



Nuyakuk River Hydroelectric Project (FERC No. 14873)
Public Meeting #2
September 23, 2021
5:30 PM – 8:30 PM (Alaska Time)

Introductions and Meeting Overview

Mr. Cory Warnock (McMillen Jacobs Associates) welcomed all participants to the meeting and provided an overview of the meeting purpose and logistics. Mr. Bob Himschoot (Nushagak Cooperative) introduced himself as the General Manager and CEO of Nushagak Cooperative. He thanked the attendees and stated that the recent abeyance period has been a very productive time for the Project.

Mr. Will Chaney (Nushagak Cooperative) introduced himself as the Electric Operations Manager for the Project and provided the participants with the meeting intent and an overview of the topics to be discussed throughout the meeting. Mr. Chaney provided the participants with a summary of the Project need and purpose, and the Cooperative's reasons for pursuing the feasibility studies.

Mr. Kevin Jensen (McMillen Jacobs Associates) is the lead Civil Engineer for the Project but was not able to attend this meeting.

Mr. Charles Sauvageau (McMillen Jacobs Associates) stated that he is the technical lead for water resources studies during the meeting and also serves as the Study Program Coordinator for the Project.

Dr. Dudley Reiser (Kleinschmidt Associates) stated that his role is a technical lead for instream flow and fish passage studies.

Dr. MaryLouise Keefe (Kleinschmidt Associates) stated that her role is a technical lead for fisheries studies.

Mr. Bryan Nass ((Bristol Bay Science and Research Institute) (BBSRI)) introduced himself as a Fisheries Ecologist for BBSRI and has been working on plans for Project fisheries studies.

Mr. Cory Warnock provided participants with a summary of past Project milestones, including an initial feasibility assessment, acquisition of a Federal Energy Regulatory Commission (FERC) Preliminary Permit, the Alaska State Senate approval of Senate Bill 91, the filing of an (Notice of Intent/Pre-Application Document) NOI/PAD with FERC, followed by the initial FERC scoping process.

Mr. Cory Warnock described the progress made during the past 16 months during the FERC abeyance. During that time, the ARWG was formed and numerous ARWG meetings have occurred. Based on the collaboration of the ARWG, the Cooperative and technical experts have revised and refined the Proposed Study Plan (PSP).

Conceptual Layout Overview

Mr. Cory Warnock (McMillen Jacobs Associates) provided an overview of the Project design layout. At this point, the Project design consists of a 750-ft long tunnel, powerhouse, 2 Kaplan-style turbines, an open tailrace channel (approx. 450 ft), and transmission lines extending to outlying villages and Dillingham. Maximum generation is estimated at approximately 10-12 megawatts. The average annual energy would be approximately 55,000 – 70,000 megawatt-hours annually. The Project will be run-of-river, with inflow managed with outflow. Generation will be maximized during high flow months, which coincides with primary fish processing demand in the region. The Project will be managed so that reliance on diesel is eliminated for a majority of the year. Mr. Warnock stated that having a USGS gage just upriver from the Project location has been immensely helpful in initial Project design. He displayed a map of the initial Project layout and described the facilities shown. Mr. Warnock mentioned that the length of the bypassed area of the Nuyakuk River (Nuyakuk Falls) is only approximately 0.5 miles and doesn't contain high-quality fish spawning and rearing habitat. Fish passage through this area is the primary focus rather than spawning and rearing habitat. Mr. Warnock also spoke about the geotechnical study needs and that tunnelling is the preferred option rather than above-ground installation. Mr. Warnock shared a video flyover of the Project area that was taken on May 8, 2020 when river flows were 4,800 cubic feet per second (cfs).

Mr. Pat Vermillion (Royal Coachmen Lodge) asked if the ARWG meetings were recorded and if so, if he would be able to obtain the recordings. Mr. Cory Warnock stated that written meeting minutes have been prepared for all ARWG meetings and that Ms. Laura Johnson would provide the minutes to Mr. Vermillion.

Ms. Lindsay Layland (United Tribes of Bristol Bay (UTBB)) asked if the ARWG meetings were open to the public. Mr. Cory Warnock described the composition of the ARWG technical subcommittee compared to the larger ARWG. Mr. Warnock offered that if people were interested in joining to listen, that would be fine.

