THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Fish and Game

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January 16, 2015

Ms. Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street
Washington D.C. 20426

Subject: Sweetheart Lake Hydroelectric Project, FERC No. 13563
ADF&G Comments on FLA/PDEA, Final Recommended §10(j)Terms and Conditions

Dear Ms. Bose:

On November 17, 2014, the Federal Energy Regulatory Commission (FERC) published notice that an application for an Original Major License and an applicant prepared environmental assessment had been filed with FERC by Juneau Hydropower Inc. (JHI), and was available for inspection. FERC provided notice of intent to prepare an Environmental Impact Statement and solicited Comments, Final Recommended §10(j) Terms and Conditions, and Prescriptions. The Alaska Department of Fish and Game has reviewed the applicant filed Final License Application and the applicant prepared Preliminary Draft Environmental Assessment (PDEA) and submits the attached comments and Final Recommended §10(j) Terms and Conditions.

Thank you for your consideration.

Sincerely,

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Statewide FERC Project Hydropower Coordinator
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FERC Service List for Project No. 13563

COMMENTS
Alaska Department of Fish and Game
Final License Application
Juneau Hydropower Inc.,
Sweetheart Lake Hydroelectric Project No. 13563

January 16, 2015

The Alaska Department of Fish and Game (ADF&G) offers the following comments on the Final License Application (FLA) for the Sweetheart Lake Hydroelectric Project, No. 13563, as requested by the Federal Energy Regulatory Commission (FERC) on November 17, 2014.

General Comments

We would like to acknowledge the efforts by Juneau Hydropower Inc. (JHI, applicant) to consult with our agency and to address ADF&G comments previously filed on the Draft License Application (DLA). Through these efforts the majority of issues raised in ADF&G's DLA comments have been answered in the FLA filing. JHI has agreed to the majority of the Preliminary Terms and Conditions (T&C), as is stated in their FLA filing.

JHI has also stated a position that several of our T&C do not need to be addressed in the license order since they have already been agreed to by JHI in the FLA. In discussions with FERC project and regional staff, we raised this question of license inclusion. We have been told by FERC staff that the license order is the controlling document which will be used by FERC to determine project compliance. While FERC staff encourages side agreements to work out conflicts within a project, those side agreements are not enforceable by FERC. Therefore, we have included all of our 10(j) recommendations to be considered by FERC for inclusion in the License Order.

Required Plans

Included in the JHI FLA filing are the majority of plans identified in ADF&G's preliminary Recommended Terms and Conditions. While most of the plans have been discussed during consultations with the applicant, there will likely need to be further consultation and revisions. We plan to provide a preliminary review of these plans in the near future but we will be unable to complete our review until issuance of the FERC Environmental Impact Statement and License Order. We are concerned that these plans may be interpreted as final versions. We appreciate that the applicant provided the plans with the FLA, since this facilitates our review of the project. If there are minor or no changes to the project design or operation, we believe with continued consultation with the applicant the plans can be nearly complete prior to FERC issuance of the License Order, and finalized a short time thereafter.

Ramping Rates

The bypass reach, located above the anadromous barrier, has a steep gradient and applicant studies have shown that it offers minimal habitat for resident fish. Sampling of the lower end of the bypass reach found a few rainbow trout and Dolly Varden char which were tested and found to be genetically similar to resident fish in the lake. The JHI study concluded that these fish

most probably came from the lake. The study also indicated that these fish are not a reproducing population since no spawning habitat was identified and no young of year fish were captured. After the dam is built, JHI states that there will be no further recruitment from the lake to the bypass reach. JHI predicts that fish presence in the bypass reach will eventually become reduced and cease to exist.

The project tailrace drains to lower Sweetheart Creek in the area of an existing pool at the base of the anadromous barrier. This is also the upper extent of tidal influence. The spawning area identified for pink and chum salmon at Sweetheart Creek is generally intertidal, of short length, and would not benefit from ramping rates.

Therefore, a ramping rate for the bypass reach has been determined as unnecessary; however, a small flow release is needed for ecological functions in the bypass reach, the lower stream reach, and tidal area.

