Grant Lake Project (FERC No. 13212)

Recreational and Visual Resources

Study Plan

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List of Abbreviations and Acronyms

ADF&G	Alaska Department of Fish and Game
AEIDC	Arctic Environmental Information and Data Center (University of Alaska)
AHRS	Alaska Heritage Resources Survey
APA	Alaska Power Authority
AWC	Anadromous Waters Catalog
BLM	Bureau of Land Management
°C	Degrees Celsius
cfs	cubic feet per second
cm	centimeter
CPUE	catch per unit effort
° F	Degrees Fahrenheit
DNR	Alaska Department of Natural Resources
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
FL	Fork Length
fps	feet per second
ft	feet
G&A	general and administrative
GPS	global positioning system
GWh	gigawatt hours
HEP	Hydroelectric Evaluation Program
IFIM	instream flow incremental methodology
in	inch
KHI	Kenai Hydro Inc.
KHL	Kenai Hydro, LLC
КРВ	Kenai Peninsula Borough
kWh	kilowatt hours
LLC	Limited liability company
mg/L	milligrams per liter

mi	mile
MIF	minimum instream flow
mm	millimeter
MSL	Mean sea level
MW	Megawatt
MWh	Megawatt hours
NWI	National Wetlands Inventory
O&M	Operations & maintenance
RM	river miles
RVDs	Recreation visitor days
TL	total length
USACE	U.S. Army Corps of Engineers
USFS	USDA. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
YOY	Young of the year

Recreation and Visual Resources Draft Study Plan Grant Lake Hydroelectric Project (FERC No. 13212)

1 Introduction

On August 6, 2009, Kenai Hydro, LLC (KHL) filed a Pre-Application Document (PAD), along with a Notice of Intent to file an application for an original license, for a combined Grant Lake/Falls Creek Project (FERC No. 13211/13212 ["Project" or "Grant Lake Project"]) under Part I of the Federal Power Act. On September 15, 2009, FERC approved the use of the Traditional Licensing Process for development of the license application and supporting materials. As described in more detail below, the proposed Project has been modified to eliminate the diversion of water from Falls Creek to Grant Lake.

The Project will be located near the community of Moose Pass, Alaska in the Kenai Peninsula Borough, approximately 25 miles north of Seward, Alaska, and just east of the Seward Highway (State Route 9) (Figure 1).

This Recreation and Visual Resources study plan is designed to address information needs identified in the PAD, during the Traditional Licensing Process public comment process, and through early scoping conducted by FERC in June 2010. A study report will be produced that presents existing information relative to the scope and context of potential effects of the Project. This information will be used to analyze Project impacts and propose protection, mitigation, and enhancement measures in the draft and final license applications for the Project.

Proposed Project Description

The PAD Project proposal included diverting water from Falls Creek into Grant Lake to provide additional flows and power generation at the Grant Creek powerhouse. The Falls Creek diversion has been removed from the Project proposal.

The proposed Project would be composed of a diversion dam at the outlet to Grant Lake, an intake structure in Grant Lake, a tunnel, a surge tank, a penstock, a powerhouse, a tailrace detention pond, a switchyard with disconnect switch and step-up transformer, an overhead or underground transmission line, and a pole-mounted disconnect switch where it ties into the existing City of Seward distribution line or Chugach Electric's transmission line. The powerhouse would contain two Francis turbine generating units with a combined rated capacity of 5.0 MW with a total design flow of 385 cfs.

Two modes of operation are likely for the Project: block loading or level control (run-of-river). The primary operational mode will be block loading at a specific output level. Level control, or balancing of outflow to inflow, will likely only occur during periods of low natural inflow to Grant Lake when the reservoir is at or near minimum pool elevation. Due to the small size of the Project in relation to the size of the interconnected system, the Project is not likely to be used to load follow.

Prior to reinitiating planning efforts for natural resource studies, KHL was evaluating two potential access road routes. The Falls Creek route would be approximately 3 miles long beginning at the south end of Lower Trail Lake, and the Trail Lakes Narrows route would be about 1 mile long beginning at the Seward Highway. In early 2012, KHL determined that the Trail Lake Narrows route was the most feasible and has eliminated the Falls Creek route from consideration. The Trail Lakes Narrows route would extend eastward to cross the narrows between Upper and Lower Trail lakes and then continue eastward to the powerhouse. The Trail Lakes Narrows route has not been fully assessed from a natural resource perspective and will be comprehensively evaluated in 2012/2013 as part of this study effort.



