission line ROW (Table 5-9). The common dandelion (*Taraxacum officinale*), common plantain (*Plantago major*), and white clover (*Trifolium repens*) are the most common; all species occupy less than one acre per occurrence (AKNHP 2023).

**Table 5-9 Alaska Invasive Species Plant List<sup>1</sup>**

Scientific Name	Common Name	Rank	Established
<i>Myriophyllum spicatum</i>	Eurasian Watermilfoil	90	---
<i>Fallopia japonica</i>	Japanese Knotweed	87	1981
<i>Fallopia sachalinensis</i>	Giant Knotweed	87	2006
<i>Fallopia x bohemica</i>	Bohemian Knotweed	87	2004
<i>Centaurea stoebe</i>	Spotted Knapweed	86	2004
<i>Spartina alterniflora</i>	Smooth Cordgrass	86	---
<i>Spartina anglica</i>	Common Cordgrass	86	---
<i>Spartina densiflora</i>	Denseflower Cordgrass	86	---
<i>Spartina patens</i>	Saltmeadow Cordgrass	86	---
<i>Euphorbia esula</i>	Leafy Spurge	84	2012
<i>Lythrum salicaria</i>	Purple Loosestrife	84	2006
<i>Lythrum virgatum</i>	European Wand Loosestrife	84	---
<i>Phalaris arundinacea</i>	Reed Canarygrass	83	1905
<i>Phragmites australis</i>	Common Reed	83	---
<i>Impatiens glandulifera</i>	Ornamental Jewelweed	82	2004
<i>Heracleum mantegazzianum</i>	Giant Hogweed	81	2010
<i>Melilotus albus</i>	White Sweetclover	81	1913
<i>Hydrilla verticillate</i>	Waterthyme	80	---
<i>Nymphaea odorata</i>	American White Waterlily	80	1997
<i>Persicaria wallichii</i>	Himalayan Knotweed	80	2006
<i>Elodea canadensis</i>	Canadian Waterweed	79	1982
<i>Elodea nuttallii</i>	Western Waterweed	79	1982
<i>Hieracium aurantiacum</i>	Orange Hawkweed	79	1969
<i>Hieracium caespitosum</i>	Meadow Hawkweed	79	2004
<i>Bromus tectorum</i>	Cheatgrass	78	1923
<i>Rubus discolor</i>	Himalayan Blackberry	77	2006
<i>Cirsium arvense</i>	Canada Thistle	76	1925
<i>Caragana arborescens</i>	Siberian Peashrub	74	1995
<i>Prunus padus</i>	European Bird Cherry	74	1980
<i>Prunus virginiana</i>	Chokecherry	74	2009

Source: ACCS 2022b

<sup>1</sup> Listed in order of rank.

**Table 5-10 Invasive Plant Species Located within the Vicinity of the Non-Project-Related Transmission Line ROW<sup>1</sup>**

Scientific Name	Common Name	Rank	Established
<i>Centaurea stoebe</i>	Spotted Knapweed	86	2004
<i>Melilotus albus</i>	White Sweetclover	81	1913
<i>Pilosella caespitosa</i>	Meadow Hawkweed	79	2004
<i>Pilosella aurantiaca</i>	Orange Hawkweed	79	1969
<i>Bromus tectorum</i>	Cheatgrass	78	1923
<i>Ranunculus repens</i>	Creeping Buttercup	72	1881
<i>Leucanthemum vulgare</i>	Oxeye Daisy	61	1936
<i>Tanacetum vulgare</i>	Common Tansy	60	1941
<i>Trifolium repens</i>	White Clover	59	1902
<i>Taraxacum officinale</i>	Common Dandelion	58	1916
<i>Crepis tectorum</i>	Narrowleaf Hawksbeard	56	1970
<i>Phleum pratense</i>	Timothy	54	1918
<i>Trifolium pratense</i>	Red Clover	53	1902
<i>Galeopsis tetrahit</i>	Brittlestem Hempnettle	50	1867
<i>Rumex crispus</i>	Curly Dock	48	1909
<i>Poa annua</i>	Annual Bluegrass	46	1891
<i>Polygonum aviculare</i>	Prostrate Knapweed	45	1918
<i>Plantago major</i>	Common Plantain	44	1904
<i>Chenopodium album</i>	Lambsquarters	37	1902
<i>Matricaria discoidea</i>	Pineappleweed	32	1881

Source: ACCS 2022b

<sup>1</sup> Listed in order of rank.



### 5.4.5 References

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## **5.5 Floodplains, Wetlands, Riparian, and Littoral Habitat [§ 5.6(d)(3)(vi)]**

### **5.5.1 Riparian Habitat**

The ADFG defines riparian zones as “the area adjacent to the bank of a water body where terrestrial processes influence the aquatic environment.” In general, the banks of Alaska’s lakes, rivers, and streams are vegetated (with the exception of areas at certain altitudes or with recent deglaciation) and the term “riparian zone” is in reference to the vegetated corridor adjacent to water bodies in Alaska. Riparian zones function as the interface between terrestrial and aquatic habitats. A certain type of “edge habitat,” riparian zones support a wide diversity of wildlife (ADFG 2006).

The functions of riparian zones in Alaska include: the contribution of large woody debris habitat, the provision of leaf litter for primary consumer production, the filtration of sediments and pollution, reduction of wind, and water temperature regulation (ADFG 2006).

The vegetation associated with riparian zones is determined by geographic location, elevation, and soil characteristics. In general, emergent vegetation occurs in hydric soils along the banks of relatively slow-flowing, open waters of streams and lakes. Areas with hydric-mesic soils and seasonally moist mesic soils (where water levels fluctuate) contain vegetation dominated by shrubs, willows (*Salix* spp.), grasses, and sedges. More upland areas of riparian zones which contain mesic-xeric soils are dominated by vegetation such as spruce (*Picea* spp.), birch (*Betula* spp.), dwarf dogwood (*Cornus canadensis*), highbush cranberry (*Viburnum trilobum*), and lingonberry (*Vaccinium vitis-idaea*) (ADFG 2006). Animals often associated with riparian zones in Alaska include the rusty blackbird (*Euphagus carolinus*), blackpoll warbler (*Dendroica striata*), tule white-fronted goose (*Anser albifrons gambeli*), barn swallow (*Hirundo rustica*), bank swallow (*Riparia riparia*), and cliff swallow (*Petrochelidon pyrrhonota*) (ADFG 2006).

Riparian zones and associated species occur along the banks of Solomon Lake, Solomon Gulch, Port Valdez shoreline and the rivers crossed by the non-project-related transmission line.

### 5.5.2 Wetland Habitat

Wetlands are defined by the U.S. Army Corps of Engineers (USACE) as areas that are dominated by hydrophytic plants, have hydric soils, and show evidence of wetland hydrologic conditions (saturation or inundation of sufficient duration during the growing season (USACE 1987). ADFG defines wetlands as "'edge' communities that contain poor soil drainage and represent a transitional zone between aquatic and terrestrial habitats."

Wetlands in the mountains of the Port Valdez area occur in low passes and valleys, morainal depressions, and locally on slopes in seeps and drainages (CVEA 2011). These wetlands include tall- and low-scrub types, sedge- and herbaceous-dominated meadow types, and scrub bogs (CVEA 2011). Other wetlands in the Port Valdez area include freshwater lakes and ponds, streams and rivers, and at sea level, saltmarshes, intertidal mudflats, and marine waters.

Wetland habitat within the Solomon Gulch Project Boundary was identified using the USFWS National Wetlands Inventory (NWI) (USFWS 2022a, 2022b) (Figure 5-7). NWI data for the Solomon Gulch Project area are derived from 1:60,000 color infrared aerial imagery from 1978, prior to construction of the Project, with limited ground-truthing, if any. Because the NWI mapping was conducted based on pre-Project imagery, this discussion focuses on the NWI-mapped wetlands within the Project Boundary that are mapped outside the Solomon Lake normal maximum pool area (elevation of 685 ft msl).

There are a total of 107.41 acres of NWI-mapped features within the Solomon Gulch Project Boundary including freshwater ponds (lacustrine), freshwater emergent wetlands and freshwater forested/shrub wetlands (palustrine), riverine habitats and estuarine and marine habitats (Table 5-10). Of these, 83.13 acres meet the definition for wetlands.

The predominant wetland type in the Project Boundary consists of freshwater forested/shrub wetlands (79.61 acres) located along the valley floor of Solomon Gulch extending from the southern Project Boundary north to Solomon Lake. The wetland area near the reservoir consists of low heath shrub, willows, cottongrass (*Eriophorum* spp.), and mosses. According to the NWI mapping, there are two small, isolated freshwater emergent wetlands (PEM1C and PEM1F) between the dike and the spillway basin and one other (PEM1B) located on BLM land at the southern border of the Project Boundary. The

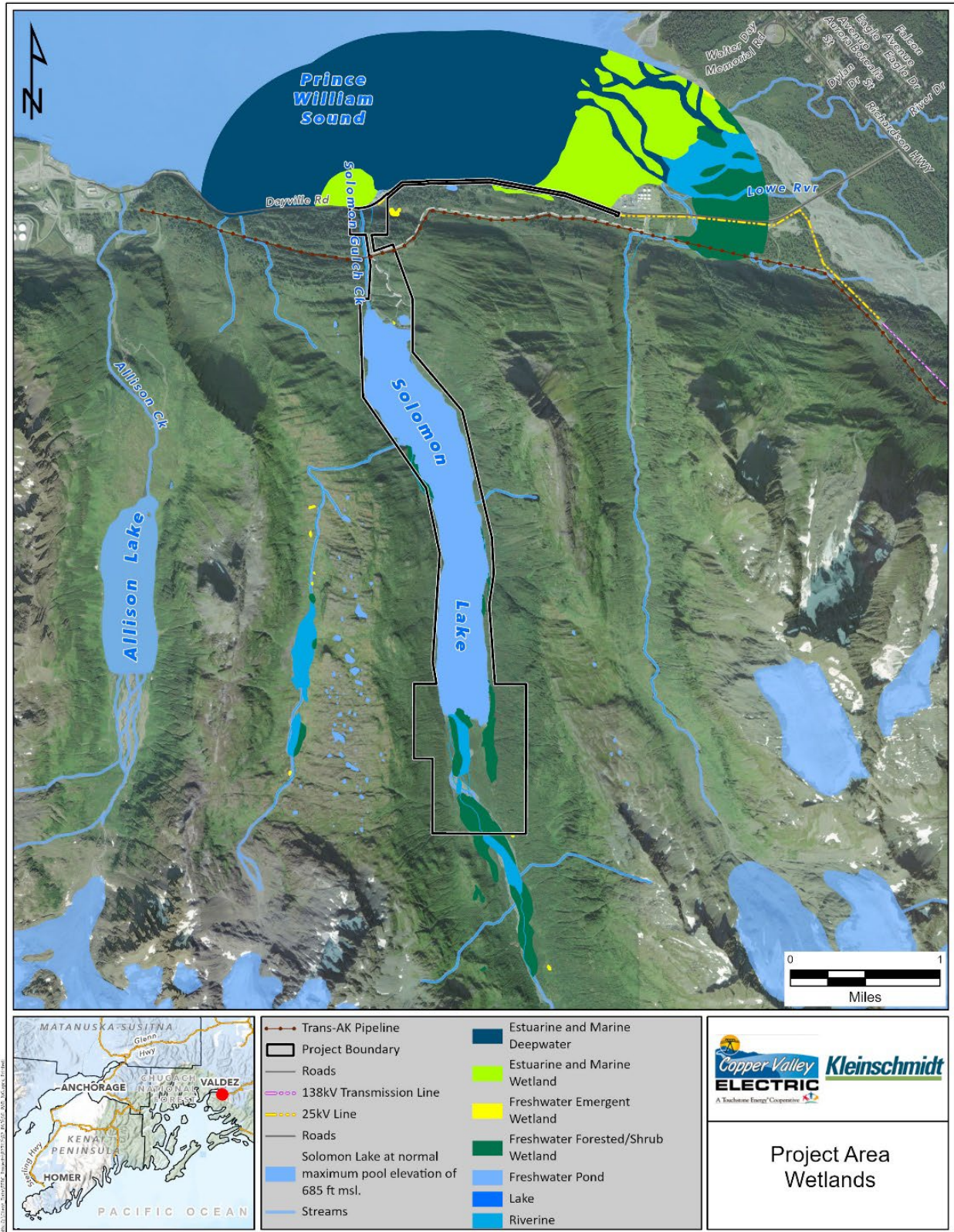
1.43-acre freshwater pond (PUBH) mapped by NWI pre-Project is located in the Project spillway basin.

There are 1.89 acres of NWI-mapped estuarine and marine wetlands (E2USN) that occur along the intertidal areas where Solomon Gulch Creek and the tailrace channel flow into Port Valdez. There are also NWI-mapped estuarine and marine wetlands (E1UBL, E2EM1N, and E2EM1P) north of the transmission line extending from the powerhouse to the Petro Star Switch Building which were excluded from Table 5-10 because the transmission lines run along Dayville Road and not within the wetlands.

In addition to the wetlands, the Project Boundary includes 24.28 acres of NWI-mapped riverine habitats (R3USC, R3UBH, and R5UBH) that consist of the Solomon Lake glacial headwaters to the south of the reservoir and unnamed tributaries to Solomon Lake, as well as Solomon Gulch Creek and its tributary. While not included in the pre-project NWI map, the approximately 0.4-mile-long channel from the spillway basin to Solomon Gulch Creek would be classified as riverine. These riverine habitats, as well as the deepwater habitats of Solomon Lake, generally do not meet the definition of wetlands.

The mapped wetland types identified within the non-project-related transmission line ROW include freshwater emergent wetlands, freshwater forested/shrub wetlands, and freshwater ponds. The NWI maps deep water habitats and streams that generally do not meet the above definition of wetlands. These include the various rivers, streams, and lakes that are crossed by the transmission line. There are a total of 121.83 acres of NWI-mapped features within the non-project-related transmission line ROW (Table 5-11). Of these, 98.81 acres meet the definition for wetlands.





**Figure 5-7 NWI Wetland Habitat Mapped within the Solomon Gulch Project Area**

**Table 5-11 NWI Features within the Solomon Gulch Project Boundary**

Type	NWI Code	Acres
<b>WETLANDS</b>		
Estuarine and Marine Wetland	E2USN	1.89
Freshwater Emergent Wetland	PEM1B	0.01
Freshwater Emergent Wetland	PEM1F	0.19
Freshwater Forested/Shrub Wetland	PSS1/EM1B	27.16
Freshwater Forested/Shrub Wetland	PSS1/USC	27.81
Freshwater Forested/Shrub Wetland	PSS1A	17.21
Freshwater Forested/Shrub Wetland	PSS1B	1.44
Freshwater Forested/Shrub Wetland	PSS1C	7.73
Freshwater Pond	PUBH	1.43
<b>Subtotal</b>		<b>83.13</b>
<b>STREAMS</b>		
Riverine	R3USC	15.52
Riverine	R5UBH	3.38
Riverine	R3UBH	5.38
<b>Subtotal</b>		<b>24.28</b>
<b>Total</b>		<b>107.41</b>

Source: USFWS 2022b

**Table 5-12 NWI Features within the Non-Project-Related Transmission Line ROW**

Type	NWI Code	Acres
<b>WETLANDS</b>		
Freshwater Emergent Wetland	PEM1B	0.24
Freshwater Forested/Shrub Wetland	PFO1/SS1A	5.83
Freshwater Forested/Shrub Wetland	PFO1A	1.26
Freshwater Forested/Shrub Wetland	PFO1C	0.03
Freshwater Forested/Shrub Wetland	PFO4/SS1B	9.48
Freshwater Forested/Shrub Wetland	PFO4/SS4B	0.6
Freshwater Forested/Shrub Wetland	PFO4B	9.36
Freshwater Forested/Shrub Wetland	PFO5F	0.27
Freshwater Forested/Shrub Wetland	PSS1/EM1B	0.68
Freshwater Forested/Shrub Wetland	PSS1/EM1C	6.1
Freshwater Forested/Shrub Wetland	PSS1A	0.67
Freshwater Forested/Shrub Wetland	PSS1B	0.25
Freshwater Forested/Shrub Wetland	PSS1C	5.53
Freshwater Forested/Shrub Wetland	PSS4/1B	5.74
Freshwater Forested/Shrub Wetland	PSS4/EM1B	44.57
Freshwater Pond	PAB3H	0.8
Freshwater Pond	PUBH	5.46
Freshwater Pond	PUBHh	1.94
Subtotal		98.81
<b>DEEPWATER HABITATS</b>		
Lake	L1UBH	0.62
Subtotal		0.62
<b>STREAMS</b>		
Riverine	R3UBF	3.04
Riverine	R3UBH	6.87
Riverine	R3USA	0.81
Riverine	R3USC	8.1
Riverine	R3UBH	3.58
Subtotal		22.4
<b>Total</b>		<b>121.83</b>

Source: USFWS 2022b

PSS1C wetlands, the most common type of wetland found in the Solomon Gulch Project Boundary, are characterized as dense shrub areas on river and stream floodplains that are seasonally flooded. The terrain may often be dominated by hummocks with areas of flooded depressions. The wetlands are dominated by willow species and alder, with *Alnus crispa* often being the dominant tall shrub species. Other shrub species which commonly occur in these wetlands include Barclay's willow (*Salix barclayi*), Alaska willow (*Salix alaxensis*), sweetgale (*Myrica gale*), resin birch (*Betula glandulosa*), and marsh Labrador tea (*Ledum palustre*). Emergent vegetation may occur, often dominated by bluejoint reedgrass (*Calamagrostis canadensis*) (USFWS 2022a).

PSS1A wetlands, the second most common type of wetland in the Solomon Gulch Project Boundary, are characterized as dense shrub areas on river and stream floodplains that are temporarily flooded. This type of wetland often forms on river bars that have become stable enough to support woody vegetation. Common vegetation in these wetlands includes willow species (*S. barclayi*, *S. alaxensis*, and *S. sitchensis*), highbush cranberry salmonberry (*Rubus – spectabilis*), and green (or mountain) alder. While understory vegetation is generally sparse, understory species may include *Carex lyngbyaei*, bluejoint reedgrass, common horsetail (*Equisetum arvense*), lady fern (*Athyrium filix-femina*), Bering's tufted hairgrass (*Deschampsia beringensis*), western oakfern (*Gymnocarpium dryopteris*), alpine meadow-grass (*Poa alpina*), and spike trisetum (*Trisetum spicatum*) (USFWS 2022a).

Wetlands in Alaska are heavily used in the summer as a staging and breeding ground for hundreds and thousands of migratory birds. Waterfowl and songbirds are dependent on wetlands as a place of feeding and nesting. Several bird and small mammal species survive off the variety of seeds produced by wetlands, and raptors, owls, and piscivorous birds use wetlands as a place to forage and hunt. Amphibians breed in Alaska's wetlands, and many spend their entire lives living in such wetlands (ADFG 2006).

### **5.5.3 Littoral Zone**

The ADFG defines littoral as "of or relating to the shore of a body of water" (ADFG 2006). A broader definition of littoral zones as they refer to lakes, is the area between the shoreline and maximum lake depth where photosynthesis can still occur, allowing for the growth of aquatic plants (Seekell et al 2021).

The surficial soil deposits along the Solomon Lake shoreline littoral zone and at the bottom of the lake are dominated by a silty sand delta that has formed at the valley bottom at the southern end of the lake. This delta expands a length of approximately 1,000 feet from the southern end of the valley floor to the lake. Much of Solomon Lake is shallow for a “considerable distance” beyond the visible range of the delta. Talus and coarse alluvial fans occur between outcrops of bedrock along the shoreline as well (RWRA 1976). Within the non-project-related transmission line ROW, there is likely little lacustrine-littoral habitat as the NWI database only identified 0.62 acres of lake habitat within the ROW.

#### **5.5.4 Invasive Plants and Noxious Weeds**

Section 5.4.4 contains information on the status of invasive plant species within the Solomon Lake area. Additionally, this section contains a list of 30 designated noxious weed species as identified by the state of Alaska with high invasiveness scores.

### 5.5.5 References

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## **5.6 Rare, Threatened, and Endangered Species [§ 5.6 (d)(3)(vii)]**

### **5.6.1 Federally Listed Species**

The Endangered Species Act (ESA) provides a program for the conservation of threatened and endangered plants and animals and their habitats. The USFWS and the National Marine Fisheries Service (NMFS) are the lead federal agencies that implement the ESA. The law requires federal agencies, in consultation with the USFWS (terrestrial and freshwater species) or NMFS (marine species), to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law prohibits any action that causes “taking” of any listed species of endangered fish or wildlife (USFWS 1973).

According to the USFWS Information for Planning and Conservation’s (IPaC) official species list for the Solomon Gulch Project Boundary and the non-project-related transmission line ROW, the only federally listed species with a potential range in the area is the short-tailed albatross (USFWS 2022a, 2022b). The short-tailed albatross was listed as endangered under the ESA in July 2000 with a recovery plan published in September 2008. This species is widely distributed across its historic range, with the population estimated to be 1,200 birds, 600 of which are of breeding age. Currently, most of the world’s breeding nests are on Torishima Island, Japan. Nesting sites are typically on steep sites on soils with loose volcanic ash, usually with grasses that stabilize the soils and provide nesting materials. The only terrestrial areas within United States’ jurisdiction that this species uses for attempted nesting occurs on the Midway Atoll (USFWS 2000). However, the marine range of short-tailed albatross extends into the open ocean of the Gulf of Alaska, Aleutian Islands, and the North Pacific Ocean (USFWS 2012) where they feed along the shelf, from 0 to 200 meters in depth, and in shelf break areas (USFWS 2008). Juveniles and younger sub-adults (up to 2 years old) use the wider geographic range that encompasses Alaska compared to the adults (O’Connor et al. 2013). The short-tailed albatross marine range extends into Port Valdez near the Solomon Gulch Project, but the species is not known to use terrestrial habitats within Alaska and is unlikely to have ever bred there (Sherburne 1993).

### **5.6.2 Federally Designated Critical Habitat and Habitat Use**

There is no federally designated critical habitat and/or habitat use within the vicinity of the Solomon Gulch Project or the non-project-related transmission line (USFWS 2022a, 2022b).

### **5.6.3 Federally Protected Species Under the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act**

As discussed in Section 5.4, Wildlife and Botanical Resources, there are several bird species that are considered Birds of Conservation Concern (BCC) in Alaska and afforded federal protection. These species of concern that are specifically protected under the BGEPA and/or the MBTA are listed in (Table 5-7). 12. In fact, nearly all of Alaska's birds are protected under provisions of the MBTA.

Extensive bird surveys were conducted at the nearby Allison Creek Project (owned by CVEA) from 2008 to 2009 as part of the project's licensing process. The Allison Creek Project is located 2-air-miles west of the Solomon Gulch Project and within the same physiographic region. The red-throated loon (*Gavia stellata*), common loon (*Gavia immer*), bald eagle (*Haliaeetus leucocephalus*), lesser yellowlegs (*Tringa flavipes*), Kittlitz's murrelet (*Brachyramphus brevirostris*), and rufous hummingbird (*Selasphorus rufus*) were observed at the Allison Creek Project during the survey. At the time, two active bald eagle nests were observed near Solomon Gulch, and bald eagles were observed daily during June and July. Red-throated loons were observed daily in July on Allison Lake, whereas common loons were not observed in the Allison Creek Project Area during July; they were observed on four separate occasions in early June (CVEA 2011).

### **5.6.4 State Listed Species**

ADF&G is responsible for determining and maintaining a list of endangered species in Alaska under AS 16.20.190. A species or subspecies of fish or wildlife is considered endangered when the Commissioner of ADF&G determines that its numbers have decreased to such an extent as to indicate that its continued existence is threatened. The State Endangered Species List currently includes five species that are also listed as endangered under the federal ESA, including the Short-tailed Albatross. None of these species or the ESA-listed populations occur in the Solomon Lake Project area.



### 5.6.5 Alaska Natural Heritage Program

According to the Alaska National Heritage Program (AKNHP), two species of rare plants and three rare birds are known to occur or have the potential to occur within the Solomon Gulch Project Boundary or the non-project-related transmission line. The Hulten alkali grass (*Puccinellia hultenii*) and Alaskan pretty shooting-star (*Dodecatheon pulchellum* ssp. *alaskanum*) were observed across the Valdez Port in the city of Valdez. The olive-sided flycatcher (*Contopus cooperi*), gray-cheeked thrush (*Catharus minimus*), and rusty blackbird (*Euphagus carolinus*) were observed near Thompson Pass, Mother Goose Lake, and Robe Lake, respectively (AKNHP 2022a, 2022b).

### 5.6.6 References

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## **5.7 Recreation and Land Use [§ 5.6 (d)(3)(viii)]**

The Prince William Sound and the Chugach Mountains provide many recreational opportunities throughout the year, including internationally renowned water and mountain recreation. Visitors arrive by air, road, and sea. The Valdez area offers helicopter-supported skiing, backcountry and cross-country skiing, snow machining, ice climbing, snowshoeing, dog sledding, all-terrain vehicle riding, biking, hiking, sightseeing, wildlife viewing, berry picking, boating, camping, hunting and fishing. This section describes recreation facilities associated with the Solomon Lake Project Boundary.

### **5.7.1 Existing Recreational Facilities**

Solomon Gulch Project is located approximately 14-miles south of Valdez in a relatively undeveloped area; the Project Vicinity offers both developed and natural recreational opportunities. Developed opportunities are supported by human-built facilities such as campgrounds and parking areas, whereas natural opportunities include fewer facilities and occur mainly in the backcountry. Access and recreational use of the area is limited to the west of Allison Creek, which lies approximately 2-miles west of Solomon Gulch, due to landownership and security concerns related to the Valdez Marine Terminal (VMT). Dayville Road becomes the VMT access road and public use ends at the security checkpoint at mile 5.4 (CVEA 2011).

Specific recreational facilities located in the vicinity of the Solomon Gulch Project along the southern side of Port Valdez include:

- Allison Point Campground
- Dayville Road Bike Path
- Dayville Road scenic pull-outs and parking areas
- Solomon Gulch Hatchery
- John Hunter Memorial Trail

The lands and waters encompassed by the Project are limited in their ability to support recreational activities typically associated with hydroelectric projects. Solomon Lake is not classified as a recreational facility. There are no fish inhabiting Solomon Lake<sup>13</sup> because

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<sup>13</sup> FERC Accession Number 19780621-4000

the lake is completely fed by runoff from snow melt, and fish barriers downstream prevent upstream migration. The reservoir waters are too dangerously cold to permit swimming, and boating, which could only occur during a very short window of time, and would be very hazardous. However, accessible areas of Solomon Gulch Creek and the lake provide scenic views (Photo 5-8 through Photo 5-12). As such, CVEA developed the John Hunter Memorial Trail, formerly known as the Solomon Gulch Trail, in 1983 as the primary recreational facility within the Solomon Gulch Project Area, providing access to the reservoir.

The trailhead is located between the Allison Point Campground and Solomon Gulch Hatchery. There is a parking area on Dayville Road, and a sign is located at the trail entrance. The trail climbs through coastal spruce forest from Dayville Road to join the TAPS ROW, where there is a gate and a sign-in sheet. The trail then follows the TAPS corridor for approximately 1 mile to the Solomon Gulch Creek bridge. After crossing the bridge, a spur trail leaves TAPS and heads north for about 0.13 miles to a viewing area of Port Valdez. To the south of TAPS, the main trail continues climbing to Solomon Lake, ending at the spillway and dam site. There is a short spur trail leading to the Overflow Pool. The entire trail is 3.8 miles round trip (City of Valdez 2015) (Figure 5-8). CVEA constructed a 10-foot by 20-foot pavilion with a picnic table in 2019 near the dam to provide a dry resting area to eat and view the scenery (Photo 5-11). A bear-proof trash can is maintained at the pavilion during the summer months by CVEA staff (Photo 5-12).

The trail is co-located within a portion of the historic Granby Road, the Solomon Gulch Hydroelectric Project access road, and the TAPS ROW. Both CVEA operations and maintenance vehicles and Alyeska vehicles monitoring the TAPS share the access road with hikers. To help avoid pedestrian/vehicle conflicts, signs have been installed warning hikers and skiers that vehicles may be present and to be alert. Because Granby Road is considered an RS 2477 ROW reserved for traditional public use for purposes of historic mining and recreation, private vehicles are allowed to use the road (AEA 1991). However, there is no real physical access for vehicles from the Granby Road to the Project area. The section of Granby Road between Dayville Road and the TAPS ROW is very steep and subject to periodic mudslides and erosion. Near its intersection with the TAPS ROW, the road is indistinct and overgrown. From there, the only bridge across Solomon Gulch Creek is the TAPS ROW bridge, which is not accessible to the public without permission from the Alyeska Pipeline Company.

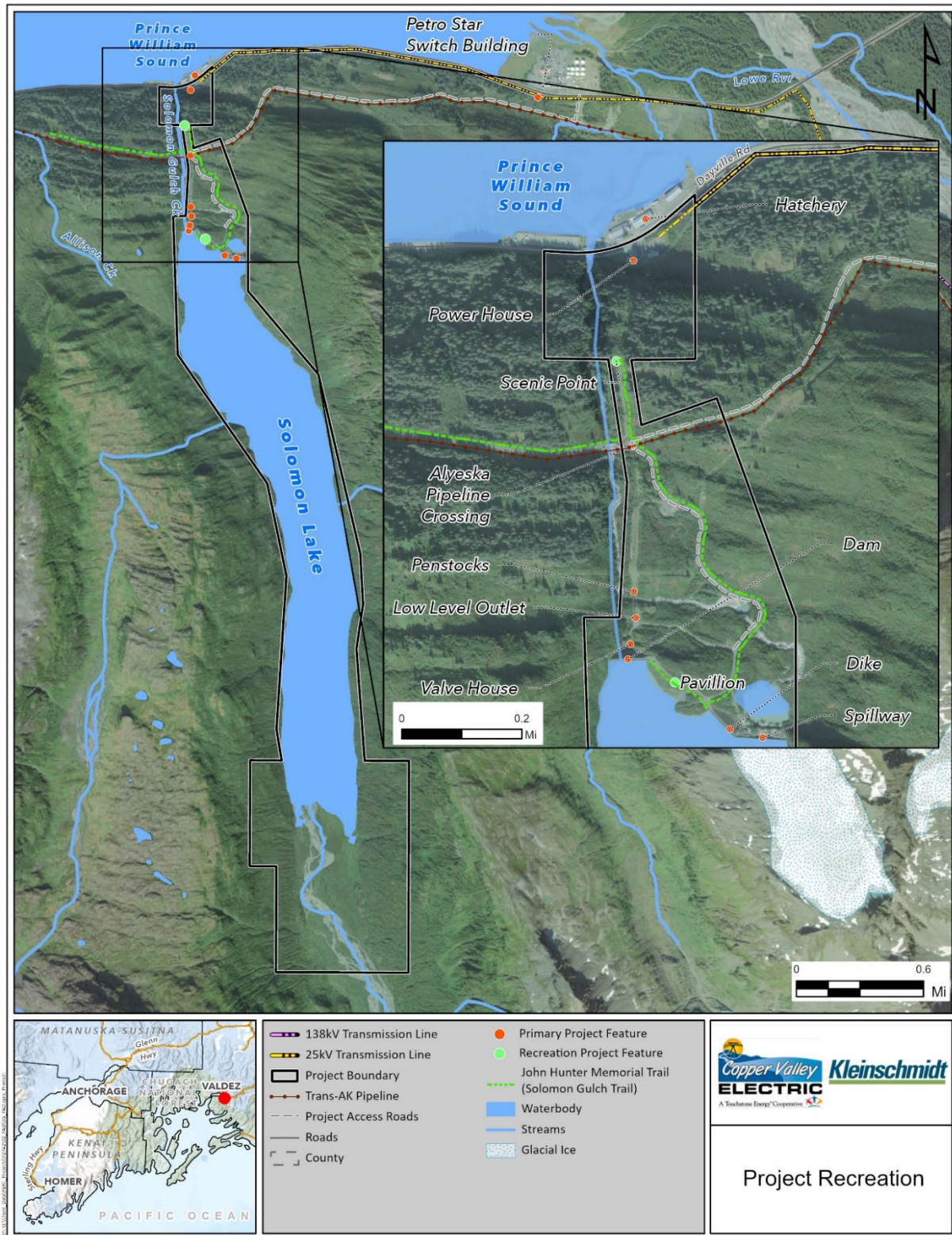


Figure 5-8 The John Hunter Memorial Trail



Source: Alaska Guide Co. 2022

**Photo 5-8 A View of Solomon Gulch Creek from the John Hunter Memorial Trail**



Source: Alaska Guide Co. 2022

**Photo 5-9 A View of Solomon Lake from the John Hunter Memorial Trail**



Source: Alaska Guide Co. 2022

**Photo 5-10 Solomon Lake**



**Photo 5-11 Picnic Pavilion at the John Hunter Memorial Trail at Solomon Lake**





**Photo 5-12 Picnic Pavilion at Solomon Lake**

### **5.7.2 Recreational Use of Lands and Waters**

The John Hunter Memorial Trail provides access to the Solomon Gulch Project Area as well as the surrounding back country areas for a variety of recreational uses. Within the Solomon Gulch Project Vicinity, camping, fishing, biking, wildlife viewing, hiking, berry picking, hunting, backcountry skiing, snowshoeing, and snow machining are the main recreational activities. The trail itself is primarily used for day hiking by local residents and its use is highly weather dependent. Recreational use of the trail was historically monitored through attendance records. From 1996 to 2008, the number of daytime visits to the John Hunter Memorial Trail ranged from 803 to 887 annually, with peak weekend average ranging from 10 to 52.<sup>14</sup> Eleven nighttime visits were documented in 2008. In 2014, 1,532 daytime visits were recorded, with a peak weekend average of 49 visits; no nighttime use was documented.<sup>15</sup> Over this period, recreational use of the John Hunter Memorial Trail was estimated between 1 and 10 percent total capacity as reported on

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<sup>14</sup> FERC Accession Numbers 19970506-0457, 20031223-0439, 20090821-0119

<sup>15</sup> FERC Accession Number 20141224-5054

FERC Form-80s. The recreational activities described below represent the predominant recreation near the Solomon Gulch Project.

### **5.7.2.1 Camping**

Within the Solomon Gulch Project Vicinity, roadside camping occurs just west of Solomon Gulch, at the Allison Point Campground, which is the closest developed recreation facility to the Solomon Gulch Project. Allison Point Campground begins at mile 4.5 of the Dayville Road, with the main registration area at mile 5.1 (CVEA 2011). This campground is a popular fishing area with 51 campsites. The campground has drinking water storage tanks, public restrooms, trash bins, fire rings, and access trails to the water's edge. The campground is typically open seasonally between the end of May until the end of September and experiences highest use from mid-June to Labor Day when the salmon are returning to spawn. The campground is city-owned, privately managed and primarily caters to motorized recreational vehicle (RV) users.

For more natural camping opportunities, limited, informal backcountry tent camping occurs in upper elevations of the basin. The John Hunter Memorial Trail provides access to the upcountry terrain of the region. The trail's historic visitor log, managed and collected by CVEA, indicated that some hikers backpack into the Solomon Gulch area to camp. Backcountry camping is infrequent and the terrain for backcountry camping is abundant.

### **5.7.2.2 Fishing**

Sport fishing is supported by a variety of developed facilities including day use parking and three short shoreline access trails at Allison Point Campground. However, the larger and more accommodating location for day use parking for fishing is located adjacent to the VFDA Hatchery at mile 3.7 of Dayville Road (CVEA 2011); it has approximately 70 parking spaces and 10 pull-through spaces for larger RVs.

Valdez Arm supports the largest recreational fishery in the Prince William Sound. Anglers fishing from Valdez account for nearly one-half of the fishing effort in all of the Sound (ADFG 2016). Pink and Coho Salmon returning to the VFDA Hatchery have created a popular sport fishery. These hatchery fish are "common property" fish and are available for all user groups to harvest. Over 250 million Pink Salmon fry and 1.8 million Coho

Salmon smolts are released annually (VFDA 2022). This results in an average return of 15.8 million Pink and 83,000 Coho Salmon adults to Port Valdez.

No fishing is allowed within 300-feet-downstream of the hatchery weir. The beaches off of Allison Point offer some of the best shore fishing. Chum and Sockeye Salmon and anadromous Dolly Varden are also present. Fishing also occurs in the tailrace channel and at the mouth of Solomon Gulch Creek.

There are resident Dolly Varden in Solomon Gulch Creek below the lake, but the near vertical side slopes and steep gradient with cascading waterfalls limits access. Fish are not known to be present in Solomon Lake.

### **5.7.2.3 Biking**

A paved, developed bike trail along Dayville Road terminates at the Allison Point Campground registration site, approximately mile 5.1 of Dayville Road (CVEA 2011). This roadway amenity allows bikers to travel from Valdez, an approximate 15 miles to Allison Point, via bike path the entire way.

### **5.7.2.4 Wildlife Viewing**

Dayville Road offers access to marine and land wildlife viewing. Locals and tourists park along Dayville Road to look for marine life and view bears and sea lions feasting on salmon. Facilities along Dayville Road were developed to support wildlife viewing with a number of scenic pullouts, a wide shoulder, park benches, and parking areas (CVEA 2011).

The City of Valdez Community Development Director stated that bear viewing along Dayville Road may have become one of the top sightseeing attractions in Valdez. However, bear viewing in the area of the hatchery created a safety management challenge for the city (CVEA 2011). The city has an active role in addressing the potential for human-bear conflict as well as mitigating traffic incidents as cars stop to view bears.

### **5.7.2.5 Hiking/Berry Picking**

Hikers use the John Hunter Memorial Trail to make their way to the Solomon Gulch Dam and Lake; and some report using this access as a gateway to the backcountry and the mountain ridges and peaks surrounding Solomon and Allison lakes. Community members have reported that Solomon Gulch Trail provides access to some excellent blueberry

picking patches, which is an extremely popular recreational (and subsistence) activity that occurs in the late summer and fall (CVEA 2011).

#### **5.7.2.6 Hunting**

The Solomon Gulch Project Area is used for limited, occasional recreational hunting and for subsistence. Hunting opportunities in the Solomon Gulch Basin are limited compared to other locations in the Valdez area due to limited availability of game animals, high elevation, steep slopes, deep snow depths, and the relatively small total area of the drainage (CVEA 2011).

#### **5.7.2.7 Backcountry Skiing and Snowshoeing**

Backcountry skiing and snowshoeing is an occasional recreational activity, supported in part by the presence of the John Hunter Memorial Trail. Many community members use the trail as a portal to backcountry skiing, snowshoeing, and snow machining. The Alaska Backcountry Skiing Valdez and Thompson Pass guidebook outlines two specific backcountry skiing routes that traverse land in the elevations above the Solomon Gulch and Allison Creek basins (CVEA 2011).

#### **5.7.2.8 Snow machining**

Like backcountry snowshoeing and skiing, snow machine riders also access the backcountry using the John Hunter Memorial Trail (CVEA 2011). There are opportunities for advanced riders at upper elevations, across glaciers and over to adjacent bays, such as Jack Bay.

### **5.7.3 Existing Shoreline Buffer Zones within the Solomon Gulch Project Boundary**

Solomon Lake is currently undeveloped and there are no existing shoreline buffer zones within the Solomon Gulch Project Boundary. Solomon Lake is drawn down in the winter when inflows are low and fills during summer from snow melt. No buffer is reserved for flood storage because downstream flooding is not an issue.<sup>16</sup>

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<sup>16</sup> FERC Accession Number 19780621-4000

#### **5.7.4 Current and Future Recreation Needs Listed in Existing State or Regional Plans**

The 2016-2021 State Comprehensive Outdoor Recreation Plan (SCORP) examined existing recreation facilities and opportunities managed by federal, state, and local organizations by distributing a mail survey to recreation professionals in 2015 that assessed management and facility needs, obstacles to outdoor recreation, and inventories of facilities and resources. While participation rates were low and therefore the results deemed not representative, the study does provide an indicator for the needs of public lands and recreation facilities (AKDNR 2015).

For purposes of the SCORP, the Project area lies within the Railbelt geographic region which consists of the Kenai Peninsula north to Fairbanks and east to the Canadian border, including the Copper River Basin and Prince William Sound. Eighteen people from the Railbelt, who manage 484 parks or units, responded to the survey. The Railbelt's highest rated management need was maintenance of existing facilities. Trail improvements, specifically, were the highest rated need, with restroom facilities as a close second need, followed by trash receptacles or removal. Organized programs was the lowest rated management need. The greatest barrier identified to recreating was the lack of knowledge of recreational opportunities. These were the greatest concerns of the recreational professionals who responded to the survey in the Railbelt region, though these responses do not necessarily apply to recreation in the Project vicinity (AKDNR 2015).

#### **5.7.5 Current Shoreline Management Plan or Policy**

The land surrounding Solomon Lake is non-residential, undeveloped, and not suitable for fishing or water-based recreation. Therefore, there is no current need to implement a Shoreline Management Plan.

#### **5.7.6 The National Wild and Scenic River System**

The United States Forest Service's (USFS) National Wild and Scenic Rivers System was established in 1968 to preserve rivers with especially natural, cultural, and recreational values and maintain them in a free-flowing condition (American Rivers 2022). Solomon Gulch Creek is not currently under consideration to be included in the National Wild and Scenic Rivers System as a protected river segment (USFS 2022a, 2022b).

### **5.7.7 The National Trails System and Wilderness Areas**

The National Trails System Act was passed in 1968 to establish trails in urban and rural areas for people of varying ages, interests, and physical ability and to enable public access. To date, no portion of the Solomon Gulch Project Boundary is under study to be included in the National Trails System (NPS 2022).

The Wilderness Act was enacted in 1964 to protect and preserve some lands in their natural condition among an expanding and increasingly mechanized society. There are no wilderness areas in the vicinity of the Solomon Gulch Project (USFS 2022c, Wilderness Connect 2022).

### **5.7.8 Regionally or Nationally Important Recreation Areas**

Port Valdez has a robust fishery for many species of salmon, and the VFDA Hatchery is a key component of this fishery. Pink and Coho Salmon returning to the VFDA Hatchery contribute to a popular fishery for recreational anglers. Allison Point, located approximately 1.25-miles west from the mouth of the Solomon Gulch Creek, is an especially popular location to fish for Pink and Coho Salmon. Chinook, Chum, and Sockeye Salmon are commonly angled in Port Valdez as well as other fish species such as halibut (*Hippoglossus* spp.), rockfish, and Lingcod (*Ophiodon elongatus*) (ADFG 2016).

### **5.7.9 Non-Recreational Land Use and Management Within the Solomon Gulch Project Boundary**

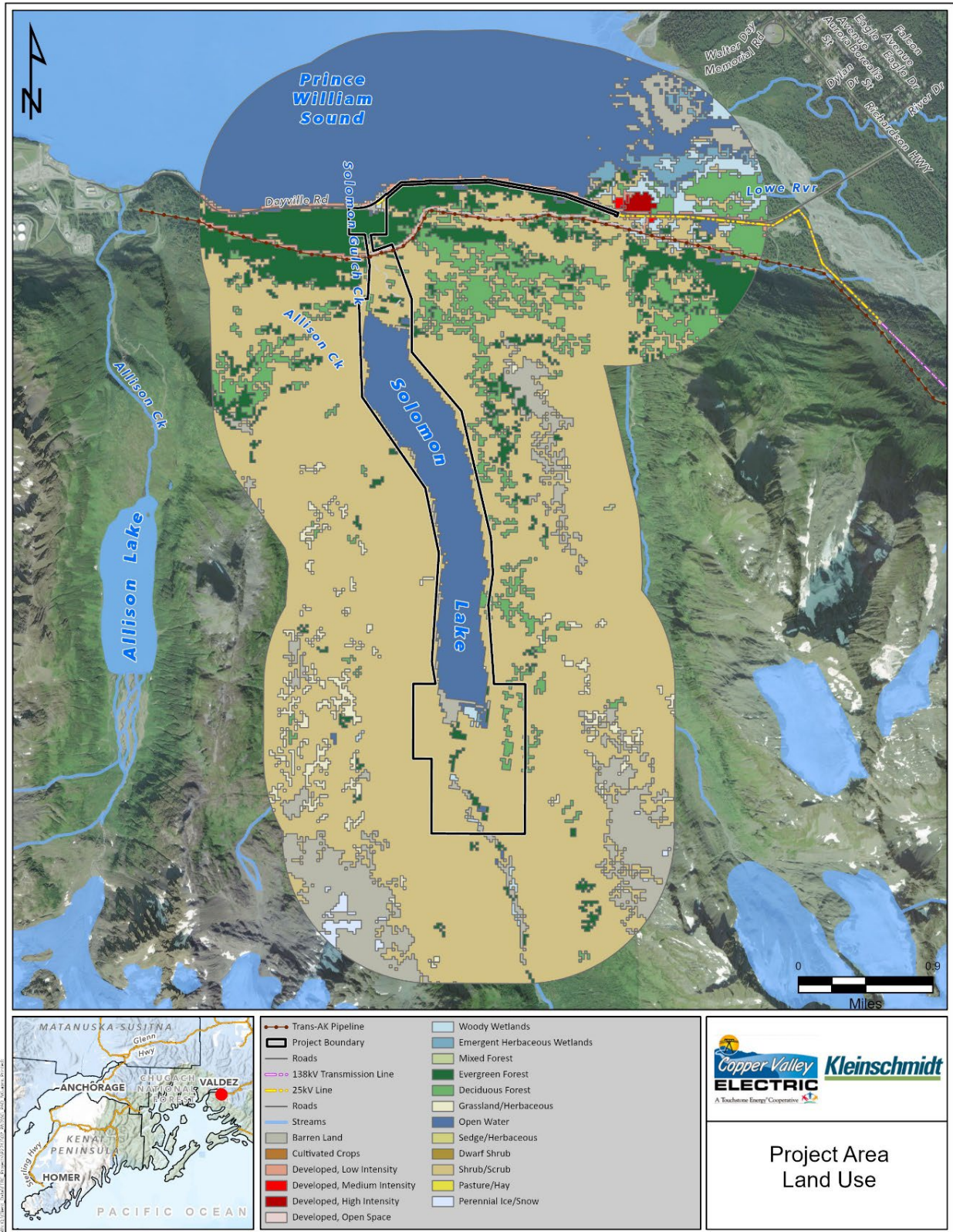
The total acreage of the Solomon Gulch Project Boundary (without the non-project-related transmission line ROW) is approximately 1,217 acres, with Solomon Lake accounting for nearly half of this acreage at normal maximum pool. The Solomon Gulch Project facilities and most of the reservoir lie on state-owned land managed by ADNR. The BLM manages land surrounding the southern portion of Solomon Lake. The major land use categories as mapped by the National Land Cover Database (NLCD) for the Project Boundary is presented in Table 5-13 and depicted in Figure 5-9. As shown, the major land use identified in the NLCD for the preliminary Project Boundary and Project Vicinity include undeveloped land, largely consisting of open water, scrub/shrub, and evergreen forest.

Granby Road, which is considered an RS 2477 ROW, passes through the Project boundary, with some of the permanent Project roads and portions of the John Hunter Memorial Trail established upon Granby Road. Granby Road is an old, overgrown road that begins near tidewater at the Dayville Road, passes through several areas of different land ownership, including the Solomon Gulch Project area, and continues for some distance past the head of Solomon Lake. Granby Road was established as a wagon road providing access to the Midas Mine, located approximately 1.5 miles south of the Solomon Gulch reservoir. The mine closed in 1920 and has been inactive since. Because the road has not been used regularly since 1920, many traces of it have completely disappeared or are indistinct. Some of the road lies submerged within the Solomon Gulch reservoir. Except near the Project spillway and reservoir, the actual location of the road within the Project boundary is uncertain.

**Table 5-13 Major Land Use Categories in the Solomon Gulch Project Boundary**

Major Land Use	Acres
<b>Undeveloped</b>	
Open Water	550.84
Shrub/Scrub	537.70
Evergreen Forest	52.59
Barren Land	32.13
Deciduous Forest	25.16
Woody Wetlands	8.78
Emergent Herbaceous Wetlands	1.11
Perennial Ice/Snow	0.22
Grassland/Herbaceous	0.08
<b>Developed</b>	
Developed, Low Intensity	8.59
Developed, Medium Intensity	0.25
<b>Grand Total</b>	<b>1,217.45</b>

Source: NLCD 2016



**Figure 5-9 Land Use in the Proposed Project Boundary**



### **5.7.10 Land Use and Management Adjacent to the Solomon Gulch Project Boundary**

Recreational and non-recreational land use in the vicinity of the Project is discussed above in sections 4.1.2, 4.1.3, 5.7.1 and 5.7.2. The majority of the reservoir is surrounded by undeveloped state lands. The uppermost portion of the reservoir lies within an isolated block of undeveloped federal land managed by the BLM that extends approximately 3.5 miles upstream of the reservoir. Within the BLM lands, there is a 263-acre privately-owned inholding, located about 1.5 miles upstream of the upper end of the reservoir (ADNR 2022), in the vicinity of the historic Midas Mine. As described above, the historic Granby Road provided access from tidewater to the Midas Mine which operated between 1911-1919 (AEA 1991). Granby Road is an RS 2477 ROW reserved for traditional public use for mining and recreation. However, the road has not been used for mining access since 1920 and many traces of it have completely disappeared. The glaciated headwaters to the south of the BLM land lie within the Chugach National Forest.

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## **5.8 Aesthetic Resources [§ 5.6 (d)(3)(ix)]**

This section describes the aesthetic resources in the vicinity of the Solomon Gulch Project area.

### **5.8.1 Visual Character of the Solomon Gulch Project Lands and Waters**

The Solomon Gulch Project was constructed in 1982. The Project includes a concrete spillway and two rockfill embankment dams (Photo 5-13), reservoir (Solomon Lake) (Photo 5-13), two steel penstocks (Photo 5-15), a two-unit powerhouse (Photo 5-16), and a transmission line. Solomon Lake has a normal maximum water surface elevation 685-feet msl with a surface area of approximately 660 acres. The existing rockfill embankment dams and the 660-acre reservoir are surrounded by forest lands. Two steel penstocks extend from the dam to the powerhouse. The 70-foot-long by 60-foot-wide powerhouse, located near tidewater, has a reinforced concrete substructure with a structural steel frame and cast-concrete panel superstructure.



Source: KA 2021.

**Photo 5-13 Concrete Spillway and Rockfill Embankment Dam**



Source: KA 2021

**Photo 5-14 Solomon Gulch Reservoir/Solomon Lake**



Source: KA 2021

**Photo 5-15 Steel Penstocks**



Source: KA 2021

**Photo 5-16 Solomon Gulch Powerhouse**

## **5.8.2 Nearby Scenic Attractions**

### **VFDA Hatchery**

The VFDA Hatchery presents a unique opportunity to observe one of Alaska's largest fisheries enhancement programs. The VFDA owns and operates the VFDA Hatchery (Valdez 2022a). Free self-guided tours are available along the hatchery walkway May through October. The self-guided tour is open to view the fish ladder and learn the history and economic benefits of the hatchery (Valdez 2022a). The site offers opportunities to view bears, eagles, and sea lions feeding on the salmon returning to the hatchery. The VFDA Hatchery is located across Dayville Road from the Solomon Gulch Project powerhouse.

### **Sugarloaf Mountain**

Sugarloaf mountain lies to the east of Solomon Lake (Photo 5-17). The 3,480-foot mountain is one of the most recognizable peaks around Valdez.



Source: <https://www.valdezalaska.org/discover/mountains-hills/sugarloaf-mountain/>. Photo by Jeremy Talbot.

**Photo 5-17 Solomon Lake in Winter Looking South**

### **Alaska Marine Highway**

The ferries of the Alaska Marine Highway (AMH) comprise a large part of Alaska's highway system, covering 3,500 miles of coastline providing service to over 30 communities that stretch from Bellingham, Washington to Dutch Harbor in the Aleutian Chain, Alaska (ADOT 2022). Valdez is the southern terminus of the Alaska Pipeline and is located in the Southcentral region of Alaska, 300-miles southeast of Anchorage and 360-miles south of Fairbanks. The crashing glaciers of Prince William Sound and towering Chugach Mountains rising from the sea make Valdez absolutely picturesque (ADOT 2022). All routes along the AMH are considered, collectively, an "All-American Road," signifying they have met at least two or more of six intrinsic qualities varying from archeological, cultural, historical, natural, recreational or scenic values. The AMH passes to the south of Valdez through Prince William Sound, into Whittier which is approximately 82 miles from the Solomon Gulch Project Powerhouse (Figure 5-10).

### **Keystone Canyon**

The Keystone Canyon is located 12-miles east of Valdez, Alaska (Figure 5-10). The Richardson Highway follows the Lowe River through the heart of the canyon from beginning to end (Alaska Guide 2022). The Keystone Canyon is an impressive narrow canyon with walls over 600-feet-tall that provides opportunities for roadside viewing, hiking, rafting and kayaking, and ice climbing (Alaska Guide 2022). It has spectacular



waterfalls when the snow melts in the spring and summertime that freeze into towers of ice during the winter.