Ms. Lindsay Layland stated that Senate Bill 91 stipulated a limit of 30% of river flow withdrawal for Project purposes and asked if the Cooperative intends to study higher withdrawals such as 40% or greater. Mr. Cory Warnock responded that the Cooperative would study a wide range of flows during the modeling studies to have the information. Dr. Dudley Reiser spoke in greater detail regarding the modeling studies and that a variety of flows and scenarios would be evaluated. Mr. Warnock further discussed the nature of instream flow reservations and the regulatory mechanisms that dictate instream flow.

Robert Heyano stated that his understanding was that under Senate Bill 91, only 30% of river flow withdrawal was allowed, the Nuyakuk River could not be dammed, and that there was a time limit of 5 years for the study program. Mr. Robert Himschoot confirmed that the three

provisions Mr. Heyano described are correct, and that the Cooperative intends to perform complete scientific studies of the proposed Project to assess feasibility.

Mr. Pat Vermillion asked what the power production would be at 30% withdrawal at the current river flow (4,700 cfs), which would be 1,350 cfs for use in power production. Mr. Cory Warnock responded that the Project study program will determine Project feasibility at various flow levels.

Mr. Cory Warnock spoke further about the unique Project considerations, including the small Project footprint, extensive transmission linkages, the potential to eliminate diesel generation in the region, and the challenges associated with working on Nuyakuk Falls.

Mr. Will Chaney described a video taken on July 12, 2021, which shows fish moving and jumping in Nuyakuk Falls during a relatively high flow time (close to 12,000 cfs). At the time of the video, Mr. Chaney witnessed high numbers of fish attempting to pass through Nuyakuk Falls, with many falling back down due to the high flows.

Mr. Pat Vermillion asked if the fish shown were sockeye, and Mr. Will Chaney confirmed that they were sockeye based on some underwater videos he took on the same date.

Nuyakuk Project Proposed Study Program

Mr. Cory Warnock described key developments during the past year, including COVID-related issues, the FERC abeyance, continued refinement of the conceptual Project design, collection of baseline data, and the formation of the Aquatics Resources Working Group (ARWG). He stated that green Light Detection and Ranging (LiDAR) data was collected for the study area in July 2020. The baseline dataset allows for analysis that will be instrumental in completing various aquatic and fisheries studies. Seasonal aerial photo and video collection was also conducted during this time.

Ms. Molly Welker asked when the LiDAR data was collected and whether it would change if it was surveyed during a different season or flow periods. Mr. Cory Warnock responded that the topographic component of the LiDAR data would not change if conducted again, but that some areas of the bathymetric survey area that are obscured during particular flow periods may be more visible at other times. Mr. Warnock added that the LiDAR data was collected on May 14, 2020.

Mr. Cory Warnock described the formation and activities of the ARWG, including extensive technical consultation and a series of meetings that have occurred since October 2020. The ARWG will continue to exist throughout the licensing process and into license implantation and compliance.

Mr. Cory Warnock described the process that has occurred to revise the Proposed Study Plan (PSP) in close collaboration with the technical experts of the ARWG. The study program will provide the data to allow for the analysis necessary to determine if the Project is feasible from a natural resource and financial perspective. Mr. Warnock stated that the PSP would be distributed to the entire Project stakeholder list and introduced the list of all studies contained in the PSP.

Aquatics/Fisheries Resources:

Mr. Bryan Nass stated that structural and operational features of the proposed Project have a direct connection (or nexus) to the fish and aquatic resources of the Nuyakuk River. He provided an overview of the fisheries and aquatic resources studies that have been developed to assess potential impacts and risk to fish populations.

Dr. MaryLouise Keefe described the Fish Community study, which will be conducted to understand what fish species use habitat in the Project area, and how they're behaving when they pass through the Project area.

Mr. Pat Vermillion stated that there's a significant spawning creek about 0.5 miles upstream of the Project site and that since nearly all of the water from that creek would be drawn into the Project tunnels. Dr. MaryLou Keefe thanked Mr. Vermillion and stated that she was not previously aware of this creek and that this location would be a good place to set up a fish trap. Dr. Dudley Reiser stated that Mr. Vermillion's knowledge would be useful in identifying pathways for fish through the Falls. Mr. Vermillion stated that he'd been fishing Nuyakuk Falls for 30 years and has extensive site-specific knowledge. Mr. Cory Warnock stated that he appreciated Mr. Vermillion's input and welcomes his collaboration.