Figure 1. Project vicinity and proposed facilities.

2 Study Goals Identified During Project Scoping

The goal of the study described in this plan is to provide baseline information, which, together with existing information, will inform an assessment of potential Project impacts on recreation and visual resources in the study area. Where applicable, information may be used to guide the final design of Project facilities.

This study was developed to provide supporting information on the potential resource impacts of the proposed Project that were identified during compilation of the PAD, public comment, and FERC scoping for the License Application. The following impacts will be evaluated in the Recreation and Visual Resources Study Report and in the draft and final license applications.

- Impacts of Project construction and operation on distribution of local and tourist recreational use, access, and experience on Grant Lake, Grant Creek, Vagt Lake, and the Iditarod National Historic Trail (INHT).
- Impacts of Project construction and operation on the distribution and abundance of fish and wildlife for anglers and hunters.
- Impacts of Project construction and operation (including roads and facilities) on visual quality in the area.
- Impacts of Project roads and transmission line corridors (if not buried in road grade) on aesthetic and visual resources (including impacts on Scenic Byway viewpoints and views from existing and planned recreational trails and use areas).
- Impacts of Project construction and operation on local and regional recreation resources.
- Impacts of Project facilities and operation (including road access, safety, and use) on local residential land use on Grant Creek and along the road corridor.
- Impact of Project construction and operation on quality of life characteristics of the area (i.e., noise, changes in access to and character of area, light pollution).

3 Existing Information and Need for Information

3.1 Existing Information

The study area is composed of predominantly State and Federal lands open to public use. Recreation access and visual resources have been documented for the area by a number of investigations performed in the Project vicinity under the auspices of the Alaska Department of Natural Resources (ADNR), the Kenai Peninsula Borough (KPB), and the USDA Forest Service (USFS) (ADNR 2009, ADNR 2001, KPB 2005, USFS 2007a, USFS 2007b, USFS 2002, USFS No Date).

The Project is located on the Kenai Peninsula, which is known for its recreational and scenic opportunities. In the study area, however, there has been no formal development, such as a developed trailhead and signage, to enhance recreational opportunities. Ground access to the study area is possible from the Grant Lake Mine Road, Grant Lake Portage Trail, Falls Creek

Road, Vagt Lake Trail, and Crown Point Mine Road and Trail. Based primarily on reports of researches in the field in 2009 and 2010, it appears the Grant Lake Mine Road and the Grant Lake Portage Trail receive very light summer use and light winter use, with evidence of camping and several canoes stored at Grant Lake. Users appear to boat across Lower Trail Lake to the informal trailhead. Once the lakes freeze, some snowmachine and cross-country ski use occurs.

The historic route of the INHT, along the shores of the Trail River and Trail Lakes, traverses the study area. The USFS completed an environmental assessment for a route to reconnect the Iditarod Trail from Seward to Anchorage, and the route—identified by a State public easement held by the USFS—is designated, but the trail is not yet constructed. There is at this time no established use pattern for this trail, although the Vagt Lake Trail is a spur of the INHT. The construction of the INHT will create overland access that is expected to cross other existing informal trails and formalize some of them as spurs to Grant Lake, likely increasing their use and access to Grant Lake. A primary trailhead for the INHT is planned for construction near the outlet of Lower Trail Lake (USFS, pers. comm., 2010).

Although there is limited access and no known game fish in Grant Lake, low levels of hunting, fishing, and hiking occur in the area. Some recreational users travel across the Alaska Railroad trestle bridge by foot or ATV and then continue over the ridge into the Grant Lake basin. The trestle is owned by the Alaska Railroad Corporation (ARRC), and use by the public is technically illegal. There are an abandoned mine and a cabin at the northwest "corner" of the lake. The cabin, owned by the USFS, is located where the Grant Lake Trail and the Grant Lake Mine Road meet. The cabin is not managed for recreational use but is sometimes used by visitors (USFS No Date).