### **Thompson Pass**

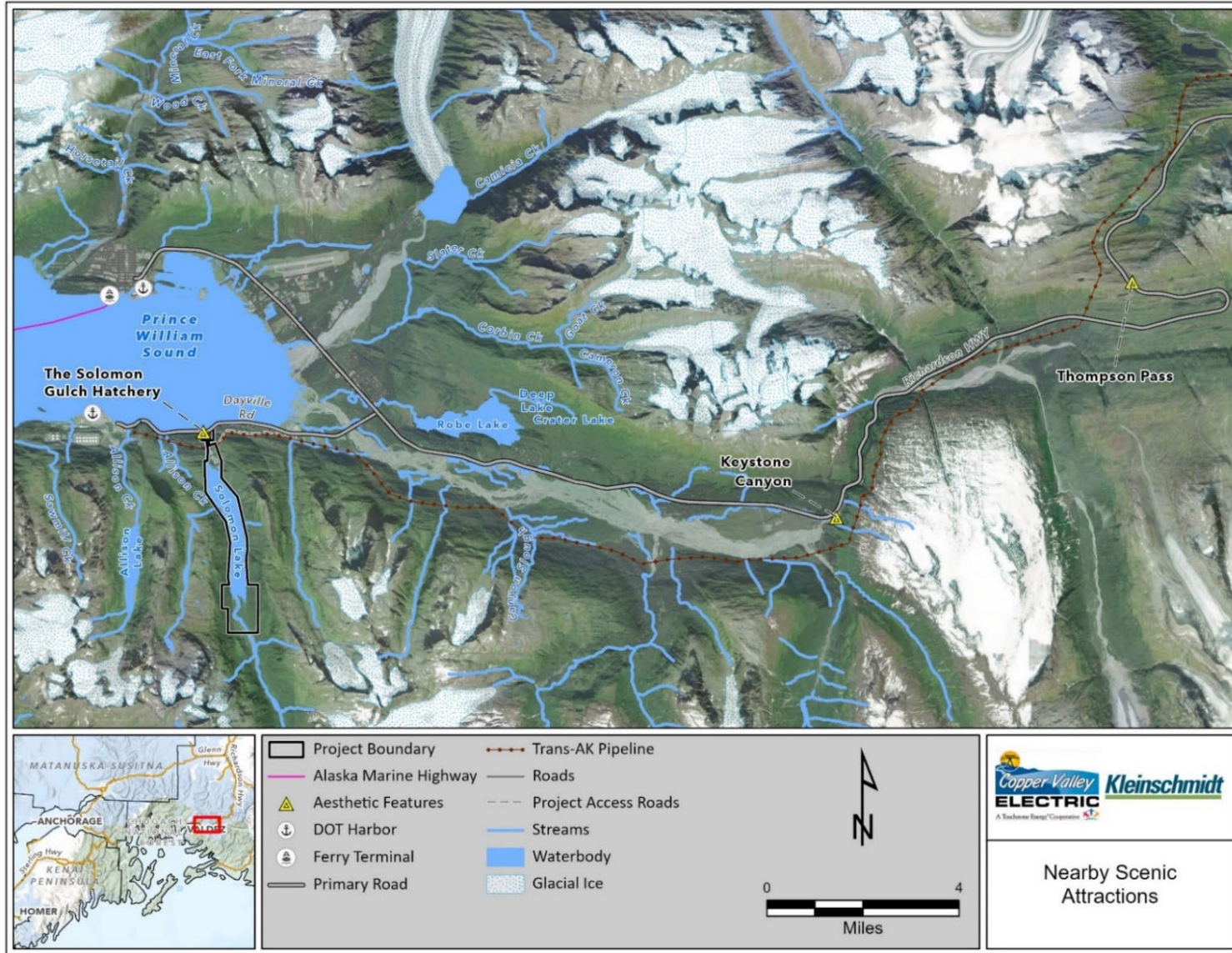
Thompson Pass is a 2,678-foot-high mountain pass through the Chugach Mountains near Valdez, Alaska. The Thompson Pass Pack Trail runs through sections of the Thompson Pass (Valdez 2022b). Thompson Pass is located approximately 20 miles from the Solomon Gulch Project powerhouse (Figure 5-10).

### **5.8.3 Wild and Scenic Rivers, Scenic Byways, National Trails, and Wilderness Areas**

The National Wild and Scenic Rivers System was created in 1968 by Congress (Public Law 90-542; 16 United States Code [U.S.C.] 1271 et seq.) to preserve specific rivers with outstanding natural, cultural, and recreation values in free-flowing condition for the enjoyment of present and future generations (NPS 2022a). Solomon Creek is not designated as a national Wild and Scenic River (NPS 2022b). The Solomon Gulch Project is not located within or adjacent to a river segment designated as part of, or under study for inclusion in, the National Wild and Scenic River System or state-protected river segment.

The National Trails System Act of 1968 (Public Law 90-542; 16 U.S.C. §1241) was created to promote the preservation and appreciation of natural and historic places in the United States as well as to support increasing outdoor recreation needs. Within the act, four categories of trails are recognized: (1) National Recreation Trails, (2) National Scenic Trails, (3) National Historic Trails, and (4) Connecting or Side Trails. There are no trails within the Solomon Gulch Project Boundary that are designated as National Trails.

The Wilderness Act of 1964 established the National Wilderness Preservation System and instructs federal land management agencies, such as the National Park Service (NPS), BLM, USFWS and USFS, to manage wilderness areas and preserve wilderness character. There are no Wilderness Areas located within the Solomon Gulch Project Boundary.



**Figure 5-10 Nearby Scenic Attractions**

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## 5.9 Cultural Resources [§ 5.6 (d)(3)(x)]

Cultural resources are the objects, sites, structures, districts, and landscapes that reflect history and prehistory at a local, state, or national level. The National Register of Historic Places (NRHP) is the nation's inventory of historic properties that meet specific criteria of local, state, or national importance. For a property to be eligible for NRHP listing, it must possess integrity of location, design, setting, materials, workmanship, feeling, and association. In addition, the property must have significance under one or more criteria:

- Be associated with events that have made a significant contribution to the broad patterns of our history; or
- Be associated with the lives of persons significant in our past; or
- Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

There are some exceptions to these criteria for properties achieving significance in the last 50 years, certain cemeteries or religious properties and other property types. A Traditional Cultural Property (TCP) is a property, or place that is eligible for listing on the NHRP because of its association with the cultural practices and beliefs that are:

- rooted in the history of a community, and
- are important for maintaining the continuity of that community's traditional beliefs and practices (Parker 1993).

The ADNR, Office of History and Archaeology (OHA) maintains the Alaska Heritage Resource Survey (AHRS) database. The AHRS is primarily a map-based system that consists of an inventory of reported cultural resources within the state of Alaska (also referred to as AHRS sites). AHRS sites include objects, structures, buildings, sites, districts, and travel ways, with a general provision that they are over 50 years old. Each individual site record contains information such as the site name, a description of the physical remains, data on the site's location, a list of bibliographic citations, site significance, affiliated cultures and dates, preservation status, site condition, property owner, and other associated site numbers. The fundamental use of the AHRS is to protect cultural resource sites from adverse impacts. By using the AHRS as a planning tool, the location of cultural

resources allows agencies to avoid project delays and prevent unnecessary destruction of these non-renewable resources. Listing on the AHRS does not, in and of itself, provide protection for sites; however, it does allow agencies to make knowledgeable decisions regarding the future of these sites. Listing on the AHRS is not the same as listing on the NRHP.

## **5.9.1 Prehistory and History of the Region**

### **5.9.1.1 Prehistory**

The Solomon Gulch Project is located within the Prince William Sound cultural area, which has a maritime oriented history. Compared to other regions of Alaska, few cultural sites have been located around Prince William Sound. De Laguna (1956) discussed at length the paradox of a rich environment but low historic and prehistoric population numbers. The small number of sites per unit area is likely a result of both natural and cultural factors. Much of the region is glaciated and contains few or no subsistence resources. The region is tectonically<sup>17</sup> active. Shorelines have risen and fallen over time, leaving coastal located sites vulnerable to erosion following subsidence. Earthquakes produce tsunamis and other waves that have rolled over the land, flattening trees, communities, and the archaeological record. Late Pleistocene and Holocene glaciations scraped the bedrock clean, resulting in shallow rocky soils in many areas with little opportunity for cultural stratigraphy to develop. There are relatively few coastal locations that are favorable for human habitation. Steep, high-energy shores are not conducive to human occupation. Favored winter village locations for people oriented to the marine environment include pocket beaches (with protected access to the ocean and nearby freshwater sources), protected small bays, and the leeward side of headlands or small islands. Summer fish camps or villages were typically located on or near the mouths of salmon streams. Ephemeral hunting or travel camps could be constructed anywhere. Other types of sites include defensible refuge or fort sites located on rocky headlands. Petroglyphs and pictograph sites are known in the Prince William Sound region, and caves or rock shelters were used as temporary shelters and burial sites (de Laguna 1956). People probably occupied (or at least utilized) the resources of Prince William Sound as soon as coastal tidewater glaciations retreated long enough for resources to occupy the previously ice-covered region. Evidence of these earliest occupations has yet to be identified within Prince William Sound, for the reasons

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<sup>17</sup> Relating to the structure of the surface of the earth and the way it is formed, <https://dictionary.cambridge.org/>.

noted above. In addition, Prince William Sound archaeology has not been given the same degree of attention or interest by professional archeologists as many other more accessible, less expensive, and less logistically demanding regions of Alaska. The cultural resources surveys that followed the Exxon Valdez Oil Spill in March of 1989 added significantly to the knowledge of the prehistoric occupation of Prince William Sound.

In the contact period, Prince William Sound was occupied by the Chugach Eskimo (Alutiiq) and the Eyak. The Chugach occupied the area west of present-day Cordova at the time of contact. They spoke Alutiiq, a Yupik language also called Suqcestun. There were eight politically independent Chugach groups within the Sound, each with its own leader and principal village. The Chugach had close cultural affinities to the people in the Kodiak Archipelago and the southern Kenai Peninsula (de Laguna 1956). Prior to contact, the Chugach lived in wood plank and semi-subterranean houses. They primarily subsisted on fish and sea mammals including seals, whales, and sea otters, as well as shellfish, and utilized terrestrial resources, including mountain goats, deer, and plants (Birket-Smith 1953).

After the arrival of Europeans in Alaska, diseases such as smallpox, measles, typhus, influenza, and syphilis caused a significant reduction in the Chugach population (Tikhmenev 1978; 1861-63). In addition to diseases, the Russians brought hunters from the Kodiak Archipelago and the Aleutian Islands to Prince William Sound to hunt sea otters. Although this caused some friction, over time the groups intermarried. Russians sometimes extended the term "Aleut" to include any Pacific Eskimo group including the Chugach. In the 1970s, many Chugach referred to themselves as Aleuts, leading to confusion regarding language relationships (Clark 1984). The Chugach obtained European trade goods from other Natives before they had direct contact with Europeans. After contact, the Chugach were eager to trade for European goods. Birket-Smith and de Laguna (Birket-Smith 1953) completed a cultural history of the Prince William Sound area as a result of the first Danish-American Alaska Expedition in 1933. Their research efforts did not include the Valdez Arm or the Lowe River area; however, they did provide ethnographic information showing that these locations were little used by recent, or contemporary Prince William Sound residents. Publication of the *Looking Both Ways* volume has reaffirmed the connectedness of traditional Alutiiq culture from Prince William Sound in the east to the Alaska Peninsula in the west, including the Kodiak Archipelago

and portions of southern Kenai Peninsula (Crowell 2001). The decline in the Chugach population opened some of their traditional range to settlement by outsiders.

By the 1700s, the Eyak occupied four villages between the Copper River and present day Cordova (de Laguna 1990). The village in Cordova was located on Odiak Slough, on the south side of downtown Cordova. When Birket-Smith and de Laguna conducted their ethnographic work in the 1930s, informants told them that Eyak territory extended from Cordova Bay to the Martin River in the east, and to the Miles and Childs glaciers in the north (Birket-Smith and de Laguna 1938). De Laguna suggests that the Eyak did not expand into the Copper River Delta and Cordova area until the early eighteenth century (de Laguna 1990). Although subsistence practices of the Chugach and the Eyak were similar, there were some cultural variations between the two groups. The Chugach were Alutiiq speakers and the Eyak spoke an Athabaskan-related language. The Chugach used kayaks and the Eyak used dugout canoes (Mobley 1993). The arrival of the Eyak in the traditional range of the Chugach led to periodic conflict, there is evidence of information sharing and other interactions between the two groups (Birket-Smith 1953). During the 1800s, the Eyak played a significant role in the trade network linking the coast with the interior. In 1868, after a measles epidemic resulted in a feud between the Chugach and Ahtna, the Eyak became intermediaries for the exchange of goods between the two groups (Buzzell 2003). Chugach Native Corporation published Eyak stories and historic photographs (Johnson 1988) and place-name maps for selected areas in Prince William Sound. Birket-Smith and de Laguna (1938) co-wrote the definitive ethnography of the Eyak Indians; de Laguna (1990) later wrote the Eyak section in *the Handbook of North American Indians Northwest*. Krauss (2006) traces efforts to document and preserve the Eyak language.

### **5.9.1.2 Euro-American History of Prince William Sound**

Vitus Bering and his crew landed at Kayak Island, at the western edge of Prince William Sound in June 1741 (Black 2004). English Captain James Cook arrived in Prince William Sound in 1778. In 1779, Ignacio Areteaga sailed two Spanish ships to Alaska and named many locations in the Prince William Sound area (Olsen 2002). The Russians returned to Alaska in 1783 and 1785. In 1788, English, Spanish, and Russian ships were present in Prince William Sound (Lethcoe and Lethcoe 1985).

During the 1780s and 1790s, the Russians explored Prince William Sound and established several settlements. These included posts at modern day Tatitlik, Nuchek (COR-00009) on Hinchinbrook Island, and the village of St. Paul (present day Kodiak) on Kodiak Island. Nuchek became the focus for the Russian fur trade in Prince William Sound, not only with the Chugach, but also with the Ahtna, Eyak, and, for a time, the Tlingit to the southeast. The Russians forced local inhabitants to work as hunters. Native males between the ages of 18 and 50 were required to work for 3 years for the Russian American Company. Women and men were also required to process and gather other materials needed by the company (Birket-Smith 1953; Black 2004).

Over time, the sea otter population in Prince William Sound declined and the Russians focused their efforts to southeast Alaska. By 1837, there were only 8 Russians and 50 Aleuts at Nuchek. In 1860, there were only 19 Russians and their families at the post. During the same period, disease severely impacted the Native population. In 1800, there were approximately 700 Natives, and by 1880, only 264 Natives lived in Prince William Sound (Lethcoe and Lethcoe 2001).

In the face of declining profits, Russia sold Alaska to the United States in 1867. The Alaska Commercial Company took over the operations of the Russian-American Company, but otherwise Americans were relatively slow to capitalize on Alaska's economic potential. Nuchek remained the main trading post in Prince William Sound (Lethcoe and Lethcoe 2001).

During the 1880s and 1890s, several American explorers including George Holt, Lieutenant William Abercrombie, Henry T. Allen, and Lieutenant Frederick Schwatka traveled through Prince William Sound and up the Copper River to better understand Alaska's geography and explore the interior (Sherwood 1992).

The development of Alaskan fisheries and the discovery of gold led to new settlements in Prince William Sound in the late nineteenth century. Three canneries were established in the late 1880s at Odiak Slough, on the south edge of present-day Cordova. Because of the economic boom created by these canneries, many of the local Eyak moved to the area. As a result, the town of Odiak (the name was soon changed to Eyak) was established (Lethcoe and Lethcoe 2001). In the 1890s, the community had a population of 200 and it quickly replaced Nuchek as the major port of Prince William Sound (Buzzell 1995; The Pathfinder 1920).



The discovery of gold on Turnagain Arm in Cook Inlet and Galena Bay in the 1890s, led to the arrival of prospectors in Prince William Sound. Some steam lines told prospectors that there was gold up the Copper River. Although the prospectors found only smaller gold deposits in the Valdez area, they did discover massive deposits of copper at Bonanza Ridge which became known as the Kennecott Mine (Spude and Faulkner 1987).

The discoveries led to a flurry of copper claims along a 50-mile-long mineral belt lying at the base of the Wrangell Mountains. However, the deposits were in a remote area and required substantial financial investment to develop. With backing from J.P. Morgan and Daniel Guggenheim, Stephen Birch bought up the claims on Bonanza Ridge and set up the "Alaska Syndicate" to extract, process, and sell the copper ore (Nielsen 1984; Sherman n.d.).

The discovery of gold at the mouth of Fortymile River on the Yukon in 1886 started a rush of miners into the drainage of the upper Yukon that eventually led to the discovery of the Klondike Gold Fields in 1896. While these early discoveries were in the Canadian Yukon, they led to exploration and development of the Alaskan interior. By 1898, the city of Eagle, on the Yukon River served the American miners of the upper Yukon. The United States Army established Fort Egbert at Eagle in 1899 to "provide law and order, protect commerce, care for impoverished miners, build roads and trails, and develop better communication with the nation" (BLM 1999:3; Gates 1994; Mead and Hunt 2014).

The community of Valdez was established in 1898 because it was on an ice-free harbor near the Valdez Glacier Trail, which was promoted as the only "all American trail" to the Alaskan interior. The trail, which passed over the Valdez and Klutina glaciers, proved to be dangerous and impractical, but merchants and steamship companies continued to promote Valdez as the gateway to interior Alaska (Marsh 2008).

In 1898, Captain William Abercrombie was ordered to find a suitable route between Eagle and the city of Valdez. His efforts proved successful and in 1899 Captain Abercrombie was placed in charge of constructing a trail from Valdez to Copper Center. By the end of 1899, 93-miles of pack trail had been constructed using a combination of infantrymen and unemployed miners earning a ticket home (Marsh 2008; Mead and Hunt 2014).

The 1899 military trail followed the Lowe River Valley then passed over Thompson Pass into the Copper River drainage. The original military trail was located north and

approximately 350-feet above Keystone Canyon. The trail was rough and in places steep, but it was better than crossing the Valdez and Klutina Glaciers (Marsh 2008).

In 1900, the United States Army established Fort Liscum on the south side of Port Valdez, opposite the city of Valdez. In the same year, the United States Army Signal Corps (Signal Corps) began construction of a telegraph line (part of the Washington Alaska Military Cable and Telegraph System [WAMCATS]) between Fort Liscum and Fort Egbert at Eagle. The WAMCATS was built to provide electronic communication for both the military posts in Alaska and the civilian population. When completed in 1904, the WAMCATS consisted of 2,123-miles of undersea cable, 1,497-miles of telegraph lines, and 107-miles of wireless telegraphy. The system connected the major military posts and Alaskan communities including Eagle, Fairbanks, Nome, and Valdez to the rest of the world via Seattle, Washington and the Canadian Yukon Telegraph system. From the beginning, the WAMCATS was in a constant state of evolution and technological development. The most notable change to the system was the development of wireless telegraphy. The first wireless stations were installed on the WAMCATS in 1903, but improvements in wireless technology led the WAMCATS to abandon almost all telegraph lines in Alaska during the 1920s. The Signal Corps continued to provide long-distance communication for Alaska into the 1970s, though the name was changed to the Alaska Communication System in 1936 (Blanchard 2010).

Between 1901 and 1909, there were numerous efforts to construct a railroad from Valdez, over Thompson Pass, and into the interior. The most successful effort was undertaken by the Copper River and Northwestern Railway (CR&NR), which was backed by the Alaska Syndicate, who wanted to build a railroad from Valdez to the Kennecott Copper Mine. Their efforts were opposed by the competing Alaska Home Railway (AHR). An armed conflict (known as the Keystone Canyon Riots) that occurred at the CR&NR tunnel in Keystone Canyon in September 1907 resulted in the death of an AHR man. The resulting public outcry and political pressure led the CR&NR to abandon the route from Valdez and select an alternate route from Cordova along the Copper and Chitina rivers to the Kennecott Mine. The AHR abandoned the effort and the railroad over Thompson Pass was never built (Hunt 1990). Railroad access to Valdez was never realized, and road access became the priority. Valdez and its port, and the Richardson Highway became a critical supply route for the interior during World War II. Following Alaska Statehood in 1959, construction and maintenance of Alaskan roads was transferred to the Alaska Department

of Highways. Port Valdez retained a strategic military importance during the Cold War since it provided a year-round overland connection to Fort Wainwright, Eielson Air Force Base, Fort Greely, and smaller interior military installations. No large-scale work on the Richardson Highway was undertaken until 1964, when the Good Friday earthquake and the resulting tsunami destroyed the city of Valdez and damaged substantial portions of the road within 129 miles of Valdez. Repairs and repaving of the Richardson Highway took several years (Mead and Hunt 2014).

The area's significance as a supply route for Fairbanks was somewhat diminished by the opening of the Parks Highway between Anchorage and Fairbanks in 1971, but it continued to be used for tourism and recreation (Mead and Hunt 2014). By 1971, the Richardson Highway was an all-weather, asphalt paved, year-round, two-lane road throughout its entire length. The Port of Valdez and Richardson Highway became an important part of the Trans Alaska Pipeline hosting and supporting infrastructure and facilities at the marine terminal for transfer of north slope oil to tanker vessels (Mead and Hunt 2014).

## **5.9.2 Alaska Heritage Resource Survey Sites in the Project Area**

### **5.9.2.1 Solomon Gulch Project Boundary**

The AHRS database at the OHA was examined for listings of sites in the Solomon Gulch Project Area (refer to Section 3.1 for Project area boundary definitions). There are three AHRS sites listed within the vicinity of the Solomon Gulch Project Boundary that were reported by Smith (1974) or by Lobdell (1978a, 1978b) during surveys conducted for the original licensing of the Project. The sites are potentially historic but no determination of NRHP eligibility evaluations were completed.

No pre-historic resources are listed in the AHRS and none were documented during surveys conducted by Lobdell (1978a, 1978b). The entire area of Solomon Lake and Gulch is considered as having very low potential, defined as including hill or mountain sides, areas far from fresh water, and/or wet and swampy country. However, random subsurface testing was conducted prior to construction in areas to be impacted by the Project. No other cultural investigations have been conducted in the area.

### **5.9.2.2 Non-Project-Related Transmission Line**

Descriptions of four known cultural resource sites in the vicinity of the non-project-related transmission line can be found in the privileged *Transmission Line Monitoring and Inadvertent Discovery Plan (MIDP)* submitted to FERC with the October 31, 2022 CVEA non-capacity license amendment.<sup>18</sup> Numerous surveys were conducted as part of the development of the TAPS (Clark 1974, Dixon 1978), the original Solomon Gulch Project transmission line (Lobdell 1978a and 1978b), or maintenance associated with TAPS (Holloway et al. 2018). The vast majority of the transmission line ROW lies in areas of very low potential, defined as including hill or mountain sides, areas far from fresh water, and/or wet and swampy country. High potential areas, such as glacial terraces and eskers adjacent to rivers, and all river/stream crossings were surveyed and many subsurface tests were dug. Of the four sites listed in the AHRS, one is outside the ROW APE, one was considered not eligible for the NRHP, one was considered eligible and no determination of eligibility was completed for the fourth site.

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<sup>18</sup> FERC Accession Number: 20221031-5387.

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## **5.10 Tribal Resources [§ 5.6 (d)(3)(xii)]**

In 1936, the United States Government extended coverage pursuant to the Indian Reorganization Act of 1934 to include Alaska Natives and encouraged Native villages to adopt constitutions for self-government under the Act. There are no Native American entities in the Valdez or Solomon Gulch Project Area incorporated under this law.

A federally recognized tribe is an American Indian or Alaska Native tribal entity that is recognized as having a government-to-government relationship with the United States, with the responsibilities, powers, limitations; obligations attached to that designation; and is eligible for funding and services from the Bureau of Indian Affairs. Furthermore, federally recognized tribes are recognized as possessing certain inherent rights of self-government (i.e., tribal sovereignty) and are entitled to receive certain federal benefits, services, and protections because of their special relationship with the United States. At present, there are 229 federally recognized American Indian and Alaska Native tribes and villages in Alaska. There are no federal tribal trust lands within the Solomon Gulch Project Area.

Based on the cultural history presented in Section 5.9.1.1, the following federally recognized Alaska Native Tribes may have a cultural presence or interest in the Solomon Gulch Project Area or the non-project-related transmission line ROW:

- Native Village of Tatitlek
- Native Village of Chenega
- Native Village of Eyak
- Native Village of Chitina
- Native Village of Kluti Kaah
- Native Village of Tazlina
- Gulkana Village Council – Native Village of C' ulc'e Na'
- Native Village of Gakona

The following Alaska Native Claims Settlement Act corporations and Alaska Native groups may also have interests in the area:

- Tatitlek Corporation
- Chenega Corporation



- Eyak Corporation
- Chugach Alaska Corporation and the Chugach Heritage Foundation
- Ahtna, Inc. and the Ahtna Heritage Foundation
- Valdez Native Tribe

The Valdez Native Tribe was formed in 1974 as the tribal organization of the Native community of Valdez. It operates as a non-profit organization (501(c)(3)) providing health, social, educational, and cultural services to the Valdez Native community. The Valdez Native Tribe is not a federally recognized tribe.

PAD Questionnaires were distributed to all of the above listed federally and non-federally recognized Alaska Native Tribes, Alaska Native Claims Settlement Act corporations, and Alaska Native groups (see Appendix C). As of the filing date of this PAD, no responses have been received.

## **5.11 Socioeconomic Resources [§ 5.6 (d)(3)(xi)]**

### **5.11.1 General Land Use Patterns**

The Solomon Gulch Project Dam and reservoir are located directly south of Valdez, Alaska, the closest community to the Solomon Gulch Project. The Project Boundary is adjacent to the non-project-related transmission line, which reaches its terminus in Glennallen, Alaska. Valdez and Glennallen are the two communities which primarily receive utility services from the Solomon Gulch Project. A majority of the land within and around the Solomon Gulch Project Boundary is undeveloped aside from existing Project infrastructure. Chugach National Forest is within 3 miles of the Solomon Gulch Project reservoir with multiple glaciers occupying land around the Project. The closest glacier to the Solomon Gulch Project Dam is the Rubin Glacier (approximately 9.35-miles away). The closest glacier to the non-Project related transmission line is the Worthington Glacier (approximately 0.75-miles away) (Alaska.gov 2020a).

The proposed Project Boundary is within the Chugach Census Area. The Chugach Census Area land area is approximately 9,530 square miles. As of 2020, the inhabitants of Valdez comprised approximately 56 percent of the total population of the Chugach Census Area. Other than Valdez, the two other incorporated cities within the Chugach Census Area are Whittier and Cordova (Alaska.gov 2020b).

The non-project-related transmission line ROW is within both the Chugach Census Area and the Copper River Census Area. The Copper River Census Area is approximately 24,629 square miles. As of 2020, the inhabitants of Glennallen comprised approximately 17 percent of the total population of the Copper River Census Area. Other than Glennallen, there are several census designated places within the Copper River census area. The Solomon Gulch Project transmission line and Project Boundary pass through the communities of Tonsina, Kenny Lake, Willow Creek, Copper Center, Silver Springs, and Tazlina, all within the Copper River Census Designated Area (Alaska.gov 2020b).

### **5.11.2 Population Patterns**

The city of Valdez has a population of 3,985, while Glennallen at the Solomon Gulch Project's terminus has a population of 439 (2020 US Census). The population of the Chugach Census Area is approximately 6,941 and the population of the Copper River Census Area is approximately 2,630 (US Census 2022a). Table 5-14 summarizes the

population estimates for the city of Valdez, the Census Designated Place of Glennallen, the Chugach Census Area, the Copper River Census Area, and the state of Alaska as reported in the 2010 and 2020 censuses, and as estimated by the U.S. Census Bureau for the year 2021.

**Table 5-14 U.S. Census 2010, 2020, and 2021 Population Estimates**

City/Census Area/ State	2010 Census Population	2020 Census Population	% Change 2010-2020	2021 Population Estimates	% Change 2020-2021
Valdez	3,976	3,985	0.2%	N/A	N/A
Glennallen	483	439	-9.1%	N/A	N/A
Chugach Census Area	N/A*	7,102	N/A*	6,941	-2.3%
Copper River Census Area	N/A*	2,617	N/A*	2,630	0.5%
Alaska	710,231	733,391	3.3%	732,673	-0.1%

\*= The Chugach and Copper River Census Areas were formed in 2019 after the Valdez-Cordova census area was split into the Chugach Census Area and the Copper River Census Area

Source: US Census 2022a, 2022b, 2022c, 2022d, 2022e

The racial makeup of the Chugach census area is approximately 71.5 percent White, 1.2 percent Black or African American, 12.4 percent American Indian and Alaska Native, 6.7 percent Asian, 0.8 percent Native Hawaiian and Other Pacific Islander, and 7.4 percent from two or more races. Approximately 6.2 percent were Hispanic or Latino or any race (US Census 2022a).

The racial makeup of the Copper River census area is approximately 69.2 percent White, 0.9 percent Black or African American, 18.3 percent American Indian and Alaska Native, 2.8 percent Asian, 0.3 percent Native Hawaiian and Other Pacific Islander, and 8.5 percent from two or more races. Approximately 5.8 percent were Hispanic or Latino or any race (US Census 2022a).

### 5.11.3 Project Vicinity Employment Sources and the Regional Economy

Table 5-15 depicts the U.S. Census Bureau’s 2020 statistics for unemployment rates and labor force (the number of individuals) for the Solomon Gulch Project Vicinity. As shown, unemployment rates in the city of Valdez (2.3 percent), the Chugach Census Area (2.0

percent), and the Copper River Census Area (3.4 percent) are lower than the state average of 4.6 percent. Glennallen’s rate of 5.5 percent is higher than the state average.

**Table 5-15 Labor Force and Unemployment, 2020**

	<b>Chugach Census Area</b>	<b>Copper River Census Area</b>	<b>City of Valdez</b>	<b>Glennallen Census Designated Place</b>	<b>State of Alaska</b>
Labor Force	3,747	1,274	2,108	278	386,787
Unemployment	2.0%	3.4%	2.3%	5.5%	4.6%

Source: US Census 2022f, 2022g, 2022h, 2022i, 2022j

Table 5-16 presents industry and occupation statistics for 2020. As shown, management, business, science, and arts are the most common occupations for all municipalities except Glennallen, in which the most popular occupation is sales and office work.

The main industries in the municipalities of the Copper River Census Area, Valdez, and the state of Alaska in the Solomon Gulch Project Area are educational services, health care, and social assistance (28.5 percent, 16.7 percent, and 24.6 percent, respectively). In the Chugach Census Area the main industries are agriculture, forestry, fishing and hunting, and mining (14.2 percent), while in Glennallen the main industry is retail trade (24.6 percent).

Some of the largest employers in Valdez are, in no particular order, the Alyeska Pipeline Service Company, Providence Medical Center, the City of Valdez/Valdez City Schools, the Coast Guard, Silver Bay and Peter Pan Fisheries, and the Valdez Fisheries Development Association (Valdez City Schools 2022). The primary center of higher education in the Solomon Gulch Project Vicinity is Prince William Sound College, located in Valdez, with extension campuses in Glennallen and Cordova. The college is accredited by the Northwest Commission on Colleges and Universities through the University of Alaska Anchorage (PWSC 2021).

**Table 5-16 Industry and Occupation for Civilian Population 16 Years and Older**

	<b>Chugach Census Area</b>	<b>Copper River Census Area</b>	<b>City of Valdez</b>	<b>Glennallen Census Designated Place</b>	<b>State of Alaska</b>
<b>Occupation</b>					
Management, business, science, & arts	32.7%	42.9%	38.8%	33.8%	38.2%
Service	9.4%	18.9%	9.6%	0.0%	17.7%
Sales and office	19.6%	18.6%	15.6%	47.7%	20.4%
Natural Resources, construction, maintenance	22.2%	14.1%	19.4%	9.2%	11.6%
Production, transportation, material moving	16.0%	5.4%	16.6%	9.2%	12.1%
<b>Industry</b>					
Agriculture, forestry, fishing and hunting, and mining	14.2%	2.4%	6.4%	0.0%	4.5%
Construction	2.8%	10.4%	0.9%	9.2%	6.7%
Manufacturing	5.8%	4.4%	4.3%	0.0%	3.8%
Wholesale trade	0.8%	0.6%	0.0%	0.0%	1.8%
Retail trade	12.8%	11.0%	8.1%	41.9%	10.5%
Transportation and warehousing, and utilities	9.8%	6.8%	15.8%	17.7%	8.9%
Information	4.9%	5.9%	7.3%	0.0%	2.0%
Finance and insurance, and real estate and rental and leasing	1.6%	1.3%	1.2%	0.0%	3.8%
Professional, scientific, and management, and administrative and waste management services	11.4%	3.9%	16.3%	0.0%	8.2%
Educational services, and health care and social assistance	14.1%	28.5%	16.7%	20.4%	24.6%
Arts, entertainment, and recreation, and accommodation and food services	5.4%	6.1%	6.4%	0.0%	9.0%
Other services, except public administration	4.3%	4.0%	4.5%	0.0%	4.5%
Public administration	12.1%	14.7%	12.1%	10.8%	11.8%

Source: US Census 2022f, 2022g, 2022h, 2022i, 2022j

#### **5.11.4 Environmental Justice**

Pursuant to Executive Orders 12898<sup>19</sup> and 14008<sup>20</sup> FERC is required to complete an analysis of potential impacts from project operations on the local community in the vicinity of the Project. This analysis is conducted to understand the impacts to human health and the environment as they relate to environmental justice communities, or communities that stand to be disproportionately impacted by construction of a new facility or the continued operation of an existing facility, including socioeconomic and/or sociocultural impacts.

Additionally, FERC understands that it plays an integral role in regulating large parts of the United States energy industry, having far-reaching impacts to the nation, especially regarding the move toward cleaner energy (FERC 2022). Although FERC is not required to comply with Executive Order 13985,<sup>21</sup> the Commission has voluntarily elected to participate in the process in an effort to ensure everyone can benefit from the clean energy transition (FERC 2022). Pursuant to Executive Order 13985, FERC has developed an Equity Action Plan (EAP) based on five focus areas. The EAP is used by FERC-level decision-makers and discusses barriers traditionally experienced by underserved and environmental justice communities as they relate to decisions made by FERC. Additionally, the EAP serves as an outline for taking action in removing those barriers and fostering a commitment to equity (FERC 2022).

FERC recognizes that many of the licensed hydropower projects were constructed prior to implementation of NEPA, or the issuance of executive orders related to equity or environmental justice (FERC 2022). The steps taken by FERC related to the three executive orders will include equity considerations when making decisions regarding hydropower relicensing and consider environmental justice communities as they relate to the relicensing process.

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<sup>19</sup> Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 16, 1994). Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.

<sup>20</sup> Exec. Order No. 14008, 86 Fed. Reg. 7619-7633 (Jan. 27, 2021) Tackling the Climate Change Crisis at Home and Abroad.

<sup>21</sup> Exec. Order No. 13985 (June 2021). Advancing Racial Equity and Support for Underserved Communities Through the Federal Government.

#### **5.11.4.1 Identification of Environmental Justice Communities**

The thresholds used for populations meeting environmental justice status are as follows:

- For minority populations, the meaningfully greater analysis method (USEPA 2016) was used, where the minority population in a block group is at least 10 percent greater than that of the same population for the county:

*(County minority population) x (1.10) = threshold above which a minority population must be for inclusion as an environmental justice community*

- The “low-income threshold criteria” was used to identify environmental justice communities based on income level, where the block group must have a higher percentage of low-income households than the county.

#### **5.11.4.2 Affected Environment**

The Project is located on the Solomon Gulch Creek at the southeast end of Port Valdez, Alaska. Within one mile surrounding the Project there are two census block groups that could potentially be impacted by relicensing the Solomon Gulch Project. Within the two census block groups, there are two environmental justice communities (Table 5-17).

Within block group 2 census tract 3 for Valdez-Cordova Borough, the population is 78.53% White alone, with individuals identifying as two or more races representing 11.39% of the population, and Hispanic representing 9.03% (Table 5-17), both meeting environmental justice status. The race representing the fewest individuals is Asian, at 1.05% of the population, and not qualifying as an environmental justice community (Table 5-17). Within block group 4 census tract 3 there are no environmental justice communities; the population is 99.49% White alone (Table 5-17), with American Indian/Alaska Native representing the remaining 0.51% of the population (Table 5-17).

In addition to race, environmental justice communities include groups of individuals with income levels below poverty level, measured by household, as well as populations with limited English-speaking capabilities. Within the Project area there are no communities meeting environmental justice status related to household income level (Table 5-17), and there is no data available from the U.S. Census regarding English-speaking ability.

**Table 5-17 Current Community Data for the Area within One Mile of the Solomon Gulch Hydroelectric Project**

Geographic Area	Total Population <sup>a</sup>	White Alone, not Hispanic (%) <sup>a</sup>	African American /Black (%) <sup>a</sup>	American Indian / Alaska Native (%) <sup>a</sup>	Asian (%) <sup>a</sup>	Native HI & Other Pacific Islander (%) <sup>a</sup>	Some Other Race (%) <sup>a</sup>	Two or More Races (%) <sup>a</sup>	Hispanic Origin (any race) (%) <sup>a</sup>	Total Minority Population (%)	Households in Poverty (%) <sup>b</sup>
Alaska	738,516	61.04%	3.09%	14.02%	6.18%	1.16%	0.20%	7.40%	6.93%	38.96%	9.35%
Valdez Cordova Borough	9,301	69.65%	0.27%	12.75%	3.52%	0.61%	0.27%	7.92%	5.01%	30.35%	9.44%
Block Group 2, Census Tract 3	1,905	78.53%	0.00%	0.00%	1.05%	0.00%	0.00%	<b>11.39%</b>	<b>9.03%</b>	21.47%	6.24%
Block Group 4, Census Tract 3	780	99.49%	0.00%	0.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.51%	7.53%

<sup>a</sup> Percent of total population (Table B03002 – Hispanic or Latino Origin by Race American Community Survey. 2020 ACS 5-Year Estimates Detailed Tables. Retrieved from: [U.S. Census Bureau](https://www.census.gov) website on October 26, 2022.

<sup>b</sup> Percent of Households (Table B17017 – Poverty Status in the Past 12 Months by Household Type by Age of Householder. 2020 ACS 5-Year Estimated Detailed Tables. Retrieved from: [U.S. Census Bureau](https://www.census.gov) website on October 26, 2022.

\*Grey shaded cells indicate environmental justice community



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## 6.0 PRELIMINARY ISSUES AND STUDIES LIST FOR EACH RESOURCE AREA [§ 5.6 (D)(4)]

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The purpose of the PAD is to identify environmental resources that may be affected by the Project and to inform the development of any proposed studies to assess the scope of potential Project impacts. CVEA proposes to continue operating the Solomon Gulch Project in the same manner as specified in the original 1978 license and is not proposing any changes to the Solomon Gulch Project's current facilities or operations. Therefore, the Solomon Gulch Project will not result in any new adverse impacts on environmental resources. CVEA believes that there is sufficient existing information to assess resource concerns, but recognizes additional analysis may be warranted for water quality, botanical, recreation and cultural resources, as outlined below. In addition, identified environmental resources and proposed studies are limited to the area within and around the Solomon Gulch Project Boundary, which excludes the non-project-related transmission line to be removed by a non-capacity amendment (see Section 1.0). Section 6.1 summarizes identified issues, while section 6.2 outlines goals and objectives of the proposed study plan.

### 6.1 Identification of Issues Pertaining to Project Resources and Proposed Studies

The following areas are outlined below for each resource area specified in Section 5.0.

- **Known and Potential Impacts** – This section identifies any known or potential impacts of project operations, including potential impacts from continuing operations and those that may result from cumulative impacts.
- **Proposed Studies** – This section identifies initial information gathering and licensee proposed studies for each resource area.
- **Existing or Proposed Protection, Mitigation and Enhancement Measures** – The issues identified for each resource area may or may not ultimately warrant specific protection, mitigation, and enhancement (PM&E) measures or may already be addressed through PM&E measures required by the existing Solomon Gulch Project license, or undertaken voluntarily by CVEA. Existing relevant information and additional information obtained through studies will be used to determine if additional PM&E measures are needed.

## **6.1.1 Geology and Soils**

### **6.1.1.1 Known and Potential Impacts**

Soils along the transmission route are subject to problems and hazards due to aufeis conditions (icings), intensive erosion, shallow ground-water table, flooding during spring break up, unstable slope conditions, differential settlement, shifting stream channels, and avalanches (FERC 1978).

Erosion may occur on the slopes and outcrops in the Solomon Gulch Project Boundary. Contributing factors to erosion could include creep, solifluction, frost wedging and chemical weathering (RWRA 1976). Erosion of soils within the reservoir draw down zone during fluctuations of the water surface could introduce sediments into Solomon Gulch Creek. These soils are not deep and retention within the reservoir would cause some to settle out of suspension. These factors would reduce both the duration and amount of sediment releases to the Solomon Gulch Creek (FERC 1978). The effect of erosion was labelled "of little significance" for the Solomon Gulch Project (RWRA 1976), and no areas of mass-wasting or erosion concern have been identified during recent rim surveys (see Section 5.1).

### **6.1.1.2 Proposed Studies**

No studies are being proposed specific to geologic or soil resources.

### **6.1.1.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

The Solomon Gulch Project will continue to be operated with limited impoundment fluctuations. As a result, the potential for erosion in the Solomon Gulch Project impoundment or other impacts to geologic and soil resources is minimal. Therefore, no specific proposed mitigation and enhancement measures are currently in place in the Project license or proposed relative to geologic or soil resources.

## **6.1.2 Water Resources**

### **6.1.2.1 Known and Potential Impacts**

No potential adverse effects to water resources are anticipated from continued operation of the Solomon Gulch Project. In 1987, ADFG evaluated impacts resulting from development of the Solomon Gulch Project (Roberson 1987). The report summarizes

ambient water temperature, flow, and turbidity in Solomon Gulch Creek for pre- and post-hydroelectric installation periods and determined that temperatures were slightly higher in the creek after the Solomon Gulch Project was built (3.74 °C versus 4.14 °C, mean annual temperature, pre- and post-construction, respectively), but the benefits for fish habitat (e.g., lower turbidity, higher-quality spawning gravels) from construction of the dam at the mouth of Solomon Lake off-set the minor increase in temperature in Solomon Gulch Creek.

### **6.1.2.2 Proposed Studies**

A Water Quality/Hydrology Monitoring Study is proposed to document Solomon Gulch temperatures.

### **6.1.2.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

CVEA operates within the conditions of the Certificate of Appropriation (ADL 67278) which requires providing a minimum flow of 2 cfs at the head of the tailrace and maintaining a minimum flow of 2 cfs at the base of the Solomon Gulch Creek lower falls to the marine waters of Port Valdez for protection of fish resources in the tailrace and creek. There are no other mitigation or enhancement measures in place in the Project license regarding water resources, and none are proposed. CVEA practices standard best management practices (BMP) to protect water quality and has a Spill Prevention, Control, and Countermeasure (SPCC) Plan, reviewed on a five-year cycle.

## **6.1.3 Fish and Aquatic Resources**

### **6.1.3.1 Known and Potential Impacts**

Continuing operations of Solomon Gulch Project are not expected to have adverse impacts on fish or other aquatic species in the Solomon Gulch Basin. Anadromous fish do not have access to Solomon Gulch Creek due to a natural impassable cascading waterfall at the mouth and no fish species have been documented within or upstream from Solomon Lake. Anadromous fish distribution is limited to the artificial tailrace channel and the intertidal area where water from the tailrace and Solomon Gulch Creek enter Port Valdez. CVEA has a cooperative agreement with VFDA to provide tailrace water to the VFDA Hatchery for rearing Pink and Coho Salmon which contribute to the Prince William Sound eastern district commercial, sport and subsistence fisheries.

CVEA maintains minimum flows in Solomon Gulch Creek below the damsite to support the freshwater aquatic community within the Solomon Gulch Creek, per the conditions in their Certificate of Appropriation (ADL 67278). In 1987, ADFG evaluated impacts resulting from development of the Solomon Gulch Project. The report summarized ambient water temperature, flow, turbidity, and habitat conditions in the creek for pre- and post-hydroelectric installation periods. The study determined that temperatures were slightly higher in the creek after the Solomon Gulch Project was constructed (3.74 °C versus 4.14 °C, mean annual temperature, pre- and post-construction, respectively), but that the benefits for fish habitat (e.g., lower turbidity, higher-quality spawning gravels) from construction of the dam at the mouth of Solomon Lake off-set the minor increase in temperature in Solomon Gulch creek.

### **6.1.3.2 Proposed Studies**

No studies are being proposed specific to fish and aquatic resources.

### **6.1.3.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

CVEA will continue to maintain minimum instream flow of 2 cfs in Solomon Gulch Creek downstream of the damsite and work cooperatively with the VFDA to provide a water supply to the VFDA Hatchery from the tailrace water. No additional mitigation or enhancement measures for fish and aquatic resources are proposed.

## **6.1.4 Wildlife and Botanical Resources**

### **6.1.4.1 Known and Potential Impacts**

There are no proposed changes to project operations and no construction of new facilities planned, and therefore there are no anticipated impacts to existing vegetative communities or wildlife habitats. Continued operation of the Solomon Gulch Project could potentially affect birds or mammals within the Solomon Gulch Project vicinity, but no known adverse impacts to wildlife or botanical resources have been identified. In general, potential operation-related effects associated with hydroelectric projects on birds include behavioral disturbance during Project operation and increased mortality due to collision of birds with Project infrastructure or electrocution. Additionally, continued operation of the Project has the potential to introduce invasive plants unless best practices are adhered to.

#### **6.1.4.2 Proposed Studies**

A Sensitive and Invasive Plants Survey in areas most likely to be impacted by Project operations is proposed. A Vegetation Characterization Study will be conducted to characterize botanical resources within the current Solomon Gulch Project Boundary.

#### **6.1.4.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

There are no existing mitigation and enhancement measures in place in the Project license regarding wildlife and botanical resources, and none are proposed. CVEA does utilize the following BMPs: uses weed free seed, utilizes Institute of Electrical and Electronics Engineers (IEEE) standards in their substation lighting designs, has installed LED street lighting in Valdez reducing light pollution, builds transmission lines to raptor specifications, and has installed devices to dissuade raptors from landing on poles and crossarms.

#### **6.1.5 Floodplains, Wetlands, Riparian, and Littoral Habitat**

##### **6.1.5.1 Known and Potential Impacts**

Continued operation of the Solomon Gulch Project is not anticipated to have any adverse effects on riparian, wetland, and littoral resources in the Solomon Gulch Project Area. The annual cycle of drawing down and refilling the reservoir may have an impact on the establishment of certain wetland vegetation. In turn, a lack of vegetation in combination with the alternate inundation and dewatering of the slopes could introduce sediments into the impounded waters. However, the wetland, riparian, and littoral habitats that currently exist within Solomon Gulch Project Boundary have become established under the existing operating regime that has generally existed for over 40 years, and no sites have been identified that are subject to erosion or mass-wasting. It is anticipated that continued operation of the Solomon Gulch Project with the existing limited impoundment fluctuations and existing minimum flow regime will not result in adverse effects on wetland, riparian, or littoral habitats. Given Solomon Gulch Project operations or facilities have not changed over the course of the existing license and are not proposed to change, negative effects to the existing riparian, wetland, and littoral resources are not expected.

### **6.1.5.2 Proposed Studies**

As indicated above in Section 6.1.4.2, a Vegetation Characterization study will be conducted to characterize botanical resources within the current Solomon Gulch Project Boundary.

### **6.1.5.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

CVEA proposes to continue to operate the Solomon Gulch Project as it does currently with limited impoundment fluctuations and continuation of the existing minimum flow regime. There are no existing proposed mitigation and enhancement measures in place in the Project license regarding wetland, riparian, or littoral resources, and none are proposed.

## **6.1.6 Rare, Threatened and Endangered Resources**

### **6.1.6.1 Known and Potential Impacts**

There are no known federal or state threatened or endangered species that occur in the Solomon Gulch Project area. As described in Section 5.4.3.2 and 5.6.3, there are several species of birds that are known to occur or likely to occur in the Project area that are considered Birds of Conservation Concern by the USFWS because they are protected under the MBTA or the BGEPA; these species are also considered SGCN by ADFG. No rare plants are currently known to be in the Project area nor anticipated to be affected by the operation of the Solomon Gulch Project. There are no proposed changes to project operations and no construction of new facilities planned, and therefore there are no anticipated impacts to existing vegetative communities or wildlife habitats. Continued operation of the Solomon Gulch Project is not anticipated to have any adverse effects on these species.

### **6.1.6.2 Proposed Studies**

No studies are being proposed specific to rare, threatened, and endangered resources. Identification of RTE plant species will be accomplished through the proposed botanical surveys described above in Section 6.1.4.2.



### **6.1.6.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

There are no existing mitigation and enhancement measures in place in the Project license regarding rare, threatened, and endangered resources, and none are proposed.

## **6.1.7 Recreation and Land Use**

### **6.1.7.1 Known and Potential Impacts**

The John Hunter Memorial Trail is the only FERC-approved recreation site at the Solomon Gulch Project. The Form-80 data collected in 2014 indicated that the John Hunter Memorial Trail is not near capacity.<sup>22</sup> As previously described, CVEA constructed and maintains a picnic pavilion near the dam for visitors during the summer months by CVEA staff. Continued operation of the Solomon Gulch Project with the recreation site is therefore expected to continue meeting demand for recreation. Fluctuation of the reservoir level under current operations is not expected to adversely affect recreational opportunities at Solomon Lake because it is not suited to swimming, fishing or boating and the steep side slopes naturally restrict access to the lake over much of its length.

### **6.1.7.2 Proposed Studies**

A Recreation Study is being proposed to gather updated Recreation Use and Needs data for the John Hunter Memorial Trail.

### **6.1.7.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

The continued operation of the Solomon Gulch Project as proposed is expected to have no impact on Solomon Gulch Project recreation use. CVEA proposes to continue operating the Solomon Gulch Project as it currently does and maintaining the picnic pavilion. Additional PME's may be identified if warranted from the recreation use and needs data gathered during the study period.

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<sup>22</sup> FERC Accession Number 20141224-5054

## **6.1.8 Aesthetic Resources**

### **6.1.8.1 Known and Potential Impacts**

There are no potential adverse effects to aesthetic resources with the continued operation and maintenance of the Solomon Gulch Project.

### **6.1.8.2 Proposed Studies**

No studies are being proposed specific to aesthetic resources.

### **6.1.8.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

There are no mitigation or enhancement measures in place in the Project license for aesthetic resources, and none are proposed.

## **6.1.9 Cultural Resources**

### **6.1.9.1 Known and Potential Impacts**

In general, the Solomon Gulch Project Boundary has low potential for cultural resources. Potential Solomon Gulch Project related effects on cultural resources include the direct and indirect ground disturbance or alteration due to maintenance and use of Solomon Gulch Project facilities. CVEA proposes no new facilities or Solomon Gulch Project components or plans for future development or rehabilitation of the Solomon Gulch Project, and to maintain existing Solomon Gulch Project operations. CVEA is examining the potential for modification of the Project Boundary around the reservoir (separate from the transmission line removal); such modifications may have an impact on the management of cultural resources, which will be explored by CVEA during cultural surveys.

### **6.1.9.2 Proposed Studies**

A cultural resources inventory/built resources survey of any high potential areas potentially impacted by Project operations is being proposed.

### **6.1.9.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

CVEA has an inadvertent discovery plan in place, which will be updated during relicensing. Should indications of potentially significant cultural resources be encountered during ground-disturbing activities, all work in that area would cease until the discovery can be

fully evaluated by a qualified archaeologist, and the Alaska SHPO notified. Identification, evaluation, and mitigation of any cultural resources in the Project area will address Solomon Gulch Project related effects through the NHPA Section 106 process.

### **6.1.10 Tribal Resources**

#### **6.1.10.1 Known and Potential Impacts**

CVEA's review of readily available information and preliminary consultation has not identified any potential impacts to tribal resources as a result of continuing Solomon Gulch Project operation and maintenance activities, as currently proposed. As appropriate, within specific resource sections of this Solomon Gulch Project PAD, potential impacts on tribal interests have been identified (e.g., subsistence hunting, fishing), to the extent that potential Project maintenance and operation may impact tribal cultural or economic interests.

#### **6.1.10.2 Proposed Studies**

The potential need for additional information or studies related to tribal resources will be evaluated based on tribal consultation conducted during the relicensing process.

#### **6.1.10.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

There are no existing mitigation or enhancement measures in place in the Project license regarding tribal resources, and none are proposed.

### **6.1.11 Socioeconomic Resources**

#### **6.1.11.1 Known and Potential Impacts**

The Solomon Gulch Hydroelectric Project provides benefits to the local population by providing renewable, low-cost energy, and recreational opportunities. In addition, no infrastructure or operational changes are being proposed as part of this relicensing. Continued operation of the Project is not expected to have any new or unavoidable adverse effects on socioeconomic resources or environmental justice communities.

### **6.1.11.2 Proposed Studies**

No studies are being proposed specific to socioeconomic resources or environmental justice communities.

### **6.1.11.3 Existing or Proposed Protection, Mitigation, and Enhancement Measures**

There are no existing mitigation or enhancement measures in place in the Project license regarding socioeconomic resources. The Licensee believes that sufficient socioeconomic and environmental justice data are available for the areas surrounding the Project and therefore does not propose protection, mitigation, or enhancement measures regarding socioeconomic resources or environmental justice.

## **6.2 Summary of Proposed Studies**

Table 6-1 below summarizes studies and investigations that CVEA believes are necessary to inform its application for new license for the Solomon Gulch Hydroelectric Project. The issues are compiled from Section 6.1 above and, will form the basis of the study plan to be developed consistent with 18 CFR § 5.11. As well, the study plan may include additional studies proposed by reviewers of the PAD, including agencies, Alaska Native entities, non-governmental organizations, or other stakeholders. To the extent that CVEA does not adopt a proposed study, the study plan will provide a rationale for not including the request.

**Table 6-1 Summary of Potential Issues and Studies**

Study Plan Topic	Potential Resource Issue	Proposed Study and Approach
Water Quality	Project operations may affect water temperature in the Project reservoir and affected stream reach.	<p>Water Temperature Study</p> <ul style="list-style-type: none"> <li>• Water temperature will be monitored; Continuous water temperature will be monitored at the lake outlet, CVEA's gage sites, and Solomon Gulch Creek.</li> </ul>
Botanical	<p>Project operations and maintenance activities may affect sensitive plants or the spread of invasive species.</p> <p>The wetlands mapping for the Project area is based on pre-Project 1978 1:60,000 infrared imagery and CVEA is proposing to reduce the Project Boundary to the upper elevation limit of the PMF (694 ft msl).</p>	<p>Sensitive and Invasive Plants Survey</p> <ul style="list-style-type: none"> <li>• A literature review will be conducted to determine if any special-status botanical resources or invasive species have been identified as having the potential to occur within the Project area.</li> <li>• Suitable habitat for special status plants will be mapped.</li> <li>• Pedestrian surveys for invasive or special status plants will be conducted around project facilities or areas having the potential to be effected by operations.</li> </ul> <p>Vegetation Characterization Study</p> <ul style="list-style-type: none"> <li>• Vegetative communities will be preliminarily mapped from the best available imagery and existing information.</li> <li>• Preliminary maps will be ground-truthed and final maps will be developed.</li> <li>• Preliminary vegetative communities will be mapped using the best available information and subsequently ground-truthed. An emphasis will be put on the low-lying wetland areas to the south of Solomon Lake.</li> </ul>

Study Plan Topic	Potential Resource Issue	Proposed Study and Approach
Recreation	Characterize existing recreation use and access, assess future recreation needs associated with the Project.	<p>Recreation Use and Needs Study, including:</p> <ul style="list-style-type: none"> <li>• Visitor surveys could be conducted using a survey form to collect recreation user characteristics and demographics (e.g., origin, gender, age and group size); satisfaction; type of activities; length of stay; and perception of crowdedness, site conditions, fees and site needs.</li> <li>• Spot counts and/or traffic/trail counters could also be implemented at certain locations but may not be necessary.</li> </ul> <p>A Facilities Condition Assessment Study will be completed to assess the condition of facilities; universal accessibility of facilities; public safety measures; and signage.</p>
Cultural	O&M for the Projects could affect cultural resources that are listed in or eligible for listing in the NRHP, including built resources.	<p>Cultural Resource Study</p> <ul style="list-style-type: none"> <li>• Complete records search and compile additional information from available repositories.</li> <li>• Conduct a pedestrian survey in high potential areas within the APE that have not been surveyed or should be resurveyed and identify any new sites.</li> <li>• Record and document all sites and built environment resources.</li> </ul>
Tribal	The potential need for additional information or studies related to tribal resources will be evaluated based on tribal consultation conducted during the relicensing process.	<p>The potential need for a Tribal Resources Study will be evaluated based on tribal consultation.</p>

### **6.3 Relevant Qualifying Federal and State or Tribal Comprehensive Waterway Plans**

Section 10(a)(2)(A) of the Federal Power Act, 16 U.S.C. § 803(a)(2)(A), requires FERC to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway affected by the project. FERC Order No. 481-A, issued on April 27, 1988, established that FERC will accord comprehensive plan status under Federal Power Act Section 10(a)(2)(A) to any federal or state plan that: (1) is a comprehensive study of one or more of the beneficial uses of the waterway or waterways; (2) specifies the standards, the data, and the methodology used; and (3) is filed with the Secretary of the Commission.

