



**Nuyakuk River Hydroelectric Project (FERC No. 14873)
Initial Study Report Meeting Summary**

**December 5, 2023
6:00 PM – 9:00 PM (AK Time)
Hosted in-person in Nushagak Cooperative’s
Boardroom and Virtually via Microsoft Teams**

Table 1. Initial Study Report Meeting Agenda.

| TIME | TOPIC |
|-------------|---|
| 6:00 – 6:10 | Introduction of Meeting Participants, Logistics, Meeting Intent, etc. |
| 6:10 – 6:30 | Reminder of Current Project Status, Setting the Stage Open Discussion |
| 6:30 – 8:30 | 2023 Nuyakuk Project Feasibility Studies Presentation |
| 8:30 – 9:00 | Global Questions, Next Steps, Opportunity to Comment, Wrap-up |
| 9:00 | Adjourn |

Initial Study Report Meeting Summary Attachments

- Attachment A [ISR Meeting Participant Lists \(Sign-in Sheet and Virtual Attendees\)](#)
- Attachment B: [Initial Study Report Meeting Presentation](#)
- Attachment C: [Federal Energy Regulatory Commission Presentation](#)

Welcome, Introductions, Meeting Logistics, and Meeting Intent

At 6:00pm Alaska Time, Mr. Cory Warnock (McMillen) welcomed the meeting participants to the Nuyakuk River Hydroelectric Project (Project) to the evening Initial Study Report (ISR) Meeting.

Participant Introductions

The Project team members in attendance at the meeting are listed in Table 2. ISR Meeting attendees are listed in Attachment A.

Table 2. Nuyakuk River Hydroelectric Project Team Members in Attendance.

| Name | Agency/Organization | Attendance Type |
|-----------------------|---|------------------------|
| Will Chaney | Nushagak Electric & Telephone Cooperative (Cooperative) | In-person |
| Cory Warnock | McMillen, Inc. (McMillen) | In-person |
| Laura Johnson | McMillen | In-person |
| Chuck Sauvageau | McMillen | In-person |
| Dr. Mary Louise Keefe | Kleinschmidt Associates | In-person |
| Dr. Kevin Nebiolo | Kleinschmidt Associates | In-person |
| Audrey Thompson | Kleinschmidt Associates | In-person |
| Sean Ellenson | McMillen | Virtual |
| Noble Hendrix | QEDA Consulting | Virtual |
| Dave Jones | SLR Consulting | Virtual |
| Taryn Oleson-Yelle | R&M Alaska | Virtual |
| Maria Lewis | MLP&A | Virtual |
| Lindsey Kendall | MLP&A | Virtual |
| Cam Wobus | CK Blueshift | Virtual |
| Mike Yarborough | CRC Alaska | Virtual |

Meeting Logistics and Meeting Intent

The presentation shown during the meeting is provided in Attachment B.

Mr. Matt Cutlip (Federal Energy Regulatory Commission; FERC) spoke to the participants regarding the purpose of the ISR meeting and next steps following the ISR meeting. Mr. Cutlip introduced himself as a fish biologist and Project Coordinator for FERC. He stated that the ISR is an interim report that summarizes data collection to date and should also discuss any variances from the study plan. Mr. Cutlip discussed the comment period and purpose of commenting, including modifications to the study program or requests for new studies. Per the approved process plan that issued by FERC last year, the Cooperative is required to file a meeting summary by December 31, 2023. Comments on the meeting summary, requested modifications to existing studies, or requests for new studies are due to FERC no later than January 30, 2024. Mr. Cutlip stated that the Cooperative is not required to re-file the ISR with edits or clarifications. FERC will only be responding to requests for new studies or study modifications. Mr. Cutlip provided

supplemental documentation following the meeting to the Cooperative, which is provided in Attachment C.

A meeting attendee asked what or who is FERC. Mr. Matt Cutlip (FERC) responded that FERC is the Federal Energy Regulatory Commission, which is the federal agency tasked with regulating all non-federal hydropower projects, including the Cooperative's proposed Project. Mr. Cory Warnock (McMillen) added that FERC will be the lead agency for evaluating the Project's license application, if one is prepared and filed following feasibility studies.

Sarah O'Neal (Trout Unlimited) requested the study criteria from FERC. Mr. Matt Cutlip (FERC) stated that he will provide slides with the information. The Cooperative will email them to the Project contact list and post them to the website. The slides are also provided in Attachment C.

Mr. Cory Warnock (McMillen) provided guidance regarding the flow of the meeting, including the time designated for asking questions following the conclusion of the presentations on each of the natural resource study areas portion of the presentation. Mr. Warnock also documented the Cooperative's approach to presenting the plans for continuing the study program in 2024 and the formation of several Technical Working Groups later in the meeting.