Much of the Grant Lake shoreline is within USFS boundaries and is considered in the Chugach Forest Plan (USFS 2002). The USFS has designated two management "prescriptions" for the Grant Lake area: "Fish, Wildlife, and Recreation" prescription and "Semi-Primitive Motorized" prescription. The very east end of the lake is "Backcountry Prescription." There is an area that is designated "Mining Claim with Approved Plan of Operations" on Falls Creek Road. The USFS describes the Scenic Integrity Values of most of the Grant Lake area as "Moderate." The Scenic Integrity Values of the east side of the lake in the Backcountry Prescription are designated "High." The mining claim is designed "Low." USFS lands in the study area are open to all motorized use in winter. In summer, the study area is open to motorized use on designated routes only. The backcountry section on the east end of the lake is closed to Off Highway Vehicles (OHVs). In the Kenai Winter Access EIS (USFS 2007a) the Ptarmigan/Grant unit, which the Project falls within, is described as receiving very little winter use from any user group (USFS 2007a). A limited number of requests were received during the scoping process for the Kenai Winter Access EIS to make this unit either motorized or non-motorized. Due to the limited number of requests, there appeared to be little existing conflicts in use type. The Ptarmigan/Grant unit allows exploratory helicopter skiing by permitted commercial guides (USFS 2007a). The area north and east of the Trail Lakes has the potential to support a hut-tohut trail or trailhead system using existing or new trails and connecting with Grant Lake, Moose Creek (upstream to Grandview), the Johnson Pass Trail, and/or the Summit Lakes area (ADNR 2001). The planned INHT will provide additional access to Grant Lake. These areas have specific value for the hut-to-hut concept, and the area supports modest-scale recreation and tourism development (ADNR 2001).

The ADNR describes the Project vicinity as having scenic value (ADNR 2001). There is a scenic waterfall at the outlet of Grant Lake, and the mountain walls have more than 3,500 feet of relief on the east shore of the lake. Grant Lake and Grant Creek, where the Project is proposed, are not visible from the Seward Highway or any other easily accessed area, except from the air.

3.2 Need for Additional Information

Studies will involve collection of information on current recreational use and visual resources to address site-specific potential Project impacts. The objectives of the studies are to:

- Determine if there are any effects from the minimal pool fluctuations associated with Project operations on recreational travel, fishing, hunting, sightseeing, and boating around the shoreline in summer and in winter by examining access points and trails and by questioning stakeholders.
- Assess the effects of altered or reduced flows on Grant Creek on fishing or other recreational use of the creek by examining access points and questioning stakeholders.
- Evaluate the potential for increased recreational use of the area, such as hunting, fishing, and backcountry activities (hiking, skiing, boating, and snowmachining), due to increased access and how this might affect existing or planned uses, such as the INHT.
- Evaluate current visual value and potential changes by selecting specific assessment points at which to take photographs and create renderings that will be analyzed according to criteria of the USFS.
- Collect baseline sound information for consideration of project effects on existing conditions.
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4 Methods

4.1 Study Area

Figure 1 shows the Moose Pass and Grant Lake area. The study area includes recreational and visual resources potentially affected by the Project. In general, these resources are on lands between the Seward Highway and the far eastern end of Grant Lake. The study area includes not only the entire shoreline of the lake that might be affected by fluctuating water level but the areas within the watershed from which the shoreline is readily visible. The study area extends south to Vagt Lake.

4.2 Study Design

The Recreation and Visual Resources Study is composed of two components that will include a combination of office- and field-based efforts: Study Component #1, Recreation Use Study and Study Component #2, Visual Resources Study. A review of existing information will be conducted for both study components as an initial study task. The fieldwork for the study components will be combined whenever possible and will include the following activities to meet study objectives:

- Conduct a summer site visit by foot and boat to survey and document existing and planned trails and access points and other recreational use areas to determine potential effects of fluctuating lake level, creek flow, and Project construction and operation.
- Collect baseline noise information at key locations used or expected to possibly be used by recreation users.
- Conduct a winter site visit by foot, skiing, or snowmachine to document winter use areas to determine potential effects of Project operations.
- Consult with land management agencies and stakeholders regarding recreation and visual resources.
- Visit pre-selected sites for visual assessment by walking on existing and planned trails and other travel ways, such as the frozen lake surface, to view known scenic features, and take photographs and record locations with GPS at potential sites for renderings including an aerial view that would typify scenic overflights of the lake.