The FERC currently lists 106 comprehensive plans for the state of Alaska (FERC 2022). The following comprehensive plans pertain to the Solomon Gulch Basin:

- Alaska Administrative Code (AAC). 2012. 5 AAC § 39.222 Policy for the Management of Sustainable Salmon Fisheries. Juneau, Alaska.
- AAC. 2003. 5 AAC § 75.222 Policy for the Management of Sustainable Wild Trout Fisheries. Juneau, Alaska.
- ADFG. 2019. Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes – Southcentral Region, Effective June 1, 2019.
- ADNOR and ADFG. 1988. Prince William Sound Area Plan for State Lands. Anchorage, Alaska. June 1988.
- ADNOR. 2015. Alaska's Outdoor Legacy: Statewide Comprehensive Outdoor Recreation Plan: 2016-2021. Anchorage, Alaska.
- USFWS. 1989. Fisheries USA: the Recreational Fisheries Policy of the U.S. Fish and Wildlife Service. Washington, D.C.
- USFS. 2020. Chugach National Forest Land Management Plan. Department of Agriculture, Anchorage, Alaska.

In addition to the plans that pertain to the Solomon Gulch Basin, the following comprehensive plans relate to the non-project-related transmission line extending from the Petro Star Switch Building to Glennallen:

- ADFG. 2006. Management Plan for Invasive Northern Pike in Alaska. Anchorage, Alaska. 2006.
- ADNR. 1986. Copper River Basin Area Plan for State Lands. Anchorage, Alaska. December 1986.
- NPS. The Nationwide Rivers Inventory. Department of the Interior, Washington, D.C. 1993.

#### **6.4 Relevant Resource Management Plans**

In addition to the comprehensive plans listed above, some agencies have developed resource management plans to help guide their actions regarding specific resources of jurisdiction. The resource management plans listed below may be relevant to the Solomon Gulch Project and may be useful in the relicensing proceeding for characterizing desired conditions.

- ADFG. 2002. Alaska Aquatic Nuisance Species Management Plan. RIR 5J02-10. October 2002.
- ADFG. 2002. Division of Wildlife Conservation Strategic Plan. December 4, 2002.
- ADFG. 2008. Division of Subsistence Draft Strategic Research Plan. SP 2008-06. October 15, 2008.
- ADFG. 2006. Strategic Plan for the Division of Sport Fish, Southcentral Region, Sport Fishing and Aquatic Education Program. Divisions of Sport Fish and Commercial Fisheries. December 2006.
- ADFG. 2014. Division of Sportfish Strategic Plan 2015-2020.
- ADFG. 2015. Alaska wildlife action plan. Alaska Department of Fish and Game, Juneau, AK. 263 pp.
- ADFG. 2022. Draft Region II Statewide Stocking Plan for Sport Fish 2022-2026. 2022 Update. Division of Sport Fish.
- Alaska Wildland Fire Coordinating Group. 2010. Alaska Interagency Wildland Fire Management Plan 2010.
- City of Valdez, Alaska. 2021. Valdez Comprehensive Plan Revision 2021. October 2021.



- U.S. Department of the Interior, Bureau of Land Management. 2007. East Alaska Resource Management Plan.
- U.S. Department of the Interior, NPS. 1986. Wrangell-St. Elias National Park and Preserve General Management Plan, Land Protection Plan, and Wilderness Suitability Review.
- U.S. Department of Interior and Ahtna Inter-tribal Resource Commission. 2016. Memorandum of Agreement between U.S. Department of Interior and Ahtna Inter-tribal Resource Commission for a Demonstration Project for Cooperative Management of Customary and Traditional Subsistence Uses in the Ahtna Region.

#### **6.4.1 References**

Federal Energy Regulatory Commission (FERC). 2022. List of Comprehensive Plans.  
Available online: <https://cms.ferc.gov/media/list-comprehensive-plans>. Accessed  
June 27, 2022.

## APPENDICES

## **APPENDIX A**

### **SOLOMON GULCH HYDROELECTRIC PROJECT LICENSE AND LICENSE AMENDMENTS**

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

License (Major)

Before Commissioners: Charles B. Curtis, Chairman;  
Georgiana Sheldon, Matthew Holden, Jr.,  
and George R. Hall.  
Copper Valley Electric Association, Inc. ) Project No. 2742  
)

ORDER ISSUING LICENSE (MAJOR)

(Issued June 21, 1978)

On October 1, 1977, pursuant to the provisions of the Department of Energy Organization Act (DOE Act), Public Law 95-91, 91 Stat. 565 (August 4, 1977), and Executive Order No. 12009, 42 Fed. Reg. 46267 (September 15, 1977), the Federal Power Commission (FPC) ceased to exist and its functions and regulatory responsibilities were transferred to the Secretary of Energy and the Federal Energy Regulatory Commission (FERC) which, as an independent commission within the Department of Energy, was activated on October 1, 1977.

The "savings provisions" of section 705(b) of the DOE Act provided that proceedings pending before the FPC on the date the DOE Act takes effect shall not be affected and that orders shall be issued in such proceedings as if the DOE Act had not been enacted. All such proceedings shall be continued and further actions shall be taken by the appropriate component of DOE now responsible for the function under the DOE Act and regulations promulgated thereunder. The functions which are the subject of this proceeding were specifically transferred to the FERC by section 402(a)(1) or 402(a)(2) of the DOE Act.

The joint regulation adopted on October 1, 1977, by the Secretary and the FERC entitled "Transfer of Proceedings to the Secretary of Energy and the FERC," 10 CFR \_\_\_\_, provided that this proceeding would be continued before the FERC. The FERC takes action in this proceeding in accordance with the above mentioned authorities.

Copper Valley Electric Association, Inc. (Applicant) of Glennallen, Alaska, filed on April 28, 1975, and supplemented on September 24, 1975, February 19, 1976, and April 3, 1978, an application for a major license for its proposed Solomon Gulch Hydroelectric Project No. 2742, on Solomon Gulch Creek

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near the City of Valdez, Alaska. The project site faces the City of Valdez from the opposite shore of Port Valdez and is located some 3 miles east of the Trans-Alaska Pipeline Terminal. The project affects lands of the United States under the jurisdiction of the Department of the Interior and is therefore subject to the jurisdiction of this Commission. 1/

#### History of Power Generation at Project Site

About 180 acres of land needed for Project No. 2742 were previously utilized in the initial development of the hydroelectric potential of Solomon Gulch Creek. On September 23, 1932, the Federal Power Commission (FPC) issued a license for Project No. 1101 to Prince William Sound Water-Power, Light and Telephone Company for a 480-hp project originally constructed at the site in 1907. Effective April 23, 1943, the license was transferred to the Valdez Water, Power & Light Company. By order issued August 21, 1945, the FPC accepted the surrender of the license for Project No. 1101.

On June 13, 1952 (11 FPC 1061), the FPC issued a license to the Valdez Cold Storage Corporation for Project No. 1970 -- a 225-hp project which was to be a partial restoration of Project No. 1101. On December 11, 1957 (18 FPC 792), the FPC approved a transfer of the project to Harvey F. Stelling. A 1963 inspection revealed that the project was not operational. The license for Project No. 1970 expired on April 30, 1967. Today, all that remains are the 100-surface-acre reservoir (Solomon Lake), scattered remnants of the penstock and powerhouse machinery, and a deteriorating operator's cabin.

#### Project Description and Operation

The proposed project would consist of: (1) a rockfill dam with an asphaltic concrete face, 115 feet high and approximately 400 feet in length at the crest, to be located at the outlet of Solomon Lake; (2) two rockfill dikes connected by a concrete spillway with a 250-foot overflow section; (3) Solomon Lake, with a surface elevation raised from 608.5 to 685.0 feet (USGS datum), a surface area of approximately 615 acres, and a usable storage capacity of 31,500 acre-feet; (4) a steel penstock 4,159 feet in length and varying in diameter from 56 inches to 48 inches; (5) a 57 by 50-foot powerhouse located near tidewater containing two generating units each rated at 6,000 kW; (6) a switchyard adjacent to the powerhouse; (7) a 5-mile long, 24.9-kV transmission line

1/ Throughout this order "Commission" will denote the Federal Energy Regulatory Commission or the former Federal Power Commission, as the context indicates.

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extending from the powerhouse switchyard to the Meals Substation and thence to the Old Town Substation; (8) the Meals Substation; (9) a 104-mile long, 138-kV transmission line extending from the Meals Substation to a substation adjacent to Pump Station 11 near Glennallen; and (10) appurtenant facilities. The project is more fully described in ordering paragraph (B) below.

The proposed project would be located on Solomon Gulch Creek. The powerhouse would discharge into the southeast end of Port Valdez. The installed capacity would be 12,000 kW. The estimated average annual generation is 54,565 MWh for an estimated annual capacity factor of 52 percent. The project reservoir would have a usable storage capacity of 31,500 acre-feet and would regulate 90 percent of the flows in Solomon Gulch Creek. The project would be operated to maximize firm power generation. In a typical water year the reservoir would be full on November 1. Between November 1 and May of each year, when inflow to the reservoir would be low, the reservoir would be drawn down approximately 65 feet. From May to September melting snows would fill the reservoir again. No reservoir storage would be reserved for flood control because there would be no damage resulting from downstream flooding. A minimum continuous flow of 3.5 cfs or a flow equal to the natural inflow to the project reservoir, whichever is less, would be maintained in the creek to protect fishery resources including salmon spawning areas at the mouth of Solomon Gulch Creek. The generating units would be remotely controlled from Applicant's Valdez diesel generating plant. Routine maintenance at the project would be performed by operators from the diesel plant during daily visits to the powerhouse.

#### Public Notice

Public notice of the filing of this application was given as required by the Federal Power Act with August 16, 1976, as the due date for the filing of protests or petitions to intervene.

By letter dated August 1, 1976, Mr. James J. Shepherd, a resident near the right-of-way for the proposed project 138-kV transmission line filed a protest with the Commission. Mr. Shepherd requested that the Applicant be required to provide electric service to himself and other individuals residing near the route of the proposed transmission line.

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By letters dated September 3, 1976, Mr. Shepherd was informed that his letter would be placed in the Commission's public files regarding this project and a response to his letter was solicited from the Applicant. In its response of September 30, 1976, Applicant explained that because the proposed line would be operating at 138-kV it could not be used for distribution purposes without the addition of a substation. Applicant further stated that construction of a substation was not presently feasible because the "requirement for electricity in the vicinity of Mr. Shepherd's home is very limited at the present time." Applicant concluded that if it became feasible to construct a substation or to extend its existing distribution lines to service the area where Mr. Shepherd lived it would be pleased to do so. This Commission, of course, does not have authority to license or to regulate distribution lines.

No other protests, petitions to intervene, or notices of intervention have been received.

The application was sent to interested Federal and State agencies for comment. No agency objected to the issuance of a license for this project. Substantive issues raised in the comments on the application and on the staff's environmental impact statement on this project are discussed below.

#### Feasibility and Financial Ability

The estimated cost of the project is \$31,653,000 based on July 1976 cost levels. The staff's 50-year present worth levelized cost benefit study of the project shows that the annual project power benefits would exceed the estimated annual costs by \$2,478,200. Power benefits were estimated using diesel electric generators as the alternative power source. Because of the remoteness of the region, the relatively small size of the total electric system, and the reliability of the machines, diesel electric capacity is the most reasonable alternative power source.

Applicant is a non-profit cooperative corporation organized under the laws of the State of Alaska, having its office and principal place of business in the City of Glennallen, Alaska. On February 5, 1977, Applicant applied to the Rural Electrification Administration (REA) for funds to construct the project. REA indicated on April 20, 1978,



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that this funding should be approved in the very near future. REA plans to provide the Applicant with a combination of direct loan financing and guarantee loan financing.

Need for Project Power

The primary purpose of the proposed Solomon Gulch Project is to add 12,000 kW of capacity and an average of 54,565,000 kWh per year of energy to the Applicant's electric system to serve growing loads. 2/ An additional purpose is to tie together the Applicant's two existing, but currently independent, distribution systems at Glennallen and Valdez, Alaska, by means of a transmission line. All of Applicant's installed generators are diesel-electric units, except for one mobile, oil-fired, 2,800 kW gas-turbine unit.

Applicant's load forecast was developed through a cooperative effort with the REA. The Applicant estimated the load forecast under the supervision of REA through the year 1985. Forecasted loads from 1985 through 1991 were estimated by Applicant. REA has stated that these latter figures appear reasonable. The vagaries of the Alyeska pipeline construction activities and the future Alyeska loads exert great influence on annual growth rates. The Commission staff has examined the load forecasts for the various classes of use and has concluded that the forecast of total future loads appears reasonable.

It is evident that the Applicant will need additional capacity by 1981. 3/ The need is even greater taking into account requirements for adequate reserves. Some of the Applicant's units individually provide more than 20% of the forecast peak demand; therefore, the need for additional capacity becomes more critical. The Applicant's goal is to obtain the most economical additional capacity to meet its growing needs, which it believes can be achieved by constructing the Solomon Gulch Project and the oil pipeline pressure reducing turbines (PRT). 4/ In the future, the Applicant intends to dispose of its small diesel generating

2/ The proposed project would save the equivalent of 97,000 barrels of oil per year.

3/ Figures are provided in the Staff's final environmental impact statement, pp. 1-1 to 1-3.

4/ The PRT would produce electric power by utilizing the 2,000 foot drop of the Trans-Alaska Pipeline from the mountains surrounding Valdez to the port at Valdez. This proposal is discussed more fully in the final EIS, p. 8-5.

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units and to retain its larger diesel units for emergency standby. <sup>5/</sup>

Associated Transmission Lines

The Applicant proposes a 138-kV transmission line from the project 104 miles north to Glennallen. Without this line the project would supply Valdez with low cost hydroelectric power, but not all of the energy could be used until 1988. With the line, all of the project energy would be usable by 1980. This is not the only reason to construct the line, however. As explained on page 8-6 of the Final Environmental Impact Statement (EIS):

This alternative /omission of the Valdez-Glennallen line/ would leave the transmission line route in its present state; however, it would also cause the Glennallen-Valdez electrical systems to remain isolated. There are significant disadvantages, such as loss of flexibility in system planning and economy of operations if the Glennallen-Valdez area remains isolated. In general, there would be no efficient way to share diversity between the systems, as witnessed by the present use of a mobile gas turbine. Planning and installation of generating units would be limited to the needs of a small system. Misjudging load growth would have more serious consequences, since there would be no way to exchange power between the systems, and reserve requirements could not be shared.

Specifically, annual power production costs at Glennallen and Valdez would be about \$490,000 more than for the proposed project, and 2,900 more barrels of distillate oil would be consumed annually. Since the systems now operate independently and electric rates are determined for each area, not constructing the transmission line would produce an unequitable rate structure between Glennallen and Valdez. By 1988, when all Solomon Gulch energy

<sup>5/</sup> A single transmission line outage could disrupt electrical service to Valdez, Glennallen, or both. Consequently, it might be necessary for Applicant to maintain on-site generating facilities at both centers equal to the load.

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becomes usable at Valdez, the cost of energy at Valdez would be about 21 mills per kWh, while energy at Glennallen would cost about 91 mills per kWh. Also, installation of the PRT in the Trans-Alaska Pipeline would be delayed until the 1990's (the PRT would be feasible in the early 1980's on the combined system).

The proposed transmission line would also make it possible to establish an intertie between the potential Upper Susitna Hydroelectric Complex and the Applicant's system. One of the transmission corridors between this hydroelectric project and Fairbanks which has been studied by the U. S. Army Corps of Engineers runs directly to Glennallen before turning north to Fairbanks. An early expression of interest on the part of the Applicant could possibly influence this choice of routes and provide a low-cost tie. It has been estimated that the Susitna Project could be completed by 1986 and that the energy produced would be valued between 5 and 15 mills per kilowatt-hour.

The Department of the Interior (Interior) in its letter of September 21, 1977, commenting on the draft EIS, and in a subsequent letter dated April 28, 1978, raised certain questions regarding the need for this long transmission line. Interior notes that the energy demands of Valdez alone will outstrip the capacity of Solomon Gulch by 1988, or perhaps sooner, and that the proposed Susitna Project <sup>6/</sup> could supply energy to Glennallen. Based on these considerations, and the fact that the 104-mile transmission line will be expensive, difficult to build, and impose adverse aesthetic impacts, Interior suggests eliminating this part of the proposed project.

Even if the energy demands in Valdez by 1988 exceed the capacity of the proposed Solomon Gulch project, this does not mean that the transmission line would not be needed. The cost of diesel generation in Glennallen is higher than the cost of diesel generation in Valdez. Therefore, project energy could be sent to Glennallen to displace Glennallen diesel generation, and the combined deficit could be served by diesel generation from Valdez. In addition, the projected PRT generating plant would supply base load energy to Valdez

<sup>6/</sup> The proposed Susitna Project would be located northwest of Glennallen. See FEIS, p. 8-7, figure 8-1.

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directly and to Glennallen via the transmission line. The proposed Solomon Gulch project would then supply peaking energy to Valdez directly and to Glennallen via the transmission line. Moreover, the energy and capacity demands of Glennallen and Valdez eventually might well outstrip the combined generation of the PRT and the Solomon Gulch Project. Then, if the Susitna Project is operating, base load energy could be supplied to Glennallen from Susitna and peaking energy could be supplied to Glennallen from the Solomon Gulch Project via the transmission line. Also, should the demands at Valdez grow enough to exceed the generation of the PRT and the proposed project, the growing deficits at Valdez could then be served by Susitna generation via Glennallen and the transmission line, while Glennallen loads could be served entirely from Susitna generation.

Taking all of these factors into consideration, we conclude that the transmission line from Project No. 2742 to Glennallen is an important part of this proposed project and is justified on the grounds of need, reliability of power supply, and economics. We note that when staff studied the transmission line in preparing the EIS it recognized that there were large potential future benefits directly related to the proposed line. Since those additional benefits would accrue from other generation sources which could not be assured at this early date, the staff considered only those benefits accruing from transmission of Solomon Gulch Project power. These economic and fuel conservation benefits that staff has estimated and shown on Table 8-1 in the final EIS, include only those benefits from project generation, and the costs include the entire cost of the transmission line. Therefore, with ultimate development of the PRT or Susitna, the true future benefits of the transmission line would be many times greater than those benefits shown in the final EIS for the Solomon Gulch Project.

The proposed 24.9-kV transmission line from the project switchyard is adequate to carry project generation to the Meals substation and beyond to the Old Town substation. The 138-kV transmission line from Meals can carry power to Glennallen at levels greater than the project will generate, thus having the ability to accommodate power generated either at the projected PRT plant or the Susitna Project in the future.

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Alternatives

Considering the Applicant's electrical system requirements, diesel units are the most likely alternative available for meeting its increasing load requirements. As noted above, the Applicant's existing electric generating plant consists principally of diesel units. Using additional diesel units would increase the Applicant's reliance on distillate oil. The diesel alternative would consume about 97,000 barrels of fuel oil annually in producing the same amount of power as the proposed Solomon Gulch Project -- and would cost about \$2,478,000 more annually. In addition, operation of diesel units would release pollutants into the atmosphere and may produce visual and noise impacts.

Oil-fired combustion turbines are peaking units which are generally not economical when operated for more than 750 hours per year. The Solomon Gulch project would operate an average of 4,400 hours annually. The annual cost for fuel alone (\$2,257,000) for an oil-fired combustion turbine producing an amount of power equivalent to the Solomon Gulch Project would be greater than the annual fixed cost of Project No. 2742.

Steam turbine generation cannot be considered an economic alternative to the proposed project because of the small size of Applicant's system. The units would have to be in the 5-10 MW range, and the cost of such small units is prohibitive.

The PRT referred to above is not a timely alternative to Solomon Gulch because its development hinges on the agreement of the oil pipeline owners.

Another potential alternative source of power is the proposed Tebay Lakes Hydroelectric Project, located about 65 miles east of Solomon Gulch on the northern slope of the Chugach Mountains (see, EIS, Figure 8-2). This project is described in detail in the final EIS, Section 8.1.6. We do not consider it a practical alternative to the Solomon Gulch Project at this time. The Tebay Lakes Project would produce about 160 percent more power than Project No. 2742, an amount of power that could not be fully utilized for many years under present estimates. It would result in high carrying costs for the investment until the project output were fully utilized. In addition, the Tebay Lakes Project would not be available until much later than the Solomon Gulch Project because difficult access and a short construction season would require a long construction period. Development of the Tebay Lakes Project in the future appears to be more feasible than development of that project at this time.

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Finally, we note that if we decided not to issue a license to Applicant for the Solomon Gulch Project as proposed, Applicant could still develop part of the project which would not affect United States lands and possibly not be subject to our jurisdiction. This would result in a smaller project, however, and one which we believe would not be best adapted to comprehensive development of this waterway.

We conclude that the proposed Solomon Gulch Project is the best alternative available to Applicant at this time to satisfy its projected needs in an economical and reliable manner.

#### Safety and Adequacy

Southern Alaska is a part of one of the world's most active seismic zones. Since 1898 the Valdez area has experienced over 70 recorded earthquakes of an estimated or measured magnitude of 5.0 or higher on the Richter scale. On at least six occasions, the earthquakes have been accompanied by submarine slides in Port Valdez. In some instances violent sea waves have been generated by those underwater landslides. An earthquake is probably the only catastrophic event which could damage the project to any significant degree, since the spillway at the reservoir would be designed to pass the probable maximum flood (PMF).

The rockfill dam as modified to meet the requirements of the license articles would be inherently resistant to damage from earthquake accelerations. It is estimated that the proposed dam would withstand an earthquake having an intensity equivalent to the 1964 Valdez earthquake without catastrophic failure. If exposed to such an earthquake force, the dam would probably suffer substantial deformation, which would cause the impervious upstream membrane to crack and leak; however, the high permeability of the rockfill would prevent additional damage to the dam. Due to the remote location of the project and the short distance from the dam to the bay, even a complete failure of the dam would not endanger downstream life or property. A large sea wave generated by an earthquake or by a submarine landslide could damage or destroy the powerhouse.

The Trans-Alaska Pipeline, which crosses Solomon Gulch Creek between the bay and the proposed dam, was placed in a trench excavated in rock and encased in concrete. It would not be subject to damage from flowing water.

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The Alaska Department of Environmental Conservation (DEC) by letter dated August 5, 1976, stated that Applicant must demonstrate the response characteristics of the proposed dam to earthquakes and that maximum safeguards against seismic hazards must be built into the dam structure and power generation system, including a capacity to withstand surging water that might be displaced by landslides into the reservoir. By letter dated September 2, 1976, the Forest Service stated that the final design of the dam should consider a planned emergency procedure for drawdown of the lake if the dam is weakened by earthquakes since a dam failure could damage the Trans-Alaska Pipeline. The U. S. Army Corps of Engineers, Alaska District Office (Corps), reviewed the plans of the project for the State of Alaska and recommended approval of the proposal with respect to those features subject to the Corps' technical advisory service to the State.

In responding to these comments about project safety, Applicant in a letter dated January 12, 1977, referred to the review and approval of the design of the proposed dam by the Corps for the State of Alaska and noted that the review was made subsequent to the Teton Dam disaster and a thorough analysis was made of seismic stability.

The Exhibit L drawings on file with the Commission show that Applicant proposes to construct the rockfill dam using rock with a maximum size of 4 feet, to be dumped in place and sluiced. Staff has concluded that such construction procedures would be unacceptable because the resulting structure would be subject to possible excessive maintenance and repair costs caused by uneven settlement of the rockfill. Staff has recommended that the rockfill be placed in thinner lifts and be compacted with heavy vibratory equipment, as recommended in the U. S. Army Corps of Engineers Manual TM 110-2-2300.

The Commission's staff has analyzed the stability of the proposed dam section, assuming it to be constructed in thin, well compacted lifts, and subjected to an earthquake loading of 0.5g acceleration. The staff has concluded that the proposed dam, if constructed with a downstream slope of 1.4 to 1.0 as shown on the Exhibit L drawings, would not be stable under a 0.5g earthquake acceleration loading. The dam can be made stable, however, by reducing the slope of the downstream embankment, or by providing a berm on the downstream embankment, thereby reducing the effective slope. A preliminary estimate of the cost of such a berm is about

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\$50,000, which would not significantly affect the project economics.

We are including special Article 46 in the license to require that the dam be constructed of well compacted rockfill and that the proposed design of the dam be modified to be stable under a design earthquake commensurate with the earthquake activity in the area. That design shall be assessed by the independent Board of Consultants required by Article 47.

The proposed spillway design is based on the staff and PMF study which does not include snowmelt contribution. The water shed above the dam is partially covered with glaciers and a significant amount of snow accumulates during the winter. Including the runoff contribution from snowmelt with the PMF would increase the volume of the probable maximum flood to the extent that the spillway capacity would not be adequate. Special Article 46 also requires licensee to modify the spillway to accommodate a spillway design flood based on the PMF and snowmelt. Upon compliance with Article 46 we conclude that the project spillway would be adequate to pass the PMF.

The staff has also reviewed potential safety and interference problems that may arise due to locating the project transmission line adjacent to the Trans-Alaska Pipeline. EPA expressed concern over this matter in its letter of April 4, 1978. Staff has concluded that Applicant should conduct studies to specifically identify those problems and implement any mitigative measures found to be necessary. Special Article 51 is included in the license to implement this recommendation.

Upon compliance with Articles 46 and 51, we conclude that the proposed project works would be safe. Compliance with these articles and standard Article 28 should also satisfy the safety issues raised by the staff and the commenting agencies.

#### Power Development

There are no other hydroelectric projects on Solomon Gulch Creek. The proposed Solomon Gulch Project would develop the only potential hydroelectric site in the 19 square mile river basin. The proposed project would utilize 90% of the total basin runoff for power generation. The benefits that would occur from raising the dam to provide additional storage would be offset by the increased cost of the civil works. We conclude that the project, as proposed,



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represents the most comprehensive power development of the potential of the river basin under existing conditions.

#### Permits and Regulations

In Exhibit C of its application, the Applicant submitted satisfactory evidence of compliance with applicable State laws with respect to the construction of the proposed project. Exhibit D of the application contained copies of applications for the appropriation, diversion, and use of water for power purposes. By letter dated March 29, 1978, Applicant filed a copy of Water Rights Permit No. 921, approved by the Alaska Department of Natural Resources on October 25, 1976. This permit gives Applicant the water rights necessary to operate the project.

The Corps recommended for inclusion in any license a special article to require compliance with Section 404 of the Federal Water Pollution Control Act Amendments of 1972. Under Section 404, Applicant is required to obtain a Department of the Army permit prior to undertaking any work that may result in the discharge or placement of dredged or fill material in or affecting navigable waters or wetlands. With respect to the project transmission line, Interior recommended a special article requiring Applicant to obtain the necessary Federal and State permits before crossing any navigable waters or streams used by anadromous fish. By letter dated June 28, 1976, the Federal Aviation Administration stated that Applicant is required by Federal Aviation Regulation Part 77 to notify FAA of proposed construction when an overhead section of transmission line is within 10,000 feet of an airfield. The Alaska Department of Highways stated that certain proposed project facilities near the powerhouse are located on its highway right-of-way and that Applicant would have to get a permit for those facilities.

Applicant responded that it would comply with the requirements of these agencies. We are not including special articles in the license ensuring compliance because it would merely be duplicative of other laws. Applicant is aware of the indicated need for the various permits.

#### Fish and Wildlife Resources

Many wildlife species, including the major predatory species, inhabit Alaska. The staff's final EIS contains an extensive discussion of these species and the potential impact of the project on them. Briefly stated, the major

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wildlife species in the project area include wolves, bears, mountain goats, and sheep. Moose, caribou and bison are also present in the interior Copper River Basin. Other terrestrial mammals inhabiting areas in or near proposed project boundaries include the wolverine, coyote, marten, river otter, beaver, marmot, weasel, porcupine, and mink. A number of both migratory and resident waterfowl species are found in the general vicinity of the project; however, very few frequent the Solomon Gulch area. Upland game bird species inhabiting the project area include ptarmigan and grouse. Bald eagle nests have been sighted in the project vicinity and along the transmission line route. Other raptors which probably inhabit the general area are the osprey, peregrine falcon, and various species of hawks. Sightings of these raptors in the project area are, however, undocumented.

Interior stated that project construction in the vicinity of Solomon Gulch would result in minimal adverse environmental impacts on wildlife. The project transmission line would pass through excellent beaver habitat and a major wintering area for moose. Interior noted that plans for judicious clearing along the transmission line would increase browse for moose, and monitoring by the Alaska Department of Fish and Game would prevent damage to beaver lodges and dams. The rivers and streams located near proposed project facilities support populations of resident and anadromous fish, including species of salmon and trout. The waters of Solomon Lake are not inhabited by fish, and only the intertidal zone of Solomon Gulch Creek is utilized by spawning salmon (pink and chum). The National Marine Fisheries Service and the Alaska Department of Fish and Game reported that between 200 and 500 pink salmon spawn in the intertidal zone of Solomon Gulch Creek on odd numbered years.

The Fisheries Service recommended that the powerhouse tailrace discharge be located close to Solomon Gulch Creek to preclude the possibility of diverting spawning salmon away from suitable spawning habitat in the intertidal zone of the stream, and that consideration be given to possible enhancement features that could be incorporated into the project. The Fisheries Service also recommended that provisions be made to assure that a minimum flow of 3 cfs would be available in the natural stream channel in the event that the powerhouse is shut down or that the quality of water obtained from the powerhouse tailrace is inadequate for salmon production. Interior recommended minimum flows in Solomon Gulch Creek during periods of spawning, incubation, and rearing of salmon; a means of removing sediment caused

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by project construction to prevent sedimentation of salmon spawning gravels; and mitigation if future studies should determine that salmon runs are reduced or eliminated due to construction or operation of the project. The Department of Environmental Conservation also stated that minimum flows should be maintained in the lower reaches of Solomon Gulch Creek. EPA expressed concern that Applicant would only be required to monitor sedimentation in the salmon spawning area near the outlet of Solomon Gulch Creek. EPA suggested that Applicant be required to take remedial action if sedimentation is at or near a level which may be harmful to those spawning areas.

According to the provisions of a water permit issued by the Alaska Department of Natural Resources, the Applicant would be required to maintain a minimum flow release of 3.5 cfs below the dam to maintain the downstream fishery habitat.

In response to the comments on fish and wildlife resources, Applicant stated that minimum flows in the spawning area of the natural stream channel would be assured in the detailed design of the project. Applicant stated that it had no objection to the enhancement of the spawning area or diverting additional water from the tailrace by another agency. Applicant stated that the tailrace discharge was located to allow the siting of the powerhouse as far as possible from the Dayville road without losing valuable head. Applicant's Exhibit S proposes no measures to conserve or enhance fish and wildlife resources of the project as required in the Rules and Regulations.

Staff has reviewed the comments on fish and wildlife resources and has evaluated the impacts of the proposed project on those resources in Sections 3 and 9 of the final EIS. Wildlife habitat would be permanently altered on 515 additional acres of land in the area of the enlarged reservoir. A portion of the slopes around the existing reservoir would be lost as wintering areas for mountain goats and as habitat for bear and other residents of the drainage. In addition, the construction of project facilities with its attendant traffic, noise, and increased human activity would have some temporary effects on the wildlife species and their habitats within and near the project area. Clearing the right-of-way for the transmission lines would result in the rapid growth of underbrush which would benefit moose and other species of wildlife that browse on such vegetation. The construction and operation of project transmission lines could have adverse

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impacts on raptor and waterfowl nesting areas and critical wildlife habitat areas.

We are including special Article 38 in the license to require Applicant to make a detailed assessment of critical wildlife areas and to propose appropriate measures to prevent or minimize disruptions to wildlife and wildlife habitat that would be affected by the construction and operation of the project transmission lines. Special Article 38 would also require Applicant to file a revised Exhibit S that would include a proposal for a study to determine the effect of project operation on salmon spawning activities. The Exhibit S would also include proposals for measures to conserve and enhance fish and wildlife resources affected by the project.

Article 39 would require Applicant to release sufficient water from the project dam to maintain a minimum continuous flow of 3.5 cfs or to equal the natural inflow to the project reservoir, whichever is less, as measured at the crest of the Solomon Gulch Creek Falls. The article also calls for an evaluation of that minimum flow to determine its adequacy and the need for modifications to protect the spawning areas.

We conclude that these special articles, together with the standard license articles to be included with this license, will satisfy recommendations of the commenting agencies and will adequately protect and enhance the fish and wildlife resources of the project area.

#### Recreation

The Applicant proposes to make the access road leading to the dam available for hiking. Two rest shelters would be provided--one near the intersection of the access road and the Trans-Alaska Pipeline--the other at the reservoir near the dam. The road would be closed to all private vehicles, including snowmobiles and motorcycles. Hikers could also follow the penstock alignment between the bluff overlooking Port Valdez and the dam. A sign, including brochure dispensers, would be erected at the trailhead in the powerhouse parking lot. Information concerning public use of project lands and facilities would be displayed. Information on local geographic features, geologic phenomena, flora, fauna, and hydroelectric power development would also be made available through the display and in brochures. Additional informational signs would be erected at strategic locations along the access road and at the dam. Applicant's estimated costs of these project recreation facilities total about \$9,000.

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Construction of the proposed recreational facilities would increase the estimated recreational use of the project reservoir area from 25 visits currently to 500 visits per year. Legislation has been introduced in the Alaska legislature to create Keystone Canyon State Park near Valdez. A portion of the proposed 138-kV transmission line right-of-way would lie within the boundaries of the possible park.

Interior commented that the trail to be provided from the powerhouse to the reservoir should be in a separate right-of-way from the construction road, in order to locate it through more scenic surroundings. Interior also suggested that a multiple-use shelter should be provided along the trail near the rest station closest to the dam, to be used for picnics and as a warming hut for protection during winter storms. Interior also cited the need for a management plan to be included in the Exhibit R, which would minimize conflicts between cross country skiers, snowmobilers, hikers, and trailbikers. In response to Interior's comments, the Applicant stated that the use figures for the existing trail to Solomon Lake were conservative and that the steep gradient between tidewater and the Lake makes the project area a poor choice for skiing and snowmobiling. Moreover, Applicant believes that the Port Valdez vicinity has outstanding recreation areas that are easily accessible from existing highways.

Staff's analysis of the recreational needs and demands of the project area reveals that an abundance of natural, scenic, and recreational resources occurs in the area and is relatively accessible to the residents of the Valdez vicinity. In contrast, the proposed recreation facilities at the project would have limited accessibility. Further, visitor use of the proposed recreational facilities would be minimal. Separation of the trail right-of-way from the construction road, and the construction of a multiple-use shelter as proposed by Interior would substantially increase the construction cost of the recreation facilities.

We have concluded that it has not been sufficiently demonstrated that recreation facilities of a more substantial nature than those proposed in the application are needed, or could be economically justified at this time. Therefore, we are approving the Exhibit R. Furthermore, the standard license articles and the Form 80 filings provide the authority and information needed to assess the future recreational needs of the project area regularly, and to take any additional action to expand the recreational facilities when expansion is necessary and in the public interest.

*Ad. Cont. 17*

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Other Environmental Considerations

A final environmental impact statement was prepared by the Staff and issued in March, 1978. We turn now to a brief discussion of the significant environmental impacts of the construction and operation of the proposed Solomon Gulch Project not covered in earlier parts of this order.

Land Use and Visual Impact:

Applicant proposes to allow Solomon Lake to fill with water during the summer and draw down during the winter. During a typical water year that operation would create a lake of about 615 surface acres between September 12 and November 5 and about 300 surface acres by mid-May of each year. The filling of the reservoir during the summer months would hinder any significant revegetation of the exposed reservoir slopes. The lack of vegetation in combination with the alternate inundation and dewatering of the slopes could introduce sediments into the impounded waters, even though soils within the area of the proposed reservoir are shallow and surface soil deposits near the reservoir are thin. The Applicant does not propose to clear the dense vegetation from the slopes which would be inundated by the proposed reservoir.

Interior commented that the fluctuations of the reservoir surface will have an impact on the scenic quality of the area and the Forest Service expressed concern about the visibility of the penstock from the reservoir to the powerhouse. Applicant responded that fluctuations of the reservoir surface would have little impact on the scenic quality of the area because it would be drawn down during the winter months while the entire area is covered with snow. Maximum visual impact would occur during the months of June and July when the reservoir is refilling. Applicant also stated that a protective coating would be applied to the penstock to minimize its visual impact.

Based on our review of the application, the agency comments, and the Staff's final EIS, we are including special Article 34 in the license. Article 34 requires the Applicant to submit a detailed plan to avoid or minimize any disturbance to the natural and scenic values of the area after consulting with a professional land use planner and interested agencies.

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By letter dated April 4, 1978, commenting on the final EIS, the Environmental Protection Agency (EPA) suggested that reservoir clearing merited further attention by the FERC prior to issuing a license for this project. EPA was not satisfied with the standard license article requiring Applicant to file and implement a reservoir clearing plan. EPA fears that Applicant's plan might simply continue to consist of not clearing the slopes. Not clearing, EPA states, could result in declining dissolved oxygen concentrations in the reservoir and eutrophication problems.

In our view EPA's fears are premature. Standard Article 20 included in this license requires consultation with the appropriate State and Federal agencies before formulation of the clearing plan. If any of these agencies are dissatisfied with the plan submitted to this Commission for approval, they will have the opportunity to make their views known before we act on it.

Additionally, construction might affect bench marks, triangulation stations, and traverse stations established by the U. S. National Geodetic Survey in the vicinity of the project. The National Geodetic Survey (NGS) requires sufficient advance notice and funds in order to relocate monuments. We are including special Article 35 in the license requiring Applicant to consult with NGS and, prior to commencement of construction, formulate plans and provide funds to relocate any affected stations or bench marks.

*portion  
of  
USGS*

Transmission Line Routing:

The proposed transmission lines, especially the proposed 138-kV line, would have significant visual impacts. The route of the proposed 138-kV line was selected to avoid scenic areas such as Keystone Canyon and Worthington Glacier, but the choice of alignment for the route was limited by difficult terrain--including glaciers, ice fields, and rugged mountains. Sections of the proposed 138-kV line route would parallel the Richardson Highway and would be visible from the highway. The proposed route would cross approximately 30 miles of State-owned land, 25 miles of land owned by a native corporation (AHTNA, Inc.) and approximately 50 miles of land administered by the Bureau of Land Management as a utility corridor for the Trans-Alaska Pipeline. All construction, operation, and maintenance activities in these areas would be in accord with applicable regulations of the agencies administering those lands. To minimize the visual impact of all project transmission lines, we are including Special Article 48, which specifies the use of nonspecular conductors.

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Interior's various letters of comment, including the latest dated April 28, 1978, raise its concern with the environmental impacts of the proposed 138-kV transmission line. Interior suggested close coordination with its Bureau of Land Management (BLM) in determining the location of the transmission line, because the BLM would have to issue a right-of-way permit for the line.

Applicant has reported that it is working closely with the BLM Glennallen area manager and State agencies in analyzing alternate right-of-way alignments to mitigate environmental effects of the proposed transmission line. On March 23, and June 2, 1978, Applicant indicated that in discussions on the transmission line right-of-way Applicant and BLM had agreed in general on all of the route.

The proposed route of the transmission line, the environmental impacts associated with it, and mitigation measures that can be undertaken to protect the environment are discussed in the Staff's final EIS. Interior's latest letter concludes by stating that if the Applicant takes the environmental protection actions indicated in the final EIS, as well as the concerns raised in its letter, then acceptable stipulations can be developed for granting a right-of-way and associated permits.

We are including special Articles 33, 34, 36, 38, 40, 48, and 51 in the license for Project No. 2742. These articles deal with, among other things, various aspects of the transmission line planning, coordination, construction, and operation. Compliance with these articles, which will be assured through monitoring by representatives of the Commission will, we believe, satisfy the concerns raised by all agencies and result in a line that is compatible with the environment to the maximum extent possible.

#### Water Quality:

Dust and small rock particles would be introduced into the project reservoir during construction of the dam and dikes. Clearing and earth-moving operations along the routes of the proposed transmission lines, quarry operations, access road and penstock construction, and land clearing would also contribute sediments to the surface waters.



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Interior stated that settling basins or other acceptable means of removing sediment caused by project construction should be used to prevent sedimentation in the waterway. EPA stated that one of the principal sources of sedimentation in streams will be the stream crossing operations necessary for construction of the transmission line. EPA suggested that Applicant be required to install temporary culverts at stream crossings to minimize this potential problem. The installation and removal of temporary culverts, however, could introduce more sediment into streams than would be introduced by construction equipment fording those streams. Therefore, we are including Article 34 requiring the development of a plan by Licensee to minimize disturbances caused by construction and maintenance of project works by implementing the most appropriate techniques for each particular crossing.

Special Article 36 would require Applicant to take all reasonable measures to prevent sediments from entering Solomon Gulch Creek and other streams along the transmission line rights-of-way during construction and operation of the proposed project.

Interior and the DEC recommended that precautions be taken to prevent wastes or toxic chemicals of any kind from entering the waterway. The DEC specifically recommended a Spill Prevention Control and Containment Plan for storage of over 600 gallons of fuel, and provisions for proper disposal of crankcase oils and other spent lubricants. The DEC also noted that Applicant must obtain State certification pursuant to Section 401 of the Federal Water Pollution Control Act Amendments of 1972.

On November 8, 1976, the Alaska Department of Environmental Conservation issued a Water Quality Certificate for the project, which has been sent to the Environmental Protection Agency. In response to the Interior and DEC comments, Applicant stated that the preparation of a Spill Prevention Control and Containment Plan for storage of over 600 gallons of fuel is a Federal law and, as such, will be met.

We believe that Article 36, together with the other special and standard articles to be included in the license, will be sufficient to minimize impacts on water quality associated with the construction of Project No. 2742.

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Biological Baseline Monitoring Site:

The National Marine Fisheries Service reported that it has established a permanent biological baseline monitoring site in the intertidal zone east of the proposed powerhouse. The monitoring site was established to assess effects that operation of the marine oil terminal and other developments in the area may have on the Port Valdez ecosystems. The Fisheries Service stated that it is essential to its Valdez program that any activity having the potential to alter existing natural conditions at the study site should be avoided, or, if that is not possible, be coordinated with the Fisheries Service. The Fisheries Service further stated that the intertidal zone should not be used for storage of heavy equipment or materials, nor should there be any activity which may alter the normal tidal flow in the area. Applicant responded to this Fisheries Service concern by stating that it would coordinate all its activities involving the intertidal zone with the Fisheries Service.

We are including special Article 37 to require Applicant to consult with the Regional Director of the Fisheries Service and develop measures to avoid or minimize the effect of project construction and operation on the permanent biological baseline monitoring site.

Mineral Resources:

Interior reported that placer claims were located and some gold was recovered along Solomon Gulch Creek in the early 1900's and that the Midas copper mine, located approximately 1-1/2 miles upstream of the proposed reservoir, produced substantial shipments of direct smelting copper between 1911 and 1919. Interior stated that the impacts of the proposed project on these mineral resources should be defined and discussed. Applicant responded that the relative importance of mineral resources was discussed in Exhibit W of its application. The Staff considered the project's impacts on mineral resources in Section 3.1.1 of its final EIS. We do not consider these impacts to be significant.

Cultural Resources

The Deputy State Historic Preservation Officer has reported that there are no National Register properties or known historic or archeological sites in the vicinity of the proposed project which might be eligible for the National Register. An anthropologist from the Alaska Methodist University reported that the Solomon Gulch area is in poor

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terrain for archeological sites. Both recommended, however, that an archeological reconnaissance survey be conducted along the 138-kV transmission line route. The Alaska Heritage Resource Survey Index lists 38 historical and archeological sites in the vicinity of the proposed 138-kV route. These sites are discussed in the Staff's final EIS at pages 2-30 to 2-34.

Interior and the Forest Service also commented that an archeological survey should be made along the project transmission line route. The Advisory Council on Historic Preservation noted that Applicant intended to avoid, by rerouting, any cultural sites discovered during construction. In response to comments on cultural resources, Applicant stated that the transmission route would be checked by an archaeological survey crew after the route has been brushed and staked and before construction equipment is brought in to build the facility.

We are including special Article 40 in this license requiring Applicant to consult with the Alaska State Historic Preservation Officer to determine prior to any construction or clearing the extent and timing of any archaeological survey and mitigative work that may be necessary and to provide funds for that work, in a reasonable amount.

#### Exhibits

Applicant filed Exhibits F, J, K, L, M, R, and S as part of its application. Exhibit F does not provide precise details on lands that would be occupied by the project. Exhibits J and K are preliminary, and do not precisely delineate those lands, especially for the project transmission lines. On January 3, 1978, Applicant filed supplementary prints of drawings to show the location of the proposed transmission lines more accurately. The supplementary drawings do not conform to the Commission's Rules and Regulations; however, in combination with Exhibits J and K they do provide enough details to determine the basic locations of project works. The Exhibit K-7 and -8 drawings are not being approved because they show only hydrological data which should not be included in Exhibit K. In addition, J-1 is identical to K-1 and J-2 is identical to K-2. It will be sufficient that we approve J-1 and K-2. With these exceptions the Exhibits J and K are approved only to the extent that they show the basic locations of the proposed project and its works. Exhibits L and M generally comply with the Commission's Rules and Regulations; however, Exhibit L is also preliminary, and is approved only to the extent that it shows the basic layout and design of the project. Exhibit M contains information

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on geology and project structures whereas it should be limited to electrical, mechanical and transmission equipment. Exhibit R substantially complies with the Commission's Rules and Regulations and is being approved and made a part of the license. Special Articles 46 and 49 require Applicant to file (1) a revised Exhibit L prior to the start of construction showing the final design of the project works; and (2) revised Exhibits F, J, K, L, and M as necessary within one year following the date of commencement of the operation of the project to show the project as finally located and constructed.

#### Transmission Facilities

Transmission facilities that are proposed as part of the project include (1) a switchyard adjacent to the powerhouse; (2) a 24.9-kV line, approximately 5 miles long, from the powerhouse switchyard to a new Meals Substation to the existing Old Town Substation; (3) the Meals Substation; (4) a 104-mile long, 138-kV line from the Meals Substation to a substation adjacent to Alyeska's Pump Station #1; and (5) all associated electrical equipment. The 24.9-kV and 138-kV transmission lines would carry project power to the points of junction with the distribution systems for Valdez and Glennallen, respectively. Therefore, we conclude that all of the above facilities are primary to Project No. 2742 within the meaning of Section 3(11) of the Act (16 U.S.C. 796(11)) and should be included as part of the project.

#### Annual Charges

The installed capacity of the proposed project would be 12,000 kilowatts. For annual charge purposes this capacity is converted to horsepower by multiplying by 4/3:

$$4/3 \times 12,000 \text{ kW} = 16,000 \text{ hp}$$

This figure is reflected in Special Article 42.

The upper end of the project reservoir and portions of the transmission line rights-of-way would occupy United States lands. Because the project is unconstructed and Exhibits F and K of the application lack details on lands that would be occupied by the project, we are unable, at this time, to set charges for occupancy of United States lands.

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Those charges will be established after the filing of revised exhibits upon completion of the project, as set forth in special Article 49.

License Term

In accordance with our general practice regarding the licensing of new-capacity projects, we will issue a license for the Solomon Gulch Project for a period of 50 years. The license shall be effective the first day of the month in which it is issued.

The Commission finds:

(1) The Solomon Gulch Project No. 2742 occupies lands of the United States under the jurisdiction of the Bureau of Land Management, Department of the Interior.

(2) The Applicant, Copper Valley Electric Association, Inc. is a non-profit cooperative corporation organized under the laws of the State of Alaska and has submitted satisfactory evidence of compliance, or ability to comply, with the requirements of all applicable state laws insofar as necessary to effectuate the purposes of the license for the project.

(3) Public notice of the filing of the application for a license has been given pursuant to the Federal Power Act. No petitions to intervene, notices of intervention, or protests -- other than the one discussed above -- were received.

(4) No conflicting application is before the Commission.

(5) The project does not affect a Government dam, nor would the issuance of a license for this project as provided in this order affect the development of any water resources for public purposes which should be undertaken by the United States.

(6) Subject to the terms and conditions imposed in this order and license, the Solomon Gulch Project No. 2742 will be best adapted to a comprehensive plan for improving or developing a waterway for the use or benefit of interstate or foreign commerce, for the improvement and utilization of waterpower development, and for other beneficial public uses, including recreational purposes.

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(7) The installed horsepower capacity of the project for the purpose of computing the capacity component of the administrative annual charge is 16,000 horsepower. The amount of annual charges based on that capacity to be paid for the cost of administering Part I of the Federal Power Act is reasonable.

(8) The plans of the project structures insofar as they affect navigation have been approved by the Department of the Army, Corps of Engineers.

(9) The term of the license authorized by this order is reasonable.

(10) The transmission facilities described in ordering paragraph (B) below are parts of the project within the meaning of Section 3(11) of the Act, 16 U.S.C. 796(11), and should be included in the license for Project No. 2742.

(11) The exhibits designated and described in ordering paragraph (B) below conform to the Commission's Rules and Regulations and should be approved, to the extent indicated, as a part of the license.

(12) There is a demonstrated need for the project's power in the Applicant's system.

(13) The proposed project is superior to any alternative considered.

(14) The Applicant has demonstrated satisfactory evidence that it has, or will obtain, the necessary financial capabilities to construct and operate the project.

(15) A final environmental impact statement has been prepared in accordance with the National Environmental Policy Act of 1969, 42 U.S.C. § 4321, et seq, after preparation and circulation of a draft environmental impact statement and receipt of comments on the draft.

The Commission orders:

(A) This license is issued to the Copper Valley Electric Association, Inc. of Glennallen, Alaska, under Section 4(e) of the Federal Power Act, for a term of 50 years effective the first day of the month in which it is issued, for the construction, operation, and maintenance of the Solomon Gulch Project No. 2742 located near the City of Valdez,

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Alaska, on Solomon Gulch Creek and affecting lands of the United States. The license is subject to the terms and conditions of the Act and to the rules and regulations that the Commission has issued or prescribed under the provisions of the Act, which is made part of this license by reference.

(B) The project consists of:

(i) all lands constituting the project area and enclosed by the project boundary or the licensee's interests in such lands, the limits of which are otherwise defined, the use and occupancy of which are necessary for the purposes of the project; such project area and project boundary being shown and described by certain exhibits which form part of the application for license which are designated and described as follows:

<u>Exhibit</u>	<u>FERC Drawing No. 2742-</u>	<u>Titled</u>
J-1	2	Vicinity Map
J-3	4	Transmission Route
K-2	6	General Layout- Power Facilities
K-3	7	"
K-4	8	"
K-5	9	"
K-6	10	"
K-9	13	Penstock Profile and Intake Structure Details
K-10	14	Penstock Profile
K-11	15	"
K-12	16	Powerhouse Site

(ii) Project works consisting of: (1) a rockfill dam with an asphaltic concrete face, 115 feet high and approximately 360 feet long at the crest, to be located at the outlet of Solomon Lake; (2) two rockfill dikes connected by a concrete spillway; (3) Solomon Lake, with a surface elevation raised to 685.0 feet (msl), a surface area of 660 acres, and a usable storage capacity of 31,500 acre-feet; (4) a steel penstock 4,159 feet long and varying in diameter from 56 inches to 48 inches; (5) a powerhouse located near tidewater containing two generating units rated at 6,000 kW each; (6) a switchyard adjacent to the powerhouse; (7) a 5 mile long, 24.9 kV transmission line extending from the powerhouse switchyard to the Meals Substation to the Old Town Substation; (8) the Meals Substation; (9) a 104-mile long, 138-kV transmission line extending from the Meals Substation

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to a substation adjacent to Pump Station 11 near Glennallen; and (10) appurtenant facilities which are generally shown and described by the previously mentioned exhibits and more specifically described by the following exhibits:

<u>Exhibit</u>	<u>FERC Drawing No. 2742-</u>	<u>Titled</u>
L-1	18	Dam & Spillway Sections and Details
L-2	19	Penstock Profile and Intake Structure Details
L-3	20	Penstock Profile
L-4	21	Penstock Profile
L-5	22	Powerhouse Site
L-6	23	Powerhouse Plan
L-7	24	Powerhouse Elevations
L-8	25	Plan and Geologic Cross-Sections-Dam Site
L-9	26	Plan and Geologic Cross-Sections of Auxiliary Dikes and Spillway
L-10	27	Powerplant Site Plan and Geologic Cross-Sections and Bedrock Contour

Exhibit M: Entitled, "Part III, Project Facilities", consisting of 12 typewritten pages filed on February 19, 1976.

Exhibit R: Filed on April 28, 1975, and supplemented on February 19, 1976, consisting of 26 pages of text and drawing, Exhibit R-1, titled, "General Layout and Hiking Trail", (FERC Drawing No. 2742-28).