Sockeye Salmon Smolt Collection and Transport

Sockeye salmon fry are planted in Sweetheart Lake by Douglas Island Pink and Chum (DIPAC) under a permit issued by ADF&G. Fry rear in the lake, growing to become smolts which naturally migrate from Sweetheart Lake after breakup each spring by swimming out of the lake and down Sweetheart Creek to tidewater. The construction of a dam at the lake outlet will prevent natural outmigration of sockeye salmon smolts from the lake to Sweetheart Creek. The project proposes to trap and haul smolts from Sweetheart Lake to lower Sweetheart Creek, near tidewater. JHI has worked with DIPAC to design a smolt collection device. The success of sockeye smolt collection in Sweetheart Lake remains to be determined since this device is conceptual in nature, has not been built, and therefore is speculative in anticipating success.

Sweetheart Lake has a history of fish stocking, which included efforts a number of years ago by ADF&G to stock one million fry or more per year. The lake was unable to support this level of stocking due to limited of food resources for the sockeye salmon fry. This caused a biomass crash and resulted in poor success. In the past years DIPAC, under an ADF&G permit, has stocked the lake annually with 500,000 sockeye salmon fry. These efforts have produced returns which contribute to commercial fisheries and allow for the current personal use fishery.

It is imperative that the sockeye smolt collection system collect the majority of smolts trying to migrate from the lake, otherwise they will remain in the lake and become landlocked. This could have the same result as the overstocking scenario discussed above, with high mortality due to starvation. If this happens, it could have an adverse impact on the contribution to the commercial fishery and popular personal use fishery.

Adverse weather conditions could affect the deployment of the collection device in the reservoir, affecting the collection and holding of sockeye salmon smolts pending transportation. The proposed transportation of the smolts by could prove to be problematic. For example, if there are periods of spring storms during the outmigration window, use of a helicopter could be hindered

and transport of the smolts could be compromised. Helicopters will likely be needed for several days or even weeks, to complete the transportation of captured smolts. The current project design provides no road from the dam site to the powerhouse site and appurtenant facilities; the only proposed access is by helicopter or float plane. Personnel necessary to work the collection device must be transported daily to the site. This will also require additional staffing and helicopter time.

JHI has stated that in the event of failure of the collection device or the inability to transport smolts, their backup plan is to have DIPAC raise additional sockeye smolt which could be acclimated and released into Sweetheart Creek. This appears to be a simplistic view, in that a year of production would likely be lost before the determination is made that smolt collection has failed. It also raises questions about the ability of DIPAC to raise and transport the smolts from a DIPAC hatchery facility to Sweetheart Creek.

Stream Buffers and Location of Facilities
JHI has agreed to the 100 foot siting requirement with the understanding that the recreational trails along Sweetheart Creek would not be included in the Term and Condition requirement. ADF&G is agreeable to this exemption and recommends the applicant consult with the U. S. Forest Service for compliance with Tongass National Forest requirements.

Penstock Burial
JHI has agreed that burial of the penstock will be accomplished with the exception of penstock located within the switchyard.

Exhibit A
Page A-11, Tailrace
The application states that the tailrace excavation at the powerhouse would be 32 feet deep and 90 feet wide. It describes a transition over the next 120 feet to a base width of 30 feet. There is no mention of tailrace depth transition

Page A-12, Smolt Reentry Pool
While dimensions and volumes are provided for the smolt reentry pool, the source of water and flow quantity is missing. Also, the 500 cubic foot volume specified appears to be a maximum volume, which would not be considered a useable volume. The pool construction is not defined, nor is the mechanism to be used to hold and release smolts from this pool.

Page A-14, Marine Access Facilities
This section identifies that rock for the marine ramps, staging area, and access corridor would come from powerhouse and tunnel excavation. It is unclear how this would be possible, given that it is our understanding that these facilities must be in place first in order to allow the project access to the powerhouse and tunnel excavation areas.

Page A-15 &16, Project Cut and Fill
It is stated that this project is designed to be balanced in cut and fill, and that no outside borrow areas would be utilized. Based on Table A-1, it is our understanding that this project is dependent on cut at the dam site, power tunnel excavation quantities, diversion tunnel quantities, and powerhouse excavations to provide materials for the marine access facilities and the road to the powerhouse site. If our understanding is correct, then it is unclear how this would be possible given that the construction of the marine access site and the 4,400 lineal feet of road would be needed to move equipment and supplies to the powerhouse site and lower end of the tunnel portal.