Dr. Dudley Reiser provided an overview of the Fish Passage Assessment and how 2D modeling would be used to evaluate the likelihood of fish migration through corridors/pathways through Nuyakuk Falls based on fish leaping and jumping criteria.

Dr. MaryLouise Keefe spoke about the Fish Impingement and Entrainment Studies, which is designed to evaluate what the potential is for the Project to entrain fish in the vicinity of the intake.

Dr. MaryLouise Keefe described the Assessment of False Attraction at the Tailrace Fish Barrier study. This study will be a desktop study that will evaluate the potential of the Project tailrace design to attract fish in the Project vicinity into the tailrace. Tailrace design will be refined based on the study results.

Mr. Pat Vermillion stated that it's difficult to find a similar hydroelectric project to this one due to the size of the sockeye run and smolt migration. Mr. Cory Warnock responded that he agrees that the site is unique. He added that there are components of this Project that can be compared to other sites, but the entire Project as a whole is unique.

Mr. Bryan Nass described the development of a Life Cycle Model (LCM) for Chinook and sockeye salmon. The LCM is a mathematical model based on study results, data from the Bristol Bay region, and scientific literature. The LCM allows quantification of the likelihood and magnitude of impact to a fish population by the Project or climate change. The LCM allows for answering questions about impacts to fisheries resources based on specific scenarios.

Mr. Bryan Nass spoke about the Integrated Risk Analysis (IRA). The IRA will allow classification of information obtained about fisheries resources to make decisions regarding allowable levels of risk and impacts to fish populations.

Mr. Pat Vermillion asked if the LCM study would include the large number of pink salmon that migrate through Nuyakuk Falls or just the Chinook and sockeye salmon. Mr. Bryan Nass responded that this was a good question but at this time the LCM is only planned for Chinook and sockeye. Mr. Nass stated that the LCM requires a large amount of quantitative data and that the required information will be available for Chinook and sockeye, but not for pink salmon. Mr. Nass added that by making Chinook and sockeye LCMs, the results can be used as the basis for estimating the risks to other fish populations as well.

Mr. Charles Sauvageau gave a brief overview of the Future Flows study that was developed in collaboration with NMFS. The study will use the best peer-reviewed climate models to predict future flow conditions.

Mr. Dan Dunaway (retired, ADFG/Sportfisher) stated that he has several concerns: (1) gas entrainment in the operations of the turbines, (2) the groin structure and how it might affect out-migrating smolts and whether it might push them out into faster water, and (3) that pink salmon were prized at one time and thus might warrant more in-depth study. Mr. Cory Warnock stated that he would consult further with Project engineers regarding gas entrainment, but that he thought some of the past issues with gas entrainment in hydroelectric turbines have been rectified. Mr. Warnock stated that with respect to the groin structure, he would hesitate to classify it as a barrier, since it would not extent the entire depth of the water column. Mr. Warnock requested that Mr. Dunaway submit his comments in writing following PSP distribution.

Water Resources:

Mr. Charles Sauvageau described the Water Quality Study, which will evaluate dissolved oxygen and water temperatures in the Project vicinity and potential impacts to these water quality parameters as a result of the Project.

The Flow Duration Curve Assessment, as described by Mr. Charles Sauvageau, will be a desktop study that examines the stationarity of the flow duration curve for the Nuyakuk River using analytical methods. If the dataset exhibits non-stationarity, the seasonal flow pattern changes during the last 20 years will be evaluated. The study methods include the use of a standard U.S. Army Corps of Engineers change analysis tool.

Mr. Charles Sauvageau also described the Ice Processes Assessment that is proposed for the Project, which will be a desktop study that helps to provide an understanding of ice formation processes and the potential for localized modifications based on Project operations.

Terrestrial Resources:

Mr. Cory Warnock described the terrestrial resources studies proposed for the Project, including Wetland/Botanical Surveys and Caribou Population Assessment. These studies will cover the entire Project area, including potential transmission line corridors.