4.2.1 Study Component #1 – Recreation Use Study

The objective of the recreation study is to assess recreation use within the study area to evaluate potential Project impacts on recreational resources. Work includes the identification of data sources, a literature review, a preliminary assessment of levels and type of recreational use, and identification of potential agency personnel and others with whom to consult by phone or in person. This task was begun in late spring 2010. Follow-up will be required to determine if all pertinent existing information has been obtained and to confirm contacts within the agencies and community.

The study will include a review of management plans, studies, and data that have been developed by resource agencies or government bodies, including the USFS, State, KPB, and review of information collected in 2010 through site visits and discussions with stakeholders. The literature review will provide an understanding of other existing and proposed activities within the region as well as an understanding of the expectations of users and the public as described in the Chugach Forest Plan (USFS 2002).

The FERC Scoping Meetings in June 2010 and the Project study plan comment meeting held afterward provided an opportunity for consultation with agencies and the public. Stakeholders attending the meeting included local residents, local business owners, and summer and winter recreational users. Input was requested primarily at the time of FERC scoping. Follow-up after data collection is completed, in targeted meetings or telephone conversations, will be necessary.

Existing regional plans and studies and stakeholder interviews are meant to provide information about users of recreation resources, duration of use, and activities. Both winter and summer use will be analyzed. Review of the information collected in 2010 may indicate data gaps that need to be addressed in addition to completing the winter use survey.

A recreation features map for the study area was prepared prior to the June 2010 field visit using existing GIS layers, existing aerial photography, and available satellite imagery coupled with field data. The map was used to locate known recreation areas and access points. The map included information on private land ownership parcels within the study area. Trail location information is available for the Project vicinity from the USFS and the KPB. IKONOS satellite imagery is available for part of the Project vicinity, as well as several aerial photography sets from different years.

Foot and boat surveys provided direct information on the condition of trails and boat access points, and provided information about current use. Trail and boat access points in the Project vicinity that may be affected by water level fluctuation were photographed to illustrate potential change. Track lines and waypoints along study area trails were recorded by GPS (subsequently entered into the Project GIS database) and illustrative views photographed. A winter survey is planned to collect direct information on winter use and access in the Project vicinity and a follow up summer field visit will take place to verify existing information and any changes that may have occurred since the 2010 data was collected.Data locations will be recorded using GPS and photographs and entered into the GIS database for the Project. Also, baseline noise information will be documented during the site visits to ascertain existing background noise at key project area locations as a consideration in the possible impacts to recreation resources of project components.

Results of stakeholder interviews, meetings, and field investigations of study area recreation use, and the analysis of the attributes of the the project components will be used in conjunction with existing information on the study area to evaluate potential effects of the Project.

The study report will include a recreation resources map which will display land ownership with indication of state and federal recreational management intent; existing trails and routes (including water travel corridor), constructed and proposed INHT segments and any associated land rights for the trail, formal or informal camp sites and boat access points, and similar information regarding recreation features and patterns. The report will summarize management intent of agencies, information gathered from community and recreation users, describe use patterns indicated on the map, assess potential recreational impacts from expected project infrastructure, and outline potential methods of mitigation, as necessary.

4.2.2 Study Component #2 – Visual Resources Study

The objective of this study component is the analysis of Project effects on visual resources. Key viewpoints for evaluation will be determined by the updated Project design; by recreation site visits; by examining available GIS scenic, elevation, contour, and other pertinent layers; and through input from land management agencies and stakeholders. This will be coordinated with the interviews discussed as part of the recreation analysis and was accomplished in part during the meetings held at the time of FERC scoping for the Project in June 2010. Photos taken from these key viewpoints will serve for the existing and simulated scenery conditions for the assessment of changes that may be posed by the Project.

Visual simulations of the view from five viewpoints, showing Project facilities and operations, are currently planned. More views might be necessary if changes are made to Project design. The number of views will be commensurate with the scope and extent of the Project. Examples of key viewpoints may include a view of the Trail Lakes Narrows access road crossing area from the Seward Highway, a view of the intake structure and lake shoreline, a view of proposed facilities from the Seward Highway or Alaska Railroad, an aerial view, or a view of the access road or powerhouse from the from the right-of-way for the proposed INHT. Fieldwork will verify key viewpoints. Simulations will be based on Project photos taken from the site visit. Simulations will be based on similar facilities that have been constructed for similar projects. In addition to the views and simulations of Project facilities listed above there will be two aerial views of the Project vicinity, one to include Grant Lake and one Moose Pass.