Exhibit B
Page B-22
Instream flow releases identified by ADF&G in our preliminary 10(j) Terms and Conditions have been modified. See attached ADF&G Final Recommended 10(j) Terms and Conditions.

Exhibit D: Project Statement of Costs and Financing
We question the relevance of including the cost of development and construction of the smolt collection device as a cost of recreation versus inclusion as a project cost in this section?

Page 276
The applicant listed ADF&G recommended Preliminary 10(j) Terms and Conditions for instream flow releases, which have been modified. See attached ADF&G's Final Recommended 10(j) Terms and Conditions.

Page 277
The following statement that 2.5 times the available spawning habitat for pink and chum salmon will become available, appears unsupported. Figure 3-82 shows water surface elevations for Transect 1 in the side channel, which according to the accompanying text, only carries 12% of Sweetheart Creek flow. This information does not appear to support the statement above regarding the level of increased spawning habitat.

Page 488
Proposed Effects on Fishing, Hunting, and Trapping
JHI has agreed to limiting hunting, fishing, and trapping by employees of JHI, contractors and subcontractors to areas a minimum of ½ mile from project features. We support this decision and believe it is an important policy to maintain current levels of fish and wildlife resources.

Pages 503 & 504
Smolt Collection and Transportation System
JHI states that they have *"an agreement with DIPAC to work out a plan to provide smolt from the Snettisham Hatchery as a backup plan should there be an event that the smolt collection and transfer facility would not produce the requisite amount of successful smolts to be transferred to*

Sweetheart Creek. A backup plan agreed to with DIPAC is that the smolt reentry pool that can also serve as a sockeye imprinting pond" In a letter sent to Duff Mitchell (JHI), from Eric Prestegard, Executive Director of DIPAC, dated April 3, 2014, a backup plan is discussed: *Our board has reviewed your request for assistance in providing a viable back up to insure continuity of the Sweetheart Creek Personal Use fishery should the collection and transport system fail. DIPAC supports your plan to build and operate a sockeye smolt collection system for the Sweetheart Lake sockeye program. Therefore a back up plan is not necessary at this time."* DIPAC has also stated that should the collection and transport system not provide the required results, production of sockeye smolts could be undertaken at the Snettisham hatchery as a "last resort." Also, sockeye smolts could not be available until the year following the problem, resulting in a probable failure of the Personal Use fishery a couple of years into the future when returning adults might be expected.

It is our hope that there is no need for a backup plan and that the collection and transport system is successful. However, we are concerned since the smolt capture and transport system has never been built or operated. There is risk to the sockeye fishery, especially during the early years of project operation during which JHI will likely be modifying and fine tuning this system.

Page 504
Rock Tailrace
JHI states that the tailrace has two purposes, to return water from the powerhouse to Sweetheart Creek, and to increase the fishing areas available for recreational fishermen and wildlife. A third purpose is as a release corridor for sockeye smolt from the holding pond to Sweetheart Creek. JHI has not included comprehensive design plats and descriptions for the tailrace. Therefore, ADF&G requests inclusion in discussions of the final designs for the tailrace.

RECOMMENDATIONS
Alaska Department of Fish and Game
Federal Power Act Final Recommended§10(j) Terms and Conditions
Juneau Hydropower, Inc.
Sweetheart Lake Hydroelectric Project No. 13563

January 16, 2015

The Alaska Department of Fish and Game (ADF&G) recommends the following final Terms and Conditions pursuant to §10(j) of the Federal Power Act.

Articles:

1. Instream Flow Release-Bypass Reach:
The licensee shall continuously release 3 cfs from the dam site into the downstream bypass reach. This flow may be temporarily modified, if required, by operating emergencies beyond the control of the licensee, or for short periods upon agreement between the licensee, ADF&G, and other requesting agencies. If the flow is so modified, the licensee shall notify the Commission, ADF&G, and other requesting agencies as soon as possible, but no later than 10 days after the modification.