(iii) All of the structures, fixtures, equipment, facilities, and property which may be employed in connection with the project area, as approved by the Commission, and all riparian or other rights, which are necessary or appropriate for the maintenance or operation of the project.

(C) Exhibits J, K, L, and M designated and described in Paragraph (B) above, are approved and made a part of the license only to the extent that they show the basic location and layout of the project or, with respect to Exhibit M, to



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the extent that it describes mechanical, electrical, and transmission equipment and their appurtenances.

(D) Exhibit R designated and described in Paragraph (B) above, is approved and made a part of the license.

(E) This license is also subject to the terms and conditions set forth in FERC Form L-2 (revised October 1975) entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States." These terms, designated as Articles 1 through 32, are made a part of the license. This license is also subject to the following special conditions set forth as additional articles:

ARTICLE 33: The Licensee shall, in cooperation with the Alyeska Pipeline Corporation, locate those transmission line structures that would be adjacent to the Corporation's oil pipeline right-of-way on the service road side of the pipeline and shall locate the transmission line so that it crosses the pipeline only where the pipeline is below grade.

ARTICLE 34: The Licensee shall avoid or minimize any disturbance caused by construction and maintenance of the project works to the natural, scenic, historical, and recreational values of the area, blending project works with the natural view, and revegetating, stabilizing, and landscaping the construction areas located outside the area of the project reservoir. Within one year from issuance of this license, the Licensee shall submit to the Commission its detailed plan to avoid or minimize any disturbance to such values of the area caused by construction and maintenance of the project works; this plan shall be prepared after consultation with a professional land use planner, the Bureau of Land Management, and the Alaska Department of Natural Resources; and this plan shall give due consideration to the provisions of the Commission's Order No. 414, issued November 27, 1970. The Commission reserves the right to prescribe any changes in the plan that the public interest may warrant.

ARTICLE 35: Licensee shall consult with the National Geodetic Survey to determine if any bench marks, triangulation stations, or traverse stations will be affected by project construction, and shall, prior to commencement of construction, formulate plans and provide funds in a reasonable amount to relocate any affected stations or bench marks.

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ARTICLE 36: Licensee shall construct facilities, or employ techniques needed and appropriate to prevent rock dust, fines, and other sediments, as well as wastes, from entering Solomon Gulch Creek and other streams, including those along the transmission line rights-of-way, during construction of the project works. Licensee shall submit a plan for handling sediment and wastes to the Regional Engineer, Federal Energy Regulatory Commission, San Francisco, for approval before beginning construction.

ARTICLE 37: Licensee shall, in consultation with the Regional Director of the National Marine Fisheries Service of the U. S. Department of Commerce, develop measures to avoid or minimize the effects of project construction and operation on the permanent biological baseline monitoring station located in the intertidal zone east of the proposed project powerhouse.

ARTICLE 38: Licensee shall file, within one year from the date of issuance of the license, a revised Exhibit S, prepared in accordance with the Commission's Rules and Regulations, which shall include, among other things: a proposal for a study to determine the effect, if any, of project operation on salmon spawning activities near the mouth of Solomon Gulch Creek, and a detailed assessment of critical wildlife habitat areas that would be affected by the construction and maintenance of the project transmission line. The exhibit shall also contain a proposal of appropriate measures to prevent or minimize disruptions to wildlife and wildlife habitat from construction and maintenance of the project transmission lines and their rights-of-way.

ARTICLE 39: Licensee shall, in the interest of protecting the fishery resources of Solomon Gulch Creek, release sufficient flows from the project dam to maintain a continuous minimum flow of 3.5 cfs, or a flow equal to the natural inflow to the project reservoir, whichever is less, as measured at the crest of the Solomon Gulch Creek Falls. After the project begins operating, the Licensee, in cooperation with the Alaska Department of Fish and Game, the U. S. Fish and Wildlife Service, and the National Marine Fisheries Service shall evaluate that minimum flow to determine its adequacy and any modification that might be needed to protect the spawning areas. Within five years after the project begins operating, Licensee shall (1) file

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the results of that evaluation and (2) file for Commission approval plans for any proposed modification of that minimum flow.

ARTICLE 40: The Licensee shall, prior to the commencement of any construction or development of any project works or other facilities at the project, consult and cooperate with the State Historic Preservation Officer (SHPO) to determine the need for, and extent of, any archeological survey and any mitigative measures that may be necessary. The Licensee shall provide funds in a reasonable amount for such activity. If any previously unrecorded archeological sites are discovered during the course of construction, construction activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the sites, and the Licensee shall consult with the SHPO to develop a mitigation plan for the protection of significant archeological resources. If the Licensee and the SHPO cannot agree on the amount of money to be expended on archeological work related to the project, the Commission reserves the right to require the Licensee to conduct, at its own expense, any archeological work found necessary.

ARTICLE 41: Pursuant to Section 10(d) of the Act, after the first 20 years of operation of the project under the license, the rate as computed below shall be the specified rate of return on the net investment in the project for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One-half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account as of the end of each fiscal year: Provided, that, if and to the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year or years after the first 20 years of operation under the license, the amount of any surplus earnings accumulated thereafter until absorbed, and one-half of the remaining surplus earnings, if any, thus cumulatively computed, shall be set aside in the project amortization reserve account; and the amounts thus established in the project amortization reserve account shall be maintained until further order of the Commission.

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The annual specified reasonable rate of return shall be the sum of the weighted cost components of long-term debt, preferred stock, and the cost of common equity as defined herein. The weighted cost component for each element of the reasonable rate of return is the product of its capital ratios and cost rate. The current capital ratios for each of the above elements of the rate of return shall be calculated annually based on an average of 13 monthly balances of amounts properly includable in the Licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rates for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

ARTICLE 42: The Licensee shall pay the United States the following annual charge, effective as of the first day of the month in which this license is issued:

(a) For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable annual charge as determined by the Commission in accordance with the provisions of its regulations, in effect from time to time. The authorized installed capacity for that purpose is 16,000 horsepower.

(b) For the purpose of recompensing the United States for the use, occupancy and enjoyment of its lands an amount the Commission will determine later.

ARTICLE 43: The Licensee shall, to the satisfaction of the Commission's authorized representative, install and operate any signs, lights, sirens, or other safety devices below the powerhouse, and any signs, lights, or other safety devices above the powerhouse intakes, that may reasonably be needed to warn the public of fluctuations in flow from the project and protect the public in its recreational use of project lands and waters.

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ARTICLE 44: Licensee shall file with the Commission, implement, and modify when appropriate, an emergency action plan designed to provide an early warning to upstream and downstream inhabitants and property owners if there should be an impending or actual sudden release of water caused by an accident to, or failure of, project structures. That plan shall be submitted prior to initial filling of the project reservoir and shall include, but not be limited to, instructions to be provided on a continuing basis to operators and attendants for actions they are to take in the event of an emergency; detailed and documented plans for notifying law enforcement agents, appropriate Federal, State, and local agencies, operators of water-related facilities, and those residents and owners of properties that could be endangered; and actions that would be taken to reduce the inflow to the reservoir, if possible, by limiting the outflow from upstream dams or control structures. Licensee shall also submit a summary of the study used as a basis for determining the areas that may be affected by an emergency, including criteria and assumptions used. Licensee shall monitor any changes in upstream or downstream conditions which may influence possible flows or affect areas susceptible to damage, and shall promptly make and file with the Commission appropriate changes in the emergency action plan. The Commission reserves the right to require modifications to the plan submitted.

*EMERGENCY ACTION*

ARTICLE 45: The Licensee shall file with the Commission's Regional Engineer and the Director, Office of Electric Power Regulation, one copy each of the contract drawings and specifications prior to start of construction. The Director, Office of Electric Power Regulation, may require changes in the plans and specifications to assure a safe and adequate project.

*DESIGN*

ARTICLE 46: The Licensee shall submit, for Commission approval prior to the start of construction, Exhibit L drawings showing the final design of the project works. The spillway as shown on the revised Exhibit L drawings shall be adequately sized to pass a flood resulting from a combined runoff of probable maximum precipitation plus snowmelt. The rockfill used to construct the dam shall be adequately compacted. The dam as shown on the revised Exhibit L drawings shall be designed to be stable under a design earthquake commensurate with earthquake activity in the area.

*FINAL*

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ARTICLE 47: The Licensee shall retain a Board of three or more qualified, independent, engineering consultants to review the design, specifications, and construction of the project for safety and adequacy. The names and qualifications of the Board members shall be submitted to the Director, Office of Electric Power Regulation, for approval. Among other things, the Board shall assess the geology of the project site and surroundings; the design, specifications and construction of the dikes, dam, spillway, powerhouse, electrical and mechanical equipment involved in water control and emergency power supply; the filling schedule for the reservoir; the construction inspection program; and construction procedures and progress. The Licensee shall submit to the Commission copies of the Board's report on each meeting. Reports reviewing each portion of the project shall be submitted prior to or simultaneously with the submission of the corresponding Exhibit L final design drawings. The Licensee shall also submit a final report of the Board upon completion of the project. The final report shall contain a statement indicating the Board's satisfaction with the construction, safety, and adequacy of the project structures.

*Ed. of 9/1/73  
Consolidated*

ARTICLE 48: The Licensee shall construct the project transmission lines using non-specular conductors.

*Trans  
lines*

ARTICLE 49: The Licensee, within one year following the date of commencement of operation of the project, shall file a revised Exhibit F and, for Commission approval, revised Exhibits J, K, L, and M as necessary to show the project as finally constructed and located.

*AS-Building*

ARTICLE 50: The Licensee shall commence construction of the project within two years of the date of issuance of the license, and shall thereafter in good faith and with due diligence prosecute and complete the construction of project works within four years after commencement of construction.

*Completed*

ARTICLE 51: Prior to starting construction of the Meals-Glennallen 138-kV transmission line, Licensee shall in cooperation and consultation with the Alyeska Pipeline Service Company (APSC) identify areas where there could be electrical interference with, or hazards to, the operation of the APSC pipeline, and also identify any safety hazards which may result from joint use of the pipeline corridor. Licensee shall provide, in cooperation with and at no cost to APSC, satisfactory methods for the mitigation of any potential hazards and possible electrical interference.

*APSC  
Pipeline*

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If Licensee and APSC cannot agree on appropriate methods for mitigating any potential hazards to, or interference with, the APSC pipeline, the Commission may prescribe methods for mitigation.

ARTICLE 52: The Licensee shall install and thereafter maintain sufficient meters or other measuring devices on all licensed transmission facilities for the purpose of determining the magnitude, direction, and time of power flows on those transmission facilities. The number, character, and locations of meters or other measuring devices, and the method of their operation, shall at all times be satisfactory to the Commission or its authorized representative. The Licensee shall keep accurate and sufficient records of the foregoing information to the satisfaction of the Commission, or its authorized representative, and shall make those records available at any time and in any form as the Commission may reasonably prescribe.

*Power  
if flows*

(F) This order shall become final 30 days from the date of its issuance unless an application for rehearing shall be filed as provided in Section 313(a) of the Act, and failure to file such an application shall constitute acceptance of this license. An acknowledgement of the acceptance of this license shall be signed for the Licensee and returned to the Commission within 60 days from the date of issuance of this order.

By the Commission.

( S E A L )

Kenneth F. Plumb,  
Secretary.

Project No. 2742

IN TESTIMONY of its acknowledgment of acceptance of all of the terms and conditions of this Order, Copper Valley Electric Association, Inc., this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, has caused its corporate name to be signed hereto by \_\_\_\_\_, its \_\_\_\_\_ President, and its corporate seal to be affixed hereto and attested by \_\_\_\_\_ its \_\_\_\_\_ Secretary, pursuant to a resolution of its Board of Directors duly adopted on the \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, a certified copy of the record of which is attached hereto.

BY \_\_\_\_\_  
President

Attest:

\_\_\_\_\_  
Secretary

(Executed in quadruplicate)



FEDERAL POWER COMMISSION

TERMS AND CONDITIONS OF LICENSE FOR  
UNCONSTRUCTED MAJOR PROJECT  
AFFECTING LANDS OF THE UNITED STATES

Article 1. The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. The project works shall be constructed in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

Upon the completion of the project, or at such other time as the Commission may direct, the Licensee shall submit to the Commission for approval revised exhibits insofar as necessary to show any divergence from or variations in the project area and project boundary as finally located or in the project works as actually constructed when compared with the area and boundary shown and the works described in the license or in the exhibits approved by the Commission, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variation in or divergence from the approved exhibits. Such revised exhibits shall, if and when approved by the Commission, be made a part of the license under the provisions of Article 2 hereof.

Article 4. The construction, operation, and maintenance of the project and any work incidental to additions or alterations shall be subject to the inspection and supervision of the Regional Engineer, Federal Power Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of the project and for any subsequent alterations to the project. Construction of the project works or any feature or alteration thereof shall not be initiated until the program of inspection for the project works or any such feature thereof has been approved by said representative. The Licensee shall also furnish to said representative such further information as he may require concerning the construction, operation, and maintenance of the project, and of any alteration thereof, and shall notify him of the date upon which work will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a non-power licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

Article 7. The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

Article 8. The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 9. The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

Article 10. The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 11. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

Article 12. The operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Commission may prescribe for the purposes hereinbefore mentioned.

Article 13. On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity

for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 14. In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

Article 15. The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

Article 16. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 17. The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

Article 18. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

*ref. Lic. 16-17  
Recreational  
Facilities*

Article 19. In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

Article 20. The Licensee shall consult with the appropriate State and Federal agencies and, within one year of the date of issuance of this license, shall submit for Commission approval a plan for clearing the reservoir area. Further, the Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. Upon approval of the clearing plan all clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

Article 21. Timber on lands of the United States cut, used, or destroyed in the construction and maintenance of the project works, or in the clearing of said lands, shall be paid for, and the resulting slash and debris disposed of, in accordance with the requirements of the agency of the United States having jurisdiction over said lands. Payment for merchantable timber shall be at current stumpage rates, and payment for young growth timber below merchantable size shall be at current damage appraisal values. However, the agency of the United States having jurisdiction may sell or dispose of the merchantable timber to others than the Licensee: Provided, That timber so sold or disposed of shall be cut and removed from the area prior to, or without undue interference with, clearing operations of the Licensee and in coordination with the Licensee's project construction schedules. Such sale or disposal to others shall not relieve the Licensee of responsibility for the clearing and disposal of all slash and debris from project lands.



Article 22. The Licensee shall do everything reasonably within its power, and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon the request of officers of the agency concerned, to prevent, to make advance preparations for suppression of, and to suppress fires on the lands to be occupied or used under the license. The Licensee shall be liable for and shall pay the costs incurred by the United States in suppressing fires caused from the construction, operation, or maintenance of the project works or of the works appurtenant or accessory thereto under the license.

Article 23. The Licensee shall interpose no objection to, and shall in no way prevent, the use by the agency of the United States having jurisdiction over the lands of the United States affected, or by persons or corporations occupying lands of the United States under permit, of water for fire suppression from any stream, conduit, or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license, or the use by said parties of water for sanitary and domestic purposes from any stream, conduit, or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license.

Article 24. The Licensee shall be liable for injury to, or destruction of, any buildings, bridges, roads, trails, lands, or other property of the United States, occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Arrangements to meet such liability, either by compensation for such injury or destruction, or by reconstruction or repair of damaged property, or otherwise, shall be made with the appropriate department or agency of the United States.

Article 25. The Licensee shall allow any agency of the United States, without charge, to construct or permit to be constructed on, through, and across those project lands which are lands of the United States such conduits, chutes, ditches, railroads, roads, trails, telephone and power lines, and other routes or means of transportation and communication as are not inconsistent with the enjoyment

of said lands by the Licensee for the purposes of the license. This license shall not be construed as conferring upon the Licensee any right of use, occupancy, or enjoyment of the lands of the United States other than for the construction, operation, and maintenance of the project as stated in the license.

Article 26. In the construction and maintenance of the project, the location and standards of roads and trails on lands of the United States and other uses of lands of the United States, including the location and condition of quarries, borrow pits, and spoil disposal areas, shall be subject to the approval of the department or agency of the United States having supervision over the lands involved.

Article 27. The Licensee shall make provision, or shall bear the reasonable cost, as determined by the agency of the United States affected, of making provision for avoiding inductive interference between any project transmission line or other project facility constructed, operated, or maintained under the license, and any radio installation, telephone line, or other communication facility installed or constructed before or after construction of such project transmission line or other project facility and owned, operated, or used by such agency of the United States in administering the lands under its jurisdiction.

Article 28. The Licensee shall make use of the Commission's guidelines and other recognized guidelines for treatment of transmission line rights-of-way, and shall clear such portions of transmission line rights-of-way across lands of the United States as are designated by the officer of the United States in charge of the lands; shall keep the areas so designated clear of new growth, all refuse, and inflammable material to the satisfaction of such officer; shall trim all branches of trees in contact with or liable to contact the transmission lines; shall cut and remove all dead or leaning trees which might fall in contact with the transmission lines; and shall take such other precautions against fire as may be required by such officer. No fires for the burning of waste material shall be set except with the prior written consent of the officer of the United States in charge of the lands as to time and place.

Article 29. The Licensee shall cooperate with the United States in the disposal by the United States, under the Act of July 31, 1947, 61 Stat. 681, as amended (30 U.S.C. sec. 601, et seq.), of mineral and vegetative materials from lands of the United States occupied by the project or any part thereof: Provided, That such disposal has been authorized by the Commission and that it does not unreasonably interfere with the occupancy of such lands by the Licensee for the purposes of the license: Provided further, That in the event of disagreement, any question of unreasonable interference shall be determined by the Commission after notice and opportunity for hearing.

Article 30. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

Article 31. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

Article 32. The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Alaska Energy Authority ) Project No. 2742-022

ORDER APPROVING AS-BUILT DRAWINGS  
(Issued February 6, 1997)

On October 7, 1996, Alaska Energy Authority (Licensee) filed as-built construction drawings of a wingwall, for the Solomon Gulch Project, FERC Project No. 2742. The filing was made following a request from the Commission's Portland Regional Office (PRO). The Project is located on Solomon Gulch Creek, near Valdez, Alaska.

The wingwall was constructed on the left abutment of the spillway in order to protect the downstream dike from scour damage during high spillway flows. In a letter dated February 27, 1995, the PRO required the licensee to file the as-built drawings.

We reviewed the exhibit drawings showing the spillway wingwall details and found they depict the as-built conditions of the project. The as-built drawings conform to the Commission's Rules and Regulations and therefore are approved. We are taking the opportunity below to identify the exhibit K drawings in their proper numerical sequence.

The Director orders:

(A) The as-built drawings for the Solomon Gulch Project filed with the Commission on October 7, 1996, are approved and made a part of the license.

Exhibit	Drawing No. 2742-	Drawing Title	Superseding 2742-
K-28	106	Wingwall location	-
K-29	107	Wingwall Site Plan	-
K-30	108	Wingwall Sections and Details	-

(B) Within 90 days of the date of issuance of this order, the licensee shall file an original and two duplicate sets of aperture cards of the approved drawings. The original should be reproduced on silver or gelatin 35mm microfilm. The duplicates are copies of the originals made on diazo-type microfilm. All microfilm should be mounted on a type D (3 1/4" x 7 3/8") aperture card.

CC-A-1

Project No. 2742-022

2

Prior to microfilming, the FERC Drawing Number shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number should be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., K-28), Drawing Title, and date of this order should be typed on the upper left corner of each aperture card. See Figure 1.

The original and one duplicate set of aperture cards should be filed with the Secretary of the Commission. The remaining duplicate set of aperture cards should be filed with the Commission's Portland Regional Office.

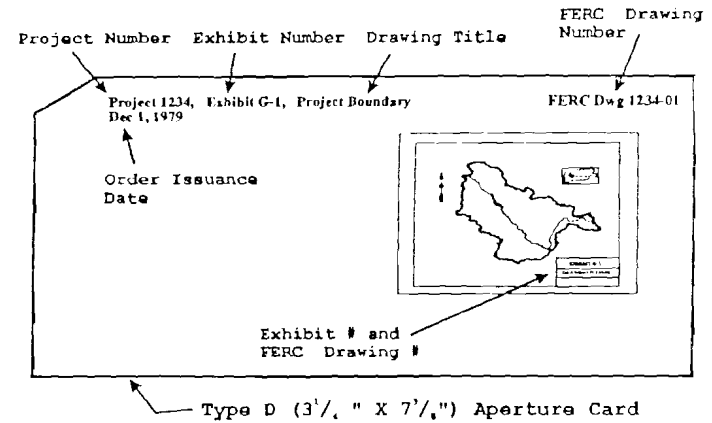


Figure 1. Sample Aperture Card Format

(C) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, Pursuant to 18 C.F.R. §385.713.

*J. Mark Robinson*  
J. Mark Robinson  
Director, Division of Project  
Licensing and Compliance

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Alaska Energy Authority ) Project No. 2742-021

## ORDER APPROVING RECREATION PLAN AMENDMENT

( Issued March 18, 1997 )

On September 20, 1996, Alaska Energy Authority, licensee for the Solomon Gulch Project, FERC No. 2742, filed a request for determination whether a change to an existing hiking trail would require an amendment to the project's recreation plan. 1/ Commission staff reviewed the proposal and by letter dated October 2, 1996, informed the licensee the September 20 filing would be treated as an amendment application. The October 2 letter further requested the licensee to file appropriate documentation of agency consultation regarding the proposed change.

Supplemental information was filed by the licensee on February 28 and March 4, 1997. 2/ The Solomon Gulch Project is located along Dayville Road near the City of Valdez, Alaska.

## THE PROPOSAL

The September 20 filing states the licensee proposes to amend an existing hiking trail at the project, due to unsafe conditions along a steep portion of the trail. The licensee states a ladder that was used to pass along the steepest portion of the trail has deteriorated to an unsafe level. The licensee reviewed the possibility of restoring this ladder along with possible alternate routes for bypassing this steep, nearly vertical, section of the trail.

After reviewing a variety of ways to maintain access to the reservoir portion of the project, the licensee's September 20 filing states they would prefer to relocate the trail. The preferred alternate route consists of relocating the trailhead to an existing trailhead along Dayville Road. This new trailhead is currently provided as a fishing access point by the City of Valdez (City) and a minimum of five parking spaces will be specifically designated for day use purposes. From the parking area the trail will utilize a portion of the existing Granby Road right-of-way between Dayville Road and the Alyeska Pipeline

- 1/ The project's recreation plan, or Exhibit R, was approved as part of the license issued on June 21, 1978. See 3 FERC ¶ 61,250 (1978).
- 2/ The material filed on February 28 and March 4, 1997, represents material respectively forwarded by the licensee on January 27, 1997, and December 10, 1996.

DC-A-3

Project No. 2742-021

-2-

right-of-way. The trail will then follow the pipeline right-of-way until its connection with the existing hiking trail. Signs will be installed to inform hikers of the new trailhead and trail route. No modifications will be made to the latter half of the trail. The March 4, 1997 filing states the licensee will implement the proposed trail modifications during the summer of 1997.

The proposed relocation is considered consistent with the manner in which most hikers currently access the reservoir and with the City's recreational development plans. In addition, the licensee has negotiated an agreement with the Alyeska Pipeline Service Company (Alyeska) for use of the pipeline right-of-way.

## AGENCY CONSULTATION AND COMMENT

Pursuant to the October 2 letter from Commission staff, agency consultation is documented in the material filed on March 4, 1997. Additional supporting documentation regarding consistency with the Alaska Coastal Management Program (ACMP) is included in the February 28, 1997 filing.

The licensee consulted with the Alaska Department of Transportation, Department of Natural Resources, Division of Parks and Outdoor Recreation, and Division of Governmental Coordination (ADGC) on the proposed trail relocation. The licensee further consulted with the City, Alyeska, and the U.S. Army Corps of Engineers. No objections were received in regard to the proposed amendment. Consultation with ADGC further resulted in a determination the proposed trail relocation is "consistent with the ACMP."

## DISCUSSION

After review of the available information, Commission staff agrees the proposed trail relocation is consistent with recreational use in the area. The new trailhead will provide improved parking facilities and joint access with facilities provided by the City. The relocation of the trail along flatter terrain will further enable the project's reservoir to be more readily accessible to persons with a variety of hiking skills and abilities. Given that the licensee has appropriately obtained the right to use the pipeline right-of-way from Alyeska and the proposed project is consistent with the ACMP, the amendment should be approved.

*Let's discuss  
thanks.*

The Director orders:

(A) The request to amend the hiking trail to the project reservoir, filed on September 20, 1996, and supplemented on February 28 and March 4, 1997, is approved and made part of the license. All trail modifications should be completed by August 31, 1997.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 CFR § 385.713.

*J. P. Madden*  
Kevin P. Madden  
Acting Director  
Office of Hydropower Licensing

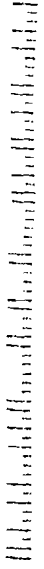
FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, D.C. 20426

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PENALTY FOR PRIVATE USE: \$300

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STANLEY E. SIECZKOWSKI, PROJ. MANAGER  
ALASKA ENERGY AUTHORITY  
480 WEST TODDOR ROAD  
ANCHORAGE, AK 99503

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Alaska Industrial Development  
and Export Authority



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UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION LOCHER INTERESTS LTD.

Alaska Energy Authority )

Project No. 2742-024

ORDER GRANTING EXTENSION OF TIME  
( Issued November 3, 1997 )

The licensee for the Solomon Gulch Project has requested an extension of time until July 31, 1998, to complete relocation of the project's hiking trail, which was approved by order issued March 18, 1997. 1/ The project is located on Solomon Gulch Creek near the City of Valdez, Alaska.

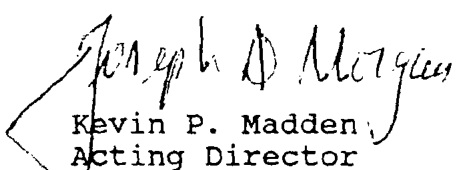
In support of its request, the licensee states that it has agreed to use interpretive signs that match those used by the City of Valdez in its fishing and camping facilities in the area of the hiking trail. However, design and construction of the signs have taken longer than anticipated and weather conditions will preclude completion of the new trail during the current construction season.

The reasons advanced by the licensee in support of the requested extension of time are reasonable and justify the extension.

The Director Orders:

(A) The deadline for completing relocation of the hiking trail at the Solomon Gulch Project is extended to July 31, 1998.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. § 385.713.

  
Kevin P. Madden  
Acting Director  
Office of Hydropower Licensing

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1/ 78 FERC ¶ 62,189 (1997).



UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Alaska Energy Authority

Project No. 2742-018  
Alaska

FEB 2 1993

Alaska Energy Authority

ORDER APPROVING REVISED EXHIBIT K DRAWINGS  
AND REVISING ANNUAL CHARGES  
( Issued January 26, 1993 )

On December 28, 1992, Alaska Energy Authority, licensee for the Solomon Gulch Project, FERC No. 2742,<sup>1</sup> filed revised exhibit K drawings with the Commission. The filing was made in response to a Commission letter, dated November 19, 1992, requesting information regarding the federal lands occupied by the project.

License article 42, subparagraph (b), states that the licensee shall recompense the United States for the use, occupancy, and enjoyment of its lands an amount to be determined later. The December 28, 1992, filing clarifies that the project occupies a total of 902.2 acres of federal land owned by the U.S. Bureau of Land Management. Of this land, 462.2 acres are for use of transmission line right-of-way and 440.0 acres for use other than for transmission line right-of-way. The submitted exhibit drawings show the federal land used for transmission line right-of-way. The federal land used for other than for transmission line right-of-way is shown on FERC drawing number 2742-51.<sup>2</sup>

This order will revise license article 42 to include the amount of acreage of federal land for the purpose of annual charges, effective the first day of the month in which the license was issued. This order does not authorize a change in the installed capacity for the Solomon Gulch Project.

The Director orders:

(A) The license for the Solomon Gulch Project, FERC No. 2742, is amended as provided by this order.

(B) License article 42, subparagraph (b), is revised to read as follows, effective the first day of the month in which the license was issued.

<sup>1</sup> Order Issuing License (Major), issued June 21, 1978, 3 FERC ¶61,250.

<sup>2</sup> Drawing approved December 9, 1985, Order Approving As-Built Exhibits, 33 FERC ¶62,334.

(b) For the purpose of recompensing the United States for the use, occupancy, and enjoyment of its lands, an amount as may be determined from time to time pursuant to the Commission's regulations. The acreage of land for such purpose is as follows:

- (i) The acreage for land other than for transmission line right-of-way is 440.0.
- (ii) The acreage for land for transmission line right-of-way is 462.2.

(C) The table, filed on December 28, 1992, entitled "Federal Land Ownership," describes the federal land and its acreage is approved and made a part of the license.

(D) The following exhibit K drawings, filed on December 28, 1992, are approved and made a part of the license. The superseded drawings are eliminated from the license.

<u>Exhibit</u>	<u>FERC No.</u>	<u>Title</u>	<u>Superseding</u>
K-14	2742-90	Vicinity Map, 14.4/24.9 kV	2742-50
K-15	2742-91	As-Built, 14.4/24.9 kV	2742-62
K-16	2742-92	As-Built, 14.4/24.9 kV	2742-63
K-17	2742-93	Vicinity Map, 138 kV	2742-52
K-18	2742-94	As-Built, 138 kV	2742-63
K-19	2742-95	As-Built, 138 kV	2742-63 2742-64
K-20	2742-96	As-Built, 138 kV	2742-64 2742-65
K-21	2742-97	As-Built, 138 kV	2742-65
K-22	2742-100	As-Built, 138 kV	2742-66
K-23	2742-101	As-Built, 138 kV	2742-67 2742-68
K-24	2742-102	As-Built, 138 kV	2742-68
K-25	2742-103	As-Built, 138 kV	2742-68
K-26	2742-104	As-Built, 138 kV	2742-69

K-27

2742-105

As-Built, 138 kV

2742-69

(E) Within 90 days of the date of issuance of this order, the licensee shall file an original of the approved exhibit K drawings reproduced on silver or gelatin 35mm microfilm mounted on a Type D (3 1/4" x 7 1/8") aperture card. In addition, the licensee shall file three duplicate Diazo-type aperture cards. The original and one duplicate aperture card should be filed with the Secretary of the Commission. A duplicate aperture card should be filed with the Commission's Portland Regional Office. The remaining duplicate aperture card should be filed with the Bureau of Land Management's Alaska State Office.<sup>3</sup> The FERC drawing number (2742-90 through 2742-105) shall be shown in the margin below the title block of the microfilmed drawing and also in the upper right corner of each aperture card. The top line(s) of the aperture cards shall show the FERC Exhibit (e.g., K 14/27 through K 27/27), Project Number, Drawing Title, and date of this order.

(F) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. §385.713.

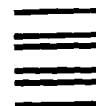
*J. Mark Robinson*  
 J. Mark Robinson  
 Director, Division of Project  
 Compliance and Administration

<sup>3</sup> The Bureau of Land Management's Alaska State Office is located at the following address:

State Director  
 222 W. 7th Avenue, #13  
 Anchorage, AK 99513-7599



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 REGULATORY COMMISSION  
 FERC-351



FEDERAL ENERGY REGULATORY COMMISSION  
 WASHINGTON, D.C. 20426

OFFICIAL BUSINESS  
 PENALTY FOR PRIVATE USE, \$300

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Elizabeth Anne Moler, Chair;  
Vicky A. Bailey, James J. Hoecker,  
William L. Massey, and Donald F. Santa, Jr.

Alaska Energy Authority ) Project No. 2742-019

ORDER DENYING REHEARING

(Issued December 3, 1993)

The Alaska Energy Authority (Authority) is the licensee for the 12-megawatt Solomon Gulch Hydroelectric Project No. 2742, on Solomon Gulch Creek near the City of Valdez, Alaska. 1/ The Authority filed on May 13, 1993, a timely request for rehearing of the Commission's April 15, 1993 billing statement for annual charges for the project's use and occupancy of 902.2 acres of federal lands administered by the Bureau of Land Management. The statement assessed \$100,895.74 for the use of these lands from January 1, 1981, through September 30, 1992. 2/ The Authority requests rehearing as to the annual charge assessment for the years 1981 through 1987 (in the amount of \$48,048.70), arguing that the bill for those years is barred by the six-year statute of limitations for actions for money damages by the United States based on a contract, as set out in 28 U.S.C. § 2415. For the reasons set out in this order we deny rehearing.

BACKGROUND

Section 10(e)(1) of the Federal Power Act (FPA), 16 U.S.C. § 803(e)(1), provides, in pertinent part:

the licensee shall pay to the United States reasonable annual charges in an amount to be fixed by the Commission for the purpose of . . . recompensing [the United States] for the use, occupancy, and enjoyment of its lands or other property . . . .

- 1/ The Commission licensed the project to the Copper Valley Electric Association in 1978. 3 PERC ¶ 61,250. In 1982, the Authority acquired the license through a transfer. 19 PERC ¶ 62,365.
- 2/ As a municipality, the Authority was entitled to an exemption from the payment of annual charges for the use of government lands during the period when the licensed project was under construction and was not generating power. See 18 C.F.R. § 11.6(g).

Project No. 2742-019

- 2 -

In issuing the license for the Solomon Gulch Project, the Commission stated:

The upper end of the project reservoir and portions of the transmission line rights-of-way would occupy United States lands. Because the project is unconstructed and Exhibits F and K of the application lack details on lands that would be occupied by the project, we are unable, at this time, to set charges for occupancy of United States lands. These charges will be established after the filing of revised exhibits upon completion of the project, as set forth in special Article 49. (2/)

Article 42 of the license required the licensee to pay annual land use charges in an amount to be determined later.

Project operation commenced on December 9, 1981. On October 12, 1983, the Authority filed revised exhibits showing the project as constructed and located. The Commission approved the revised exhibits on December 9, 1985. 4/

On November 19, 1992, 5/ the Commission advised the Authority that it could not determine from the exhibits just how

- 2/ 3 PERC at p. 61,674. Article 49 of the license (id. at p. 61,678) states:

The Licensee, within one year following the date of commencement of operation of the project, shall file a revised Exhibit F and, for Commission approval, revised Exhibits J, K, L and M as necessary to show the project as finally constructed and located.

- 4/ 33 PERC ¶ 62,334.
- 5/ In 1988, the Authority requested for four of its projects, including Solomon Gulch, the exemption from all annual charges provided in Section 10(e) of the FPA for municipal licensees whose project power is sold to the public without profit. With regard to three of its projects, the Authority sought exemption from both administrative and federal land use charges; with regard to the Solomon Gulch Project, it sought exemption only from administrative charges. The Commission denied the exemption request in full, 49 PERC ¶ 61,088 (1989), reh'g denied. 51 PERC ¶ 61,258 (1990), and the Commission's orders were sustained on judicial review. Alaska Energy Authority v. PERC, 928 F.2d 1181 (D.C. Cir. 1991).

xc: 12/15/93

CC: S. SIECZKOWSKI  
T. ARMINSKI

much federal land the project occupied, and requested for the information concerning these lands. On December 28, 1992, the Authority filed the requested information in a revised Exhibit K, and on January 26, 1993, §/ the Commission approved the revised exhibit and amended Article 42(b) of the license to state that the licensee shall pay the United States:

For the purpose of recompensing the United States for the use, occupancy, and enjoyment of its lands, an amount as may be determined from time to time pursuant to the Commission's regulations. The acreage of land for such purpose is as follows:

- (i) The acreage for land other than for transmission line right-of-way is 440.0.
- (ii) The acreage for land for transmission line right-of-way is 462.2.

As noted, the annual charge assessment was issued on April 15, 1993.

On rehearing, the Authority asserts that the Commission is barred by 28 U.S.C. § 2415 from collecting annual land use charges for the years 1981 through 1987, because the bill for that period was issued more than six years after the Commission's December 9, 1985 approval of the Authority's revised Exhibit K, which established the precise amount of federal land used by the project.

The statutory provision on which the Authority relies, 28 U.S.C. § 2415, provides in pertinent part:

Subject to the provisions of section 2416 of this title (setting forth certain exclusions from the period of limitations 7/), and except as otherwise provided by Congress, every action for money damages brought by the United States or an officer or agency thereof which is founded upon any contract express or implied in law or fact, shall be barred unless the complaint is filed within six years after the right of action accrues or

6/ 62 PERC ¶ 62,047.

7/ Section 2416(c) excludes from the limitations period of Section 2415 "all periods during which . . . facts material to the right of action are not known and reasonably could not be known by an official of the United States charged with the responsibility to act in the circumstances."

within one year after final decisions have been rendered in applicable administrative proceedings required by contract or by law, whichever is later: Provided, That in the event of later partial payment or written acknowledgement of debt, the right of action shall be deemed to accrue again at the time of each such payment or acknowledgement . . . .

The Authority contends that the Commission's billing statement for annual charges is an "action for money damages" that is "founded upon [a] contract express or implied in law or fact," and is therefore subject to the six-year statute of limitations of 28 U.S.C. § 2415.

The Authority argues that, under the Commission's regulations, land use fees are payable for each year in advance, and that whenever the fees for a particular year are not paid in advance, a cause of action accrues under Section 2415. The Authority maintains that "the Commission's acceptance of the [Authority's] revised drawings could only have extended the limitation period until December 9, 1985." §/ The Authority concludes that the Commission's failure to institute action within six years (beginning in 1987 for the annual land use fee for 1981) prohibits recovery of fees for the years 1981-87.

In the alternative, the Authority requests that the Commission at least reduce the annual charge assessment in consideration of the doctrine of laches and the reasonableness of the charges.

#### DISCUSSION

Section 2415, which was enacted as part of Public Law No. 89-505, defines the time limitations for the United States to bring actions in the U.S. courts. It is part of chapter 161 of title 28 of the U.S. code, which contains the general provisions applying to the United States as a party in litigation. 2/

Section 2415(a) applies by its terms to an "action for money damages brought by the United States." The term "damages" refers to the sum of money awarded or imposed as pecuniary compensation

8/ The Commission approved the revised drawings on December 9, 1985. The Authority's use of December 9, 1986, is either a typographical error or an apparent reference to the one-year period after applicable administrative proceedings specified in Section 2415(a).

2/ See S. Rep. No. 1328, reprinted in 1966 U.S. Code Cong. and Adm. News 2502, 2509.

for an injury or wrong sustained as a consequence of either a breach of a contractual obligation or a tortious act. 10/ The annual charges at issue in this case are not "money damages"; rather, they are fees imposed by the Commission pursuant to Section 10(e)(1) of the FPA and the terms of the Authority's license for the use of government lands. The Commission's billing statement is a request for payment of these statutory fees, not an "action for money damages." Moreover, these charges are not based on a contract, express or implied, between the Commission and the Authority. Rather, they are based on the provisions of the FPA, the Commission's regulations, 11/ and the terms of the Authority's license to operate its hydropower project. Therefore, Section 2415(a) is not applicable to the billing statement at issue here. 12/

Nor do we find any basis for reducing the annual charge assessment on the ground of laches or reasonableness. Generally, the United States is not subject to the defense of laches in enforcing its rights, although the circumstances of a particular case may occasionally be found to justify an exception to the general rule. 11/ In this case, the Authority claims that the Commission's delay has prejudiced it. The Authority argues that, because of the "exceedingly late billing" of these annual charges, it cannot recover the charges from the customers that

10/ 22 Am. Jur. 2d Damages § 1.

11/ See Annual Charges Under Part I of the FPA, 18 C.F.R. Part 11.

12/ In cases concerning the Surface Mining Control and Reclamation Act, 30 U.S.C. §§ 1201-1328, courts have concluded that actions to collect delinquent reclamation fees, which are imposed by statute rather than contractual agreement, are not subject to the limitations provision of Section 2415(a). See, e.g., United States v. Tri-No Enterprises, Inc, 819 F.2d 154, 158 (7th Cir. 1987); United States v. B & C Coal Co., 647 F. Supp. 268, 273 (W. D. Va. 1986); but see United States v. Gary Bridges Logging & Coal Co., 570 F. Supp. 531, 533 (E. D. Tenn. 1983) (suit for reclamation fees construed as contractual action where company entered into installment agreement with government to pay delinquent fees). The Authority seeks to distinguish these cases, claiming that the annual charges at issue in this case are based on an express or implied contract. However, because annual charges are imposed by the FPA, we regard them as analogous to reclamation fees.

13/ See Louisville Gas & Electric Co., 58 FERC ¶ 61,338 at p. 62,093 n. 50 and cases there cited.

received the benefit from the power generated in 1981-1987, and that the charges should therefore be reduced.

Assuming that the defense of laches might be asserted in an appropriate case, the facts do not justify its application here. The Authority has not shown that it would be prejudiced because the elements of proof have been obscured by the passage of time. Although there has been a delay in determining the precise amount of the charges, the Authority was on notice by the terms of its license that annual charges for the use of government lands would be determined in the future, and that the Authority would be billed for them. 14/ Moreover, the Authority could have determined the approximate amount of the charges from the billing statements for its other projects, and could have asked the Commission staff for an estimate of those charges at any time. 15/ Consequently, the Authority could have recovered the estimated amount from its customers, and made an appropriate adjustment when the Commission staff determined the actual charges. Nor has the Authority shown that the amount of the charges is unreasonable. We therefore reject the Authority's request that the charges be reduced.

The Commission orders:

The request for rehearing filed by the Alaska Energy Authority in this proceeding on May 13, 1993, is denied.

By the Commission.

( S B A L )

*Lois D. Cashell*  
Lois D. Cashell,  
Secretary.

14/ The Authority has paid land use charges for two of its other projects, which were the subject of its earlier unsuccessful appeal for an exemption from fees. See n. 5, above. The Authority does not claim that it believed it would not be subject to land use charges for this project.

15/ See Robley Point Hydro Partners Limited Partnership, 59 FERC ¶ 61,345 (1992).

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

52 FERC 7 62, 105

Alaska Energy Authority

Project No. 2742-012  
Alaska

ORDER APPROVING NON-PROJECT USE OF PROJECT LANDS  
( Issued August 6, 1990 )

On March 1, 1990, the Alaska Energy Authority, licensee for the Solomon Gulch Project, filed an application requesting that its license be amended to allow private vehicular use of Granby Road, a Revised Statute 2477 public right-of-way, part of which is within the project boundary and, if necessary, construct an alternate road to replace those parts of the old road inundated by the project's reservoir. In its July 18, 1990, supplement to the application, the licensee said that, as a result of its agreement with an adjacent landowner, it will not be building an alternative access road.

As part of the project, several recreational trails were established within the project boundary to enhance local hiking and cross-country skiing opportunities. The project roads were also incorporated into the trail system. To avoid conflicts between pedestrian users and vehicles, private vehicles were prohibited from the trail system. Granby Road was one of the roads closed to private vehicles.

In February 1986, a court ruled that Granby Road is a Revised Statute 2477 public right-of-way and, as such, the road must be open to accommodate traditional public use. Mining and recreation were the traditional public uses of Granby Road.

Opening the road to public vehicular use may cause some conflicts with hikers and skiers. Conversely, opening the road may lead to greater recreational use of the area. The licensee will post signs along the access road warning hikers and skiers to be alert for vehicles using the area. Opening the road to vehicles will not adversely affect fish and wildlife resources of the area.

The licensee consulted with the appropriate federal and state agencies about its proposal to open Granby Road to private vehicles. None of the agencies objected to the proposed opening. Public notice of the application was published in the Federal Register and appropriate newspaper. No objections to the proposed road opening were filed with the Commission.

After receipt of this amendment, the licensee will file a revised recreation plan reflecting the opening of Granby Road to the public. The revised recreation plan will require visitors to

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the project site to check in at the powerhouse and review information on the use of project lands.

The Director orders:

(A) Alaska Energy Authority's application filed on March 1, 1990, as supplemented on July 18, 1990, requesting that its license be amended to allow private vehicular use of Granby Road, is approved.

(B) Within 180 days from the date of this order, the licensee shall file for Commission approval a revised recreation plan reflecting the changes approved in this amendment of license.

(C) This order is issued under authority delegated to the Director pursuant to section 375.014 of the Commission's regulations. Section 385.1902 of the Commission's regulations provides 30 days from the date of this order for an appeal to the Commission of this action. Filing an appeal does not stay the effective date of this order or any date specified herein.

J. Mark Robinson  
Director, Division of Project  
Compliance and Administration

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ALASKA ENERGY AUTHORITY

Orig: Don / Deana  
cc: Bunt

of Petersburg, Alaska (Petersburg). APA claimed in its exemption applications that it was selling the power produced by these four projects to the above-referenced three cities and two cooperatives (hereinafter referred to collectively as "Purchasers") without profit and that they in turn were selling the power received from APA to the ultimate consumer without profit.

The Controller denied the exemption applications, because information submitted by APA in support of its two applications showed that the Purchasers had each accumulated annual revenues in excess of their annual expenses and therefore had made a profit on their resales of APA-provided power to the ultimate consumer.

APA 1/ filed timely appeals of the letters denying its exemption requests. 2/ APA argues that the costs of APA-supplied power are passed through to the ultimate consumer by the Purchasers without profit and that this pass-through is consistent with the Commission's order in Sabine River Authority, 10 FERC § 61,241 (1980), the most recent Commission opinion regarding the showing necessary to support a not-for-profit exemption. Alternatively, APA argues that, even when viewed under a "revenues not to exceed current operating expenses" test, the requirements for an exemption have been met. According to APA, any excess revenues over operating expenses accumulated by the Purchasers were used (or set aside for use) to fund legitimate capital projects related to the electric systems of the Purchasers. It argues that any excess revenues should be viewed as necessary future capital investment and, therefore, legitimate annual expenses -- not profit. On February 24, 1989, APA requested that its appeals be consolidated.

1/ The appeals state that they have been filed on behalf of APA and the Purchasers and request relief by these Purchasers and APA. According to the appeals, the Purchasers are the real parties in interest in these proceedings, since they are obligated under the purchase agreement with APA to reimburse APA for any annual charges APA must pay for Project Nos. 2742, 2743, 2911, and 3015.

While we recognize the financial interest of the Purchasers in this proceeding, only APA, as the licensee for the four projects obligated to pay any annual charges associated with them, can challenge the denial of exemption. Accordingly, we will consider the appeals as being filed only by APA.

2/ To avoid the payment of penalties, APA paid under protest the bills in the amounts of \$216,074.59 and \$243,017.95.

### Discussion

APA is a state-owned public corporation created in 1976 under the laws of the State of Alaska to administer certain aspects of the state's energy program. In order to benefit communities in the southeastern and southcentral parts of Alaska, the Alaska legislature authorized APA to invest state-appropriated funds in Project Nos. 2742, 2743, 2911, and 3015. These four projects were acquired or constructed by APA in the early 1980s. 3/ APA expended approximately \$300 million of state-appropriated funds for 60 percent of the construction costs of these projects. The four projects consist of generating plants and transmission facilities which interface with the distribution systems of the Purchasers. 4/ The output of the projects is sold to these entities pursuant to a 1985 long-term power sales agreement.

The rate APA charges the Purchasers for wholesale power produced by the projects covers the costs of normal operation and

2/ Project No. 3015 was licensed to APA on August 5, 1981. See 16 FERC § 61,112 (1981). Project No. 2742 was originally licensed to Copper Valley on June 21, 1978 (see 3 FERC § 61,250 (1978)); the project was transferred to APA on May 28, 1982 (see 19 FERC § 62,365 (1982)). Project No. 2911 was originally licensed to Ketchikan on July 17, 1980 (see 12 FERC § 61,331 (1980)); the project was transferred to APA on September 21, 1982 (see 20 FERC § 62,506 (1982)). Project No. 2743 was originally licensed to Kodiak on October 5, 1981 (see 17 FERC § 61,206 (1981)); the project was transferred to APA on May 12, 1982 (see 19 FERC § 62,259 (1982)).

4/ Project Nos. 2911, 3015, and 2743 each have 20 MW of capacity, while Project No. 2742 has 12 MW of capacity. The electricity needs of Wrangell between 1984 and 1987 were met in total by the power produced by Project No. 3015, although it does possess back-up diesel generators. Copper Valley used both power produced by Project No. 2742 and diesel generation to meet its electricity needs between 1984 and 1987. Although Kodiak possesses diesel generators, it appears that the power from Project No. 2742 met Kodiak's total electricity needs between 1984 and 1987. Petersburg used power from Project No. 3015, diesel generation, and power from a hydroelectric project licensed to it (Project No. 201) to meet its electricity needs between 1984 and 1987. Ketchikan used power from Project No. 2911, diesel generators, and power from two hydroelectric projects licensed to it (Project Nos. 420 and 1922) to meet its electricity needs between 1984 and 1987.

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Alaska Energy Authority

Project No. 2742-016  
Alaska

ORDER APPROVING REVISED RECREATION PLAN

( Issued April 26, 1991 )

On February 5, 1991, the Alaska Energy Authority, licensee for the Solomon Gulch Project, filed a revised recreation plan as required by paragraph B of the Order Approving Non-Project Use of Project lands, dated August 6, 1990. The order allowed public vehicle use within the project boundary subject to certain mitigation measures.

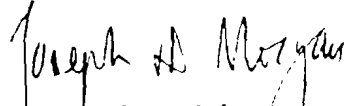
Allowing public vehicle use on a road that is currently being used as a recreation trail may cause some conflicts with hikers and skiers. The revised recreation plan proposes mitigation measures to help avoid pedestrian/vehicular conflicts. The existing trail signs along the project access road will be revised to warn pedestrians that vehicles may be present. In addition, visitors interested in using private vehicles within the project boundary will have to check in at the powerhouse and review information on the use of project lands. The licensee proposes to implement the revised recreation plan by August, 1991.

The plan provides a means to warn pedestrians that vehicles may be present and to be alert. The licensee's adherence to the plan would provide appropriate measures to avoid pedestrian/vehicular conflicts.

The Director orders:

(A) The revised recreation plan, for the Solomon Gulch Project, that was filed on February 5, 1991, is approved.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. 385.713.

  
J. mark Robinson  
Director, Division of Project  
Compliance and Administration



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ALASKA ENERGY AUTHORITY

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Project No. 2742-010, et al. -2-

Before Commissioners: Martha O. Hesse, Chairman;  
Charles A. Trabandt, Elizabeth Anne Moler  
and Jerry J. Langdon.

Alaska Power Authority ) Project Nos. 2742-010,  
2743-008, 2911-011,  
and 3015-005

ORDER DENYING APPEALS

(Issued October 26, 1989)

By letter dated August 26, 1988, the Commission's Chief of the Management Systems Branch, Office of the Controller (Controller), denied the application for exemption from payment of annual charges for administration of Part I of the Federal Power Act (FPA) and for use of federal lands for 1984 through 1987 filed by the Alaska Power Authority (APA) for its Swan Lake Project No. 2911 and Tye Lake Project No. 3015. By letter dated January 5, 1989, the Controller denied APA's application for exemption from payment of annual charges for 1984 through 1987 for its Solomon Gulch Project No. 2742 (for administration) and Terrore Lake Project No. 2743 (for administration and land use). As discussed below, we are denying APA's subsequent appeals of these two exemption denials.

Background

APA's exemption applications were based on the not-for-profit provision of Section 10(e) of the FPA, 16 U.S.C. § 803(e). Section 10(e) provides, in pertinent part:

[T]he licensee shall pay to the United States reasonable annual charges in an amount to be fixed by the Commission for the purpose of reimbursing the United States for the costs of the administration of [Part I of the FPA]; for recompensing it for the use, occupancy, and enjoyment of its lands or other property... . Provided, further, that licenses for the development, transmission, or distribution of power by States or municipalities shall be issued and enjoyed without charge to the extent such power is sold to the public without profit... .

Section 11.06 of our regulations, 18 C.F.R. § 11.06, contains provisions regarding the application and grant of exemptions of

annual charges by states or municipalities based on the sale of power to the public without profit. This section provides as follows:

(a) Bases for exemption. A state or municipal licensee may claim total or partial exemption upon one or more of the following grounds:

(2) To the extent that power generated, transmitted, or distributed by the project was sold directly to the public (ultimate consumer) without profit;

(d) Sales to public. No state or municipal licensee shall be entitled to exemption from the payment of annual charges on the ground that power generated, transmitted, or distributed by the project is sold to the public without profit, unless such licensee shall show:

(2) That an income statement, prepared in accordance with the Commission's Uniform System of Accounts, shows that the revenues from the sale of project power do not exceed the total amount of operating expenses, maintenance, depreciation, amortization, taxes, and interest on indebtedness, applicable to the project property. Periodic accruals or payments for redemption of the principal of bonds or other indebtedness may not be deducted in determining the net profit of the project.

(e) Sales for resale. Notwithstanding compliance by a state or municipal licensee with the requirements of paragraph (d) of this section, it shall be subject to the payment of annual charges to the extent that electric power generated, transmitted, or distributed by the project is sold to another state, municipality, person, or corporation for resale, unless the licensee shall show that the power was sold to the ultimate consumer without profit. The matter of whether or not a profit was made is a question of fact to be established by the licensee.

The power produced by Project No. 2742 is sold by APA to the Copper Valley Electric Association, Inc. (Copper Valley), an electric cooperative, and the power produced by Project No. 2743 is sold by APA to another electric cooperative, the Kodiak Electric Association, Inc. (Kodiak). The power produced by Project No. 2911 is sold by APA to the City of Ketchikan, Alaska (Ketchikan), and the power produced by Project No. 3015 is sold by APA to the City of Wrangell, Alaska (Wrangell), and the City

APA contends that it should be entitled to an exemption from the payment of annual charges under the Sabine ratemaking approach for Project Nos. 2911 and 3015, since, alleges APA, the three cities pass the cost of power from Project Nos. 2911 and 3015 through to the ultimate consumer at cost with no profit added. Thus, contends APA, the cities earn no return on the sales of APA power to their customers. In support of its position, APA notes that it refigures its rates at the end of the year and that any adjustments in its rates are passed on to the ultimate consumers by the cities.

APA also argues that it is entitled to an exemption from annual charges for Project Nos. 2911 and 3015 if the not-for-profit issue is considered under the traditional "revenues not to exceed current operating expenses" test instead of under the ratemaking approach of Sabine. Specifically, APA states that, although the cities during the years at issue produced and retained revenues in excess of current operating expenses, those excess revenues should not be considered as profit. APA states that all of the excess funds were used or earmarked for use by the cities for projects directly benefiting electric utility customers, with none of those funds used to subsidize other city utilities or services.