Mr. Pat Vermillion asked if there will be a bird study as this [Nuyakuk Falls vicinity] is a prime bird feeding location. He stated that hundreds of birds can be seen feeding at this site, especially during high flows. Mr. Cory Warnock responded that the Cooperative has thought about

conducting bird studies, either in relation to predation at the Falls or to terrestrial studies. Mr. Warnock stated that Mr. Vermillion should submit any comments that he has about potential bird studies in written PSP comments.

Cultural Resources:

Mr. Cory Warnock presented overviews of the Section 106 Evaluation and Subsistence Studies that have been proposed for the Project, which are designed to conduct thorough evaluations of historic and cultural resources, and subsistence use of the Project vicinity.

Recreation Resources:

Mr. Cory Warnock presented overviews of the Noise Study and the Recreation Inventory by Season that have been proposed for the Project. These studies will assess any impacts due to noise during construction or operation of the Project, and any impacts to Project-vicinity recreation.

Mr. Pat Vermillion stated that the site is one of the most beautiful places he's ever seen, and he's not sure how that aspect of the natural location is captured in the study program. Mr. Cory Warnock agreed about the beauty and uniqueness of the site. Mr. Will Chaney further echoed Mr. Vermillion's sentiments.

Next Steps Discussion

Mr. Cory Warnock presented several items that are planned for work in 2021, including filing a revised PSP for formal review and comment, which would thus re-start the FERC Integrated Licensing Process (ILP). Prior to that time, the PSP will be distributed for an informal review period in order to provide stakeholders with an additional review period. Following the PSP filing with FERC, a review and comment period will occur and the Cooperative will respond to comments. The Cooperative will prepare a Revised Study Plan (RSP), and FERC will then issue a Study Plan Determination (SPD).

In 2021, the Cooperative plans to install the site-specific stream gage, complete the construction of temporary housing, conduct geotechnical analysis, and initiate the study permitting process for 2022 and 2023.

Mr. Cory Warnock discussed key milestones and next steps that are planned for 2022-2023, which includes comprehensive study seasons in 2022 and 2023. Following each study season, study reporting and study reporting meetings will occur. Between 2022 and 2024, further geotechnical analysis will be conducted, Project design will be refined, and licensing documents will be prepared.

Ms. Ali Eskelin (ADNR) provided a comment in the meeting chat window stating "I know I have mentioned this before but I thought it may be good to have it on the record with Julia Kolberg with FERC in attendance- to get a read on the timeline for [abeyance] and to as to the necessity of reinitiating the ILP process. I'm going to paraphrase my interpretation of what I've heard from Daniel Schindler in some of the ARWG meetings, that the fisheries studies should be done free of the FERC ILP timeline. Has there been any discussion on completing some of the

fisheries studies during a lengthened [abeyance]? Or is there any potential for that going forward? Maybe Julia or Will can address?” Mr. Cory Warnock responded that one of the fundamental purposes of the ARWG was to reach agreement on the aquatics and fisheries studies and methods so that the licensing process could re-initiate. The Cooperative does not want to rush the Project or studies, but there are timelines associated with the Preliminary Permit and State Park access that the Cooperative needs to consider.

Ms. Julia Kolberg (FERC) stated that while a Project is in abeyance, FERC is not guiding the licensing process. If an applicant were to start study prior to the issuance of a FERC Study Plan Determination, it would represent a risk to the applicant in that the study may not meet FERC study standards.

Mr. Robert Himschoot and Mr. Will Chaney both spoke regarding the Cooperative’s intent to collaborate with the community through the process, and they expressed the need for the community to find an environmentally responsible, non-diesel based method to generate electricity. Mr. Himschoot summarized the Fish First Resolution that the Cooperative operates under which states that they will not prioritize development of any projects if they are deemed detrimental to the region’s aquatic and fisheries resources.

Ms. Laura Johnson (McMillen Jacobs Associates) stated that the Project contact list would be provided with the PSP on Friday, September 24 and a 3-week informal comment period would follow the distribution. The Cooperative would like to receive comments back no later than October 15, 2021.

Mr. Cory Warnock asked if anyone had final questions.

Mr. Dan Dunaway stated that he thought the presentation was very informative and well-done. He added that he’s always been interested in the Project and would like to see if it will be feasible for development. Mr. Cory Warnock thanked Mr. Dunaway for his statement of support.

The meeting adjourned at approximately 8:00 pm Alaska time.