Rationale: *Bypass flows are necessary to maintain ecological functions, processes, and connectivity important for sustaining aquatic resources in the bypass reach, lower Sweetheart Creek and tidal areas.*

2. Instream Flow-Anadromous Reach:
The licensee shall operate the project to maintain instantaneous instream flows in the anadromous reach of Sweetheart Creek, as measured at the streamgage required by Article 4, pursuant to the schedule below:

Dates	minimum flow (cfs) measured at gage
January-February	40
March	45
April	119
May-October	300
November-December	117

The licensee has agreed to evaluate the need for releasing pulsing flows from the powerhouse into the Sweetheart Creek anadromous reach. If the evaluation of pulsing flows indicates they are needed to stimulate salmon to migrate upstream, particularly for sockeye to migrate upstream into the series of pools above the intertidal reach, then these instream flow provisions may be modified accordingly.

These instream flow provisions may be temporarily modified, if required, by operating emergencies beyond the control of the licensee, or for short periods upon agreement

between the licensee, ADF&G, and other requesting agencies. If the flow is so modified, the licensee shall notify the Commission, ADF&G, and other requesting agencies as soon as possible, but no later than 10 days after the modification.

***Rationale**: Seasonal instream flows are necessary to maintain usable habitat and passage for the fish species and life stages using the anadromous reach of Sweetheart Creek. Flow recommendations from November through April are based on the flows requested by ADF&G in their Reservation of Water application on file with the Alaska Department of Natural Resources (see Volume 3, Appendix I of the Preliminary Draft Environmental Assessment). The purpose of ADF&G's reservation application is to protect fish habitat, migration, and propagation in the anadromous reach. From May through October, the recommended flow of 300 cfs is the proposed operational flow of the project. Based on the hydrology of the system, and results of JHI's instream flow study, we believe that 300 cfs during this time period will protect fish habitat, migration, and propagation in the anadromous reach.*

Pulsing flows may be needed to stimulate adult pink and sockeye salmon to migrate upstream during July and August (migrating salmon will often wait to move upstream stream until they detect increasing flows). ADF&G will work with the licensee to develop a plan to evaluate the need for pulsing flows, and if needed, the timing, duration, and magnitude of pulsing flows. These pulsing flows would likely be short term in duration (probably less than a day and would involve increasing flows from the proposed operational flow of 300 up to 486 cfs.

3. Ramping Rates:
No ramping is requested

***Rationale:** Ramping rates are intended to protect aquatic resources in areas where rapid fluctuation may cause stranding or flushing of fish and aquatic invertebrates (causing reduced fitness and mortality), increased predation, dewatering of redds, restricted fish passage, and reduced prey availability. Those conditions do not exist at this project if built as proposed. Tidal influences would also reduce impacts of fluctuating flows in the anadromous reach.*

4. Streamgaging and Instream Flow Compliance:
The licensee shall operate and maintain a streamgage in the project tailrace. The gage shall be operated and maintained according to U.S. Geological Survey standards. All data shall be recorded at a frequency of not greater than 15-minute intervals and filed with the Commission by April 1st of each year, documenting the previous water year. Copies of the data shall be provided upon request to interested parties.

A minimum of 6 months before the start of any land-disturbing or land-clearing activities, the licensee shall consult with resource agencies regarding the licensee's plan describing

how the licensee will monitor and ensure compliance with the instream flow provisions of the license (Articles 1, and 2). Resource agencies shall be allowed a minimum of 60 days after issuance of the License Order to review the plan and provide comments and recommendations. The final plan shall be submitted to FERC for written approval at least 30 days before the scheduled date to initiate construction activities. Along with the plan, the licensee shall document agency consultation, provide copies of agency comments and recommendations, and describe how agency recommendations were addressed in the plan. If the licensee does not accept an agency recommendation, the filing shall include the licensee's reasons for non-acceptance.

Rationale: *Instream flow provisions are needed to protect fish resources in Sweetheart Creek. Monitoring of instream flow release is necessary to ensure project compliance with these provisions. For the bypass reach, a plan is needed to assess the method and protocols that will be employed to ensure compliance; similarly, for the anadromous reach, a plan is needed with information on the streamgage installation and operation for compliance purposes.*

5. Bypass Flow Fail-Safe Provisions:
Fail-safe provisions shall be provided in project design and operation to ensure that flow releases stated in Article 2 are provided continuously to the bypass and anadromous reaches of Sweetheart Creek during routine maintenance periods, emergency project shutdowns, and interruptions to the power grid.