According to APA, profits are funds the use of which is discretionary. APA contends that is not the case with the cities' excess revenues, since the cities, due to their unique situation, must set aside these excess revenues in order to meet future capital investment requirements. APA states that a more accurate term for these excess revenues might be "required future capital investment." APA therefore argues that the cities' revenues in excess of current expenses should be considered as legitimate annual expenses and, if those monies are so considered, that the cities did not make any profit for the years in question and APA is entitled to an exemption from the payment of annual charges for Project Nos. 2911 and 3015.

The "unique situation" referenced by APA is the fact that the city utilities are small, have a small customer base, and operate in remote locations without any interconnection to a transmission network. According to APA, in order to ensure the efficient and reliable use of the power produced by these two projects, the construction of which was partially subsidized by the state, the cities must accumulate the capital needed to improve and maintain their utility systems. Since they are not interconnected to any transmission grid, they cannot rely on other utilities, through such a grid, to provide them with services if needed. Also, given their small size and other circumstances, they cannot realistically use bond issues to fund capital investments in a timely manner. Finally, APA states that the APUC has confirmed that the build-up of some reasonable level

of equity, as a hedge against upcoming capital investments, represents prudent utility management in Alaska. 6/

APA's arguments for an exemption from the annual charges for Project Nos. 2911 and 3015 based on Sabine are unpersuasive. Although the Sabine ratemaking approach might be helpful in addressing the profit issue for Petersburg and Ketchikan, which commingled project power with power from other sources during the relevant years, it would be inappropriate to use the Sabine ratemaking approach to determine whether a profit was made on the resales of APA-produced power by Wrangell, Petersburg, and Ketchikan.

First, although asserting that power produced by Project Nos. 2911 and 3015 was passed through to the ultimate consumers by the cities without profit, APA has not even attempted to substantiate this assertion by, for example, showing how the cities, in developing their rates, treated purchase power costs in a manner that ensured that no profit or return was earned on them. The fact that subsequent adjustments in rates made by APA were passed on by the cities to their customers does not establish that no profit was earned on the total sales of APA-produced power.

Second, and more importantly, the rates at which the cities resell project power are not regulated by any independent regulatory body. However, as was made clear in Sabine itself, the Sabine approach can be used only when the rates charged by the entities reselling the project power are reviewed by an independent regulatory body that employs the fundamental principle of ratemaking that is practiced by the Commission, *i.e.*, that purchased power is treated as an expense and that, while returns on rate base are allowed, expenses are flowed through to the customer without return. 7/ This is a necessary condition precedent to use of the Sabine approach, since subjecting the resale rates to the approval of the regulatory body guards against the substitution of high returns on the resellers' investments for the absence of profits or returns on the resale of project power. Since the cities' rates are unregulated and

6/ APA does not explain how the APUC has "confirmed" this.

7/ The public utility ratemaking formula is given by the equation  $RR = O + T + (V - D)R$ , where RR denotes revenue requirements and O = operating expenses and annual depreciation expenses, T = taxes, V = value of the plant, D = accumulated depreciation, R = allowed rate of return. (V - D) is the rate base. See K. Howe & E. Rasmussen, Public Utility Economics and Finance, 64-100 (1982).

maintenance for the projects and debt service on the approximately \$192 million in bonds sold to finance the projects. The rates APA charges are set annually. The rate is calculated by dividing the annual costs associated with operating and maintaining the projects, plus the required debt service, by the actual load of the Purchasers. The rates charged by the cooperatives for power sold to ultimate consumers are approved by the Alaska Public Utilities Commission (APUC). Although the APUC regulates the service boundaries of the three municipalities, it does not approve their rates or those of APA.

Project Nos. 2911 and 3015

APA asserts that it is entitled to an exemption from payment of annual charges for the Swan Lake Project No. 2911 and the Lake Tyea Project No. 3015 because neither it nor the three cities receiving power from these two projects make a profit on the sale of project power. From the information submitted in this proceeding, it is clear that APA did not make a profit on the sale of power from these two projects for 1984 through 1987. However, as required by Section 11.06(e) of our regulations, to qualify for an exemption in the resale situation present here, APA must also establish that Wrangell, Petersburg, and Ketchikan did not make a profit on the resale of project power to ultimate consumers.

The information supplied in this proceeding indicates that Wrangell, Ketchikan, and Petersburg each had revenues from sale of power in excess of related expenses for each of the years from 1984 through 1987. Consequently, under the traditional income statement concept of profit, the power produced by Project Nos. 2911 and 3015 was not resold by these entities to the ultimate consumer without profit. APA argues, however, that the Commission, as it did in Sabine, supra, should use the "ratemaking" approach to determine whether a profit was made on the resales, and that, under this approach, no profit was made by the three cities on resales during the period from 1984 through 1987.

In Sabine, the Commission had to determine if the power from the Toledo Bend Project No. 2305 sold by the licensees without profit to three other entities that commingled the project power with other sources of power was resold by these three entities to the ultimate consumer without profit. The Commission concluded that requiring the purchasing entities to segregate the Toledo Bend power from other sources of power and to design rates to exclude profit from the resale of the segregated Toledo Bend power would impose too great a burden. In lieu thereof, the

Commission developed a ratemaking approach to address the issue. Specifically, the Commission stated as follows: 5/

In the absence of any statutory or regulatory definition of the term "profit", and particularly in the vacuum of legislative history as to the meaning of the phrase "sold to the public without profit", we have sufficient discretion to interpret the term as used in that phrase and our Regulations in a manner which will achieve the purposes of and facilitate administration of the Federal Power Act. \* \* \* [W]e know of no reason why the ratemaking concept of a "return" cannot be applied. Certainly, the usage of the term "profit" in business, financial and regulatory circles today is broad enough to encompass the ratemaking concept of "return" as well as the income statement concept of "profit". Such an interpretation is consistent with our view of the basic purpose of the "sold to the public without profit" proviso of Section 10(e) - that is, to permit licenses to be enjoyed without charge to the extent that the benefits of initial sales by licensees without profit are passed on to ultimate consumers.

In other words, it is a fundamental principle of ratemaking as practiced by the Commission that purchased power is treated as an expense, that expenses are recovered in designing rates and, conversely, that electric utilities are not allowed a return on expenses. A reasonable return is allowed on "rate base", but expenses are flowed through to the customer. Since the regulatory bodies having jurisdiction over the Companies' retail rates follow the same practice, and since no return is allowed on purchased power, the Toledo Bend power which is resold by the Companies to ultimate consumers under rates which are so formulated and approved is necessarily resold to the public without profit.

The Commission concluded that, instead of tracing the Toledo Bend power to ultimate consumers, it would be appropriate to treat the power on a pro rata basis, i.e., determine the percentage of the purchasing companies' total sales (from all power sources) that was made to ultimate consumers and allow an exemption in the payment of annual charges in that percentage amount. The Commission then provided the licensees with an opportunity to submit evidence to support an exemption under the ratemaking approach or any other alternative approach the licensees wished to pursue.

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5/ 10 FERC ¶ 61,241 at 61,451.

Nebraska case and the fact that the Commission, in the 17 years since Central Nebraska, had consistently interpreted profit for purposes of the Section 10(e) exemption in the accounting sense as an excess of revenues over operating costs. The court also noted that the Commission's regulations clearly stated that periodic accruals or payments of the principal of bonds or other indebtedness may not be deducted in determining the net profit of a project. 11/

APA has not advanced any compelling reason justifying its request that we abandon our consistent and long-standing practice of applying traditional accounting principles of profit and loss in interpreting the not-for-profit exemption of Section 10(e) and holding that accumulations to fund past or future capital expenditures are not expenses. Characterizing the set-asides of the cities for working capital and future capital investments as non-discretionary because of the cities' perceived need to accumulate funds for such purposes does not change the fact that the funds to be set aside come from revenues that exceed the cities' costs of purchasing and delivering the APA-produced power. Since the benefits of the initial sales by APA are not passed on to the ultimate consumer without increase, profit has been made by the cities.

Furthermore, and as indicated by the Commission in Central Nebraska, treating payments for capital as current expenses results in a double expense deduction, since depreciation is already allowed as an expense. Although Central Nebraska involved set-asides for future bond redemption, while APA states that the cities' excess revenues were used (or will be used) directly for capital improvements, we see no difference between these situations. In both cases, once an expenditure for a capital improvement has been made, depreciation on the improvement will be allowed as an expense. 12/

11/ As indicated previously, the Commission's current regulations also clearly indicate this. See 18 C.F.R. § 11.06(d)(2), supra.

12/ Review of the information provided by APA with its appeal for the Project Nos. 2911 and 3015 proceedings indicates that each of the cities reported significant additions to plant and expense deductions for depreciation in each of the years from 1984 through 1987. This information also indicates that each of the cities' long-term indebtedness decreased in each of the years from 1984 through 1987. Thus, a portion of the cities' profits has been used to redeem bonds or otherwise decrease long-term indebtedness. Treating the portion of profit used for such purpose as an  
(continued...)

The fact that the cities' set-aside of excess revenues for capital improvement purposes may be prudent and may ultimately benefit the cities' ratepayers does not transform the excess revenues from profits into expenses and make the cities' resale of APA-produced power not-for-profit. As the Commission noted in Central Nebraska, all municipal utilities operate to provide benefits to the public. Deeming the cities' set-asides for capital improvements as expenses because such set-asides may benefit the ratepayers ignores the fact that the Section 10(e) proviso clearly contemplates that municipalities can sell power at a profit. Indeed, it is likely that many, if not most, of the 146 municipal licensees that pay over \$6.6 million in annual administrative charges, and the 56 municipal licensees that pay over \$2 million in annual charges for land use, use excess revenues in a manner similar to that employed by the cities. Adoption of APA's novel interpretation of expenses, if applied to all municipal licensees, could lead to exemptions for all such licensees, thus negating the profit/not-for-profit distinction of the Section 10(e) proviso. 13/

Finally, our conclusion that APA has not demonstrated that the cities' resale of power produced by Project Nos. 2911 and 3015 was without profit does not prohibit the cities from continuing their practice of setting aside excess revenues for capital improvement purposes if they believe such a practice is prudent given their circumstances. Our holding only prohibits APA from receiving an exemption from annual charges for Project Nos. 2911 and 3015 so long as such practice continues.

Project Nos. 2742 and 2743

As indicated previously, APA sells the power produced by the Terror Lake Project No. 2743 and by the Solomon Gulch Project No. 2742 to Kodiak and Copper Valley, respectively. APA states that neither it nor Kodiak and Copper Valley made a profit on the sale of power from Project Nos. 2742 and 2743. From the information

12/ (...continued)  
expense would be directly contrary to Section 11.06(d)(2) of our regulations.

13/ As noted previously (see n. 4, supra), Petersburg is the licensee for Project No. 201, while Ketchikan is the licensee for Project Nos. 420 and 1922. The license for Project No. 1922 was issued in 1945, while relicenses were issued for Project Nos. 201 and 420 in 1980 and 1982, respectively. Despite the many years these projects have been under license, it does not appear that Petersburg and Ketchikan have ever applied for exemptions from annual charges for these three projects.

thus are not subject to the safeguards of rate regulation, the Sabine ratemaking approach cannot be used to determine if a profit was made on the resale of power produced by Project Nos. 2911 and 3015.

We also find unpersuasive APA's arguments that we should consider the cities' excess revenues as legitimate expenses and not profit because the cities have used (or set aside for use) these excess revenues for capital investments in their systems. Although we do not question the prudence of the cities in setting aside excess revenues to fund capital investments, we do not believe, as discussed below, that such set-asides transform the excess revenues from profits to current expenses.

The Commission has consistently held in deciding whether a municipality is entitled to an exemption under the proviso to Section 10(e) that profits are determined by comparing revenues with current operating expenses plus payment of interest on indebtedness, and that, consistent with long-standing accounting practices, set-asides to fund future capital investments or to pay the principal of bonds used to fund capital improvements are not considered to be current expenses.

In Central Nebraska Public Power and Irrigation District, 5 FPC 165 (1946), the Commission denied the request for an exemption from annual charges filed by a municipal licensee that had excess revenues over expenses that it set aside for future bond redemption and other purposes, finding the these excess revenues constituted profit. The Commission stated that allowing the licensee to write off repayments of bonded indebtedness as current expenses would result in a double expenses deduction, since the licensee was already permitted to treat depreciation as an expense. Finally, the Commission, in response to the licensee's contention that its sales of power should be considered as being made without profit because the excess revenues would inure ultimately to the benefit of the public within its service area, the Commission noted that all municipal utilities operate to provide benefits to the public, and that the licensee's position ignored the language of the Section 10(e) proviso, which allows exemption only "to the extent" the power is sold without profit, thus showing that on sales "with profit" an exemption is not allowed.

On appeal, the Eighth Circuit Court of Appeals affirmed the Commission. 8/ The court stated: 9/

Nor do we find anywhere in the Federal Power Act any expression indicating that Congress regarded the municipal power development agencies as entities unable to make profits. They are dealt with as entities engaged in business, required to keep accounts as such, and therefore through their accountings made amenable to the profit and loss test universally accepted in the business world.

\* \* \*  
The situation as to this exemption provision is that it has consistently over a period of a quarter of a century been understood by the Commission and by the Congress to mean that all municipal licensees like this District, whose accountings with the Commission show profits from their sales of power to the public for the annual periods, are required to pay the prescribed charges.

The Commission also addressed the issue of what constitutes properly allowable expenses for purposes of not-for-profit exemptions in Power Authority of the State of New York, 31 FPC 93 (1964) (PASNY). In this case, the Commission found that the municipal licensee had not shown that its sale of project power had been without profit, noting that it had a profit (defined as excess of revenues over costs) for the year of over \$13 million, which was allocated between accounts established to fund new construction, provide working capital, and pay off bonded indebtedness. The Commission concluded that reserves for contingencies, reserves for new construction, accumulation of funds for working capital, and amortization of principal indebtedness are not costs for the purpose of determining whether revenues exceed costs.

On appeal, the Second Circuit court of Appeals affirmed the Commission's determination that revenues used to retire capital debt constituted profit. 10/ The court noted the Central

8/ 160 F.2d. 782 (8th Cir. 1947), cert. denied, 332 U.S. 765 (1947).

9/ Id. at 786.

10/ 339 F.2d. 269, 274 (2nd Cir. 1964), cert. denied, 381 U.S. 933 (1964). Footnote 5 of the court's opinion indicated that the Commission did not press on appeal its determination that reserves for contingencies and new construction and accumulation of funds for working capital are not expenses for exemption purposes. The court therefore found it unnecessary to address those issues.

provided by APA in this proceeding, it is clear that APA did not make a profit on the sale of power from Project Nos. 2742 and 2743 from 1984 through 1987. However, once again, APA would be entitled to an exemption from annual charges for Project Nos. 2742 and 2743 only if it can demonstrate that Kodiak's and Copper Valley's resales of power from these two projects were not for profit.

The information supplied in this proceeding indicates that Kodiak and Copper Valley each had revenues from sale of power in excess of related expenses for each of the years from 1984 through 1987. Consequently, as in the case of the cities, under the traditional income statement concept of profit, the power produced by Project Nos. 2742 and 2743 was not resold by these entities to the ultimate consumer without profit.

APA incorporates by reference the arguments made by it in its appeal of the denial of the exemption for Project Nos. 2911 and 3015. For the reasons discussed previously, we find these arguments unpersuasive. However, it advances additional arguments pertaining to the cooperative status of Kodiak and Copper Valley.

Specifically, in relation to the applicability of the Sabine approach, it notes that the resale rates of Kodiak and Copper Valley are approved by the APUC following the filing by these entities of rate cases. According to APA, the rates submitted by Kodiak and Copper Valley are based on traditional ratemaking principles. Also according to APA, the APUC requires the cost of power purchased from APA to be passed on to ultimate consumers at cost, with readjustments of the cooperatives' retail rates made annually based on the refiguring of APA's wholesale power costs.

APA also states that the rates charged by the cooperatives and approved by the APUC contain a "margin" component. According to APA, the margin component of the rates is tied to a Times Interest Earned Ratio (TIER) of 1.5, as specified in the cooperatives' mortgages with the Rural Electrification Administration (REA). Since, argues APA, the margins are earned exclusively on the interest component of the cooperatives' debt service, these margins are earned on debt service and not on their wholesale power costs.

APA also argues that the Controller's denial of APA's exemption request for Project Nos. 2742 and 2743 on the grounds that revenues exceeded expenses ignores the unique, non-profit nature of the cooperatives. According to APA, the cooperatives, in keeping with their mandates as member-owned cooperatives, and as required by Alaska law, the REA, the Internal Revenue Service (IRS), and the cooperatives' own articles of incorporation and by-laws, allocate and return on a yearly basis patronage capital

directly to their member-owners. Thus, all revenues in excess of expenses are returned to their rate-payers/members in the form of capital credits, and no profit is made.

APA also states that the Commission recognized the not-for-profit nature of cooperatives in Sabine, when the Commission, in commenting on the burden that tracing commingled power would impose, stated: 14/

[T]here would probably be very few resale situations in which a Licensee could successfully claim the exemption (probably limited to cooperatives which commingle project power but make patronage refunds to eliminate all profits from all sales).

We do not believe that APA has demonstrated that the cooperatives' sales of APA-produced power was without profit. Turning first to APA's assertion that the nature of the cooperatives eliminates the possibility for profits, we note that requirements governing the cooperatives only require disbursement of patronage capital to their members after a certain amount has been retained by the cooperatives. For example, Copper Valley, under provisions of its long-term debt agreement with the REA, limits the return of capital contributed by members to 25 percent of patronage capital or operating margins of the cooperative until total equities and margins equal or exceed 40 percent of the total assets of the cooperative. 15/ Indeed, review of the financial information on Kodiak and Copper Valley submitted by APA indicates that, while the excess revenues of the cooperatives from 1984 through 1987 were credited to the accounts of its members, only a very minor portion of each year's patronage capital (i.e., profits) was actually returned to the members. The vast majority of the profits was retained by the cooperatives for other uses, such as to build working capital, make capital

14/ 10 FERC ¶ 61,241 at 61,450.

15/ See p. 12 of the notes to the February 23, 1988 financial statement of Copper Valley, transmitted to the Commission by APA in a letter dated September 21, 1988.

improvements, or pay off bonded indebtedness. <sup>16/</sup> Thus, profit was made and retained by the cooperatives during these years.

The Sabine case does not support APA's position. Although that opinion did indicate that certain resales by cooperatives could support a licensee's request for an exemption, the quote from Sabine set out above indicates that the Commission was contemplating cooperatives that make patronage refunds that eliminated all profits from all sales. However, as just discussed, Kodiak and Copper Valley did not eliminate all profits from all sales by returning patronage capital; the majority of the patronage capital was retained for use by the cooperatives.

APA additionally raises the fact that the IRS, in a 1972 Revenue Ruling, held that funds could be retained in excess of those needed to meet current losses and expenses for such purposes as retiring indebtedness, expanding the services of the organization, and maintaining reserves for necessary purposes without endangering the non-profit status of a cooperative. However, our definition of what constitutes profit is separate and distinct from that of the IRS, and a non-profit determination from the IRS does not control our interpretation of the requirements of the exemption provision of Section 10(e).

We also do not believe that APA has demonstrated that the Sabine ratemaking approach should be used in the case of Project Nos. 2742 and 2743. First, as in the case of the cities, APA has not demonstrated that the costs of APA-produced power were passed on to ultimate consumers without increase.

Second, although the rates the cooperatives charge for power are approved by the APUC, APA has not clearly shown that the APUC uses the fundamental principle of ratemaking that is practiced by the Commission discussed previously (i.e., allowing a return on rate base and requiring expenses such as purchased power to be flowed through to consumers without return) or some comparable

<sup>16/</sup> Review of the information provided by APA with its appeal for the Project Nos. 2742 and 2743 proceedings indicates that each of the cooperatives reported significant additions to plant and expense deductions for depreciation in each of the years from 1984 through 1987. Kodiak's percentage of excess revenues returned to members as patronage capital during these years ranged from 4 to 24 percent. Copper Valley's percentage of excess revenues returned to members as patronage capital during these years ranged from 0 to 13 percent. The information submitted by APA also appears to indicate that Kodiak and Copper Valley each made payments to decrease long-term debt in each of the years from 1984 through 1987.

approach. Indeed, the margin component of the cooperatives' rates, which has apparently been approved by the APUC, is linked to the TIER. As indicated previously, the TIER is a multiplier of 1.5 applied to the cooperatives' obligation to pay interest on their REA bonds. As such, it has no relation to a return on rate base under fundamental ratemaking principles. <sup>17/</sup> Furthermore, the margin component, in and of itself, may result in returns to the cooperatives that would be significantly higher than that allowed under the rate of return approach necessary for application of Sabine. <sup>18/</sup>

We therefore conclude that APA has not demonstrated that Kodiak's and Cooper Valley's resales of power produced by Project Nos. 2742 and 2743 were without profit. Once again, we do not question the prudence of these entities in collecting revenues sufficient to fund capital improvements or increase working capital. However, the possibly unique circumstances facing these cooperatives do not transform the profits they have made on the resale of APA-produced power into legitimate expenses. Finally, as with the cities, to accept APA's arguments as they relate to the cooperatives could result in the per se grant of full exemptions from annual charges for all state or municipal licensees that sell power to cooperatives. <sup>19/</sup>

<sup>17/</sup> In PASNY, supra, the licensee was required by its general revenue bond resolution to procure net revenues sufficient to meet a 1.4 to 1 ratio between net revenues and its bond service requirements.

<sup>18/</sup> As indicated previously, APA argues that use of the TIER supports its contention that any return it receives is on the interest component of its debt service, not on purchased power. However, the TIER is a simple mathematical multiplier and does not mean that return was not made on purchased power.

<sup>19/</sup> The definition of municipality under the FPA does not include cooperatives. See Carolina Power and Light Company, 55 FPC 1272 (1976). However, a licensee that is a state or municipality under the FPA can obtain an exemption from annual charges in a resale situation regardless of the status of the reseller.

The Commission orders:

The appeals filed on December 12, 1988, and February 6, 1989, in this proceeding by the Alaska Power Authority are denied.

By the Commission.

( S E A L )

*Lois D. Cashell*  
Lois D. Cashell,  
Secretary.

CORRESPONDENCE DISTRIBUTION	
ACTION:	REACTION:
<i>Brent Petrie</i>	<i>Don Shua</i>
_____	<i>Bob Lelesca</i>
_____	<i>Gloria M.</i>
_____	<i>Jim Kang</i>
DATE:	_____ (2nd copy)



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JAN 10 1988

ALASKA POWER  
AUTHORITY

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Solomon Gulch Project

Project No. 2742-009

ORDER AMENDING ARTICLE 39

( Issued December 28, 1987 )

On October 20, 1987, Copper Valley Electric Association, Inc. (licensee), filed a request to amend article 39 of the license for the Solomon Gulch Project, FERC No. 2742. Article 39 requires the licensee to maintain a minimum flow of 9 cubic feet per second (cfs) at the crest of the lower falls of Solomon Gulch Creek, and to evaluate this minimum flow to determine its adequacy to protect salmon habitat. Article 39 requires the licensee to file the results of the evaluation and plans for any proposed modifications to the 9 cfs minimum flow.

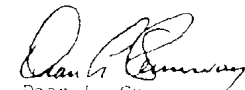
The licensee requests that article 39 be modified to require maintenance of a 2 cfs flow at the base of the lower falls of Solomon Gulch Creek, and a 2 cfs flow at the head of the project tailrace. These proposed flows are based on a post-operational study conducted by the Alaska Department of Fish and Game (ADFG). The ADFG study concluded that impacts of project operation on water quality and salmon spawning gravels were not significant, and that some increased spawning habitat was created in the project tailrace. The ADFG stated that the overall impact of project operation on the salmon fishery in Solomon Gulch Creek, however, was impossible to determine.

The operation by the Valdez Fisheries Development Association, Inc. of a salmon hatchery at the mouth of Solomon Gulch Creek has dramatically increased the abundance of salmon in the project area. Pre-project populations of pink, chum, and coho salmon numbered approximately 1,000 individuals. Operation of the hatchery will result in projected annual returns of 3.5 million pink salmon, 40,000 chum salmon, and 18,000 coho salmon. These returns have overwhelmed the native fishery, making it impossible to assess the impact of project related flows on the fishery. The ADFG states that since hatchery-produced fish dominate the fishery, resource management should be aimed at maximizing hatchery operations. To protect the limited amount of spawning habitat in the creek and bypass reach, the ADFG recommends maintenance of a 2-cfs flow at the base of the lower falls of Solomon Gulch Creek and a 2-cfs flow at the head of the project tailrace.

In order to protect the salmon spawning habitat in the project tailrace and in Solomon Gulch Creek, the licensee should maintain a minimum flow of 2 cfs at the head of the project tailrace and 2 cfs at the base of the lower falls of Solomon Gulch Creek. These flows would adequately protect the limited spawning habitat while reserving some flows for distribution to the fish hatchery.

The Director orders:

- (A) Article 39 of the license for the Solomon Gulch Project, FERC No. 2742 is superseded by the following:
- (B) Article 39. The licensee shall maintain minimum flows of 2 cubic feet per second (cfs) at the head of the project tailrace and 2 cfs at the base of the lower falls of Solomon Gulch Creek, for the protection of fish resources in the tailrace and creek. These flows may be temporarily modified if required by operating emergencies beyond the control of the licensee and for short periods upon mutual agreement between the licensee and the Alaska Department of Fish and Game.
- (C) This order is issued under authority delegated to the Director and is final unless appealed to the Commission under Rule 1902 within 30 days from the date of this order.

  
Dean L. Shunway  
Director, Division of  
Environmental Analysis

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ALASKA POWER  
AUTHORITY SUPERSEDING FERC  
DRAWING NO. 2742-

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

88 FERC 162, 834

Alaska Power Authority ) Project No. 2742-006

ORDER APPROVING "AS-BUILT" EXHIBITS

( Issued December 9, 1985 )

On June 21, 1978, a License was issued for the Solomon Gulch Project No. 2742, located on Solmon Gulch Creek near Valdez, Alaska.<sup>1/</sup>

On October 12, 1983, the Licensee filed a revised Exhibit F and for approval "as-built" Exhibit M and Exhibit J, K, and L drawings in compliance with Article 49 of the license.

The "as-built" exhibits have been examined and found to conform to the Commission's Rules and Regulations. No significant changes have been made in the project and the exhibits accurately show the constructed facilities.

Approval of the "as-built" Exhibits is an administrative action and is not a major Federal action significantly affecting the quality of the human environment.

The Director of the Office of Hydropower Licensing or the Director's designee, under 18 C.F.R. §375.314, orders:

(A) The following Exhibits are approved and made a part of the license for Project No. 2742 superseding the indicated exhibits:

Exhibit M - General Descriptions of Mechanical, Electrical, and Transmission Equipment and their Appurtenances consisting of 4 typewritten pages; filed October 12, 1983, superseding the Exhibit M approved in the license on June 21, 1978,

EXHIBITS	FERC DRAWING NO. 2742-	SHOWING	SUPERSEDING FERC DRAWING NO. 2742-
J-1	50	Vicinity Map	2
J-2	51	General Layout Power Facilities	3
J-3	52	Vicinity Map (revised 8/8/85)	17

<sup>1/</sup> The license was issued to the Copper Valley Electric Associates, 3 FERC #61,250, and was later transferred to the Alaska Power Authority, 19 FERC #62,365.

EXHIBITS	FERC DRAWING NO. 2742-	SHOWING	SUPERSEDING FERC DRAWING NO. 2742-
K- 2	53	General Layout	6
		Power Facilities	
K- 3	54	Power Facilities	7
K- 4	55	Power Facilities	8
K- 5	56	Power Facilities	9
K- 6	57	Power Facilities	10
K- 9	58	Penstock Profile and Intake Structure Details	13
K-10	59	Penstock Profile	14
		Sta. 25+00 to Sta. 15+00	
K-11	60	Penstock Profile	15
		Sta. 15+00 to Sta. 1+00	
K-12	61	Powerhouse Site	16
K-14	62	Transmission Line	
K-15	63	Transmission Line	
K-16	64	Transmission Line	
K-17	65	Transmission Line	
K-18	66	Transmission Line	
K-19	67	Transmission Line	
K-20	68	Transmission Line	
K-21	69	Transmission Line	
L- 1	70	General Layout	
L- 2	71	Dam, Dike, Coping Wall & Grout Cap Sections & Details	18
L- 3	72	Intake Structure & Trash Rack	19
L- 4	73	Spillway & Headwall	
L- 5	74	Penstock Plan and Profile and Valve House	20
L- 6	75	Penstock Plan and Profile	21
L- 7	76	Penstock Plan and Profile	
L- 8	77	Penstock Plan and Profile	
L- 9	78	Penstock Plan and Profile	
L-10	79	Penstock Plan and Profile	
L-11	80	Penstock Plan and Profile	
L-12	81	Penstock Plan and Profile	
L-13	82	Penstock Supports	
L-14	83	Penstock Anchors and Mitre Bends	
L-15	84	Penstock Appurtenances	
L-16	85	Powerhouse Site Plan	22
L-17	86	Powerhouse Plan	23
L-18	87	Powerhouse Elevation	24
L-19	88	Geologic Profile Dam Area	25
L-20	89	Geologic Profile Spillway Area	26 & 27

XC: R. Etheridge  
J. Sarrinon

20.0221

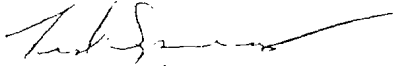
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(B) Paragraph (B)(ii) of the license is amended, in part, as follows:

(1) a rockfill dam with an asphaltic concrete face, 115 feet high and approximately 360 feet long at the crest, to be located at the outlet of Solomon Lake; (2) two rockfill dikes connected by a concrete spillway; (3) Solomon Lake, with a maximum surface elevation of 695 feet (msl)...

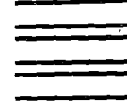
(C) Within 90 days of the issuance of this order the Licensee shall file an original of each approved Exhibit drawings reproduced on silver or gelatin 35 mm microfilm mounted on Type D (3 1/4 x 7 3/8") aperture cards. In addition, the Licensee shall file two Diazo-type duplicate aperture set of aperture cards. The original set and one duplicate set of aperture cards shall be filed with the Secretary of the Commission. The remaining duplicate set of aperture cards shall be filed with the Commission's Portland Regional Office. The FERC drawing numbers shall be shown in the margin below the title block of microfilmed drawings, and also in the upper right corner of each appropriate aperture card. Please put both the exhibit number and drawing number on each aperture card.

(D) This order is final unless appealed to the Commission by any party within 30 days from the issuance date of this order under 18 C.F.R. 385.1902 (1985).

  
Fred E. Springer  
Director, Division of  
Project Management

FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, D.C. 20426

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Pat P. Yould, Exec. Dir. P-2742  
Alaska Power Authority  
134 W. 5th Ave.  
Anchorage, Alaska 99501

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

19 FERC 162,365

-2-

Copper Valley Electric Association, Inc. ) Project No. 2742-005  
Alaska Power Authority )

ORDER APPROVING TRANSFER OF LICENSE  
( Issued May 28, 1982 )

Copper Valley Electric Association, Inc. (CVEA) and the Alaska Power Authority (APA) have filed an application for Commission approval to transfer the license for Solomon Gulch Project (FERC Project No. 2742) from CVEA to APA. 1/

The Solomon Gulch Project is located on Solomon Gulch Creek near Valdez, Alaska. The constructed project includes a rockfill dam and saddle dike, penstock, powerhouse, and a transmission line to Glennallen, Alaska. The license for the Solomon Gulch Project was issued to CVEA on June 21, 1978.

Public notice of the filing of the application was given. No protests or petitions to intervene were received.

In the application, CVEA certified that it has complied with the terms and conditions of the license and agreed to pay all annual charges accrued under the license to the date of transfer. APA has accepted all the terms and conditions of the license and the Federal Power Act, and agreed to be bound thereby to the same extent as though it were the original licensee.

It is ordered that:

(A) The transfer of the license for Project No. 2742 from the Copper Valley Electric Association, Inc. to the Alaska Power Authority is approved and made effective as of the first day of the month in which this order is issued.

(B) The Alaska Power Authority shall file with the Commission certified copies of all instruments of conveyance with 30 days of their execution.

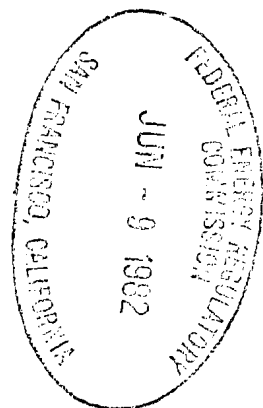
(C) Approval of the transfer is contingent upon the transfer of title to the properties under license and delivery of all license instruments to the Alaska Power Authority which shall be subject to all the terms and conditions of the Federal Power Act and the terms and conditions of the license, as though it were the original licensee.

1/ Authority to act on this matter is delegated to the Director, Office of Electric Power Regulation, under §375.308 of the Commission's regulations, 45 Fed. Reg. 21216 (1980), amending 44 Fed. Reg. 46449 (1979) and 18 C.F.R. 3.5(g)(1979).

SSS

(D) This order is final unless a petition appealing it to the Commission is filed within 30 days from the date of its issuance, as provided in Section 1.7(d) of the Commission's regulations, 18 C.F.R. Section 1.7(d) (1981). The filing of a petition appealing this order to the Commission or an application for rehearing as provided in Section 313(a) of the Act does not operate as a stay of the effective date of this permit or of any other date specified in this order, except as specifically ordered by the Commission.

*Robert E. Cackowski*  
Robert E. Cackowski  
Acting Director, Office of  
Electric Power Regulations



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Club Leader

Cooper Valley Electric Association

Reservoir Clearing Plan

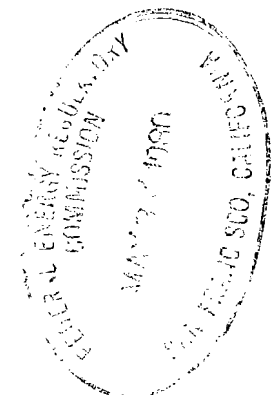
Project No. 2742

ORDER APPROVING RESERVOIR CLEARING PLAN

(Issued April 7, 1980)

Copper Valley Electric Association (Licensee), licensee for the Solomon Gulch Project, FERC No. 2742, filed on August 6, 1979, and supplemented on December 26, 1979, an application for approval of its Reservoir Clearing Plan (Plan). 1/ The application was filed with the Commission for approval, in accordance with Article 20 2/ of the license issued on June 21, 1978.

- 
- 1/ Authority to act on this matter is delegated to the Director, Office of Electric Power Regulation, under Section 3.5(g) of the Commission's regulations, 18 CFR 3.5(g), as amended in Docket No. RM78-19 (August 14, 1978) and in Docket No. RM79-59 (July 23, 1979).
- 2/ Article 20. The Licensee shall consult with the appropriate state and Federal agencies, and within one year of the date of issuance of this license, shall submit for Commission approval a plan for clearing the reservoir area. Further, the Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. Upon approval of the clearing plan all clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.



DESCRIPTION OF THE PLAN

The Plan provides for the clear-cutting and disposal of all trees and brush in the Solomon Lake Reservoir near the dam site. Throughout the remainder of the reservoir site, all trees, larger than 3 inches in diameter at breast height, would be removed, but smaller trees and brush would not be removed. Licensee states that it would be extremely costly to clear all brush from the entire reservoir area prior to filing, because any clearing on the steep shoreline terrain and the soft swampy soil conditions in the Solomon Creek flats must be done by hand. Further, Licensee does not believe that clear-cutting the entire reservoir area is necessary. Licensee proposes to collect and dispose of drift material each spring and at other times, if necessary, from the shoreline. In addition, frequent physical inspections of the trash rack will be performed during thaw periods to prevent clogging.

Implementation of the plan, according to the Licensee, will not result in hazards to boaters. The only access to the project reservoir is by a hiking trail, and boating will be limited to the use of small craft that can be hand-carried to the site.

AGENCY COMMENTS AND DISCUSSION

Comments on the Plan were solicited and received by the Licensee from the U. S. Environmental Protection Agency (EPA), the U. S. Bureau of Land Management, the U. S. Fish and Wildlife Service, the National Marine Fisheries Service, the Alaska Department of Natural Conservation (ADEC) and the Alaska Department of Fish and Game (AFG). All of the agencies either concurred with the Plan, or expressed conditional approval.

EPA stated that the Licensee should comply with all state and Federal resource agency conditions that may be needed to protect the environment. Licensee commented that this condition has been covered through its solicitation and implementation of the comments from the concerned agencies.

The ADNR expressed its concurrence, provided that the Licensee ensure that debris would not become unsightly or hazardous, and that it be disposed of in a manner acceptable to the state. Licensee replied that it would comply with this request.

The ADEC commented that it had no objection to the Plan, provided that its implementation does not violate the Alaska Water Quality Standards, Alaska Administrative Code, Title 18, Chapter 70. Licensee stated that it has received a Certificate of Reasonable Assurance, pursuant to Section 401 of the Federal Water Pollution Control Act Amendments of 1972. This document also requires compliance with AAC Title 18.

The AFG concurred with the Plan, commenting that it is compatible with the area's fish and game resources.

The Licensee indicates in the Plan that debris would not pose a problem at the project; however, the FERC staff believes that the installation of a permanent boom across the reservoir immediately upstream from the intake structure is needed to keep major quantities of floating debris from accumulating on the trash rack. Ordering Paragraph (B) requires Licensee to install a permanent boom upstream from the trash rack.

#### ENVIRONMENTAL IMPACT

The environmental effects of reservoir clearing and the subsequent inundation by the reservoir were discussed in the Final Environmental Impact Statement (March 1978) prepared on the application for license for Project No. 2742.

It is ordered that:

- (A) The Reservoir Clearing Plan for Project No. 2742 consisting of 4 pages of text, dated December 6, 1979, and one drawing, entitled "Solomon Gulch Project Reservoir Clearing Plan" filed August 6, 1979, is approved subject to the condition contained in Ordering Paragraph (B).
- (B) Licensee shall install a permanent boom across the reservoir immediately upstream from the intake structure. The boom shall be of adequate construction to keep major quantities of debris from accumulating on the trash rack. Construction and installation of the boom shall be acceptable to the Commission's authorized representative, and will be installed prior to commencement of project operation.

(C) This order is final unless a petition appealing it to the Commission is filed within 30 days from the date of its issuance, as provided in §1.7(d) of the Commission's Regulations, 18 CFR 1.7(d) [as amended in Docket No. RM78-19 (August 14, 1978) and Docket No. RM79-59 (July 23, 1979)].

( S E A L )

*Robert E. Cashew*  
for William W. Lindsay  
Director, Office of Electric  
Power Regulation

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Copper Valley Electric Association, Inc.

Fish and Wildlife  
Project No. 2742

Order Approving Revised Exhibit S

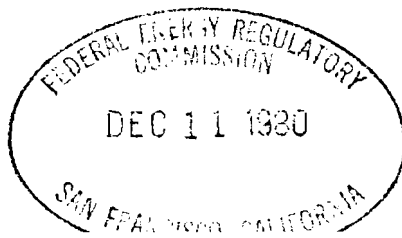
(Issued November 19, 1980)

Copper Valley Electric Association, Inc. (Licensee) filed on November 23, 1979, a revised Exhibit S and a supplement thereto on June 17, 1980, for approval 1/ pursuant to Article 38 2/ of the license for the Solomon Gulch Project, FERC No. 2742 3/. Comments on the revised Exhibit S were provided by the Alaska Department of Fish and Game (DFG), and the U.S. Fish and Wildlife Service (FWS). The National Marine Fisheries Service (NMFS) commented only on Appendix B of the revised Exhibit S.

The FWS provided the only substantive comments on the revised Exhibit S. Comments made by FWS concerned the lack of discussion on fish and wildlife protective or mitigative measures during construction and maintenance of the 105-mile-long transmission line. Further, FWS stated that facilities needed to provide a minimum flow and maintain ambient water temperatures in Solomon Gulch Creek for protection of the fish resources should be detailed in the Exhibit S.

The 105-mile-long transmission line would cross lands administered by the Alaska Department of Natural Resources (DNR) and the U.S. Bureau of Land Management (BLM). DNR and BLM, along

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- 1/ Authority to act on this matter is delegated to the Director, Office of Electric Power Regulation, under Section 375.308 of the Commission's regulations, 45 Fed. Reg. 21216 (1980), amending 44 Fed. Reg. 46449 (1979) and 18 C.F.R. 3.5(g) (1979).
  - 2/ Article 38. Licensee shall file, within one year from the date of issuance of the license, a revised Exhibit S, prepared in accordance with the Commission's Rules and Regulations, which shall include, among other things: a proposal for a study to determine the effect, if any, of project operation on salmon spawning activities near the mouth of the Solomon Gulch Creek, and a detailed assessment of critical wildlife habitat areas that would be affected by the construction and maintenance of the project transmission line. The exhibit shall also contain a proposal of appropriate measures to prevent or minimize construction and maintenance of the project transmission lines and their rights-of-way.
  - 3/ Order issuing major license (unconstructed) Copper Valley Electric Association, Inc., FERC No. 2742 (June 21, 1978).



DC-A-15

with other state and Federal resource agencies, concurred with the present alignment of the transmission line, based upon minimizing impacts to visual, fish, and wildlife resources along the right-of-way. Authorizations issued to the Licensee by DNR and BLM to cross their respective land contained stipulations with specific measures to protect fish and wildlife resources. These stipulations, which are contained in Appendices C and D of the supplement to the revised Exhibit S, adequately provide for the protection of fish and wildlife resources during construction and maintenance of the transmission line and, therefore, satisfy the requirements of Article 38. The wildlife section of the revised Exhibit S lacked these measures. Appendix A of the revised Exhibit S provides for protective measures at stream crossings. Licensee, however, should continue to consult with the resource agencies during construction and maintenance of the transmission line to ensure that any impacts to fish and wildlife are minimized.

In regard to FWS's concern for protection of the fish resource in the accessible reach of Solomon Gulch Creek, Licensee is required by Article 39, as revised by Order dated October 27, 1980, to provide a continuous minimum flow of 9 cfs at the crest of the lower falls; water would be pumped from the powerhouse tailrace to maintain this flow. If this pumping system fails, sufficient water would be released from the dam upstream. Further, Appendix B outlines a study to determine the effects of project operations on salmon spawning in Solomon Gulch Creek. One aspect of the study to be conducted by DFG would be the monitoring of water temperatures for a period of 5 years. Licensee, however, has not indicated what corrective measures it would implement should the study results show a detrimental impact to the fish resource.

A fish enhancement measure proposed by the Licensee is the placement of spawning gravel in the 350-foot-long tailrace channel. Flows in this channel, which would empty into Solomon Gulch Creek, would vary depending upon electrical demand. Licensee, therefore, should consult with the DFG in the placement of gravel in the tailrace channel to ensure that any dewatering of gravel caused by change in project operation would be minimized especially during the salmon spawning and egg incubation periods.

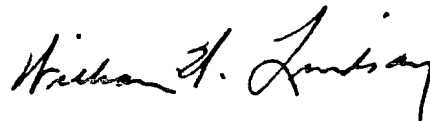
On the basis of the agencies comments and the Commission staff's analysis and review, it is concluded that the revised Exhibit S should be approved.

It is ordered that:

- (A) The "Fisheries" section, pages 4 through 7, recommending measures to protect fish and fish habitat at stream crossings of the transmission line contained in Appendix A, and

Appendix B -- "Proposal for a Study to Determine the Effect of Project Operation on Salmon Spawning Activities at Solomon Gulch Creek" -- of the revised Exhibit S are approved.

- (B)(1) Within 6 months following completion of the study (Appendix B) noted in item (A) above, Licensee shall file the results of this study with recommendations for corrective measures and letters from the appropriate resource agencies commenting thereon. 1-28  
Muss 8-
- (2) Prior to placement of spawning gravel in the powerhouse tailrace channel, Licensee shall consult with the Alaska Department of Fish and Game to determine the specific areas in the channel where the gravel should be placed to ensure successful salmon spawning during project operation. ||
- (C) Appendices C and D of the revised Exhibit S are approved insofar as they provide protection measures for fish and wildlife resources during construction and maintenance of the transmission line. Licensee shall continue to consult with state and Federal resource agencies during construction and maintenance of the transmission line to ensure that any impacts to fish and wildlife are minimized.
- (D) This order is final unless a petition appealing it to the Commission is filed within 30 days from the date of its issuance, as provided in Section 1.7(d) of the Commission's regulations, 18 CFR 1.7(d) (1979), as amended 44 Fed. Reg. 46449 (1979). The filing of a petition appealing this order to the Commission or an application for rehearing as provided in Section 313(a) of the Act does not operate as a stay of the effective date of this permit or of any other date specified in this order, except as specifically ordered by the Commission.



William W. Lindsay  
Director, Office of Electric  
Power Regulation

(S E A L)

License

W.L. 10/8  
again  
G. Coris  
Leach

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

INST # 4  
Amend # 1

Minimum Flow

Copper Valley Electric Association, Inc.

Project No. 2742

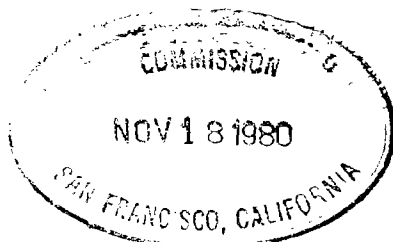
ORDER APPROVING AMENDMENT OF LICENSE  
(Issued October 28, 1980)

Copper Valley Electric Association, Inc. (Licensee) filed for Commission approval 1/ on February 6, 1980, an application and a supplement thereto on June 17, 1980, to amend Article 39 2/ of the license for the Solomon Gulch Project, FERC No. 2742 3/. Comments regarding the change in flow and point of release of this flow into Solomon Gulch Creek were provided by the Alaska Department of Fish and Game (DFG), U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS). These resource agencies generally agree with the proposed changes to Article 39 requested by the Licensee.

1/ Authority to act on this matter delegated to the Director, Office of Electric Power Regulation, under Section §375.308 of the Commission's Regulation, 45 Fed. Reg. 21216 (1980), amending 44 Fed. Reg. 46449(1979) and 18 C.F.R. 3.5(g)(1979).

2/ Article 39: Licensee shall, in the interest of protecting the fishery resources of Solomon Gulch Creek, release sufficient flows from the project dam to maintain a continuous minimum flow of 3.5 cfs, or a flow equal to the natural inflow to the project reservoir, whichever is less, as measured at the crest of the Solomon Gulch Creek Falls. After the project begins operating the Licensee in cooperation with the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service shall evaluate that minimum flow to determine its adequacy and any modification that might be needed to protect spawning areas. Within 5 years after the project begins operating, Licensee shall (1) file the results of that evaluation and (2) file for Commission approval plans for any proposed modification of that minimum flow.

3/ Order Issuing Major License (unconstructed), Copper Valley Electric Association, Inc., FERC No. 2742 (June 21, 1978).



On the basis of the agencies' comments and the Commission staff's analysis and review, it is concluded that the amended Article 39 would adequately provide for the protection of the anadromous fish resource using the accessible section of Solomon Gulch Creek and therefore should be approved.

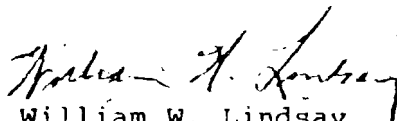
It is ordered that:

(A) Article 39 is amended to read as follows:

ARTICLE 39 Licensee shall, in the interest of protecting the fishery resources of Solomon Gulch Creek, pump a sufficient quantity of water from the powerhouse tailrace to the crest of the lower falls of Solomon Gulch Creek to maintain a continuous 9 cfs. Additionally, provisions shall be made to release sufficient flows from the project dam to maintain a continuous minimum flow of 9 cfs as measured at the crest of the lower Solomon Gulch Creek Falls should the pump fail or be unable to maintain the required flow. After the project begins operating, the Licensee, in cooperation with the Alaska Department of Fish and Game, the U. S. Fish and Wildlife Service, and the National Marine Fisheries Service, shall evaluate the minimum flow to determine its adequacy and any modifications that might be needed to protect the salmonid spawning areas. Within 5 years after the project begins operating, Licensee shall (1) file the results of that evaluation and (2) file for Commission approval plans for any proposed modification to the minimum flow required by this article.

(B) This order is final unless a petition appealing it to the Commission is filed within 30 days from the date of its issuance as provided in §1.7(d) of the Commission's regulations, 18 C.F.R. 1.7(d) (1979), as amended, 44 Fed. Reg. 46449 (1979). The filing of a petition appealing this order to the Commission or an application for rehearing as provided in Section 313(a) of the Act does not operate as a stay of the effective date of this amendment of license or of any other date specified in this order, except as specifically ordered by the Commission.

(S E A L)



William W. Lindsay  
Director, Office of Electric  
Power Regulation

CVEA  
2742

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Georgiana Sheldon, Acting Chairman;  
Matthew Holden, Jr., and George R. Hall.

Copper Valley Electric Association ) Project No. 2742

ORDER APPROVING REVISED EXHIBIT L DRAWINGS  
(Issued July 19, 1979)

On June 21, 1978, a major license was granted to Copper Valley Electric Association (CVEA or licensee) for the unconstructed Solomon Gulch Project No. 2742. Article 46 1/ of the license requires CVEA to file for Commission approval final revised Exhibit L drawings showing an adequately sized spillway and a dam that would be stable under a design earthquake commensurate with earthquake activity in the area. The additional filings were necessary because we concluded -- based largely on staff's analysis of the initial filings -- that the dam and spillway designs as submitted were not entirely adequate. Licensee filed the revised Exhibits on April 27, 1979.

The project dam has now been redesigned to include a 30-foot wide berm on the downstream toe of the dam extending up to elevation 610 msl and to provide that the Zone II rockfill in the dam be compacted by a vibratory roller in 2-foot lifts. These design changes were required to ensure that the dam would be stable under a design earthquake loading of 0.25 g horizontal acceleration. The original design was based on a 0.15 g acceleration loading.

The project spillway has been redesigned to pass the probable maximum flood (PMF) as recalculated in accordance with Article 46 of the license. CVEA's studies show that the PMF would produce a peak inflow to the reservoir of 48,300 cfs. When routed through the reservoir it would

1/ Article 46: The Licensee shall submit, for Commission approval prior to the start of construction, Exhibit L drawings showing the final design of the project works. The spillway as shown on the revised Exhibit L drawings shall be adequately sized to pass a flood resulting from a combined runoff of probable maximum precipitation plus snowmelt. The rockfill used to construct the dam shall be adequately compacted. The dam as shown on the revised Exhibit L drawings shall be designed to be stable under a design earthquake commensurate with earthquake activity in the area.

Project No. 2742

surcharge the water surface to elevation 693.5 feet, causing a spillway discharge of 37,135 cfs. The spillway is now designed to pass a flow of that magnitude.

The revised project design and the loading criteria have been reviewed and approved by the independent board of consultants convened in accordance with Article 47 2/ of the license.

Our staff has analyzed the stability of the dam as shown on the revised Exhibit L drawings and found that it is capable of withstanding an earthquake acceleration of 0.35 g with reservoir full. Staff analyses of the PMF and the flood routing confirm CVEA's analyses.

The revised Exhibit L drawings have been examined and found to conform to the Commission's rules and regulations and it is in the public interest to approve them and make them a part of the license for Project No. 2742.

2/ Article 47: The Licensee shall retain a Board of three or more qualified, independent, engineering consultants to review the design, specifications, and construction of the project for safety and adequacy. The names and qualifications of the Board members shall be submitted to the Director, Office of Electric Power Regulation, for approval. Among other things, the Board shall assess the geology of the project site and surroundings; the design, specifications and construction of the dikes, dam, spillway, powerhouse, electrical and mechanical equipment involved in water control and emergency power supply; the filling schedule for the reservoir; the construction inspection program; and construction procedures and progress. The Licensee shall submit to the Commission copies of the Board's report on each meeting. Reports reviewing each portion of the project shall be submitted prior to or simultaneously with the submission of the corresponding Exhibit L final design drawings. The Licensee shall also submit a final report of the Board upon completion of the project. The final report shall contain a statement indicating the Board's satisfaction with the construction, safety, and adequacy of the project structures.

Project No. 2742

The Commission orders:

The following revised Exhibit L drawings are approved and made a part of the license for Project No. 2742, superseding the Exhibit L drawings, noted which are deleted from the license:

<u>FERC No. 2742-</u>	<u>Showing</u>	<u>Superseding FERC No. 2742-</u>
29	General Layout; Dam, Dike, and Spillway	
30	Dam, Dike, Coping Wall and Grout Cap; Sections and Details	18
31	Intake Structure and Trash Rack	19
32	Spillway and Headwall	
33	Penstock Plan and Profile sta. 33+80 to 37+70	20
34	" sta. 30+00 to 33+80	" 21
35	" sta. 25+00 to 30+00	"
36	" sta. 20+00 to 25+00	"
37	" sta. 15+00 to 20+00	"
38	" sta. 10+00 to 15+00	"
39	" sta. 5+00 to 10+00	"
40	" sta. 0+19.12 to 5+00	"
41	Penstock Supports	
42	Penstock Anchors and Mitre Bends	
43	Penstock Appurtenances	
44	Powerhouse Site Plan	22
45	Powerhouse Plan	23
46	Powerhouse Elevation	24
47	Geologic Profile; Dam Area	25
48	Geologic Profile; Dike and Spillway Area	26



Project No. 2742

49

Cross-Sections, Plan and Geologic,  
Bedrock Contour map and Powerplant  
Site.

27

By the Commission.

( S E A L )

Kenneth F. Plumb,  
Secretary.

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Charles B. Curtis, Chairman;  
Georgiana Sheldon, Matthew Holden, Jr.,  
and George R. Hall.

Copper Valley Electric Association, Inc. ) Project No. 2742

ORDER GRANTING MOTION FOR RECONSIDERATION  
AND MODIFYING LICENSE ARTICLE  
(Issued September 22, 1978)

On June 21, 1978, we issued a license to Copper Valley Electric Association, Inc. for the Solomon Gulch Project No. 2742. The project will be located on Solomon Gulch Creek across Port Valdez from the City of Valdez, Alaska.

Licensee's attorney evidently sent a letter to the Commission dated July 19, 1978, questioning the language of Article 5 of the license. The attorney requested that the letter be treated as a petition for rehearing to revise Article 5 if that article could not be interpreted as he outlined in the letter. The Commission's records do not evidence receipt of this letter. It has only come to our attention because of subsequent telephone inquiries with the staff by Licensee. A copy of the letter in question was received on August 14, 1978.

Since no petition for rehearing was filed within 30 days of issuance of the license for Project No. 2742, that order is final. But because of the circumstances here, we will treat the letter as a motion for reconsideration. We believe Licensee's request is reasonable and, therefore, grant it by this order.