The analysis of Project effects on visual resources will rely on evaluation criteria and processes described below. For the affected shoreline of Grant Lake that lies within USFS boundaries, existing scenery management information in the Chugach Forest Plan will be reviewed (USFS 2002). The scenery management analysis completed as part of that plan also will be reviewed. Specifically, the review will cover criteria for "landscape units," "scenic integrity," "concern levels," "scenic attractiveness," and "landscape visibility" (USFS 1995). An understanding of the scenic criteria will help determine the degree to which proposed Project facilities and operations (fluctuating lake levels) may affect those designations or conflict with USFS visual management objectives. The USFS documentation will be applied generally to state lands, to the extent applicable.

Evaluation of change to the existing character will include an examination of proposed Project components and operations with respect to the ability of the landscape to accept change. This evaluation is based on the "seen areas" and "distance zones" as determined by computer analysis, the "scenic integrity," and the magnitude of change to existing "scenic attractiveness." Within this will be an analysis of vegetation, soils, colors, texture, and other landscape attributes; an analysis of these components to accept change; a description of the potential effect of the change; and a description of the effect on stakeholders. This information will be weighed against the objectives that were delineated within the USFS, State, and KPB land management plans (USFS 2002, ADNR 2001, and KPB 2005), to the extent such objectives exist. Analysis will include an evaluation of potential protection, minimization, and mitigation options. Work will include the evaluation of seen areas from the specified viewpoints, analysis of the location of facilities and infrastructure, and the evaluation of design options to minimize visual impacts.

The study report will include a map of the visual environment, an aerial or satellite image or map simulating lake level fluctuation, and a visual resources assessment document. The map will show visual resource management objectives in different areas, any views identified as particularly valuable, and the key viewpoints. The report will present the information and analysis described above and will present before-and-after photographic images from the selected viewpoints, showing visual simulation of the Project components in the landscape. All data collected during the Recreation and Visual Resources studies should be linked into a Master Arc Soft (Arc Map) geo database.

5 Agency Resource Management Goals

Information collected as part of the proposed studies will be used to describe the existing environment, assess potential impacts, and provide essential information that will help to avoid or mitigate Project impacts on recreation and visual resources, consistent with relevant existing resource management goals. Management plans relevant to recreation and visual resources may include:

- ADNR. 2001. Kenai Area Plan.
- ADNR. 2009. Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2009-2014.
- KPB. 2005. Kenai Peninsula Borough Comprehensive Plan. KPB Planning Department.
- USDA Forest Service. 2002. Revised Land And Resource Management Plan for the Chugach National Forest.

6 Project Nexus

The proposed Project may have a number of potential impacts on recreation and visual resources within the Grant Creek and Grant Lake area. The studies described above are intended to provide information sufficient to assess potential impacts to existing recreation and visual resources. The impact assessments will be presented in the study report, and the selected contractor will use these data to inform the development of protection, mitigation, and enhancement measures to be proposed in the draft and final license applications.

7 Consistency with Generally Accepted Practices

Assessment of recreation potential in terms of the USFS ROS will be based on and generally follow USFS standards (e.g. Clark & Stankey 1979). Scenic Integrity Value assessment and scenery analysis will be based on and generally follow the Chugach Forest Plan (USFS 2002) goals and objectives and the Forest Service Landscape Aesthetics Handbook (USFS 1995), with potential also to draw on other standard visual assessment methods, such as those of the Federal Highway Administration or Bureau of Land Management and guidance from the ADNR.

8 Schedule for Conducting the Study

A general outline of the schedule for the visual and recreation studies follows:

- Fall/Winter 2012 review of information collected in 2010 and additional literature review if necessary.
- February 2013 Issue Final Study Plan to Work Group
- Winter/Spring 2013* winter use site visit.
- Winter/spring 2013 prepare all reports, maps and renderings.
- Spring 2013 plan site visit for selection of visual resource site points.
- Summer 2013 Finalize summer field site visit plans for both recreation and visual resources studies. Visit study area for recreation and visual point survey.
- Summer/Autumn 2013 Prepare simulations/reports

9 Provisions for Technical Review

Adequate time will be given for technical review of all recreation and visual resource study components in accordance with the Project schedule.

10 References

- Alaska Department of Natural Resources (ADNR). 2009. Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2009-2014. ADNR Division of Park and Outdoor Recreation. Juneau. 237 pp.
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