Rationale: *Instream flow provisions are needed to protect ecological functions and anadromous fish in Sweetheart Creek.*

6. Fish Exclusion and Tailrace Design:
The powerhouse tailrace shall be designed and constructed to exclude fish from entering the powerhouse and to avoid or minimize the potential for fish injury or mortality. The tailrace shall be designed to provide habitat unsuited for pink and chum spawning. The licensee shall consult with resource agencies regarding final designs. Resource agencies shall be allowed 60 days after the License Order is issued to review the design and provide comments and recommendations.

Final designs shall be submitted to FERC for written approval at least 30 days before the scheduled date to initiate construction activities. The licensee shall document agency consultation, provide copies of agency comments and recommendations, and describe how the agencies' recommendations were addressed in the final design. If the licensee does not accept an agency recommendation, the filing shall include the licensee's reasons for non-acceptance.

Rationale: *Tailrace discharges have the potential to attract and subsequently injure or kill fish, particularly migrating adult salmonids. The tailrace must be designed to reduce*

this potential. Impacts to fish at hydroelectric plant tailraces are documented in "Impacts of Hydroelectric Plant Tailraces on Fish Passage: A Report on Effects of Tailraces on Migratory Fish and Use of Barriers, Modified Project Operations, and Spills for Reducing Impacts. Paper No. DPR-9, June, 1995. Federal Energy Regulatory Commission. 1995.

Providing suitable pink and chum salmon spawning habitat in the tailrace could alter the makeup of the existing Sweetheart Creek salmon runs and could adversely impact the quality of the sockeye personal use fishery (e.g., increased numbers of pink and chum could displace sockeye in the pools where the personal use sockeye fishery occurs).

Fish exclusion and tailrace designs are detailed and described in Volume 2, section 2.2.1.9 in the FLA (page 69).

7. Intake Screening:
The licensee shall install a fish screen in front of the power tunnel intake structure in Sweetheart Lake to exclude the entrainment and impingement of salmonid fry. The screen shall be designed based on NMFS fish screening criteria, including an approach velocity of no more than 0.4 feet per second and screen mesh shall not exceed 3/32 inch.

Rationale: *Intake screening is needed to protect the 500,000 sockeye salmon fry that are stocked annually in Sweetheart Lake as well as for resident Dolly Varden and rainbow trout fry. Sockeye fry rear in the lake for one year (sometimes two) before outmigrating into Gilbert Bay. As adults, sockeye return to Sweetheart Creek, contributing to the commercial fishing harvest, and providing a popular personal use fishery for Alaskan residents.*

8. Sockeye Salmon Smolt Collection and Transport Plan:
The licensee shall prepare a Sockeye Smolt Collection and Transportation Plan. Resource agencies shall be allowed 60 days after issuance of the License Order to review the plan and provide comments and recommendations. The plan shall address how sockeye smolts will be captured, held, transported, and released into Sweetheart Creek. The plan shall describe how the survival rate of smolts will be monitored at each step in the process. The plan shall also include backup provisions to ensure that sockeye smolts are successfully released and imprinted to Sweetheart Creek in situations where the collection and transfer system fails.

After review, a final plan shall be submitted to FERC for written approval at least 30 days before initiation of construction activities. Along with the plan, the licensee shall document agency consultation, provide copies of agency comments and recommendations, and describe how the agencies' recommendations were addressed in the plan. If the licensee does not accept an agency recommendation, the filing shall include the licensee's reasons for non-acceptance.

Rationale:
The Sweetheart Lake Hydroelectric Project will block the outfall of Sweetheart Lake preventing the natural outmigration of sockeye salmon smolts. As such, a smolt collection and transport system is needed to maintain the commercial harvest and personal use fishery at Sweetheart Creek. Historically, sockeye fry are planted into Sweetheart Lake where they overwinter for one to two years. As smolts, they migrate from Sweetheart Lake down Sweetheart Creek and into Gilbert Bay. These smolts return as adults, contributing to commercial harvest as well as providing a popular personal use fishery in Sweetheart Creek. The personal use sockeye fishery at Sweetheart Creek is the most accessed personal use fishery with the largest harvest, utilized by Alaska residents from the Juneau-Douglas area.