Licensee requests that the first sentence of Article 5 <sup>1/</sup> of the license be revised to include the terminology, "or to acquire said lands under terms and conditions which allow fulfillment of the conditions of this license in which case to be subject to the review of the Commission." In the alternative, Licensee suggests that the language of Article 5 be construed to permit this result. As grounds for its request, Licensee points out that project facilities will cross

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1/ The first sentence of Article 5 reads as follows:

The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project.

lands owned by the State of Alaska, the City of Valdez, and certain native village and regional corporations under the Native Claims Settlement Act. Licensee's attorney states that these entities are willing to enter into leases or easements for a definite term that would enable the project to be completed and the Commission to utilize its full regulatory jurisdiction. Licensee is aware of the provisions of the Federal Power Act which allows condemnation, 2/ but believes that it is more expeditious and economical to use an appropriate land lease, right-of-way agreement, or easement.

The general purpose of Article 5 is, of course, to require Licensee to obtain all rights necessary or appropriate for the construction, maintenance, and operation of the project. We believe that Licensee's request that it be allowed to obtain these rights from the State of Alaska, the City of Valdez, and various native corporations for a time period less than in perpetuity is reasonable. It is understandable that these entities do not wish to alienate their land in perpetuity where it is not absolutely necessary. However, we do not believe that, as the Licensee appears to suggest, the necessary rights should extend only to the termination date of the present license. Thus, it should obtain rights which will last as long as the lands and waters are used for project purposes.

We must remind Licensee, however, that the burden remains with it to acquire all rights necessary to comply with project needs and with any lawful orders issued by the Commission.

The Licensee is on notice that if it fails to acquire adequate land rights now, it may be faced with much more expensive acquisition in the future. The Licensee assumes that risk.

With this understanding we will modify the language of Article 5.

The Commission orders:

The first sentence in Article 5 of the license for Project No. 2742 is amended by deleting the words "in perpetuity."

By the Commission.

( S E A L )

Kenneth F. Plumb,  
Secretary.

## **APPENDIX B**

### **DISTRIBUTION LIST**

**Lewiston Falls Hydroelectric Project (FERC No. 2302)  
Relicensing Distribution List**

**Federal Agencies**

Lauren Townson  
Environmental Protection Specialist  
Federal Energy Regulatory Commission  
(FERC)  
888 1<sup>st</sup> St. NE  
Washington, DC 20426  
[Lauren.Townson@ferc.gov](mailto:Lauren.Townson@ferc.gov)

Roberta Budnik  
Project Manager  
US Army Corps of Engineers  
101 Army Pentagon  
Washington, DC 204226  
[roberta.k.budnik@usace.army.mil](mailto:roberta.k.budnik@usace.army.mil)

Sean McDermott  
Anchorage Office Supervisor  
National Oceanic and Atmospheric  
Administration (NOAA)  
Habitat Conservation Division  
Alaska Region  
[sean.mcdermott@noaa.gov](mailto:sean.mcdermott@noaa.gov)

Douglass Cooper  
Branch Supervisor  
U.S. Fish And Wildlife Service (FWS)  
Ecological Services Branch  
4700 BLM Road  
Anchorage, AK 99507  
[douglass\\_cooper@fws.gov](mailto:douglass_cooper@fws.gov)

Carol Mahara  
Ecological Services – Biologist  
U.S. Fish And Wildlife Service (FWS)  
4700 BLM Road  
Anchorage, AK 99507  
[carol\\_mahara@fws.gov](mailto:carol_mahara@fws.gov)

Regional Directors  
Bureau of Indian Affairs  
US Department of the Interior  
P.O. Box 25520  
Juneau, AK 99802-5520

**State Agencies**

Leah Ellis  
FERC Hydropower Coordinator  
Alaska Department of Fish And Game  
(ADF&G)  
333 Raspberry Road  
Anchorage, AK 99518  
[leah.ellis@alaska.gov](mailto:leah.ellis@alaska.gov)

Megan Marie  
Alaska Department of Fish And Game  
(ADF&G)  
P.O. Box 115526  
1255 W. 8th Street  
Juneau, AK 99811-5526  
[megan.marie@alaska.gov](mailto:megan.marie@alaska.gov)

Sarah Meitl  
Review and Compliance Coordinator  
Alaska State Historic Preservation Office  
Alaska Department of Natural Resources  
Office of History & Archaeology  
550 West 7th Avenue, Suite 1310  
Anchorage, AK 99501  
[sarah.meitl@alaska.gov](mailto:sarah.meitl@alaska.gov)

Mckenzie Johnson  
Archaeologist I  
Alaska State Historic Preservation Office  
550 W 7th Ave., Suite 1310  
Anchorage, AK 99501  
[mckenzie.johnson@alaska.gov](mailto:mckenzie.johnson@alaska.gov)

Carol Hasburgh  
Natural Resource Coordinator  
Alaska Department of Natural Resources  
P.O. Box 111020  
Juneau, AK 99811  
[carol.hasburgh@alaska.gov](mailto:carol.hasburgh@alaska.gov)

Carl Reese  
Statewide Hydroelectric Coordinator  
Alaska Department of Natural Resources  
P.O. Box 111020  
Juneau, AK 99811  
[carl.reese@alaska.gov](mailto:carl.reese@alaska.gov)

Henry Brooks  
Natural Resource Manager II  
Alaska Department of Natural Resources  
Water Management Unit  
550 W. 7<sup>th</sup> Ave. Suite 1360  
Anchorage, AK 99501  
[henry.brooks@alaska.gov](mailto:henry.brooks@alaska.gov)

Ben Wagner  
Dam Safety Engineer  
Alaska Department of Natural Resources  
Division of Mining, Land & Water, Dam  
Safety and Construction Unit  
550 West 7th Avenue, Suite 1020  
Anchorage, AK 99501  
[ben.wagner@alaska.gov](mailto:ben.wagner@alaska.gov)

Bryan Carey  
Director of Owned Assets; Statewide  
Hydroelectric Coordinator  
Alaska Energy Authority  
813 W Northern Lights Blvd.  
Anchorage, AK 99503  
[bcarey@aidea.org](mailto:bcarey@aidea.org)

Jon Wendel  
Program Manager  
Alaska Department of Environmental  
Conservation  
Division of Water - Compliance Program  
410 Willoughby Avenue – Suite 105  
Juneau, AK 99801-1795  
[jon.wendel@alaska.gov](mailto:jon.wendel@alaska.gov)

Jim Rypkema  
Program Manager  
Alaska Department of Environmental  
Conservation  
Division of Water - Compliance Program  
410 Willoughby Avenue – Suite 105  
Juneau, AK 99801-1795  
[Jim.Rypkema@alaska.gov](mailto:Jim.Rypkema@alaska.gov)

**Tribes/ANSCA Corporations**

Joe Bovee  
Vice President Land and Resources  
Ahtna, Inc.  
Glennallen, AK 99588  
[jbovee@ahtna-inc.com](mailto:jbovee@ahtna-inc.com)

Ahtna Heritage Foundation  
115 Richardson Hwy Mile  
Glennallen, AK 99588  
[office@ahtnaheritage.org](mailto:office@ahtnaheritage.org)

Alaska Native Heritage  
8800 Heritage Center Dr.  
Anchorage, AK 99504  
[Centerinfo@alaskanative.net](mailto:Centerinfo@alaskanative.net)

Chuck Totemoff  
Chairman, President & CEO  
Chenega Corporation  
3000 C Street, Suite 301  
Anchorage, AK 99503  
[chuck.totemoff@chenega.com](mailto:chuck.totemoff@chenega.com)

Josie Hickel  
CEO  
Chugach Alaska Corporation  
and the Chugach Heritage Foundation  
3800 Centerpoint Dr., Suite 1200  
Anchorage, AK 99503  
[Josie.hickel@chugach.com](mailto:Josie.hickel@chugach.com)

D Phillips  
Chugach Alaska Corporation  
and the Chugach Heritage Foundation  
3800 Centerpoint Dr., Suite 1200  
Anchorage, AK 99503  
[dphillips@chugach.com](mailto:dphillips@chugach.com)

Angela Butler  
Deputy Director Administrative Offices  
Eyak Corporation  
P.O. Box 1388  
110 Nicholoff Way  
Cordova, AK 99574  
[info@eyakcorp.com](mailto:info@eyakcorp.com)

Brendon Cain  
Eyak Corporation  
615 E. 82nd Ave, Suite 300  
Anchorage, AK 99518  
[bcain@eyakcorp.com](mailto:bcain@eyakcorp.com)

Tatitlek IRA Council  
Native Village of Tatitlek  
P.O. Box 171,  
503 Copper Mountain Road  
Tatitlek, AK 99677

Roy Totemoff  
CEO  
Tatitlek Corporation  
561 East 36th Ave  
Anchorage, AK 99503  
[rtotemoff@tatitlek.com](mailto:rtotemoff@tatitlek.com)

Angela Totemoff  
Tatitlek Corporation  
561 East 36th Ave  
Anchorage, AK 99503  
[atotemoff@tatitlek.com](mailto:atotemoff@tatitlek.com)

Ken Vlasoff  
Board of Directors Vice President  
Tatitlek Corporation  
561 East 36th Ave  
Anchorage, AK 99503  
[mvasoff@tatitlek.com](mailto:mvasoff@tatitlek.com)

Valdez Native Tribe  
P.O. Box 1108  
1750 Zurich Loop Rd  
Valdez, AK 99686  
[office@valdeznativetribe.org](mailto:office@valdeznativetribe.org)

Anna Bateman  
Tribal Administrator  
Valdez Native Tribe  
P.O. Box 1108  
1750 Zurich Loop Rd  
Valdez, AK 99686  
[anna.b@valdeznativetribe.org](mailto:anna.b@valdeznativetribe.org)

Larry Evanoff  
Chairman  
Native Village of Chenega  
P.O. Box 8079  
Chenega Bay, AK 99574

Daniel Olsen  
Tribal Council Chairman  
Native Village of Eyak  
P.O. Box 1388  
110 Nicholoff Way  
Cordova, AK 99574  
[info@Eyak-nsn.gov](mailto:info@Eyak-nsn.gov)

Native Village of Kluti Kaah  
P.O. Box 68  
Mile 104 Richardson Highway  
Copper Center, AK 99573

Native Village of Tazlina  
P.O. Box 87  
Mile 110.5 Richardson Highway  
Glennallen, Ak 99588

Gulkana Village Council  
Native Village of C'ulc'e Na'  
P.O. Box 254  
Mile 127 Richardson Highway  
Gakona, AK 99586

Native Village of Gakona  
P.O. Box 102  
Mile 4.8 Tok Cuttoff  
Gakona, A 99586

Native Village of Chitina  
P.O. Box 31  
Mile 34.5 Edgerton Highway  
Chitina, AK 99566

**Local Non-Governmental**

Dan Gilson  
Environmental Coordinator  
Alyeska Pipeline  
3700 Centerpoint Dr.  
Anchorage, AK 99503  
[Dan.Gilson@alyeska-pipeline.com](mailto:Dan.Gilson@alyeska-pipeline.com)

Sandra Johns  
Alyeska Pipeline  
3700 Centerpoint Dr.  
Anchorage, AK 99503  
[Sandra.Johns@alyeska-pipeline.com](mailto:Sandra.Johns@alyeska-pipeline.com)

Sharon Scheidt  
Mayor  
City of Valdez  
PO Box 307  
212 Chenega Avenue  
Valdez, AK 99686  
[sscheidt@valdezak.gov](mailto:sscheidt@valdezak.gov)

Sheri Pierce  
City Clerk  
PO Box 307  
212 Chenega Avenue  
Valdez, AK 99686  
[spierce@valdezak.gov](mailto:spierce@valdezak.gov)

Ken Wilson  
PRCS Director  
City of Valdez  
Parks and Recreation  
PO Box 307  
Valdez, AK 99686  
[kwilson@valdezak.gov](mailto:kwilson@valdezak.gov)

Kate Huber  
Director of Planning  
City of Valdez  
PO Box 307  
212 Chenega Avenue  
Valdez, AK 99686  
[khuber@valdezak.gov](mailto:khuber@valdezak.gov)

Bruce Wall  
Senior Planner  
City of Valdez  
PO Box 307  
Valdez, AK 99686  
[bwall@valdezak.gov](mailto:bwall@valdezak.gov)



**Additional Parties**

Mike Wells  
Executive Director  
VFDA Administrative Office  
Valdez Fisheries Development  
Association, Inc.  
Solomon Gulch Hatchery  
PO Box 125  
1815 Mineral Creek Loop Road  
Valdez, AK 99686  
[mike.wells@valdezfisheries.com](mailto:mike.wells@valdezfisheries.com)

Travis Million  
Copper Valley Electric Association, Inc.  
Mile 187 Glenn Highway  
P.O. Box 45  
Glennallen, AK 99588  
(907) 822-3211  
[TMillion@cvea.org](mailto:TMillion@cvea.org)

Robert Dunning  
AK Department of Transportation  
(AKDOT)  
PO Box 507  
Valdez, AK 99686  
[robert.dunning@alaska.gov](mailto:robert.dunning@alaska.gov)

Rob Unger  
Hatchery Manager  
Valdez Fisheries Development  
Association, Inc. (VFDA)  
Solomon Gulch Hatchery  
PO Box 125  
1815 Mineral Creek Loop Road,  
Valdez, AK 99686  
[rob.unger@valdezfisheries.com](mailto:rob.unger@valdezfisheries.com)

**Licensee**

Coreen Palacios  
Copper Valley Electric Association, Inc.  
Mile 187 Glenn Highway  
P.O. Box 45  
Glennallen, AK 99588  
(907) 822-8301  
[CPalacios@cvea.org](mailto:CPalacios@cvea.org)

## **APPENDIX C**

### **CONSULTATION DOCUMENTATION**

## Summary of PAD Questionnaire Comments and CVEA Responses

Comment ID	Entity	Comment Summary	Response
USFWS-1	Carol Mahara, Fish and Wildlife Biologist, Ecological Services, US Fish and Wildlife Service (USFWS)	Respondent reviewed the list of Information/Resources/References included in the Questionnaire; noted the inclusion of IPaC (Information for Planning and Consultation), National Wetlands Inventory (NWI), and other information from the USFWS on the list; and did not have any additional information to add at the time of the response.	CVEA appreciates USFWS's response to the Questionnaire. CVEA incorporated IPaC data into PAD Section 5.6.1 Federally Listed Species and summarized NWI data in PAD Section 5.5.2 Wetland Habitat.
ADFG-1	Leah Ellis, FERC Hydropower Coordinator, Instream Flow Program, Alaska Department of Fish and Game (ADFG)	<p>Respondent indicated that ADFG:</p> <ul style="list-style-type: none"> <li>• is aware of material or information related to the Project or the Project's environment;</li> <li>• is interested in the areas of fish and aquatic resources, wildlife and botanical resources, and rare, threatened &amp; endangered species; and</li> <li>• is planning on participating in the relicensing process.</li> </ul> <p>Respondent listed additional information resources and how the information could be obtained regarding the ADFG Alaska Freshwater Fish Inventory (AFFI) Database; State of Alaska Special Status Species; ADFG GMU 6 goat surveys; size and</p>	<p>CVEA appreciates ADFG's response to the Questionnaire, information resources, and their willingness to participate in the relicensing process. CVEA incorporated water quality data, stream habitat information, and fish presence from the AFFI into PAD Section 5.2.7 Existing Water Quality Information and Section 5.3 Fish and Aquatic Resources. Special Status Species potentially present in the Project area and goats are addressed in PAD Section 5.4 Wildlife and/or Botanical Resources and Section 5.6 Rare, Threatened, and Endangered Species.</p> <p>The size and condition of hatchery and wild Pink Salmon are beyond the scope of relicensing the Solomon Gulch Hydroelectric Project. The VFDA Hatchery is not part of the</p>

Comment ID	Entity	Comment Summary	Response
		<p>condition of hatchery and wild pink salmon in Prince William Sound; and a review of the effects of the Exxon Valdez oil spill on Pink Salmon.</p> <p>The ADFG Respondent identified several issues which are identified as separate individual comments below.</p>	<p>Project and Pink Salmon do not occur within Solomon Gulch Creek because there is an anadromous barrier at the mouth of the creek. Similarly, the effect of the Exxon Valdez Oil Spill on Pink Salmon is beyond the scope of relicensing the Project (see response to ADFG-4 below).</p>
ADFG-2		<p>There is limited (or no) information on fish in Solomon Lake. Has this lake been surveyed for fish presence since construction of the project?</p>	<p>There are no known fish in Solomon Lake due to the natural anadromous fish barrier (steep canyon) starting at the mouth of Solomon Gulch Creek at Tidewater.</p>
ADFG-3		<p>Since the VFDA Hatchery was constructed after this project's initiation, it will be pertinent to address how fish use of Solomon Gulch has been altered.</p>	<p>The VFDA Hatchery, owned and operated by the Valdez Fisheries Development Association, is not part of the Solomon Gulch Hydroelectric Project. Anadromous fish use of Solomon Gulch Creek has not been impacted by the Solomon Gulch Hydroelectric Project or the VFDA Hatchery because there is a natural anadromous barrier on Solomon Gulch Creek where it enters tidewater (see PAD section 5.3.2).</p> <p>Prior to the 1964 earthquake, there was a small alluvial fan at the mouth of the creek that supported a small number of spawning Pink and Chum salmon. The area was destroyed by the earthquake (Robert W.</p>

Comment ID	Entity	Comment Summary	Response
			<p>Retherford Associates 1976). Surveys conducted in 1973 documented 10 spawning Chum Salmon in the area (CVEA 2011).</p> <p>The ADFG Anadromous Waters Catalogue indicates the presence of spawning Pink, Chum and Coho salmon at the mouth of the creek. The VFDA Hatchery operates a seasonal weir and passes 2,000 Pink Salmon above the weir to spawn naturally in the intertidal area at the mouth of the creek. No other salmon species are passed above the weir, but fish can bypass the weir at extreme high tides. Coho Salmon returning to the VRDA Hatchery are not native to Solomon Gulch Creek and they cannot successfully spawn in intertidal areas. Chum Salmon originating from the Crooked Creek stock were reared at the VFDA Hatchery until 1995. Over the past decade, VFDA Hatchery staff have observed individual Chum Salmon adults only once every few years.</p>
ADFG-4		<p>Since the Exxon Valdez Oil Spill occurred after this project's initiation, how has this impacted the hydroelectric project?</p>	<p>The Solomon Gulch Hydroelectric Project is located on Solomon Gulch Creek. Water is impounded at an elevation of more than 615 feet msl, flows through two penstocks and the powerhouse located on the inland side of Dayville Road, and exits through an artificial tailrace channel that empties into Port Valdez at Dayville Road. None of the Project facilities</p>

Comment ID	Entity	Comment Summary	Response
			are located at tidewater and none were affected by the Exxon Valdez Oil Spill.
ADFG-5		CVEA recently requested additional water rights from Solomon Lake. Please address this need in the PAD.	CVEA’s water rights for the Solomon Gulch Project are discussed in PAD Section 4.1.3. CVEA currently has water rights to 125,000 acre-feet of water annually under ADL 67278, which was recently updated from 100,000 acre-feet due to a need for additional water to meet the demand for energy production.
ADFG-6		There has recently been a change in the stream gaging from USGS-operated gages to ones operated by a third-party consultant. Please address this change and provide a comparison of the gages in the PAD.	Stream flow has been determined by the U.S. Geological Survey (USGS) gage located upstream of the Alyeska Bailey Bridge downstream of the valve house (USGS Gage number 15225997). On 12/22/22, CVEA installed a new gage, in place of this USGS gage which, has is being verified for accuracy and is expecting confirmation by August 31, 2023.
VFDA-1	Mike Wells, Executive Director, Valdez Fisheries Development Association, Inc. (VFDA)	Respondent indicated that VFDA: <ul style="list-style-type: none"> <li>• is aware of material or information related to the Project or the Project’s environment;</li> <li>• is interested in the areas of water resources, fish and aquatic resources, and socio-economic resources;</li> </ul>	CVEA appreciates VFDA’s response to the Questionnaire, information resources, and their willingness to participate in the relicensing process. CVEA summarized water quality data provided by the VFDA Hatchery manager in PAD Section 5.2.7 Existing Water Quality Information and hatchery production and operations in PAD Section 5.3.2 Anadromous Fish Species of Solomon Gulch.

Comment ID	Entity	Comment Summary	Response
		<ul style="list-style-type: none"> <li>• is not aware of any specific issues or information needs pertaining to resources that may be affected by the Project; and</li> <li>• is planning on participating in the relicensing process.</li> </ul> <p>Respondent described relevant available information and how to obtain the information regarding hatchery operations, water usage and production that can be obtained from VFDA website, VFDA Hatchery Manager, and ADFG.</p>	
SHPO-1	Sara Meitl, Review and Compliance Coordinator, Office of History and Archaeology (OHA), Alaska State Historic Preservation Office (SHPO)	<p>Respondent indicated that SHPO:</p> <ul style="list-style-type: none"> <li>• is aware of material or information related to the Project or the Project’s environment;</li> <li>• is interested in the area of cultural resources;</li> <li>• is not aware of any specific issues or information needs pertaining to resources that may be affected by the Project; and</li> <li>• is planning on participating in the relicensing process.</li> </ul> <p>Respondent indicated the availability of the Alaska Heritage Resources Survey (AHRs) restricted database and provided a link to OHA’s website to request access to the database.</p>	CVEA appreciates SHPO’s response to the Questionnaire, information resources, and their willingness to participate in the relicensing process. The AHRs was searched by a qualified professional and the information was summarized in PAD Section 5.9.2 Alaska Heritage Resource Survey Sites in the Project Area. CVEA added the SHPO archaeologist noted to the distribution list.

Comment ID	Entity	Comment Summary	Response
		Respondent provided additional contact information for SHPO archaeologist.	
Valdez-1	Bill Wall, Senior Planner, Planning Department, City of Valdez	<p>Respondent indicated that City of Valdez:</p> <ul style="list-style-type: none"> <li>• is aware of material or information related to the Project or the Project’s environment;</li> <li>• is interested in the areas of recreation and land use, cultural resources, socio-economic resources, and tribal resources;</li> <li>• is not aware of any specific issues or information needs pertaining to resources that may be affected by the Project; and</li> <li>• is planning on participating in the relicensing process.</li> </ul> <p>Respondent indicated the following additional area plans and provided links to the documents: City of Valdez Parks and Recreation Plan, Comprehensive Plan, and Hazard Mitigation Plan; ADNR Prince William Sound Area Plan.</p> <p>Respondent provided additional contact information for the City of Valdez Parks, Recreation and Cultural Services Director and the Valdez Native Tribe.</p>	CVEA appreciates the City of Valdez’s response to the Questionnaire. CVEA added the individuals noted to the distribution list and will review and consider the area plans.



Comment ID	Entity	Comment Summary	Response
DOT&PF-1	Robert Dunning, Valdez District Superintendent, Department of Transportation and Public Facilities (DOT&PF)	Respondent indicated that DOT&PF: <ul style="list-style-type: none"> <li>• does not have any material or information related to the Project or the Project's environment;</li> <li>• is not aware of any specific issues or information needs pertaining to resources that may be affected by the Project; and</li> <li>• does not intend to participate in the relicensing process.</li> </ul>	CVEA appreciates DOT&PF's response to the Questionnaire.
ADNR-1	Ben Wagner, Alaska Department of Natural Resources (ADNR) Dam Safety and Construction Unit	Respondent indicated that ADNR Dam Safety: <ul style="list-style-type: none"> <li>• does not have any material or information related to the Project or the Project's environment; and</li> <li>• does not intend to participate in the relicensing process because the agency does not regulate FERC-jurisdictional dams, but appreciates being included.</li> </ul>	CVEA appreciates ADNR Dam Safety's response to the Questionnaire.

**From:** [Fatima Oswald](#)  
**To:** [Fatima Oswald](#)  
**Bcc:** [roberta.k.budnik@usace.army.mil](mailto:roberta.k.budnik@usace.army.mil); [sean.mcdermott@noaa.gov](mailto:sean.mcdermott@noaa.gov); [douglass\\_cooper@fws.gov](mailto:douglass_cooper@fws.gov); [carol\\_mahara@fws.gov](mailto:carol_mahara@fws.gov); [leah.ellis@alaska.gov](mailto:leah.ellis@alaska.gov); [megan.marie@alaska.gov](mailto:megan.marie@alaska.gov); [sarah.meitl@alaska.gov](mailto:sarah.meitl@alaska.gov); [carol.hasburgh@alaska.gov](mailto:carol.hasburgh@alaska.gov); [carl.reese@alaska.gov](mailto:carl.reese@alaska.gov); [henry.brooks@alaska.gov](mailto:henry.brooks@alaska.gov); [terence.schwarz@alaska.gov](mailto:terence.schwarz@alaska.gov); [ben.wagner@alaska.gov](mailto:ben.wagner@alaska.gov); [bcarey@aidea.org](mailto:bcarey@aidea.org); [jbovee@ahtna-inc.com](mailto:jbovee@ahtna-inc.com); [office@ahtnaheritage.org](mailto:office@ahtnaheritage.org); [info@alaskanative.net](mailto:info@alaskanative.net); [chuck.totemoff@chenega.com](mailto:chuck.totemoff@chenega.com); [Josie.hickel@chugach.com](mailto:Josie.hickel@chugach.com); [dphillips@chugach.com](mailto:dphillips@chugach.com); [info@eyakcorp.com](mailto:info@eyakcorp.com); [bcain@eyakcorp.com](mailto:bcain@eyakcorp.com); [rtotemoff@tatitlek.com](mailto:rtotemoff@tatitlek.com); [atotemoff@tatitlek.com](mailto:atotemoff@tatitlek.com); [mvlasoff@tatitlek.com](mailto:mvlasoff@tatitlek.com); [anna.b@valdeznativetribe.org](mailto:anna.b@valdeznativetribe.org); [OFFICE@VALDEZNATIVETRIBE.ORG](mailto:OFFICE@VALDEZNATIVETRIBE.ORG); [Dan.Gilson@alyeska-pipeline.com](mailto:Dan.Gilson@alyeska-pipeline.com); [Sandra.Johns@alyeska-pipeline.com](mailto:Sandra.Johns@alyeska-pipeline.com); [sscheidt@valdezak.gov](mailto:sscheidt@valdezak.gov); [spierce@valdezak.gov](mailto:spierce@valdezak.gov); [kwilson@valdezak.gov](mailto:kwilson@valdezak.gov); [mike.wells@valdezfisheries.com](mailto:mike.wells@valdezfisheries.com); [robert.dunning@alaska.gov](mailto:robert.dunning@alaska.gov); [cpalacios@cvea.org](mailto:cpalacios@cvea.org); [Wayne McKinzey](#); [Finlay Anderson](#)  
**Subject:** Solomon Gulch Hydroelectric Project Pre-Application Document Questionnaire  
**Date:** Wednesday, August 31, 2022 4:44:00 PM  
**Attachments:** [Solomon Gulch PAD Questionnaire fillable.pdf](#)

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Hello,

The **Solomon Gulch Hydroelectric Project** is a hydroelectric facility located on Solomon Lake near Valdez, Alaska.

The **Copper Valley Electric Association (CVEA)** is preparing to initiate the relicensing process for the Project, which is under the jurisdiction of the **Federal Energy Regulatory Commission (FERC)**.

As part of the relicensing, CVEA is preparing a **Pre-Application Document (PAD)**, which will be filed on or around November 30, 2022. The PAD provides stakeholders with summaries of existing, relevant, and reasonably available information related to the Project.

The attached **Questionnaire** is an important part of our due diligence process. We kindly ask you to please review and respond to this document within the next 30 days, or by **September 30, 2022**. Your participation will greatly assist the relicensing process by helping us to update our contact list and by identifying information sources for development of the PAD.

Thank you,

Fatima Oswald

Licensing and Regulatory Division

***Kleinschmidt***

[Fatima.Oswald@kleinschmidtgroup.com](mailto:Fatima.Oswald@kleinschmidtgroup.com)

971-337-3841

## **SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**

### **PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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The 12-megawatt (MW) Solomon Gulch Hydroelectric Project, licensed as FERC No. 2742, is located on Solomon Lake near Valdez, Alaska. The Project is owned by and licensed to Copper Valley Electric Association (CVEA). CVEA is preparing to initiate relicensing with the Federal Energy Regulatory Commission (FERC or Commission) for the Project. The Project boundary encompasses the Project dam, spillway, saddle dike, penstocks, powerhouse, impoundment (Solomon Lake), and a transmission line.

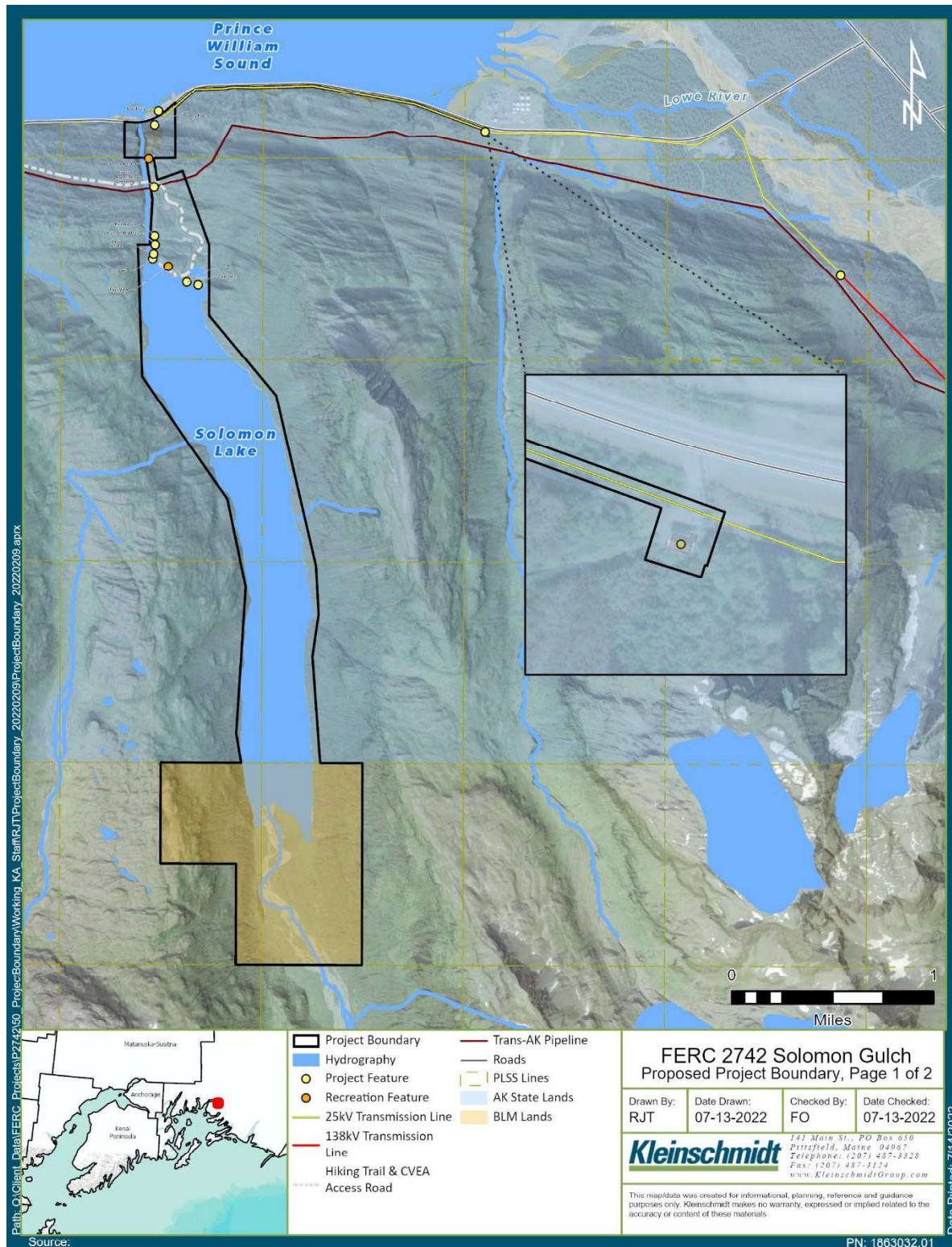
The existing FERC license for the Project expires on May 31, 2028, and CVEA, with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the relicensing process. CVEA will be requesting to use FERC's Traditional Licensing Process (TLP), as described in [18 CFR §16.8](#). Accordingly, CVEA is preparing a Notice of Intent (NOI) to relicense the Project and a Pre-Application Document (PAD) to be filed around November 30, 2022. The PAD will provide FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity.

As part of the relicensing process for the Project, CVEA is initiating early consultation and coordination with agencies and stakeholders. This questionnaire will assist CVEA with the collection of any relevant existing resource information pertinent to the Project and help to identify any data collection needs or potential resource issues early in the relicensing process. Our intent is to include results of this information request questionnaire in the PAD.

**We respectfully request that you please return this PAD questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) or via mail within 30 days of receipt.** This will allow for any follow-up contact that may be needed by CVEA or Kleinschmidt. Your assistance is greatly appreciated.

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

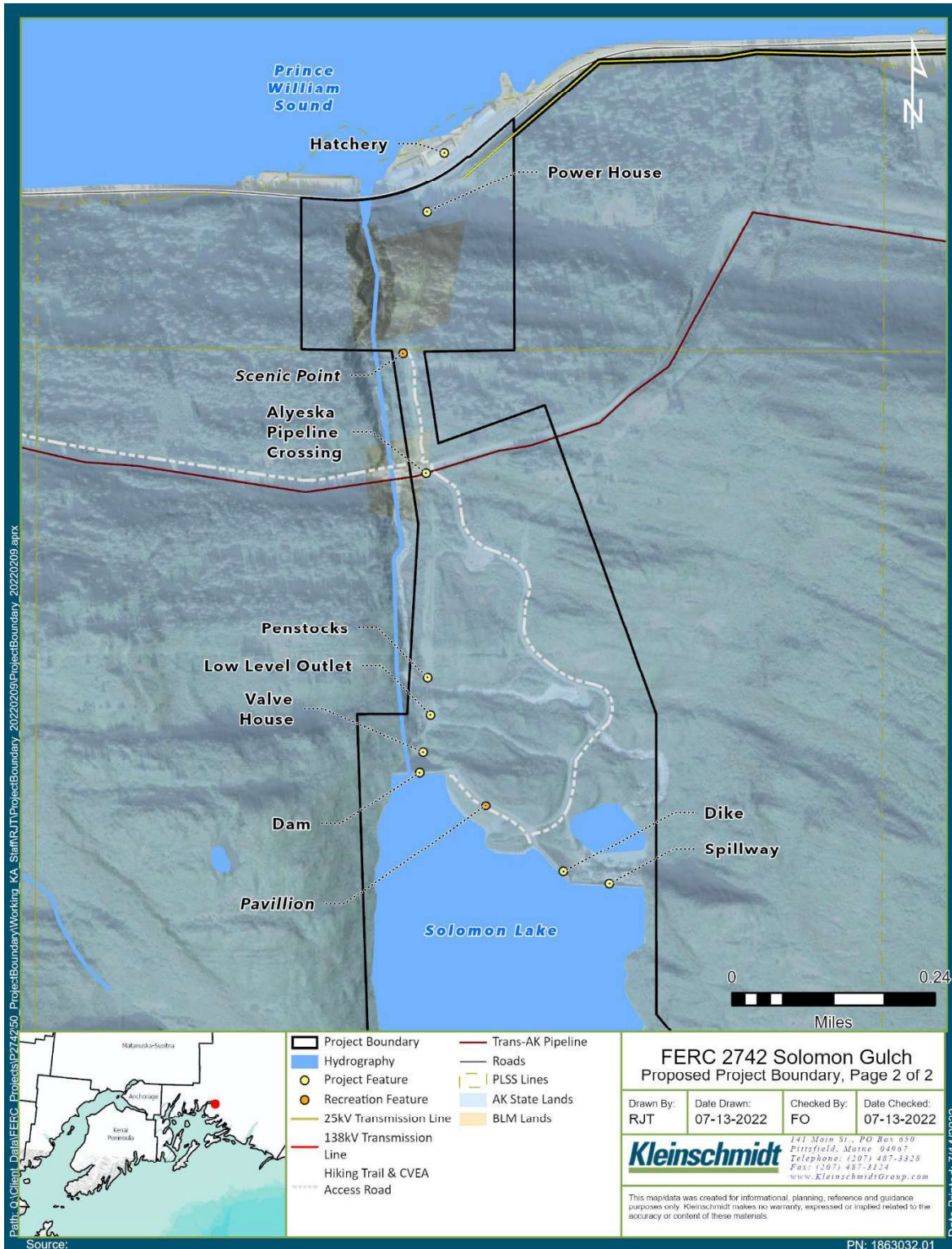
## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 1 - Project Area**

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 2 - Project Area/Facilities**

**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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1. Contact Information for person completing the questionnaire:

Name & Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

2. Do you know of any reasonably available materials or information related to either the Project or the Project's environment?

Yes **(If yes, please complete 2a thru 2e.)**       No **(If no, please go to 3.)**

2(a) Please indicate the specific resource area(s) for which you have information:

<input type="checkbox"/> Geology and soils	<input type="checkbox"/> Recreation and land use
<input type="checkbox"/> Water resources	<input type="checkbox"/> Aesthetic resources
<input type="checkbox"/> Fish and aquatic resources	<input type="checkbox"/> Cultural resources
<input type="checkbox"/> Wildlife and botanical resources	<input type="checkbox"/> Socio-economic resources
<input type="checkbox"/> Wetlands, riparian, and littoral habitat	<input type="checkbox"/> Tribal resources
<input type="checkbox"/> Rare, threatened & endangered species	<input type="checkbox"/> Other resource information

2(b) Please briefly describe the information or list available documents:  
**(Additional information may be provided on a separate page.)**

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**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(c) Where and how can Kleinschmidt obtain this information?

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2(d) Please provide the names of other persons in your organization whom you wish to designate for a potential follow-up contact by Kleinschmidt for the resource area(s) checked above. If you know of others who are not part of your organization but who may have relevant information, please provide their name(s) and contact information as well. ***(Additional contacts may be provided on a separate page.)***

**Representative Contact Information**

Name & Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

**Other Contact Information**

Name & Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(e) Based on the resources listed in 2a, are you aware of any specific issues or information needs pertaining to the identified resource area(s) such as water quality, wildlife habitat, endangered species or cultural resources that may be affected by the Project's operations?  
**(Additional information may be provided on a separate page.)**

Yes **(Please list specific issues below.)**  No

<b>Resource Area</b>	<b>Specific Issue/Need</b>

3. Do you or does your organization plan to participate in the licensing process?  
 Yes  No

4. Thank you for your time. Please provide any additional comments and/or questions regarding the Solomon Gulch Hydroelectric Project, Pre-Application Document, or relicensing below:

**Please return this Questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) within 30 days of receipt.**



## INFORMATION/RESOURCES/REFERENCES OBTAINED (NOT A COMPLETE LIST).

**PLEASE LET US KNOW IF THERE ARE ADDITIONAL OR MISSING RESOURCES OF WHICH YOU ARE AWARE; PLEASE SEND ANY ADDITIONAL RELEVANT RESOURCES VIA EMAIL TO [FATIMA.OSWALD@KLEINSCHMIDTGROUP.COM](mailto:FATIMA.OSWALD@KLEINSCHMIDTGROUP.COM).**

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## **SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**

### **PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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The 12-megawatt (MW) Solomon Gulch Hydroelectric Project, licensed as FERC No. 2742, is located on Solomon Lake near Valdez, Alaska. The Project is owned by and licensed to Copper Valley Electric Association (CVEA). CVEA is preparing to initiate relicensing with the Federal Energy Regulatory Commission (FERC or Commission) for the Project. The Project boundary encompasses the Project dam, spillway, saddle dike, penstocks, powerhouse, impoundment (Solomon Lake), and a transmission line.

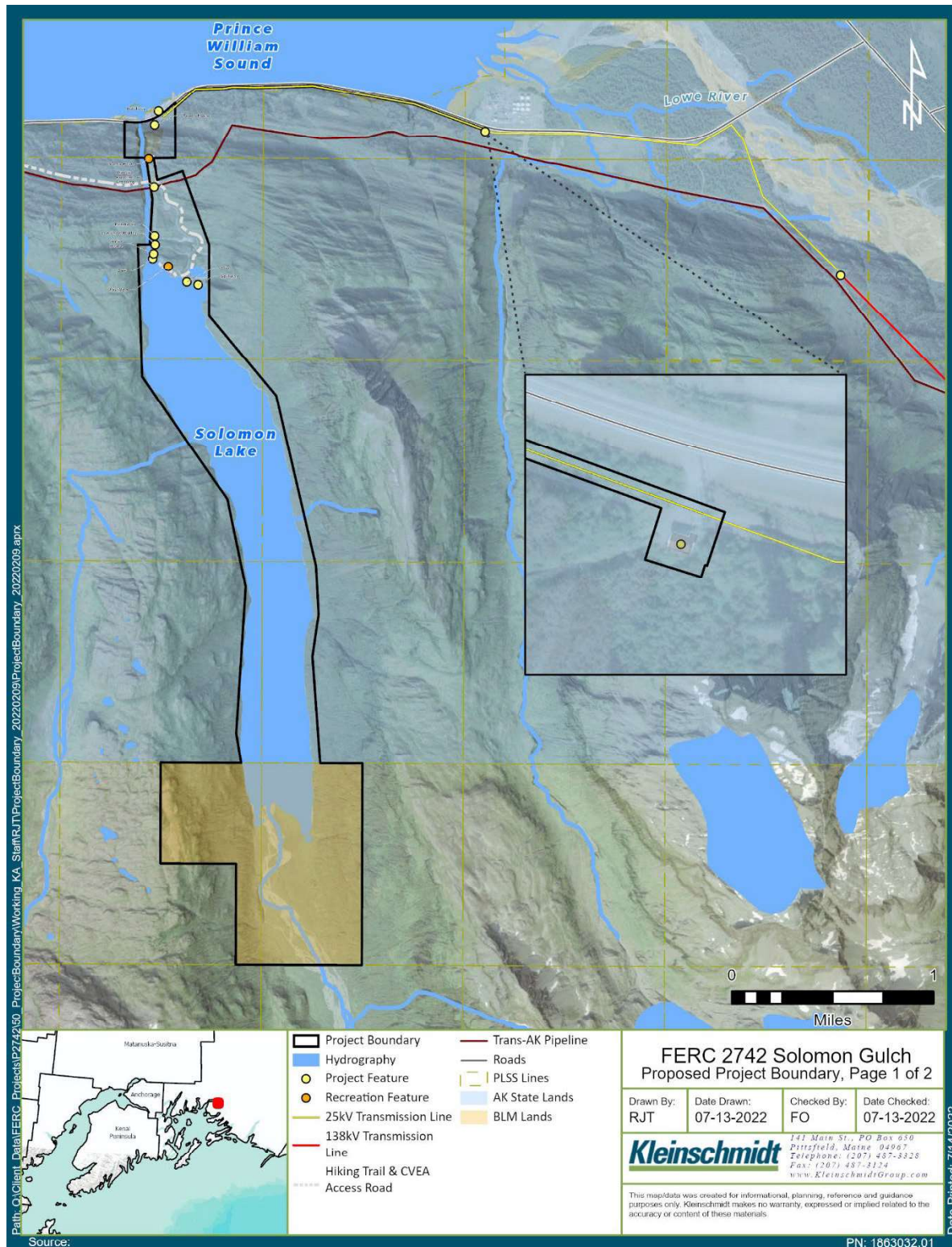
The existing FERC license for the Project expires on May 31, 2028, and CVEA, with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the relicensing process. CVEA will be requesting to use FERC's Traditional Licensing Process (TLP), as described in [18 CFR §16.8](#). Accordingly, CVEA is preparing a Notice of Intent (NOI) to relicense the Project and a Pre-Application Document (PAD) to be filed around November 30, 2022. The PAD will provide FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity.

As part of the relicensing process for the Project, CVEA is initiating early consultation and coordination with agencies and stakeholders. This questionnaire will assist CVEA with the collection of any relevant existing resource information pertinent to the Project and help to identify any data collection needs or potential resource issues early in the relicensing process. Our intent is to include results of this information request questionnaire in the PAD.

**We respectfully request that you please return this PAD questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) or via mail within 30 days of receipt.** This will allow for any follow-up contact that may be needed by CVEA or Kleinschmidt. Your assistance is greatly appreciated.

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

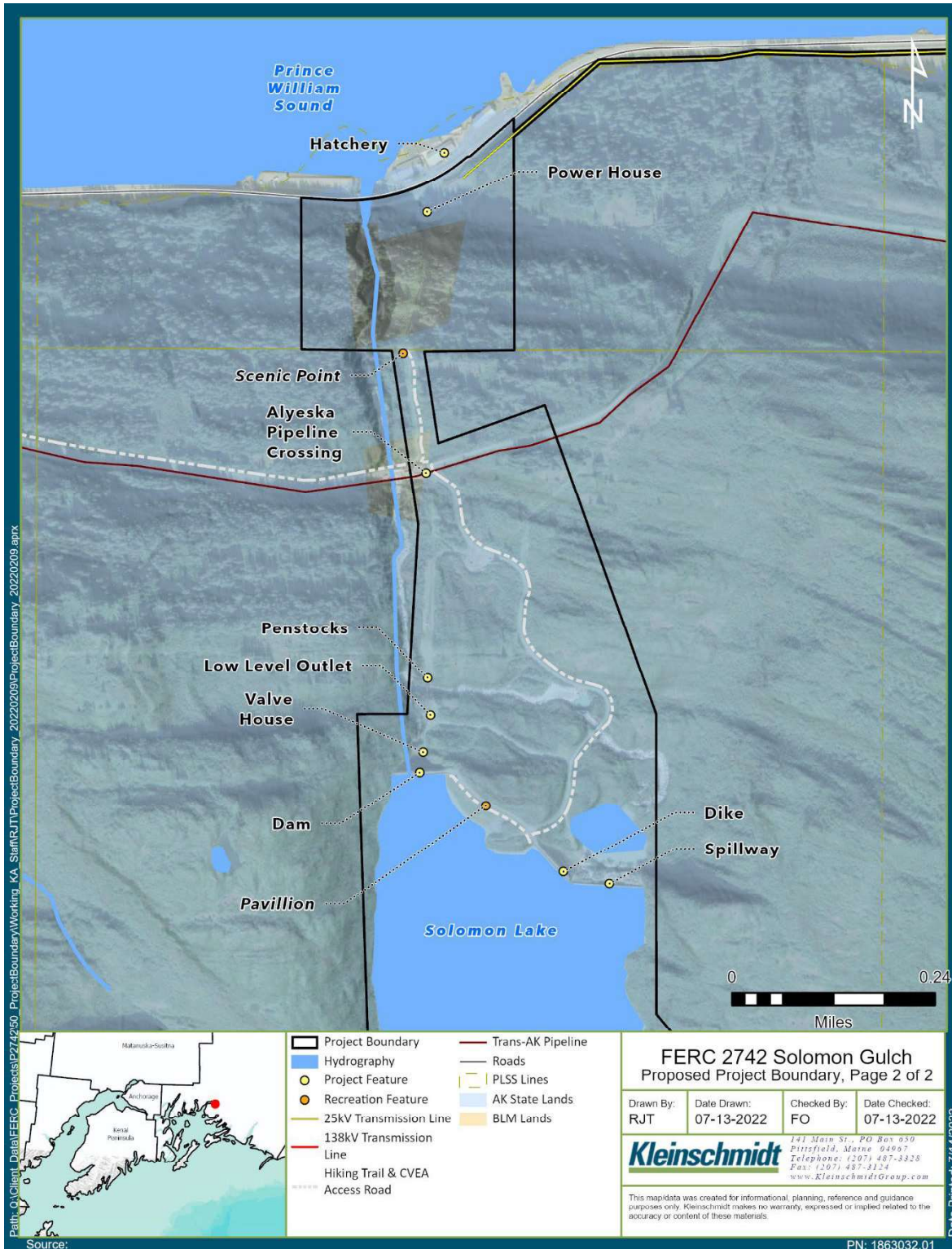
## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 1 - Project Area**

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 2 - Project Area/Facilities**



**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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1. Contact Information for person completing the questionnaire:

Name & Title:	Robert Dunning Valdez District Superintendent
Organization:	State of Alaska DOT
Address:	PO Box 507
	Valdez, AK 99686
Phone:	(907) 834-1039
Email:	robert.dunning@alaska.gov

2. Do you know of any reasonably available materials or information related to either the Project or the Project's environment?

Yes **(If yes, please complete 2a thru 2e.)**       No **(If no, please go to 3.)**

2(a) Please indicate the specific resource area(s) for which you have information:

- |   |   |
|---|---|
| <input type="checkbox"/> Geology and soils                        | <input type="checkbox"/> Recreation and land use    |
| <input type="checkbox"/> Water resources                          | <input type="checkbox"/> Aesthetic resources        |
| <input type="checkbox"/> Fish and aquatic resources               | <input type="checkbox"/> Cultural resources         |
| <input type="checkbox"/> Wildlife and botanical resources         | <input type="checkbox"/> Socio-economic resources   |
| <input type="checkbox"/> Wetlands, riparian, and littoral habitat | <input type="checkbox"/> Tribal resources           |
| <input type="checkbox"/> Rare, threatened & endangered species    | <input type="checkbox"/> Other resource information |

2(b) Please briefly describe the information or list available documents:  
**(Additional information may be provided on a separate page.)**

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**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(c) Where and how can Kleinschmidt obtain this information?

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2(d) Please provide the names of other persons in your organization whom you wish to designate for a potential follow-up contact by Kleinschmidt for the resource area(s) checked above. If you know of others who are not part of your organization but who may have relevant information, please provide their name(s) and contact information as well. ***(Additional contacts may be provided on a separate page.)***

**Representative Contact Information**

Name & Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

**Other Contact Information**

Name & Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_



## **SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**

### **PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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The 12-megawatt (MW) Solomon Gulch Hydroelectric Project, licensed as FERC No. 2742, is located on Solomon Lake near Valdez, Alaska. The Project is owned by and licensed to Copper Valley Electric Association (CVEA). CVEA is preparing to initiate relicensing with the Federal Energy Regulatory Commission (FERC or Commission) for the Project. The Project boundary encompasses the Project dam, spillway, saddle dike, penstocks, powerhouse, impoundment (Solomon Lake), and a transmission line.

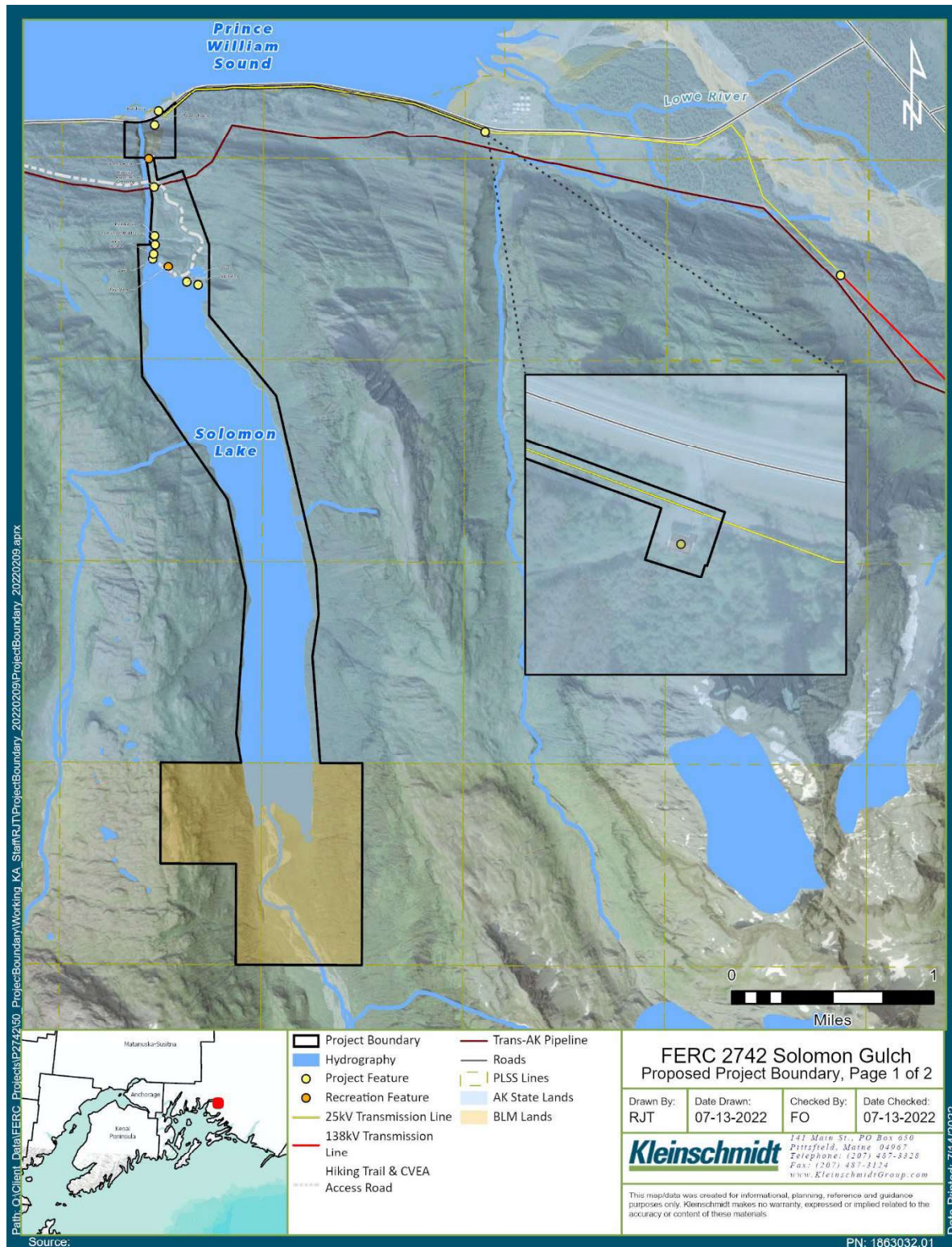
The existing FERC license for the Project expires on May 31, 2028, and CVEA, with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the relicensing process. CVEA will be requesting to use FERC's Traditional Licensing Process (TLP), as described in [18 CFR §16.8](#). Accordingly, CVEA is preparing a Notice of Intent (NOI) to relicense the Project and a Pre-Application Document (PAD) to be filed around November 30, 2022. The PAD will provide FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity.