9. Biotic Monitoring Plan

At least 6 months before the start of any land-disturbing or land-clearing activities, the licensee shall consult with resource agencies regarding the licensee's Biotic Monitoring Plan. The plan shall include the following components:

- Anadromous reach monitoring of pink and chum salmon spawning in the anadromous reach and intertidal areas of Sweetheart Creek;
- Sweetheart Lake monitoring of resident Dolly Varden char and rainbow trout spawning and young of year recruitment in the lake and inlet streams.

Each component of the plan shall include defined sampling protocols, methods, schedules, and effort, as well as evaluation metrics. Monitoring shall continue for a minimum of five years post construction, with annual reporting and review, and evaluation of potential study plan modifications, as necessary.

The licensee shall consult with resource agencies regarding the licensee's plan. Resource agencies shall be allowed 60 days after issuance of the License Order to review the plan and provide comments and recommendations. The final plan shall be submitted to FERC for written approval at least 30 days before initiation of construction activities. Along with the plan, the licensee shall document agency consultation, provide copies of agency comments and recommendations, and describe how the agencies' recommendations were addressed in the plan. If the licensee does not accept an agency recommendation, the filing shall include the licensee's reasons for non-acceptance.

Rationale: *Post-licensing monitoring of fisheries resources is needed to ensure that the regulated instream flow and lake level regimes are sufficient to support post-project salmon use of habitat in the anadromous reach of Sweetheart Creek, and Dolly Varden and rainbow trout spawning and recruitment success in Sweetheart Lake and its inlet streams.*

10. Timing of Instream Activities:

Timing windows for instream construction activities and stream crossings shall be established by the ADF&G Habitat Biologist assigned to the project. Timing windows will be conditioned in the ADF&G issued Title 16 permit.

Rationale: *Timing windows are needed to ensure that instream construction activities do not adversely impact aquatic resources.*

11. Stream Buffers and Location of Facilities:
Construction activities should be sited a minimum of 100 feet, measured horizontally, away from ordinary high water of Sweetheart Creek and its tributaries. Clearings and road/trail corridors for the powerhouse and appurtenant facilities, penstock, and tailrace, as well as recreational trails, are excluded from this requirement. Except for stream crossings, the transmission line corridor and clearing shall be sited a minimum of 100 feet, measured horizontally, away from ordinary high water of all streams identified in the latest (2011) edition of ADF&G's Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes.

Rationale: *Stream buffers protect fish habitat and water quality and serve as habitat and transportation corridors for wildlife.*

12. Avian Electrocution:
Transmission line power poles shall conform to guidelines accepted by the USFWS and described in "Suggested Practices for Avian Protection on Power Lines– State of the Art in 2006"[1] Coordination with requirements of the USFS Scenery Management and Monitoring Plan is also recommended.

Rationale: *Designs identified by the APLIC and USFWS are necessary to avoid the electrocution of raptors and other birds. See also, Avian Protection Plan (APP) Guidelines[2], a joint document prepared by Avian Powerline Interaction Committee (APLIC) and the U.S. Fish and Wildlife Service, April 2005.*

13. Bear Safety Plan:
At least 6 months before the start of any land-disturbing or land-clearing activities, the licensee shall consult with resource agencies regarding the licensee's final Bear Safety Plan to minimize bear-human conflicts. At a minimum, the plan shall provide instructions for:

[1] Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute and the California Energy Commission, Washington, D.C.

[2] www.fws.gov/.../Avian%20PROTECTION%20PLAN%20FINAL%204%2019%2005.pdf

- identifying and utilizing operating practices that minimize possible conflict when in bear country, including avoidance of areas often used by bears, if possible;
- keeping construction sites and refuse areas clean of substances that attract bears;
- installing bear-proof garbage receptacles and other measures during construction to prevent bears from obtaining food or garbage;
- dealing with problem bears; and
- providing timely notification to authorities of any bear-human conflict, as identified in the plan.

The licensee shall consult with resource agencies regarding the licensee's plan. Resource agencies shall be allowed 60 days after issuance of the License Order to review the plan and provide comments and recommendations. The final plan shall be submitted to FERC for written approval at least 30 days before the scheduled date to initiate construction activities. Along with the plan, the licensee shall document agency consultation, provide copies of agency comments and recommendations, and describe how the agencies' recommendations were addressed in the plan. If the licensee does not accept an agency recommendation, the filing shall include the licensee's reasons for non-acceptance.

Rationale: *Bears are common in the project area. The proposed plan will minimize the potential for human/bear interactions.*

14. Helicopter and Plane Controls to Minimize Impacts to Mountain Goats:
Aircraft shall maximize their distance away from mountain goat habitat and observed mountain goats. To the extent possible, a 1500 foot vertical or horizontal clearance should be maintained from mountain goat habitat and observed mountain goats. Of particular concern is use of kidding habitat between May 15 and June 15.

Rationale: *Mountain goats typically elicit strong negative responses to close range aircraft disturbance. Disturbance can cause mountain goat groups to splinter and individuals to panic, resulting in injuries and/or mortality. After being disturbed, goats may stay alert without foraging for several hours, resulting in increased energy expenditures, reduced fat accumulation, and adverse physiological changes. The licensee is expected to work closely with the agencies to address this issue as the project moves forward.*

15. Penstock Burial to Maintain Wildlife Migration Corridor:
The project penstock shall be located underground (other than in the switchyard).

Rationale: *In the FLA, the project has proposed an underground penstock, with the exception of in the switchyard. Since bears are common in the project area, an above ground penstock would impede normal movements. Burial or elevation of the penstock in a sufficient number of places should ensure that wildlife movement is minimally affected.*

16. Hunting, Fishing or Trapping Restrictions:
The licensee and their employees, contractors and subcontractors, shall be restricted from hunting, sport fishing or trapping within ½ mile of project features.

Rationale: *Because of restricted access of the public to project property, the likelihood that a large workforce will be located at the project, and to prevent overharvest of natural resources due to increased access, the applicant has agreed that JHI employees, contractors, and subcontractors will be restricted from hunting, fishing, and trapping within ½ mile of project features during construction of the project. Of specific concern would be overharvest of brown bears frequenting Sweetheart Creek. A significant increase in the harvest of fish or wildlife from project personnel could result in area closure by ADF&G through issuance of an Emergency Order. This is an undesirable approach to management because it would restrict harvest opportunities for all users throughout the entire management area. This restriction will not affect project personnel qualified to participate in the Personal Use Fishery at Sweetheart Creek.*

17. Erosion and Sediment Control Plan (ESCP):
At least six months before the start of any land disturbance or land clearing activities, the licensee shall file with the Commission for approval, a Final Erosion and Sediment Control Plan. The plan shall provide specific descriptions of features incorporated into the final project design and measures that would be employed during construction to limit project effects on environmental resources, and shall include, at a minimum, detailed descriptions of the following:

- site characteristics to include: soils, landscape, vegetation, topography, nearby waters including springs and seeps;
- preventative measures based on site-specific conditions;
- location of areas for storage or deposition of removed overburden including identification of erosion control measures to be utilized in those areas. A 100 foot setback from streams and intertidal areas shall be observed for storage or deposition activities.
- Functional design drawings, and specific topographic locations of all control measures shall be provided, including:
    - Rip-rap placement;
    - Stream set back and proposed stabilization measures for spoil material;
    - prescriptions for treatment of all disturbed areas including:
        - methods for treatment of overburden deposition sites; and
        - identification of plants and methods to be used for vegetation activities.

The licensee shall consult with resource agencies regarding the licensee's plan. Resource agencies shall be allowed 60 days after issuance of the License Order to review the plan and provide comments and recommendations. The final plan shall be submitted to FERC

for written approval at least 30 days before initiation of construction. Along with the plan, the licensee shall document agency consultation, provide copies of agency comments and recommendations, and describe how the agencies' recommendations were addressed in the plan. If the licensee does not accept an agency recommendation, the filing shall include the licensee's reasons for non-acceptance.

Rationale: *The potential for erosion and sediment deposition in aquatic habitat is great if an erosion and sediment control plan is not implemented. Construction activities and the failure of preventative constructed structures during project construction and operation could have severe adverse impacts to the watershed's water quality and aquatic habitat. Therefore, a detailed and thorough erosion and sediment control plan is needed to reduce soil disturbances and the potential for mass wasting events that could adversely impact aquatic resources.*

18. Environmental Compliance Monitor (ECM):
At least thirty days before the start of any land disturbance or land clearing activities, the licensee shall employ a qualified environmental compliance monitor (ECM). The ECM shall:

- be employed through the duration of project construction;
- have the authority to issue cease work orders in the field as deemed necessary;
- document compliance of the licensee with the conditions of the license; and
- be responsible for preparation of construction reports to be filed with FERC, ADF&G, and other requesting agencies, per the Environmental Compliance Monitoring Plan .