As part of the relicensing process for the Project, CVEA is initiating early consultation and coordination with agencies and stakeholders. This questionnaire will assist CVEA with the collection of any relevant existing resource information pertinent to the Project and help to identify any data collection needs or potential resource issues early in the relicensing process. Our intent is to include results of this information request questionnaire in the PAD.

**We respectfully request that you please return this PAD questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) or via mail within 30 days of receipt.** This will allow for any follow-up contact that may be needed by CVEA or Kleinschmidt. Your assistance is greatly appreciated.

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

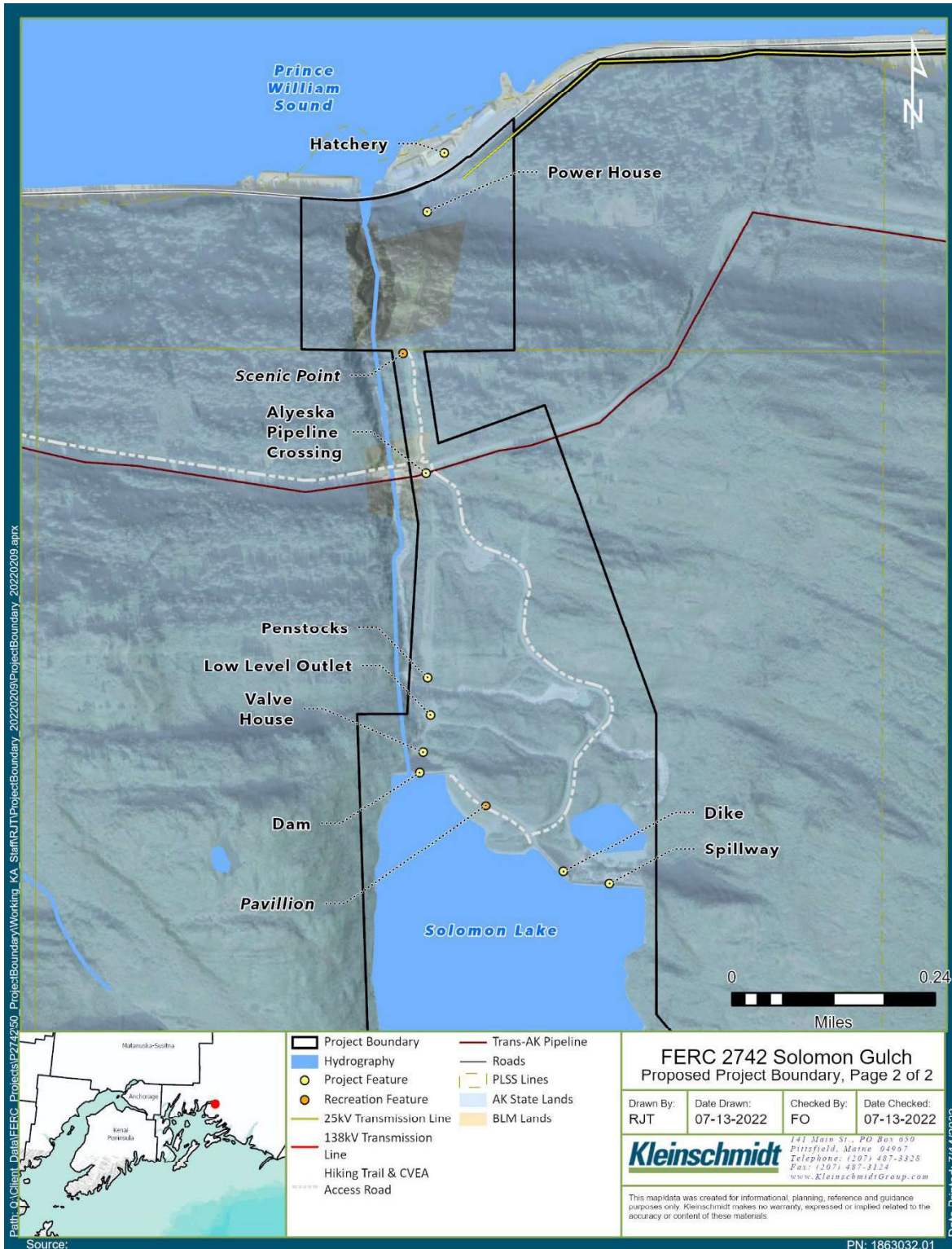
## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 1 - Project Area**

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 2 - Project Area/Facilities**



**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(c) Where and how can Kleinschmidt obtain this information?

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2(d) Please provide the names of other persons in your organization whom you wish to designate for a potential follow-up contact by Kleinschmidt for the resource area(s) checked above. If you know of others who are not part of your organization but who may have relevant information, please provide their name(s) and contact information as well. ***(Additional contacts may be provided on a separate page.)***

**Representative Contact Information**

Name & Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

**Other Contact Information**

Name & Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_



**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(e) Based on the resources listed in 2a, are you aware of any specific issues or information needs pertaining to the identified resource area(s) such as water quality, wildlife habitat, endangered species or cultural resources that may be affected by the Project's operations?  
**(Additional information may be provided on a separate page.)**

Yes **(Please list specific issues below.)**  No

<b>Resource Area</b>	<b>Specific Issue/Need</b>

3. Do you or does your organization plan to participate in the licensing process?  
 Yes  No

4. Thank you for your time. Please provide any additional comments and/or questions regarding the Solomon Gulch Hydroelectric Project, Pre-Application Document, or relicensing below:  
ADNR Dam Safety does not regulate FERC dams. However, we benefit from being included in the process.

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**Please return this Questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) within 30 days of receipt.**

**From:** [Mike Wells](#)  
**To:** [Fatima Oswald](#)  
**Subject:** Re: Solomon Gulch Hydroelectric Project Pre-Application Document Questionnaire  
**Date:** Tuesday, September 20, 2022 3:08:25 PM  
**Attachments:** [Solomon Gulch PAD Questionnaire fillable.pdf](#)

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Fatima,

Please find attached a completed PAD Questionnaire for the Valdez Fisheries Development Association Inc. Thank you for the notice of CVEA's upcoming relicensing of the Solomon Gulch Hydroelectric Project and the request for information about areas of hatchery operations and use of these water resources. Please include me in future correspondences, which may be of interest to VFDA as it moves forward.

Sincerely,

Mike Wells  
Executive Director

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**From:** Fatima Oswald <Fatima.Oswald@Kleinschmidtgroup.com>  
**Sent:** Wednesday, August 31, 2022 3:45 PM  
**To:** Fatima Oswald <Fatima.Oswald@Kleinschmidtgroup.com>  
**Subject:** Solomon Gulch Hydroelectric Project Pre-Application Document Questionnaire

Hello,

The **Solomon Gulch Hydroelectric Project** is a hydroelectric facility located on Solomon Lake near Valdez, Alaska.

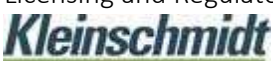
The **Copper Valley Electric Association (CVEA)** is preparing to initiate the relicensing process for the Project, which is under the jurisdiction of the **Federal Energy Regulatory Commission (FERC)**.

As part of the relicensing, CVEA is preparing a **Pre-Application Document (PAD)**, which will be filed on or around November 30, 2022. The PAD provides stakeholders with summaries of existing, relevant, and reasonably available information related to the Project.

The attached **Questionnaire** is an important part of our due diligence process. We kindly ask you to please review and respond to this document within the next 30 days, or by **September 30, 2022**. Your participation will greatly assist the relicensing process by helping us to update our contact list and by identifying information sources for development of the PAD.

Thank you,

Fatima Oswald  
Licensing and Regulatory Division

The logo for Kleinschmidt, featuring the word "Kleinschmidt" in a bold, italicized, sans-serif font. The "K" is significantly larger and more prominent than the rest of the letters. The logo is positioned at the bottom left of the page.

## **SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**

### **PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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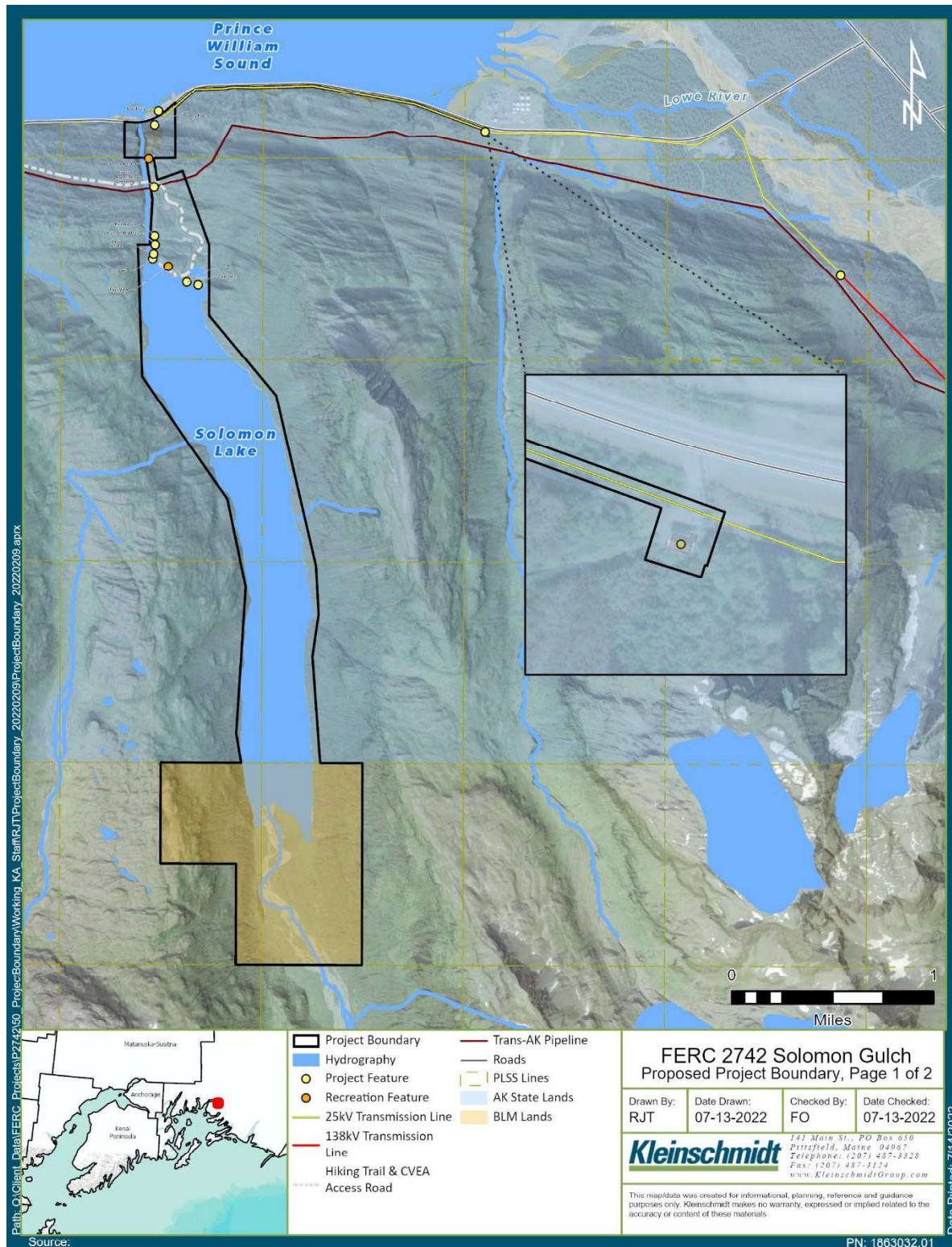
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# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

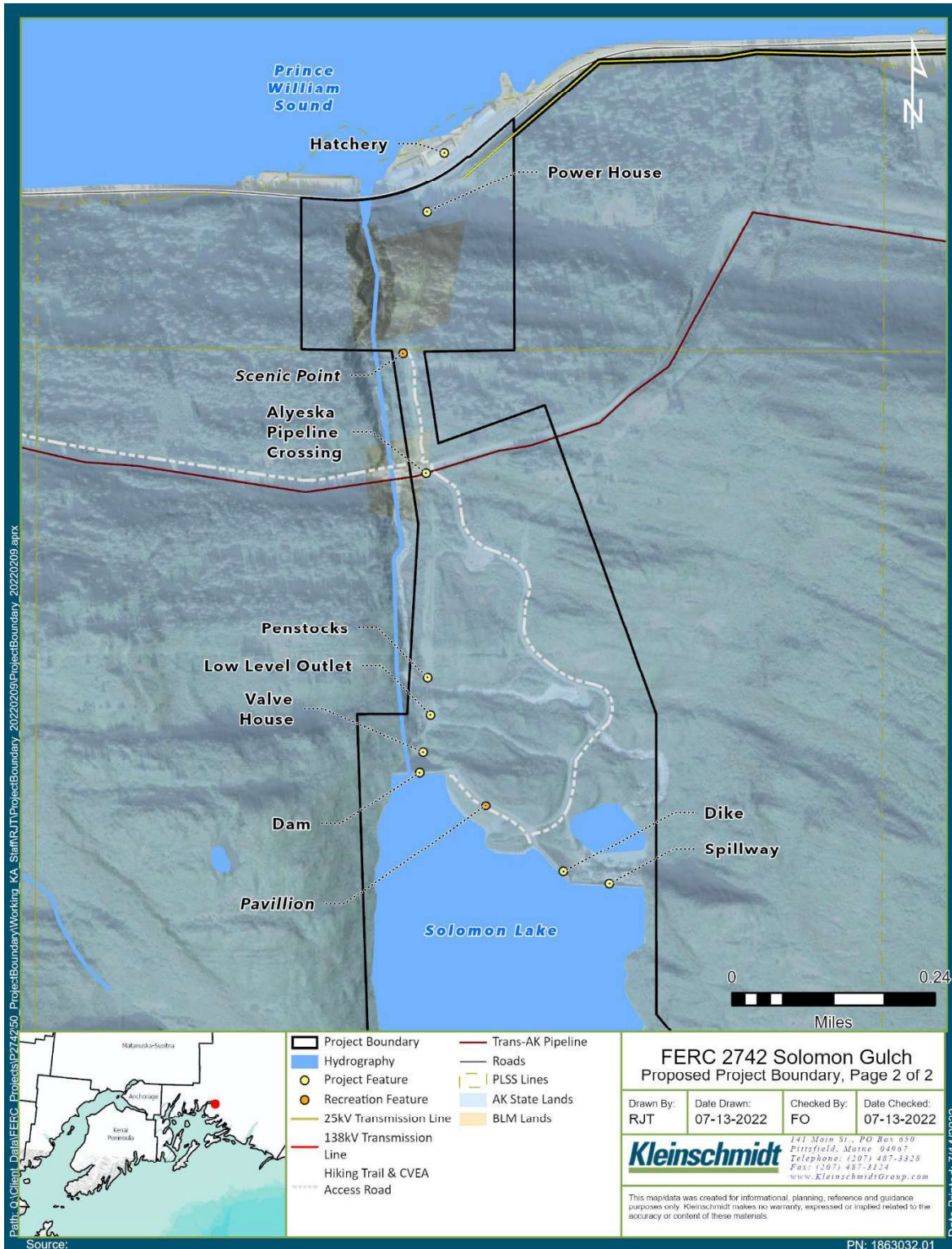
## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 1 - Project Area**

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 2 - Project Area/Facilities**

**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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1. Contact Information for person completing the questionnaire:

Name & Title: Michael H. Wells - Executive Director  
Organization: Valdez Fisheries Development Association Inc (VFDA)  
Address: PO Box 125  
Valdez Alaska 99686  
Phone: (907) 835-4874  
Email: mike.wells@valdezfisheries.com

2. Do you know of any reasonably available materials or information related to either the Project or the Project's environment?

Yes *(If yes, please complete 2a thru 2e.)*       No *(If no, please go to 3.)*

2(a) Please indicate the specific resource area(s) for which you have information:

<input type="checkbox"/> Geology and soils	<input type="checkbox"/> Recreation and land use
<input checked="" type="checkbox"/> Water resources	<input type="checkbox"/> Aesthetic resources
<input checked="" type="checkbox"/> Fish and aquatic resources	<input type="checkbox"/> Cultural resources
<input type="checkbox"/> Wildlife and botanical resources	<input checked="" type="checkbox"/> Socio-economic resources
<input type="checkbox"/> Wetlands, riparian, and littoral habitat	<input type="checkbox"/> Tribal resources
<input type="checkbox"/> Rare, threatened & endangered species	<input type="checkbox"/> Other resource information

2(b) Please briefly describe the information or list available documents:

***(Additional information may be provided on a separate page.)***

VFDA has a documented and long term water usage from both the CVEA Solomon Gulch Hydro Electric facility and directly from Solomon Creek for hatchery salmon production. These records can be made available upon request to VFDA, CVEA, ADNR, or the USGS.

VFDA produces large numbers of Pink and Coho salmon at the Solomon Gulch Hatchery. VFDA can provide historic production numbers on species produced and adult salmon returns to its hatchery upon request.

The socio-economic impacts of VFDA hatchery production, to the various fishing and seafood processing industries, is estimated at \$112MM annually. The fisheries enhancement programs of VFDA play a large role in the sport, commercial, subsistence and personal use harvests and resulting economies of the Valdez community and greater Prince William Sound region.

**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(c) Where and how can Kleinschmidt obtain this information?

Information on VFDA operations and economic benefits can be found on the VFDA website at:

<https://www.valdezfisheries.org/>

Data on water usage and salmonid production can be obtained by making a formal request to VFDA at:

mike.wells@valdezfisheries.com or from others listed in this document.

Data collected on Solomon Gulch Hatchery operations can be requested from the Alaska Department of Fish and Game at: <https://www.adfg.alaska.gov/index.cfm?adfg=fishingHatcheries.main>

2(d) Please provide the names of other persons in your organization whom you wish to designate for a potential follow-up contact by Kleinschmidt for the resource area(s) checked above. If you know of others who are not part of your organization but who may have relevant information, please provide their name(s) and contact information as well. ***(Additional contacts may be provided on a separate page.)***

**Representative Contact Information**

Name & Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

**Other Contact Information**

Name & Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(e) Based on the resources listed in 2a, are you aware of any specific issues or information needs pertaining to the identified resource area(s) such as water quality, wildlife habitat, endangered species or cultural resources that may be affected by the Project's operations?  
***(Additional information may be provided on a separate page.)***

Yes ***(Please list specific issues below.)***  No

Resource Area	Specific Issue/Need

3. Do you or does your organization plan to participate in the licensing process?

Yes  No

4. Thank you for your time. Please provide any additional comments and/or questions regarding the Solomon Gulch Hydroelectric Project, Pre-Application Document, or relicensing below:

VFDA appreciates the notification and invitation to participate, where applicable in the relicensing process.  
Please keep us advised of opportunities for stakeholder review and comment.

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**Please return this Questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) within 30 days of receipt.**



**From:** [Mahara, Carol J](#)  
**To:** [Fatima Oswald](#)  
**Cc:** [Cooper, Douglass](#)  
**Subject:** RE: [EXTERNAL] Solomon Gulch Hydroelectric Project Pre-Application Document Questionnaire  
**Date:** Thursday, September 22, 2022 3:18:50 PM

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Hello Fatima,

Thank you for reaching out about the Solomon Gulch Hydroelectric Project, and for requesting any relevant and reasonably available information related to the project in preparation for initiating the relicensing process.

I noticed that the Information/Resources/References Obtained list at the end of the questionnaire already includes IPaC (Information for Planning and Consultation), National Wetlands Inventory, and other information from the U.S. Fish and Wildlife Service. At this time we do not have any additional information to provide. Please let me know if you have any questions.

Thank you,

Carol

**Carol Mahara**

Fish and Wildlife Biologist  
Ecological Services  
US Fish and Wildlife Service  
4700 BLM Road  
Anchorage, AK 99507  
[carol\\_mahara@fws.gov](mailto:carol_mahara@fws.gov)  
Cell: 907-280-9751

---

**From:** Fatima Oswald <Fatima.Oswald@Kleinschmidtgroup.com>  
**Sent:** Wednesday, August 31, 2022 3:45 PM  
**To:** Fatima Oswald <Fatima.Oswald@Kleinschmidtgroup.com>  
**Subject:** [EXTERNAL] Solomon Gulch Hydroelectric Project Pre-Application Document Questionnaire

**This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.**

Hello,

The **Solomon Gulch Hydroelectric Project** is a hydroelectric facility located on Solomon Lake near Valdez, Alaska.

The **Copper Valley Electric Association (CVEA)** is preparing to initiate the relicensing process for the Project, which is under the jurisdiction of the **Federal Energy Regulatory Commission (FERC)**.

As part of the relicensing, CVEA is preparing a **Pre-Application Document** (PAD), which will be filed on or around November 30, 2022. The PAD provides stakeholders with summaries of existing, relevant, and reasonably available information related to the Project.

The attached **Questionnaire** is an important part of our due diligence process. We kindly ask you to please review and respond to this document within the next 30 days, or by **September 30, 2022**. Your participation will greatly assist the relicensing process by helping us to update our contact list and by identifying information sources for development of the PAD.

Thank you,

Fatima Oswald  
Licensing and Regulatory Division



***Kleinschmidt***

[Fatima.Oswald@kleinschmidtgroup.com](mailto:Fatima.Oswald@kleinschmidtgroup.com)

971-337-3841

**From:** [Bruce Wall](#)  
**To:** [Fatima Oswald](#)  
**Subject:** Solomon Gulch  
**Date:** Friday, September 30, 2022 11:25:43 AM  
**Attachments:** [Solomon Gulch PAD Questionnaire fillable.pdf](#)

---

Bruce Wall  
Senior Planner  
City of Valdez | Planning Department  
P.O. Box 307, Valdez AK 99686  
 907.834.3451 |  [bwall@valdezak.gov](mailto:bwall@valdezak.gov)

PUBLIC RECORDS LAW DISCLOSURE: This e-mail and responses to this e-mail may be subject to provisions of Alaska public records laws and may be made available to the public upon request.

## **SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**

### **PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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The 12-megawatt (MW) Solomon Gulch Hydroelectric Project, licensed as FERC No. 2742, is located on Solomon Lake near Valdez, Alaska. The Project is owned by and licensed to Copper Valley Electric Association (CVEA). CVEA is preparing to initiate relicensing with the Federal Energy Regulatory Commission (FERC or Commission) for the Project. The Project boundary encompasses the Project dam, spillway, saddle dike, penstocks, powerhouse, impoundment (Solomon Lake), and a transmission line.

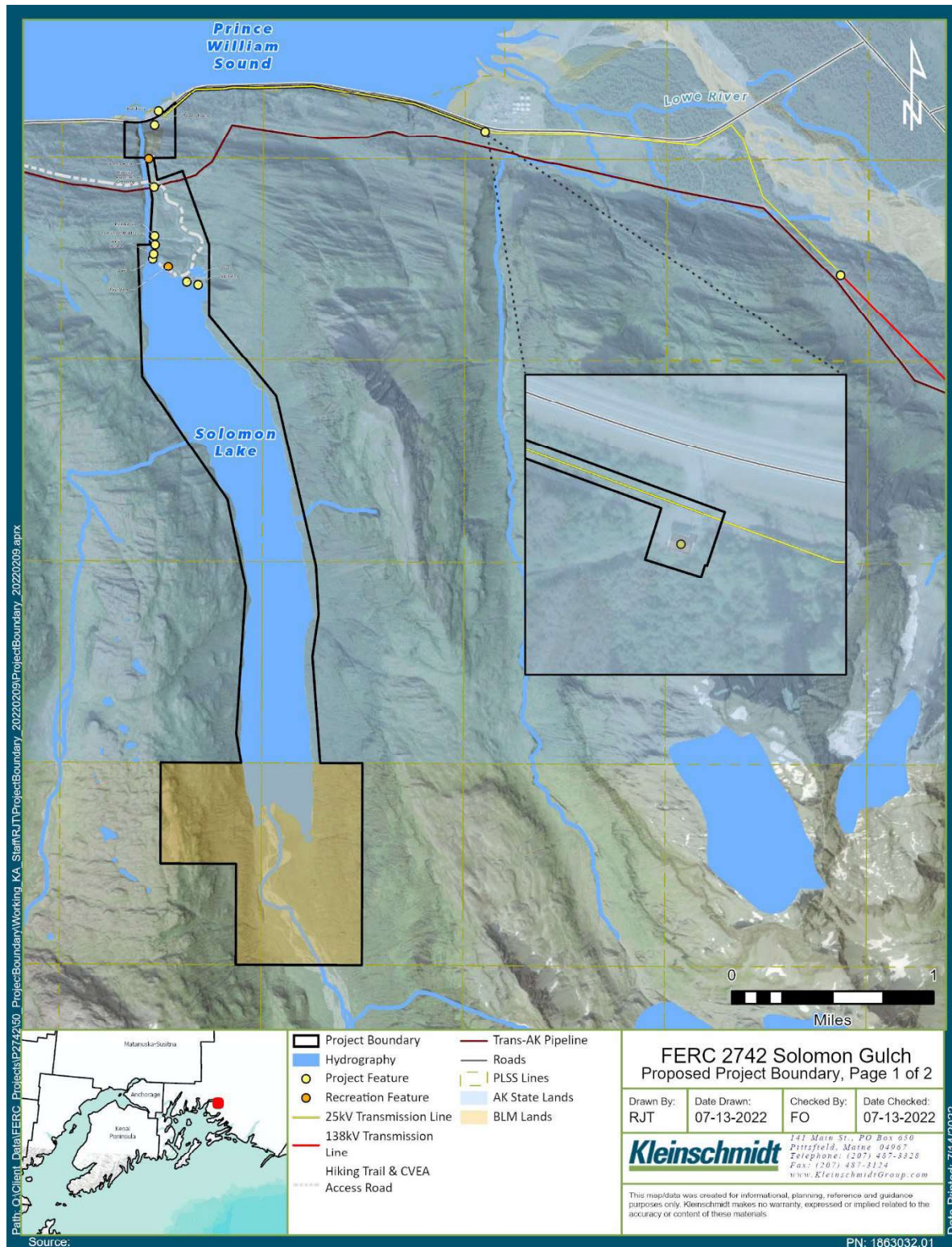
The existing FERC license for the Project expires on May 31, 2028, and CVEA, with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the relicensing process. CVEA will be requesting to use FERC's Traditional Licensing Process (TLP), as described in [18 CFR §16.8](#). Accordingly, CVEA is preparing a Notice of Intent (NOI) to relicense the Project and a Pre-Application Document (PAD) to be filed around November 30, 2022. The PAD will provide FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity.

As part of the relicensing process for the Project, CVEA is initiating early consultation and coordination with agencies and stakeholders. This questionnaire will assist CVEA with the collection of any relevant existing resource information pertinent to the Project and help to identify any data collection needs or potential resource issues early in the relicensing process. Our intent is to include results of this information request questionnaire in the PAD.

**We respectfully request that you please return this PAD questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) or via mail within 30 days of receipt.** This will allow for any follow-up contact that may be needed by CVEA or Kleinschmidt. Your assistance is greatly appreciated.

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

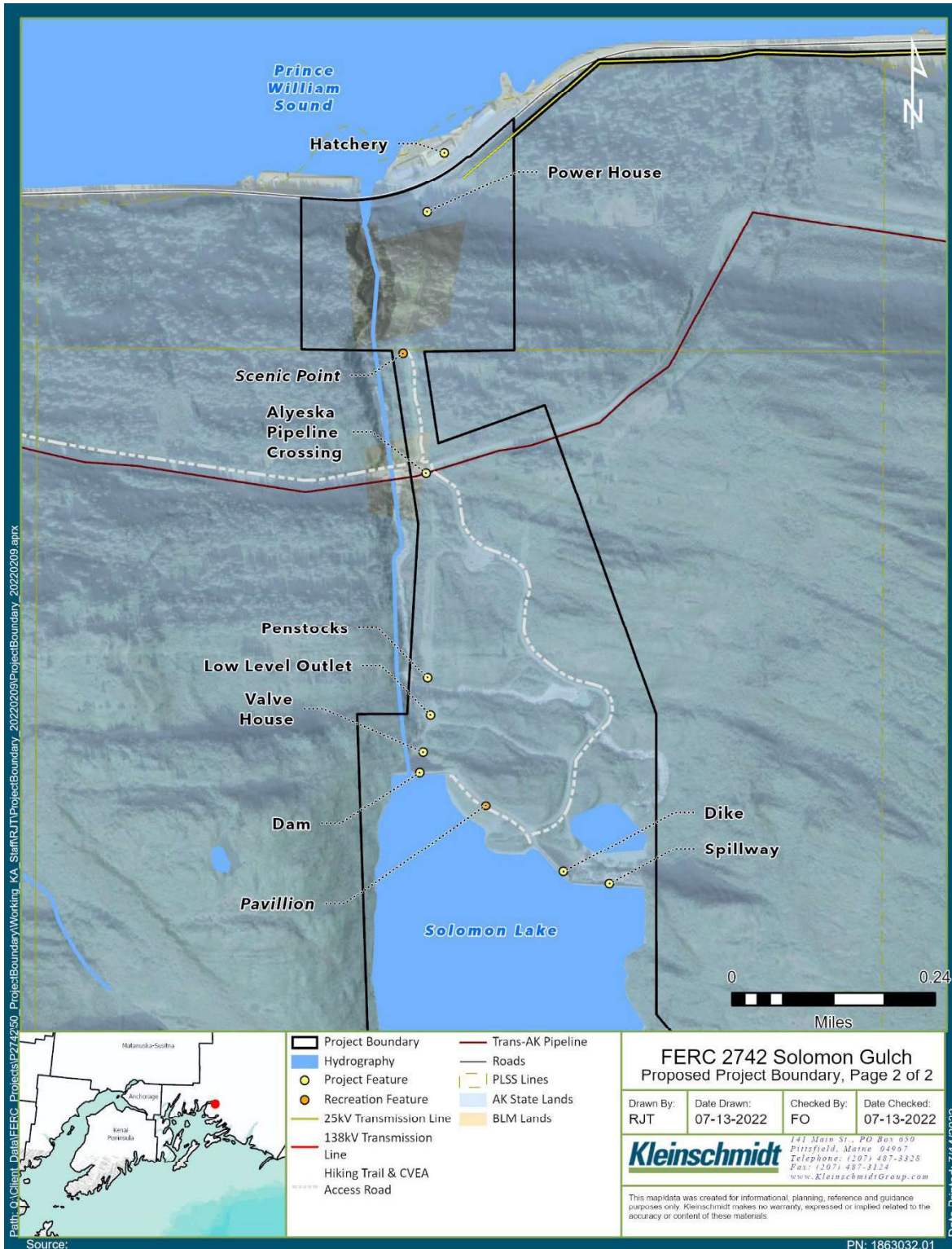
## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 1 - Project Area**

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 2 - Project Area/Facilities**

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE

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1. Contact Information for person completing the questionnaire:

Name & Title: Bruce Wall, Senior Planner  
 Organization: City of Valdez  
 Address: PO Box 307  
               Valdez, AK 99686  
 Phone: 907-834-3451  
 Email: bwall@valdezak.gov

2. Do you know of any reasonably available materials or information related to either the Project or the Project's environment?

Yes ***(If yes, please complete 2a thru 2e.)***       No ***(If no, please go to 3.)***

2(a) Please indicate the specific resource area(s) for which you have information:

- |   |  |
|---|--|
| <input type="checkbox"/> Geology and soils                        | <input checked="" type="checkbox"/> Recreation and land use  |
| <input type="checkbox"/> Water resources                          | <input type="checkbox"/> Aesthetic resources                 |
| <input type="checkbox"/> Fish and aquatic resources               | <input checked="" type="checkbox"/> Cultural resources       |
| <input type="checkbox"/> Wildlife and botanical resources         | <input checked="" type="checkbox"/> Socio-economic resources |
| <input type="checkbox"/> Wetlands, riparian, and littoral habitat | <input checked="" type="checkbox"/> Tribal resources         |
| <input type="checkbox"/> Rare, threatened & endangered species    | <input type="checkbox"/> Other resource information          |

2(b) Please briefly describe the information or list available documents:

***(Additional information may be provided on a separate page.)***

City of Valdez Parks and Recreation Master Plan  
City of Valdez Comprehensive Plan  
City of Valdez Hazard Mitigation Plan  
  
Alaska Department of Natural Resources Prince William Sound Area Plan  
  
 \_\_\_\_\_  
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**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(c) Where and how can Kleinschmidt obtain this information?  
<https://www.valdezak.gov/DocumentCenter/View/8307/Valdez-Parks-and-Recreation-Master-Plan---FINAL>  
<https://www.valdezak.gov/DocumentCenter/View/9954>  
<https://www.valdezak.gov/DocumentCenter/View/5183>  
  
<https://dnr.alaska.gov/mlw/planning/areaplans/prince/>

2(d) Please provide the names of other persons in your organization whom you wish to designate for a potential follow-up contact by Kleinschmidt for the resource area(s) checked above. If you know of others who are not part of your organization but who may have relevant information, please provide their name(s) and contact information as well. ***(Additional contacts may be provided on a separate page.)***

**Representative Contact Information**

Name & Title: Bruce Wall, Senior Planner  
Address: PO Box 307  
Valdez, AK 99686  
Phone: 907-834-3451  
Email: bwall@valdezak.gov

**Other Contact Information**

Name & Title: Ken Wilson, Parks, Recreation and Cultural Services Director  
Address: PO Box 307  
Valdez, AK 99686  
Phone: 907-835-2531  
Email: kwilson@valdezak.gov



**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(e) Based on the resources listed in 2a, are you aware of any specific issues or information needs pertaining to the identified resource area(s) such as water quality, wildlife habitat, endangered species or cultural resources that may be affected by the Project's operations?  
***(Additional information may be provided on a separate page.)***

Yes ***(Please list specific issues below.)***  No

Resource Area	Specific Issue/Need

3. Do you or does your organization plan to participate in the licensing process?

Yes  No

4. Thank you for your time. Please provide any additional comments and/or questions regarding the Solomon Gulch Hydroelectric Project, Pre-Application Document, or relicensing below:

Tribal/Cultural Resources - Anna Bateman - Valdez Native Tribe - [anna.b@valdeztribe.org](mailto:anna.b@valdeztribe.org)

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**Please return this Questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) within 30 days of receipt.**

**From:** [Ellis, Leah M \(DFG\)](#)  
**To:** [Fatima Oswald](#)  
**Cc:** [Klein, Joseph P \(DFG\)](#)  
**Subject:** RE: Solomon Gulch Hydroelectric Project Pre-Application Document Questionnaire  
**Date:** Friday, September 30, 2022 1:36:11 PM  
**Attachments:** [Solomon Gulch PAD Questionnaire\\_Ellis\\_ADF&G.pdf](#)

---

Hello Fatima,

Please find attached the pre-application document information questionnaire from ADF&G. Thank you for the opportunity to respond.

Cheers,  
Leah

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*Leah M. Ellis  
FERC Hydropower Coordinator, Instream Flow Program  
Alaska Department of Fish & Game  
Anchorage, AK*

*(907) 267-2404  
[Leah.ellis@alaska.gov](mailto:Leah.ellis@alaska.gov)*

---

**From:** Fatima Oswald <Fatima.Oswald@Kleinschmidtgroup.com>  
**Sent:** Wednesday, August 31, 2022 3:45 PM  
**To:** Fatima Oswald <Fatima.Oswald@Kleinschmidtgroup.com>  
**Subject:** Solomon Gulch Hydroelectric Project Pre-Application Document Questionnaire

Some people who received this message don't often get email from [fatima.oswald@kleinschmidtgroup.com](mailto:fatima.oswald@kleinschmidtgroup.com). [Learn why this is important](#)

**CAUTION:** This email originated from outside the State of Alaska mail system. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

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Thank you,

Fatima Oswald

Licensing and Regulatory Division

***Kleinschmidt***

[Fatima.Oswald@kleinschmidtgroup.com](mailto:Fatima.Oswald@kleinschmidtgroup.com)

971-337-3841

## **SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**

### **PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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The 12-megawatt (MW) Solomon Gulch Hydroelectric Project, licensed as FERC No. 2742, is located on Solomon Lake near Valdez, Alaska. The Project is owned by and licensed to Copper Valley Electric Association (CVEA). CVEA is preparing to initiate relicensing with the Federal Energy Regulatory Commission (FERC or Commission) for the Project. The Project boundary encompasses the Project dam, spillway, saddle dike, penstocks, powerhouse, impoundment (Solomon Lake), and a transmission line.

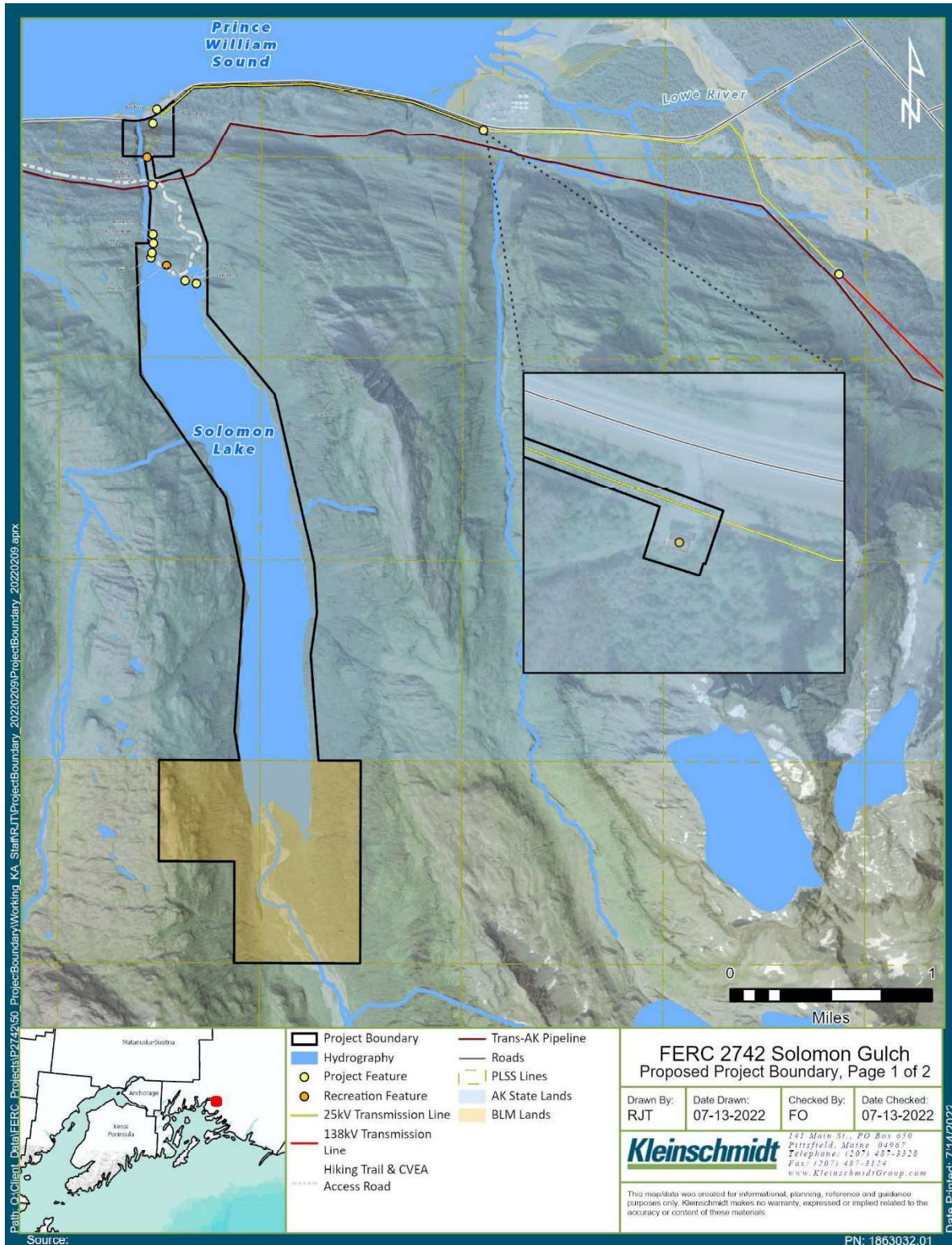
The existing FERC license for the Project expires on May 31, 2028, and CVEA, with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the relicensing process. CVEA will be requesting to use FERC's Traditional Licensing Process (TLP), as described in [18 CFR §16.8](#). Accordingly, CVEA is preparing a Notice of Intent (NOI) to relicense the Project and a Pre-Application Document (PAD) to be filed around November 30, 2022. The PAD will provide FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity.

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# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

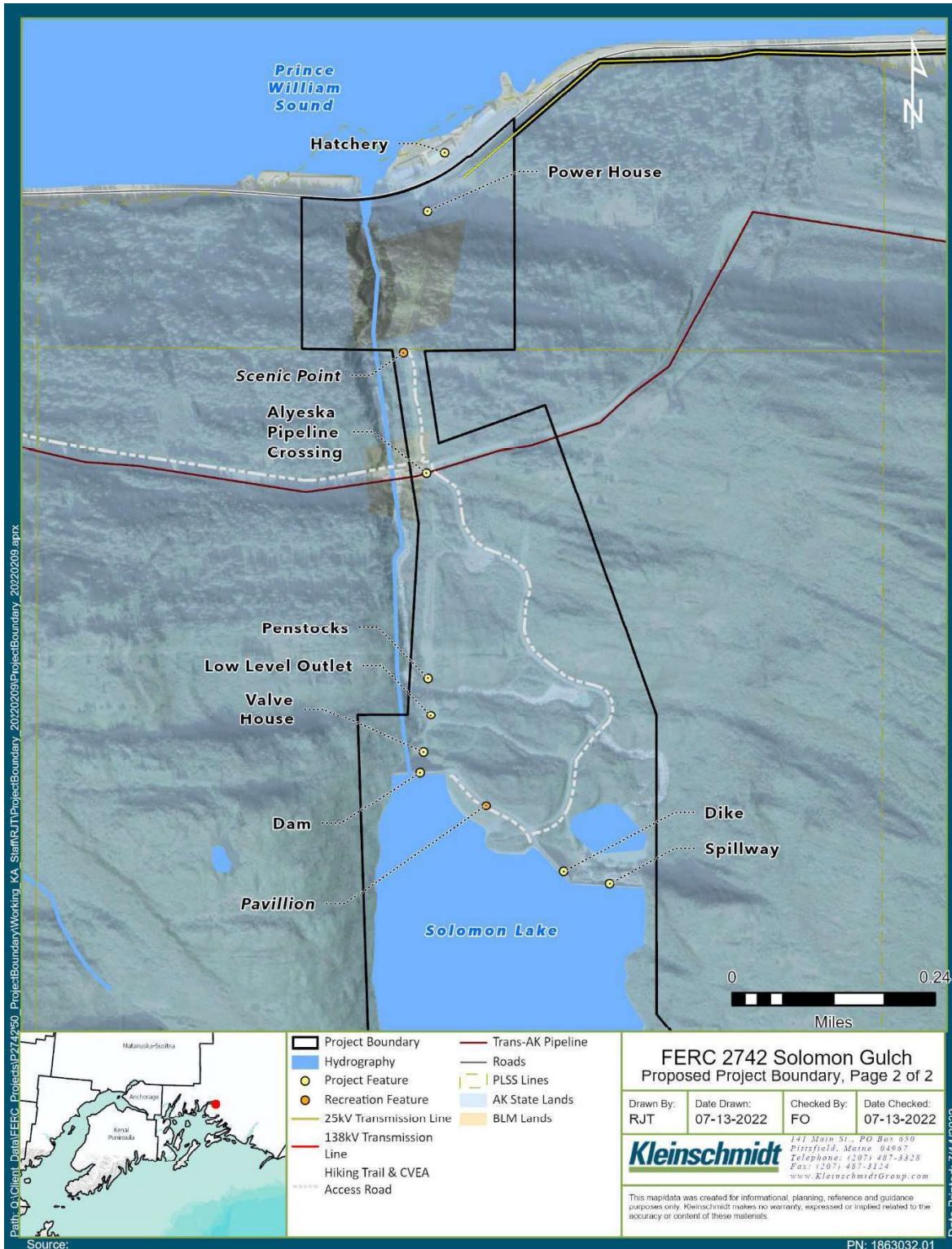
## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 1 - Project Area**

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 2 - Project Area/Facilities**

**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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1. Contact Information for person completing the questionnaire:

Name & Title: Leah Ellis, FERC Hydropower Coordinator  
Organization: Alaska Department of Fish & Game  
Address: 333 Raspberry Rd  
Anchorage, AK 99518  
Phone: 907-267-2404  
Email: leah.ellis@alaska.gov

2. Do you know of any reasonably available materials or information related to either the Project or the Project's environment?

Yes (*If yes, please complete 2a thru 2e.*)       No (*If no, please go to 3.*)

2(a) Please indicate the specific resource area(s) for which you have information:

- |   |   |
|---|---|
| <input type="checkbox"/> Geology and soils                                | <input type="checkbox"/> Recreation and land use    |
| <input type="checkbox"/> Water resources                                  | <input type="checkbox"/> Aesthetic resources        |
| <input checked="" type="checkbox"/> Fish and aquatic resources            | <input type="checkbox"/> Cultural resources         |
| <input checked="" type="checkbox"/> Wildlife and botanical resources      | <input type="checkbox"/> Socio-economic resources   |
| <input type="checkbox"/> Wetlands, riparian, and littoral habitat         | <input type="checkbox"/> Tribal resources           |
| <input checked="" type="checkbox"/> Rare, threatened & endangered species | <input type="checkbox"/> Other resource information |

2(b) Please briefly describe the information or list available documents:

**(Additional information may be provided on a separate page.)**

- ADF&G's Alaska Freshwater Fish Inventory Database (AFFID) houses freshwater fish (anadromous and resident) datasets compiled from a variety of sources. Some water quality data also available.

- Boldt, J.L. and L.J. Haldorson. 2011. Size and Condition of Wild and Hatchery Pink Salmon Juveniles in Prince William Sound, Alaska. Transactions of the American Fisheries Society, <https://doi.org/10.1577/T02-138>.

- Brannon, E.L., et al. 2012. Review of the Exxon Valdez Oil Spill Effects on Pink Salmon in Prince William Sound, Alaska. Reviews in Fisheries Science, <https://doi.org/10.1080/10641262.2011.643697>.

- State of Alaska Special Status Species

- ADF&G memo: Completion of goat surveys in Game Management Unit 6

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**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(c) Where and how can Kleinschmidt obtain this information?

- AFFID database can be accessed by clicking on the AFFI tab at the top:

<https://adfg.maps.arcgis.com/apps/MapSeries/index.html?appid=a05883caa7ef4f7ba17c99274f2c198f>

- State of Alaska Special Status Species: <https://www.adfg.alaska.gov/index.cfm?adfg=specialstatus.akendangered>

- Goat survey memo: contact myself (Leah Ellis) or Charlotte Westing ([charlotte.westing@alaska.gov](mailto:charlotte.westing@alaska.gov))

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2(d) Please provide the names of other persons in your organization whom you wish to designate for a potential follow-up contact by Kleinschmidt for the resource area(s) checked above. If you know of others who are not part of your organization but who may have relevant information, please provide their name(s) and contact information as well. ***(Additional contacts may be provided on a separate page.)***

**Representative Contact Information**

Name & Title: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

**Other Contact Information**

Name & Title: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_



**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(e) Based on the resources listed in 2a, are you aware of any specific issues or information needs pertaining to the identified resource area(s) such as water quality, wildlife habitat, endangered species or cultural resources that may be affected by the Project's operations?  
**(Additional information may be provided on a separate page.)**

Yes **(Please list specific issues below.)**  No

Resource Area	Specific Issue/Need
Fish and Aquatic Resources	-- There is limited (or no) information on fish in Solomon Lake. Has this lake been surveyed for fish presence since the construction of the project?
	-- Since the Solomon Gulch Fish Hatchery was constructed after this project's initiation, it will be pertinent to address how fish usage of Solomon Gulch Creek has been altered.
Soils, water resources, fish and wildlife species and resources, land use, etc.	-- Since the Exxon Valdez Oil Spill occurred after this project's initiation, how has this impacted the hydroelectric project?

3. Do you or does your organization plan to participate in the licensing process?

Yes  No

4. Thank you for your time. Please provide any additional comments and/or questions regarding the Solomon Gulch Hydroelectric Project, Pre-Application Document, or relicensing below:

- CVEA recently requested additional water rights from Solomon Lake. Please address this need in the PAD.
- There has recently been a change in streamgaging from USGS-operated gages to ones operated by a third-party consultant. Please address this change and provide a comparison of the gages in the PAD.

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**Please return this Questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) within 30 days of receipt.**

**From:** [Meitl, Sarah J \(DNR\)](#)  
**To:** [Fatima Oswald](#)  
**Subject:** Re: Solomon Gulch Hydroelectric Project Pre-Application Document Questionnaire  
**Date:** Monday, October 3, 2022 3:46:50 PM  
**Attachments:** [Solomon Gulch PAD Questionnaire\\_shpo.pdf](#)

---

Hi Fatima,

Let me know if you have any questions about the attached.

Best,  
Sarah

***Sarah Meitl***

Review and Compliance Coordinator  
Office of History and Archaeology  
Alaska State Historic Preservation Office  
907-269-8720

---

**From:** Fatima Oswald <Fatima.Oswald@Kleinschmidtgroup.com>  
**Sent:** Wednesday, August 31, 2022 3:45 PM  
**To:** Fatima Oswald <Fatima.Oswald@Kleinschmidtgroup.com>  
**Subject:** Solomon Gulch Hydroelectric Project Pre-Application Document Questionnaire

**CAUTION:** This email originated from outside the State of Alaska mail system. Do not click links or open attachments unless you recognize the sender and know the content is safe.

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## **SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**

### **PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

---

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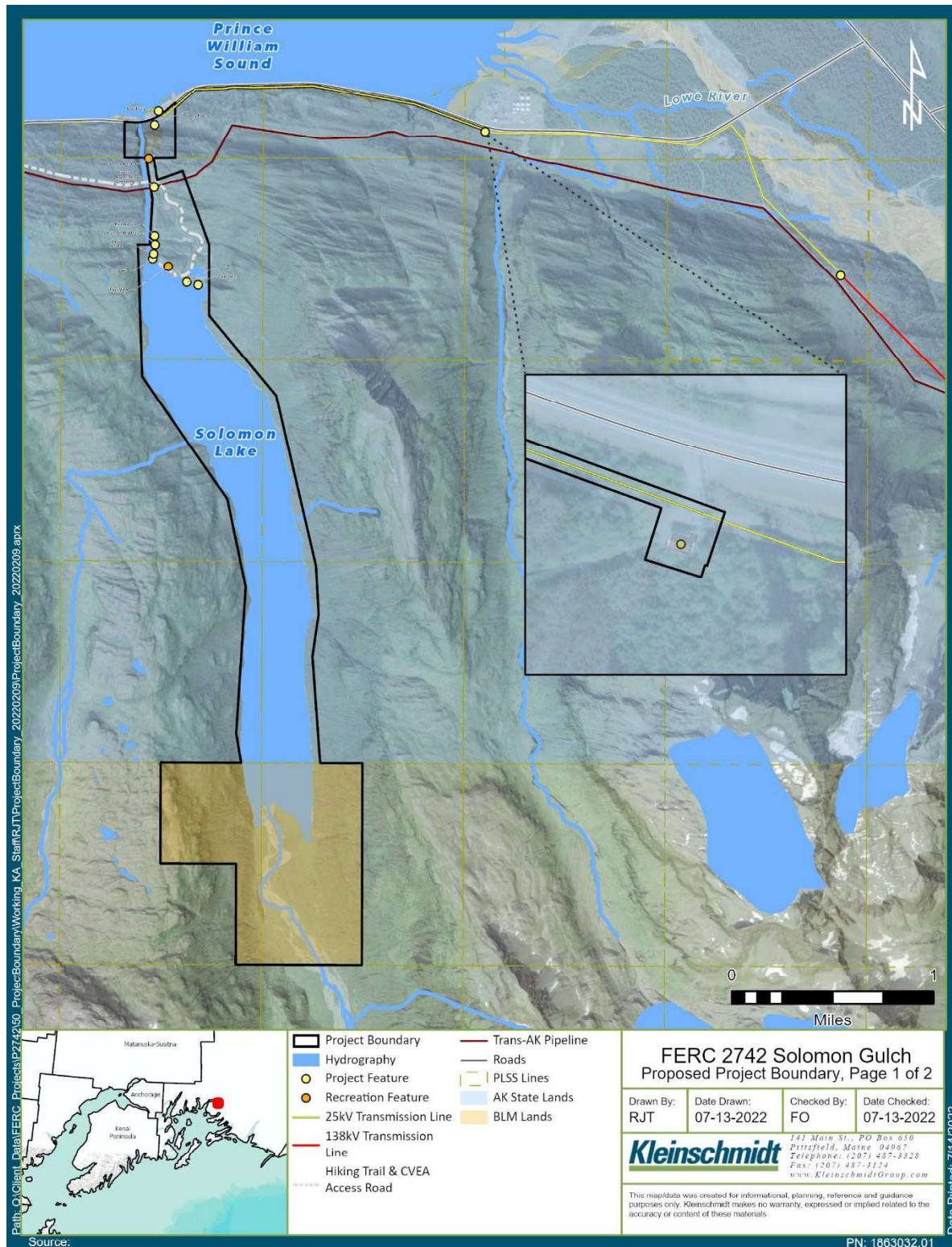
The existing FERC license for the Project expires on May 31, 2028, and CVEA, with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the relicensing process. CVEA will be requesting to use FERC's Traditional Licensing Process (TLP), as described in [18 CFR §16.8](#). Accordingly, CVEA is preparing a Notice of Intent (NOI) to relicense the Project and a Pre-Application Document (PAD) to be filed around November 30, 2022. The PAD will provide FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity.

As part of the relicensing process for the Project, CVEA is initiating early consultation and coordination with agencies and stakeholders. This questionnaire will assist CVEA with the collection of any relevant existing resource information pertinent to the Project and help to identify any data collection needs or potential resource issues early in the relicensing process. Our intent is to include results of this information request questionnaire in the PAD.

**We respectfully request that you please return this PAD questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) or via mail within 30 days of receipt.** This will allow for any follow-up contact that may be needed by CVEA or Kleinschmidt. Your assistance is greatly appreciated.