The ECM should have a background in the biological sciences with experience in water quality monitoring and erosion/sediment control measures. The licensee shall allow a minimum of 30 days for the agencies to revue proposed ECM candidate qualifications, for acceptance.

Rationale: *This project is located at a remote location with access being only by boat, helicopter, or fixed wing aircraft. A full time, on site, ECM is necessary to monitor activities during project construction to ensure compliance with environmental measures. Additionally, an ECM will help to ensure that the erosion and sediment control plans and fuel and hazardous substance spill plans are effective, and that all other environmental plans are being followed by the licensee and contractors. This may also include human/bear interactions, observations of construction activity impact on mountain goats, as well as impacts on fish and aquatic resources. The ECM shall assist the licensee to obtain additional permits when design or construction plans need to be modified.*

19. Turbidity Monitoring:
The effectiveness of the erosion and sediment control measures identified in Article 17, of the ESCP, shall be monitored by the ECM through turbidity monitoring. From the

initiation of construction, turbidity shall be monitored, as identified in the ESCP for construction activities related to the Sweetheart Lake Hydroelectric Project. Monitoring should occur upstream and downstream of all construction activities and/or discharge points for overland flows that cross construction areas and discharge into Sweetheart Creek. Water samples shall be analyzed for turbidity as soon as possible, or daily. Turbidity measurements shall be made using equipment identified in the ESCP. If turbidity 100 feet downstream of the construction area exceeds Alaska water quality standards, then related construction activities shall cease immediately, sediment sources shall be located, and appropriate sediment control measures shall be implemented.

Rationale: *Monitoring turbidity is essential to ensure that Alaska water quality standards are not exceeded to protect aquatic resources in Sweetheart Creek.*

20. Fuel and Hazardous Substance Spill Plan:
At least 6 months before the start of any land-disturbing or land-clearing activities, the licensee shall consult with resource agencies regarding the licensee's final Fuel and Hazardous Substance Spill Plan. The plan shall be designed to help prevent and minimize any impacts associated with the handling of hazardous substances during project construction and operation. Fuel storage and handling, including refueling of equipment, shall occur at sites identified in the plan. A 100 foot setback from streams and intertidal areas should be observed for these activities.

The licensee filed a draft Hazard Substance Plan with the FLA. ADF&G will review this plan. Resource agencies shall be allowed 60 days after issuance of the License Order to review a final plan and provide comments. The final plan shall be submitted to FERC for written approval at least 30 days before the scheduled date to initiate construction activities. Along with the plan, the licensee shall document agency consultation, provide copies of agency comments and recommendations, and describe how the agencies' recommendations were addressed in the plan. If the licensee does not accept an agency recommendation, the filing shall include the licensee's reasons for non-acceptance.

Rationale: *Petroleum products can have a significant adverse impact on aquatic resources. This plan will help to ensure that Best Management Practices are observed for their use and help to prevent accidents.*

21. Notification of Non-Compliance Event:
Within 10 days of detecting events that are out-of-compliance with license requirements, the licensee shall notify the Commission, ADF&G, and other requesting agencies that the event occurred. The licensee shall take immediate steps to correct the out-of-compliance event including causes of such events so that they do not recur, and shall document those steps in a detailed description of the event to be filed with FERC and requesting agencies, no later than 30 days following detection of the event.

Rationale: *Notification of non-compliance events that affect fish and wildlife resources is necessary to monitor project operations and to assess and respond to potential impacts of the event. Notification and consultation is important to address issues and reduce reoccurrences of non-compliance events which may impact fish and wildlife resources.*

22. Access to Site by ADF&G Employees:

The licensee shall provide representatives of ADF&G free and unrestricted access to, through and across project lands and waters, and project works, in the performance of their official duties upon appropriate advance notification.

Rationale: *ADF&G must be allowed access to the project area in order to evaluate and manage fish and wildlife resources in the Sweetheart Creek watershed.*

Document Content(s)