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

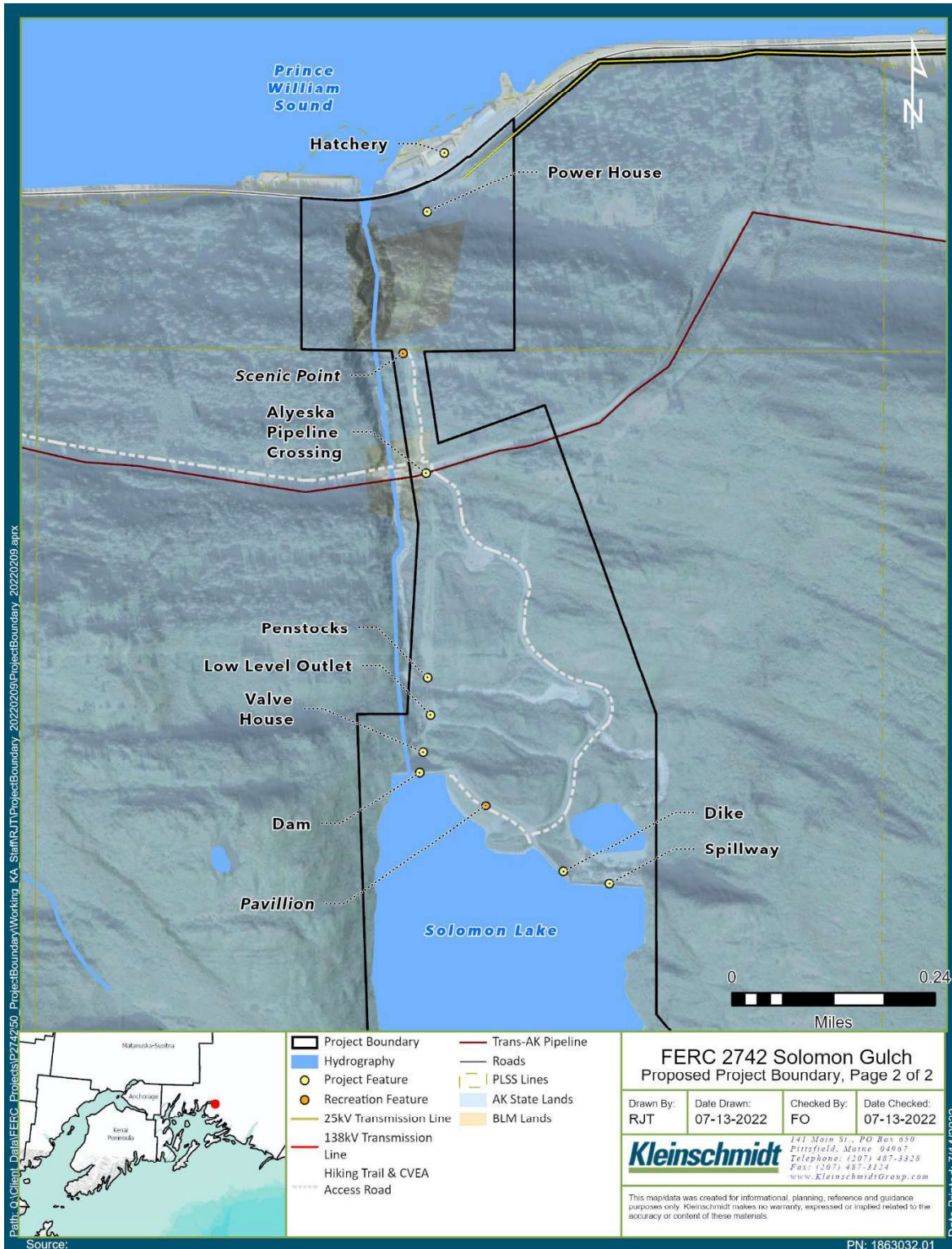
## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 1 - Project Area**

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Figure 2 - Project Area/Facilities**

**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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1. Contact Information for person completing the questionnaire:

Name & Title: Sarah Meitl, Review and Compliance Coordinator  
Organization: Alaska State Historic Preservation Office  
Address: 550 W. 7th Avenue, Suite 1310  
Anchorage, AK 99501  
Phone: 907-269-8720  
Email: sarah.meitl@alaska.gov

2. Do you know of any reasonably available materials or information related to either the Project or the Project's environment?

Yes **(If yes, please complete 2a thru 2e.)**       No **(If no, please go to 3.)**

2(a) Please indicate the specific resource area(s) for which you have information:

- |   |  |
|---|--|
| <input type="checkbox"/> Geology and soils                        | <input type="checkbox"/> Recreation and land use       |
| <input type="checkbox"/> Water resources                          | <input type="checkbox"/> Aesthetic resources           |
| <input type="checkbox"/> Fish and aquatic resources               | <input checked="" type="checkbox"/> Cultural resources |
| <input type="checkbox"/> Wildlife and botanical resources         | <input type="checkbox"/> Socio-economic resources      |
| <input type="checkbox"/> Wetlands, riparian, and littoral habitat | <input type="checkbox"/> Tribal resources              |
| <input type="checkbox"/> Rare, threatened & endangered species    | <input type="checkbox"/> Other resource information    |

2(b) Please briefly describe the information or list available documents:

**(Additional information may be provided on a separate page.)**

The Alaska Heritage Resources Survey is a restricted access database that contains the best available information regarding known cultural resources in Alaska for all land owners and land managers. The AHRS is available online and includes a mapper, site cards, and reports.

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**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(c) Where and how can Kleinschmidt obtain this information?

Qualified professionals can access the database to conduct their own research. Information is available on our webpage about how to make a request to gain access to the AHRS.

<http://dnr.alaska.gov/parks/oha/ahrs/ahrs.htm>

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2(d) Please provide the names of other persons in your organization whom you wish to designate for a potential follow-up contact by Kleinschmidt for the resource area(s) checked above. If you know of others who are not part of your organization but who may have relevant information, please provide their name(s) and contact information as well. ***(Additional contacts may be provided on a separate page.)***

**Representative Contact Information**

Name & Title: Mckenzie Johnson, Archaeologist I

Address: 550 W 7th Ave., Suite 1310

Anchorage, AK 99501

Phone: 907-269-8726

Email: mckenzie.johnson@alaska.gov

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**Other Contact Information**

Name & Title: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

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# Tribe mailing list

Native Village of Tatitlek

Tatitlek IRA Council

P.O. Box 171

503 Copper Mountain Road

Tatitlek, AK 99677

BOX 1 of 1, INS \$0.00  
NATIVE VILLAGE OF TATITLEK 503 COPPER MOUNTAIN ...  
9405536106051431193282 2023-02-10 09:35:49 1.0000lb \$8.70

Larry Evanoff, Chairman

Native Village of Chenega

P.O. Box 8079

Chenega Bay, AK 99574

BOX 1 of 1, INS \$0.00  
NATIVE VILLAGE OF CHENEGA PO BOX 8079 CHENEGA ...  
9405536106051431212099 2023-02-10 09:38:39 1.0000lb \$8.70

Valdez Native Tribe

P.O. Box 1108

1750 Zurich Loop Rd

Valdez, AK 99686

BOX 1 of 1, INS \$0.00  
VALDEZ NATIVE TRIBE PO BOX 1108 VALDEZ AK 9968...  
9405536106051431283985 2023-02-10 09:46:26 1.0000lb \$8.70

Darrel Olsen, Chairman

Native Village of Eyak

P.O. Box 1388

110 Nicholoff Way

Cordova, AK 99574

BOX 1 of 1, INS \$0.00  
NATIVE VILLAGE OF EYAK PO BOX 1388 110 NICHOLOF...  
9405536106051431394337 2023-02-10 10:06:10 1.0000lb \$8.70

Native Village of Kluti-Kaah

P.O. Box 68

Mile 104 Richardson Highway

Copper Center, AK 99573

BOX 1 of 1, INS \$0.00  
NATIVE VILLAGE OF KLUTI-KAAH PO BOX 68 MILE 104...  
9405536106051431589320 2023-02-10 10:35:19 1.0000lb \$8.70

1863032.03-02

USPS Priority Flat Rate  
Envelope @ 1 lb

**Native Village of Tazlina**  
**P.O. Box 87**  
**Mile 110.5 Richardson Highway**  
**Glennallen, AK 99588**

BOX 1 of 1, INS \$0.00  
NATIVE VILLAGE OF TAZLINA PO BOX 87 MILE 110.5 ...  
9405536106051431608892 2023-02-10 10:38:31 1.0000lb \$8.70

**Gulkana Village Council**  
**Native Village of C' ulc'e Na'**  
**P.O. Box 254**  
**Mile 127 Richardson Highway**  
**Gakona, AK 99586**

BOX 1 of 1, INS \$0.00  
NATIVE VILLAGE OF C' ULC'E NA' PO BOX 254 MILE ...  
9405536106051431623185 2023-02-10 10:40:44 1.0000lb \$8.70

**Native Village of Gakona**  
**P.O. Box 102**  
**Mile 4.8 Tok Cutoff**  
**Gakona, AK 99586**

BOX 1 of 1, INS \$0.00  
NATIVE VILLAGE OF GAKONA PO BOX 102 MILE 4.8 TO...  
9405536106051431634587 2023-02-10 10:42:28 1.0000lb \$8.70

**Native Village of Chitina**  
**P.O. Box 31**  
**Mile 34.5 Edgerton Highway**  
**Chitina, AK 99566**

BOX 1 of 1, INS \$0.00  
NATIVE VILLAGE OF CHITINA PO BOX 31 MILE 34.5 E...  
9405536106051431646290 2023-02-10 10:44:23 1.0000lb \$8.70

## **SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**

### **PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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The 12-megawatt (MW) Solomon Gulch Hydroelectric Project, licensed as FERC No. 2742, is located on Solomon Lake near Valdez, Alaska. The Project is owned by and licensed to Copper Valley Electric Association (CVEA). CVEA is preparing to initiate relicensing with the Federal Energy Regulatory Commission (FERC or Commission) for the Project. The Project boundary encompasses the Project dam, spillway, saddle dike, penstocks, powerhouse, impoundment (Solomon Lake), and a transmission line.

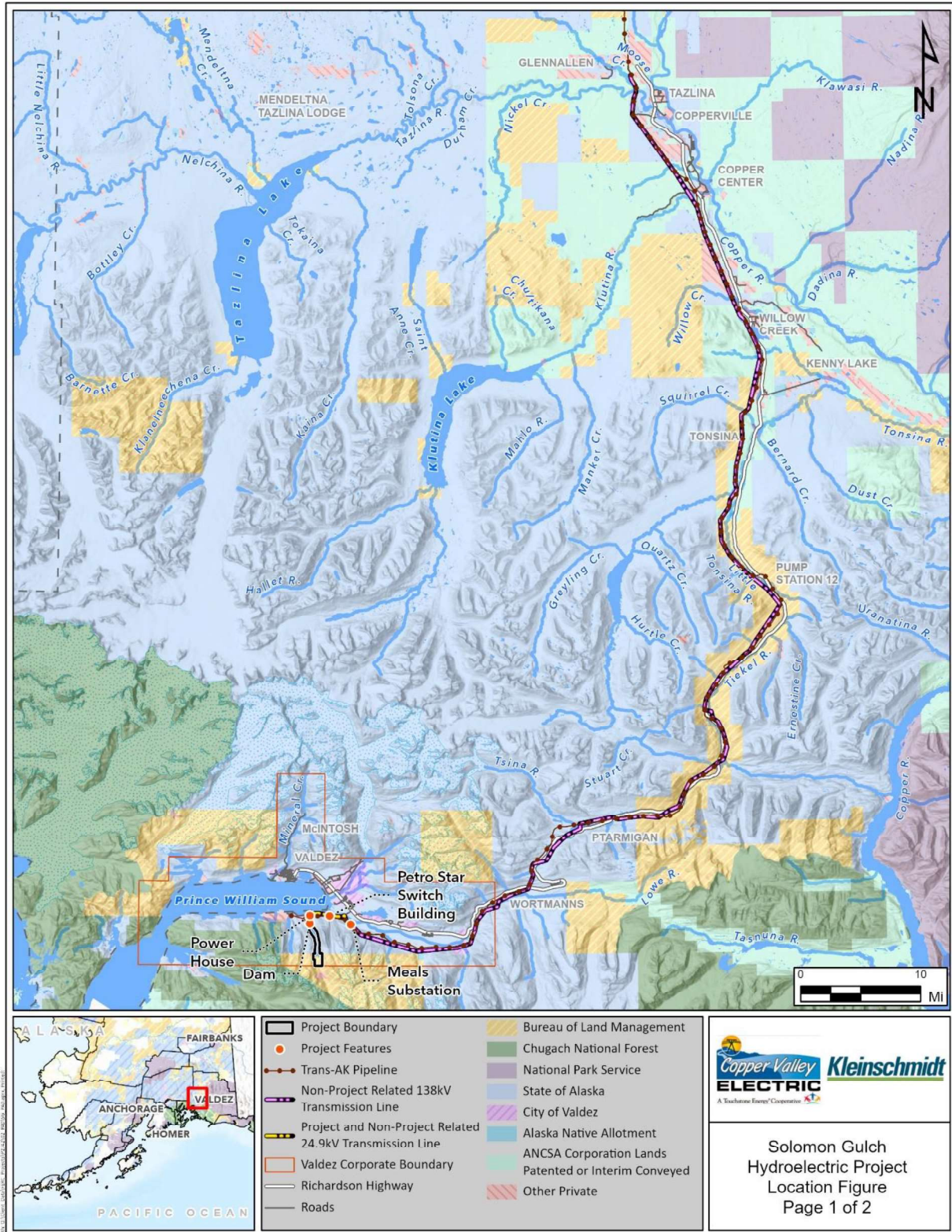
The existing FERC license for the Project expires on May 31, 2028, and CVEA, with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the relicensing process. CVEA will be requesting to use FERC's Traditional Licensing Process (TLP), as described in [18 CFR §16.8](#). Accordingly, CVEA is preparing a Notice of Intent (NOI) to relicense the Project and a Pre-Application Document (PAD) to be filed around April 28, 2023. The PAD will provide FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity.

As part of the relicensing process for the Project, CVEA is initiating early consultation and coordination with agencies and stakeholders. This questionnaire will assist CVEA with the collection of any relevant existing resource information pertinent to the Project and help to identify any data collection needs or potential resource issues early in the relicensing process. Our intent is to include results of this information request questionnaire in the PAD.

**We respectfully request that you please return this PAD questionnaire to Fatima Oswald via email at [Fatima.Oswald@Kleinschmidtgroup.com](mailto:Fatima.Oswald@Kleinschmidtgroup.com) or mail to 1500 NE Irving Street, Suite 550, Portland, OR 97232 via mail within 30 days of receipt.** This will allow for any follow-up contact that may be needed by CVEA or Kleinschmidt. Your assistance is greatly appreciated.

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

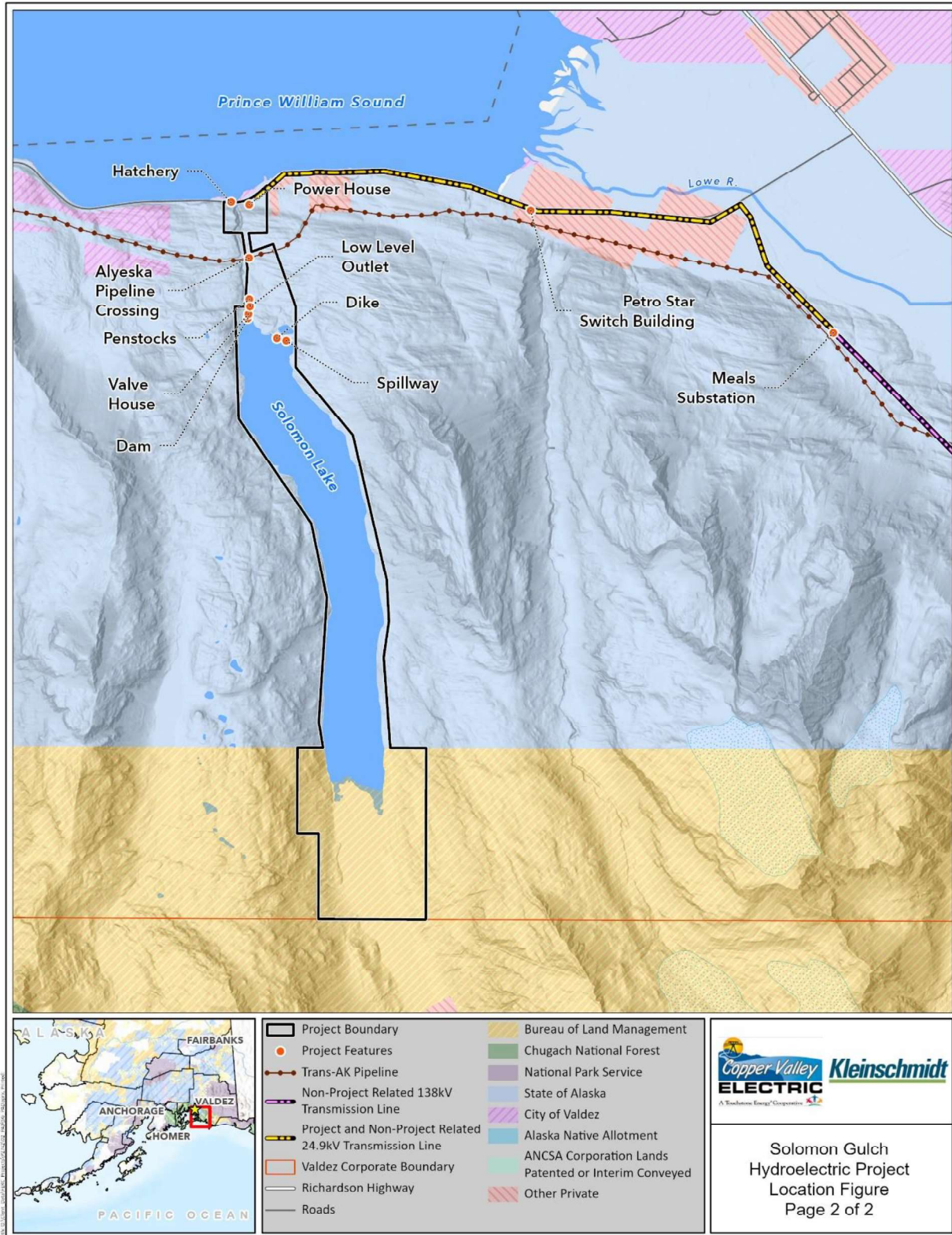
## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



**Solomon Gulch Hydroelectric Project Location**

# SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)

## PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE



### Solomon Gulch Hydroelectric Project

**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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1. Contact Information for person completing the questionnaire:

Name & Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

2. Do you know of any reasonably available materials or information related to either the Project or the Project's environment?

Yes (***If yes, please complete 2a thru 2e.***)       No (***If no, please go to 3.***)

2(a) Please indicate the specific resource area(s) for which you have information:

<input type="checkbox"/> Geology and soils	<input type="checkbox"/> Recreation and land use
<input type="checkbox"/> Water resources	<input type="checkbox"/> Aesthetic resources
<input type="checkbox"/> Fish and aquatic resources	<input type="checkbox"/> Cultural resources
<input type="checkbox"/> Wildlife and botanical resources	<input type="checkbox"/> Socio-economic resources
<input type="checkbox"/> Wetlands, riparian, and littoral habitat	<input type="checkbox"/> Tribal resources
<input type="checkbox"/> Rare, threatened & endangered species	<input type="checkbox"/> Other resource information

2(b) Please briefly describe the information or list available documents:

**(Additional information may be provided on a separate page.)**

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**SOLOMON GULCH HYDROELECTRIC PROJECT (FERC NO. 2742)**  
**PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

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2(c) Where and how can Kleinschmidt obtain this information?

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2(d) Please provide the names of other persons in your organization whom you wish to designate for a potential follow-up contact by Kleinschmidt for the resource area(s) checked above. If you know of others who are not part of your organization but who may have relevant information, please provide their name(s) and contact information as well. ***(Additional contacts may be provided on a separate page.)***

**Representative Contact Information**

Name & Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

**Other Contact Information**

Name & Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_





## INFORMATION/RESOURCES/REFERENCES OBTAINED (NOT A COMPLETE LIST).

PLEASE LET US KNOW IF THERE ARE ADDITIONAL OR MISSING RESOURCES OF WHICH YOU ARE AWARE; PLEASE ATTACH ANY ADDITIONAL RELEVANT RESOURCES TO YOUR RESPONSE.

- ADFG. 2002. Alaska Aquatic Nuisance Species Management Plan. Juneau, Alaska.
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## Agency PAD Pre-Filing Informational Meetings

<b>Informational Meeting Date</b>	<b>Agency Contact</b>
4/6/2023	Carol Mahara, FWS
4/11/2023	Leah Ellis, ADF&G
4/12/2023	Sean McDermott, NMFS

PAD Pre-Filing Informational Meeting PPT, next page

Project Overview

# Solomon Gulch Hydroelectric Project FERC No. 2742

Copper Valley Electric Association



# Agenda

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- **Introductions and goals for meeting**
  - **Relicensing overview**
  - **Project overview**
    - **History**
    - **Project Facilities (with photos)**
    - **Operations**
  - **Non-capacity License Amendment**
  - **Proposed Project Boundary**
  - **Summary of resources in area**
    - **Fish and Aquatics**
    - **Terrestrial and Botanical**
  - **Potential Studies**
  - **Process and Schedule**
-

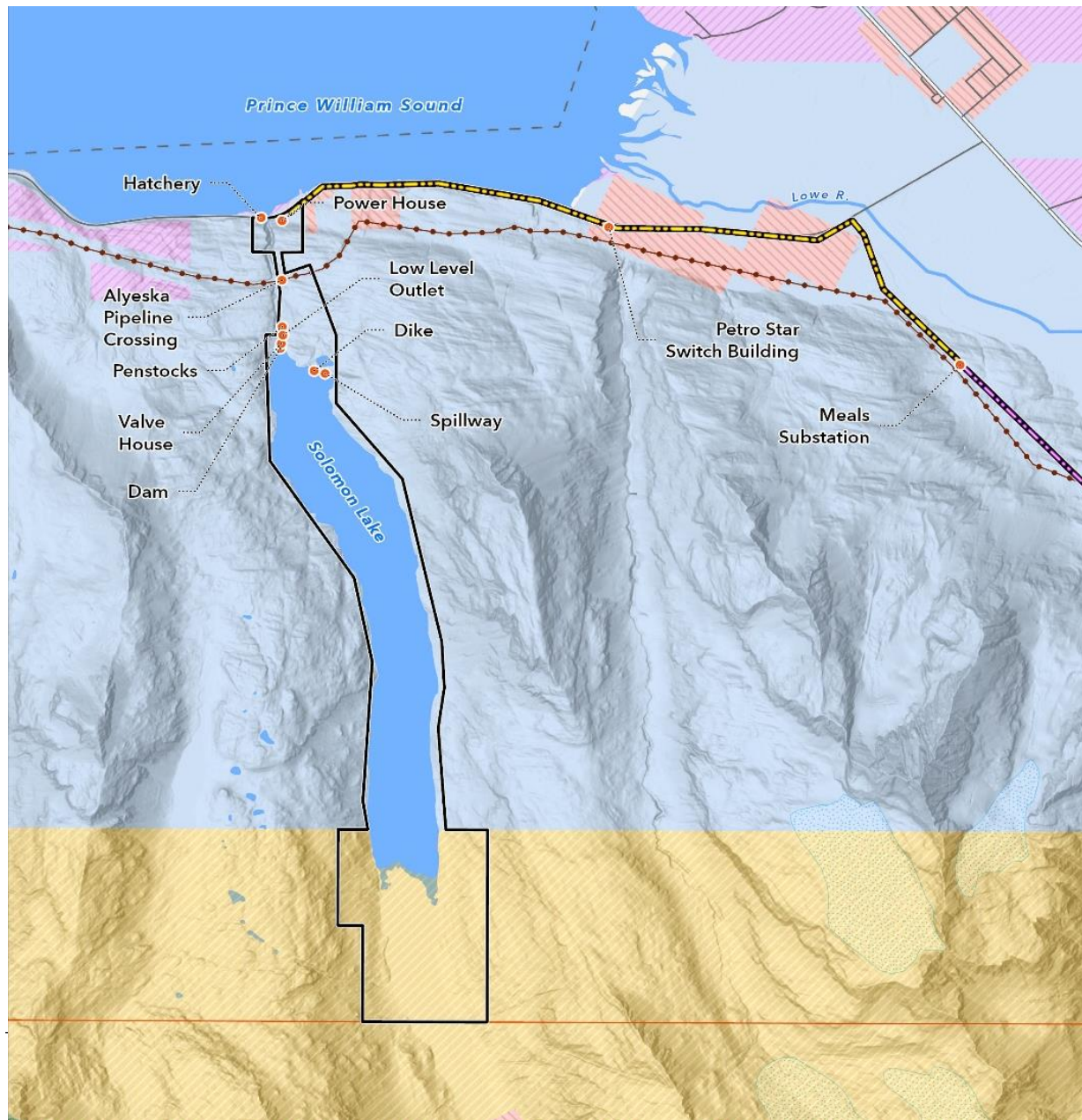


# Relicensing Overview

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License Expiration:	May 31, 2028
Proposed Process:	Traditional Licensing Process
PAD/NOI Filing:	April 28, 2023 (on or about)
Joint Agency Meeting:	August 15, 2023 in Valdez, AK

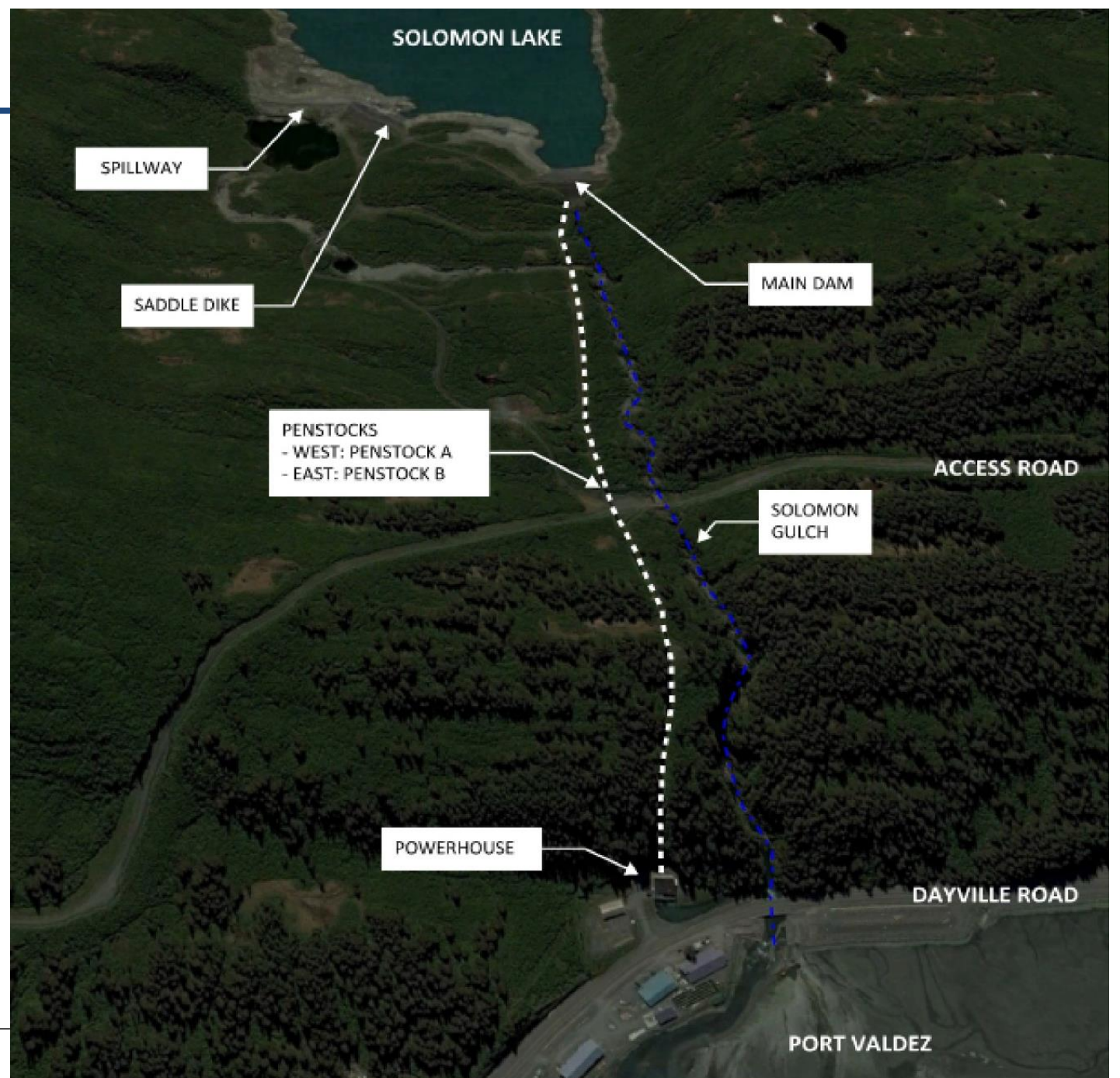
# Project Overview



- Original license issued June 21, 1978, for a term of 50 years, and expires on May 31, 2028
- Constructed in 1982
- 12 MW
- Owned and operated by CVEA
- >8,000 customers Valdez and Copper River area
- No changes in facilities; modification to project boundary

# Project Overview

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# Project Facilities

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## Solomon Lake

- Drainage Area: 19.7 mi<sup>2</sup>
- Glacially fed
- Normal pool elevation: 615 ft to 685 ft msl
- Maximum surface area: 660 ac
- Maximum storage volume: 31,560 ac-ft

# Project Facilities – Three Embankment Dams



## Spillway

- Concrete ogee weir with low concrete splitters
- Length: 450 ft
- Nominal crest elevation: 685 ft
- Spillway Creek: 0.4 mi

## Saddle Dike

- Fill height: 55 ft
- Crest length: 365 ft



## Main Embankment Dam and Valve House

- Compacted rockfill structure
- Height: 115 ft
- 5-ft high concrete parapet wall
- Crest length: 386 ft
- Crest elevation: 695 ft msl

# Project Facilities - Penstocks

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## Two Penstocks

- Concrete-encased steel
- Diameter: 48 in
- Length: ~3,785 ft



## Low-Level Outlet Works

- Constructed in 2011



# Project Facilities – Powerhouse and Transmission

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## Powerhouse

- 2 Francis-type turbines
- Total rated capacity: 12 MW

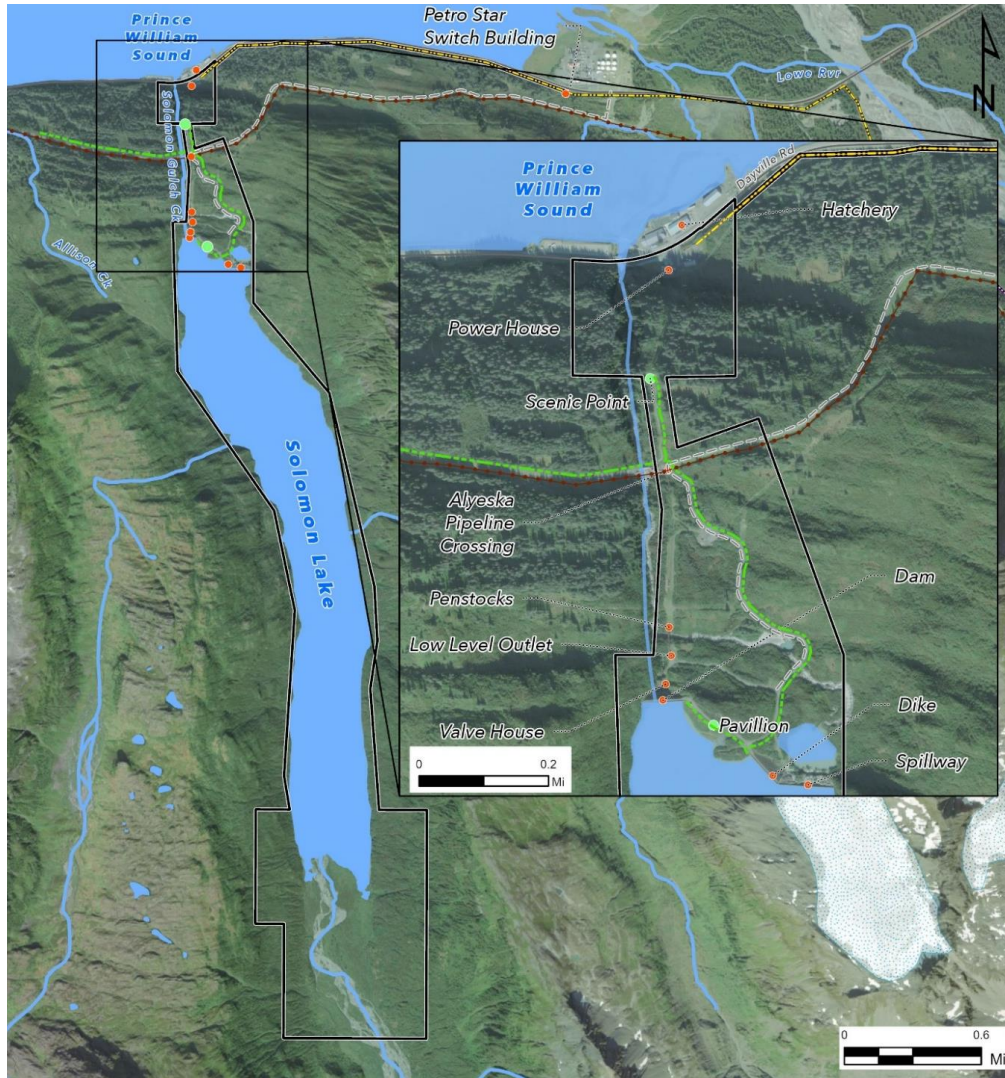


## Transmission

- Powerhouse to Petro Star Switch Building
- Length: 1.68 mi
- 24.9-kV



# Project Recreation Facilities



## John Hunter Memorial Trail

- Length: 3.8 mi
- Picnic Pavilion





# Project Operations

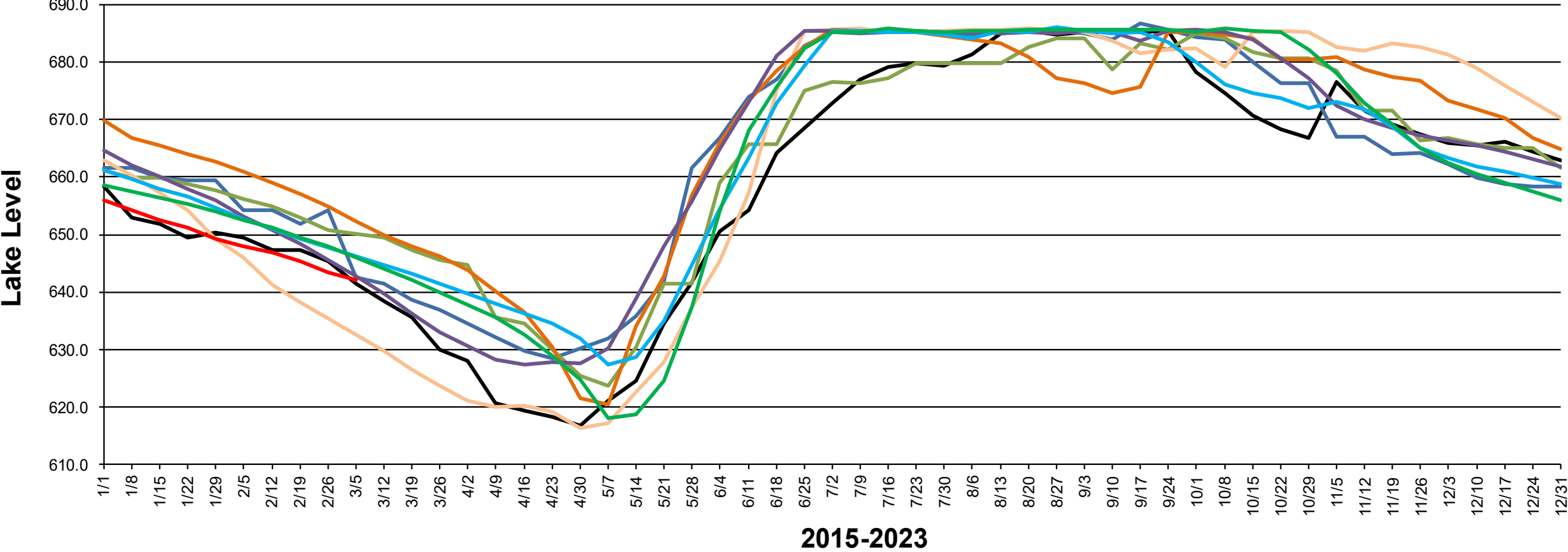
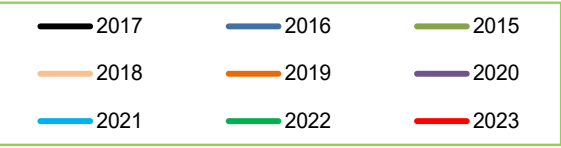
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- Average annual generation: 42,618 MWh
  - Minimum flow requirements:
    - 2 cfs Solomon Gulch Creek
    - 2 cfs at head of tailrace channel
  - May to ~September – Reservoir fills from melting snow
  - Early July to ~September – Reservoir spills during summer months. Spilled water flows through the spillway creek and into Solomon Gulch Creek downstream of the dam. The creek gets well over the minimum 2 cfs during the summer months.
  - November to May – Reservoir drawn down ~70 ft
-

# Lake Levels

## Solomon Gulch Hydro Lake Levels

Weekly As of 3/05/23



# Annual Generation / Average Generation by month

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## Annual Generation (MWh)

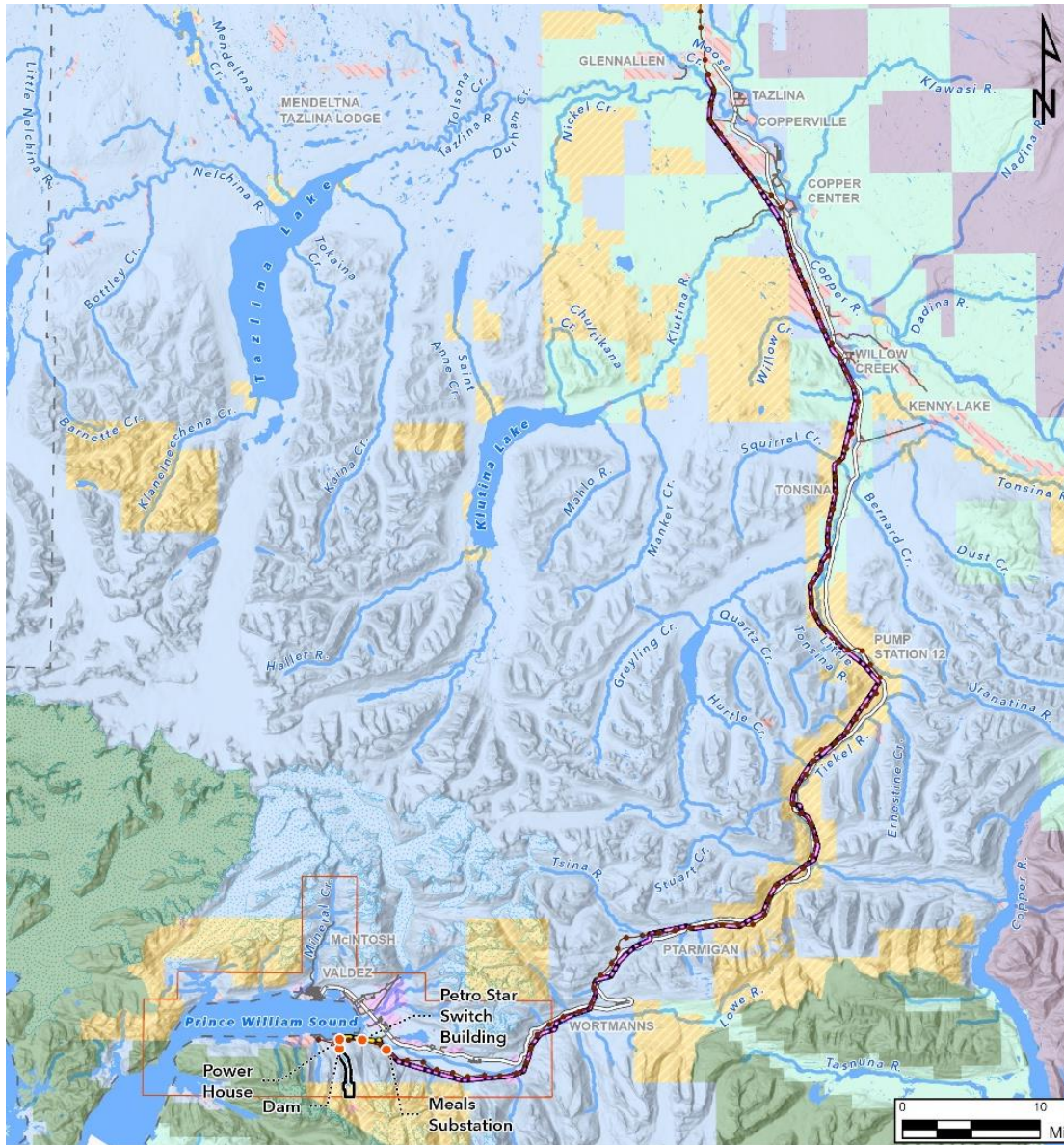
2017	37,364
2018	42,661
2019	53,655
2020	36,891
2021	41,659

## Average Generation by month 2017-2021(MWh)

Jan	2,013
Feb	2,071
Mar	2,119
Apr	1,816
May	3,167
Jun	3,408
Jul	4,695
Aug	5,771
Sep	4,532
Oct	5,031
Nov	4,208
Dec	3,080

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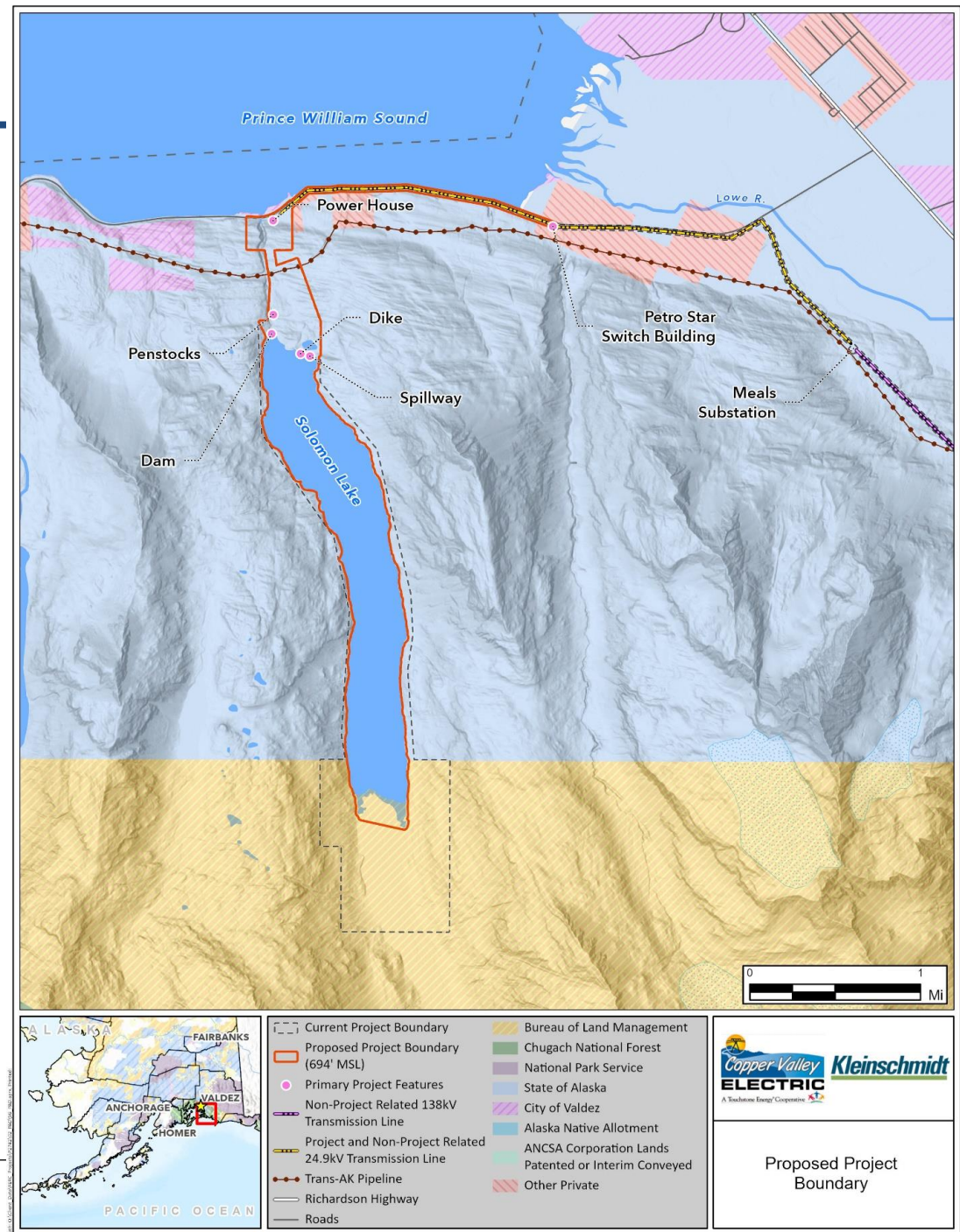
# Application for Non-Capacity License Amendment



- Application: October 31, 2022
- Action: Remove 108.16-mile-long transmission line extending from the Petro Star Switch Building north to Glennallen from FERC Project Boundary
- No longer meets the definition of primary transmission per FPA Section 3(11)
- Petro Star Switch Building is now a point of interconnection and distribution of several other sources of CVEA power
  - Allison Creek Hydro Project
  - Co-generation Plant
  - Valdez Diesel Plant
- Consulted with ADNR, ADFW, NMFS, FWS, and AK SHPO
  - Developed Inadvertent Discovery Plan for Section 106 compliance

# Proposed Project Boundary

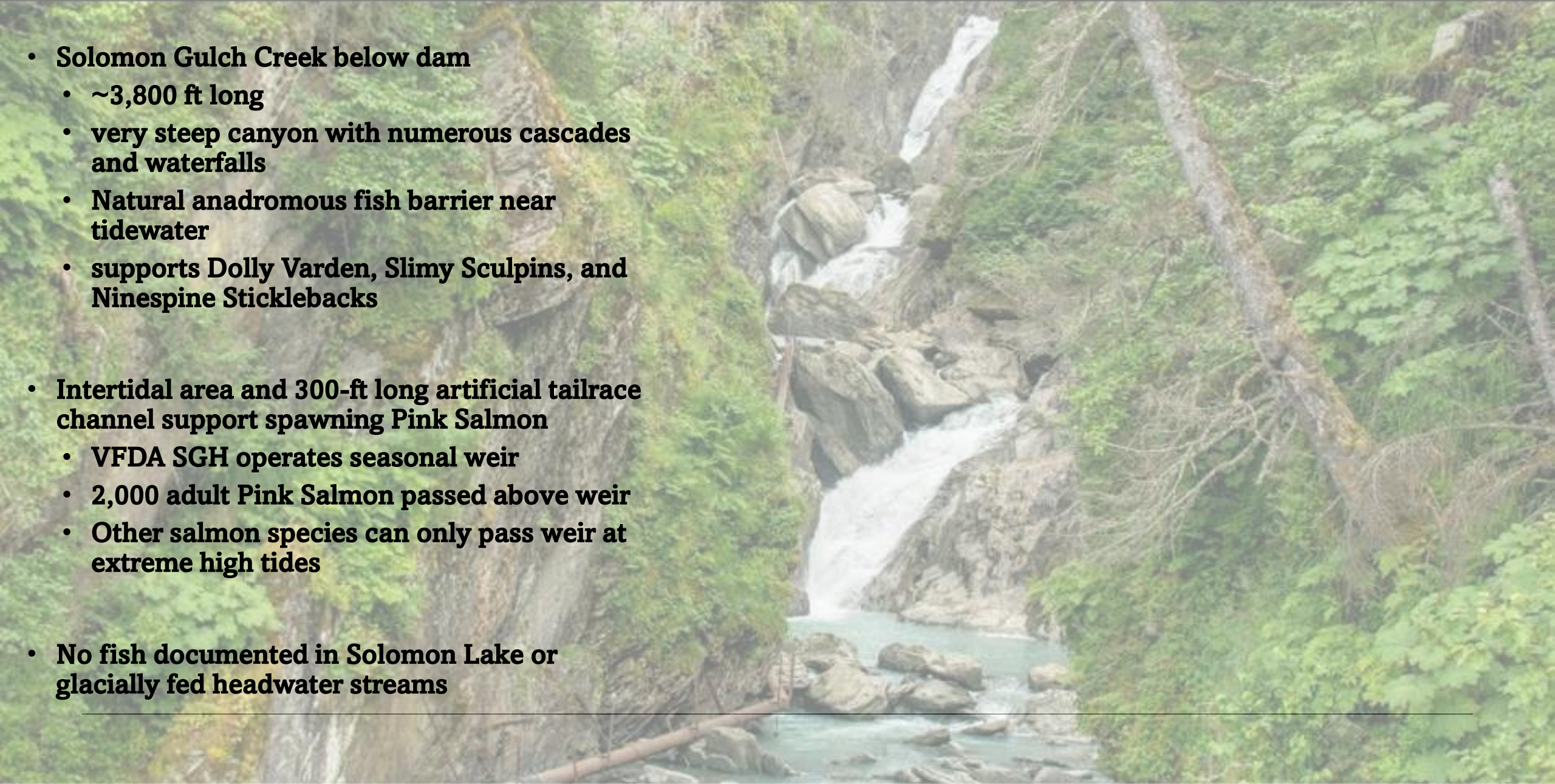
- PAD will describe current boundary, but for planning purposes, assuming that amendment will be approved
- Current Project Boundary around reservoir extends beyond lands necessary for maintenance and operation (black dashed line)
- Proposed Project Boundary around reservoir extend to PMF elevation of 694 ft msl (solid red line)



# Fish & Aquatic Resources

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- **Solomon Gulch Creek below dam**
  - ~3,800 ft long
  - **very steep canyon with numerous cascades and waterfalls**
  - **Natural anadromous fish barrier near tidewater**
  - **supports Dolly Varden, Slimy Sculpins, and Ninespine Sticklebacks**
  
- **Intertidal area and 300-ft long artificial tailrace channel support spawning Pink Salmon**
  - **VFDA SGH operates seasonal weir**
  - **2,000 adult Pink Salmon passed above weir**
  - **Other salmon species can only pass weir at extreme high tides**
  
- **No fish documented in Solomon Lake or glacially fed headwater streams**



# VFDA Solomon Gulch Hatchery

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Constructed in 1982 to support commercial, sport, and subsistence fisheries

## Production

- 250 million Pink Salmon fry
- 1.8 million Coho Salmon smolts released from saltwater net pens

SGH is not part of Solomon Gulch Hydro Project

## SGH Water Supply

- Most provided by CVEA from powerplant through two 300-ft long pipes
- Falls Creek Diversion (4 cfs junior water rights)



# Terrestrial & Botanical Resources



- **Six physiographic zones**
  - **Alpine, Subalpine, Upland,**
  - **Riverine, Lacustrine, Coastal**
- **81 acres freshwater forest/shrub wetlands**
- **0.2 acres freshwater emergent wetlands**
- **Presence of invasive or rare plants unknown**
  
- **32 species of mammals**
- **>87 species of birds**
- **No amphibians or reptiles**
- **No threatened or endangered species**



# Potential Studies

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- **Water Quality**
  - Monitor continuous water temperature at lake outlet, CVEA gage site, SG Creek
- **Sensitive and Invasive Plant Surveys**
  - Areas impacted by Project operations or maintenance
- **Vegetation Characterization Study**
- **Recreation Use and Needs Study**
  - John Hunter Memorial Trail
- **Cultural Resources**
- **Tribal Resources**
  - TBD based on tribal consultation

Study areas and methods to be determined as part of study planning process

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# Proposed Process and Schedule

**FERC  
must first  
approve  
use of  
Traditional  
Licensing  
Process**



<u>Relicensing Activity</u>	<u>Timeframe</u>	<u>Date</u>
File NOI/PAD, Request for TLP, and Newspaper Notice	5-5.5 years prior to license expiration	4/28/2023
FERC Issues Notice of Commencement & Approves Use of TLP	60 days after PAD filed	6/27/2023
Provide Notification of Joint Meeting Location & Timing	15 days prior to Joint Agency Meeting	7/31/23
Hold Joint Agency/Public Meeting & Site Visit	30-60 days after FERC Approval of TLP	8/15/23
Comments on PAD/Study Requests	60 days after Joint Agency Meeting	10/14/23
Issue Draft Study Plan <sup>1</sup>		11/21/23
Comments on Draft Study Plan <sup>1</sup>		1/18/24
Finalize Study Plan <sup>1</sup>		2/22/24
Dispute Resolution as Necessary <sup>2</sup>	Within 45 days of deadline for filing comments on PAD	
Conduct First Season Studies	Begin ~150 days after study requests	2024
Issue Draft Study Report <sup>1</sup>		Winter 2025
Conduct Second Season Studies (if necessary)		2025
Submit Draft License Application	~150 days before Final License Application	12/29/25
Comments on Draft License Application	90 days from Draft Application submittal	3/31/26
Dispute Resolution as Necessary <sup>2</sup>		
Submit Final License Application	> 24 months before the existing license expires	5/31/26
License Expiration		5/31/28

<sup>1</sup> Activity is not specifically required by the TLP process.

<sup>2</sup> Activity not necessary if there are no study disputes.

# Questions?

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[www.cvea.org](http://www.cvea.org)

[www.facebook.com/Copper-Valley-Electric-Association-157279357645493/videos/how-hydropower-happens-at-solomon-gulch/220755096070036/](https://www.facebook.com/Copper-Valley-Electric-Association-157279357645493/videos/how-hydropower-happens-at-solomon-gulch/220755096070036/)

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## **APPENDIX D**

### **SINGLE LINE DIAGRAM FILED SEPARATELY AS CEII**

#### **CEII MATERIALS**

This Material is Critical Energy Infrastructure Information (CEII). Members of the Public may obtain non-public or privileged information by submitting a Freedom of Information Act (FOIA) Request.