Mr. Will Chaney (Nushagak Cooperative) welcomed the meeting participants. Mr. Chaney gave a brief overview of the Project and Project location, highlighting the fact that the Project design, which is a river diversion that does not include a dam. Mr. Chaney displayed a map of the proposed Project area and conceptual location of the transmission line, including the proximity of Dillingham and the four outlying villages (Koliganek, Ekwok, Levelock, and Stuyahok) that would receive electricity from the proposed Project. No roads are proposed as part of Project development. The Project site has been accessed by float plane, helicopter, and boat to date. The highest annual flows of the Nuyakuk River coincide with the peak of the generation needs for fish processing. Mr. Chaney discussed the need for the proposed Project, with respect to almost completely eliminating the need for fossil fuel. Mr. Chaney summarized other projects that have been evaluated by the Cooperative to date, and the reason why those projects were not pursued further. Thus far, the Nuyakuk Project has appeared more feasible for development and as a result, the Cooperative is continuing to advance the assessment of the proposed Project.

Mr. Will Chaney (Nushagak Cooperative) gave a description of the proposed Project site and Project facilities, including the limited footprint and short bypass reach. No dam is proposed as part of the Project, and instead natural flows will be utilized for generation. A groin, if needed, would be constructed out of rock from the Project site and would be used to control the water level near the intake when river flows are low.

Mr. Cory Warnock (McMillen) provided a summary of the Project efforts completed in 2023, including continued collaboration and meeting of the Aquatic Resources Working Group (ARWG), geotechnical investigation, establishment of the study camp at the Project site, permits acquired, development of several models including the Life Cycle Model and economic models and the completion of the 2023 portion of the study program. The 2023 study season had no safety incidents.

Mr. Will Chaney (Nushagak Cooperative) provided an overview of the Project goals, with respect to evaluating proposed Project feasibility and collaboration with the Bristol Bay community, Tribal

entities, and individuals. The Cooperative is using the best possible science and regional experts to assess the feasibility of the proposed Project. If deemed feasible, licensed and ultimately constructed, the Project would provide a long-term, renewable power source for region, provide lower electricity rates over time, significantly reduce or eliminate the reliance on fossil fuels for electricity generation, and create short- and long-term employment opportunities in the region. A series of Sustainable Energy Meetings are planned in Dillingham and the outlying villages beginning next week and the Cooperative will be participating in those forums to continue the discussion regarding the proposed Project and anticipated benefits.

Ms. Sarah O'Neal (Trout Unlimited) asked how long it would take to get transmission lines to the villages once the Project is underway. Mr. Will Chaney (Nushagak Cooperative) stated that the transmission lines would be installed in a linear manner, not in phases, but the timeline for installation is uncertain.

Ms. Sarah O'Neal (Trout Unlimited) asked if the Project will reduce diesel transport at all, given the need for 100% redundancy in generation. Mr. Will Chaney (Nushagak Cooperative) replied that the hydropower project would displace the need for diesel (transport less, store less). Likewise, the outlying villages would require less diesel fuel storage. Ms. O'Neal replied that that would be a huge benefit and thanked Mr. Chaney for his answer.

Ms. Kay Andrews (Aleknagik) asked how many meetings have been held in each of the communities and stated that each of the Project meetings should be held in each of the communities. Mr. Will Chaney (Nushagak Cooperative) stated that upcoming meetings are scheduled in Aleknagik and thanked Ms. Andrews for her comment.

Natural Resource Study Program and 2023 Study Results

Mr. Cory Warnock (McMillen) displayed a list of the studies being conducted as part of the Project's natural resource study program, per the Revised Study Plan (RSP). Study leads then presented information about the studies conducted and preliminary results, as currently available.

Fish and Aquatic Resource Studies

Ms. Audrey Thompson (Kleinschmidt Associates) provided an overview of the Fish Community and Behavior Near the Project Area study results. The study utilized water surface elevation monitoring, United States Geologic Service (USGS) and Project site gage data, radio telemetry, sockeye tagging, Sonar, predator tagging, and fish community sampling. Ms. Thompson described the radio telemetry array that was established at the Project site and the zones that were evaluated using the array. The preliminary results include evaluation of the telemetry detection success. Thus far, results indicate that 96% Sockeye salmon tagged below Nuyakuk Falls were detected passing through the Falls and exiting the study area. The next component of the Fish Community study will include development of the 2-Dimensional (2D) hydraulic model. The 2D model will include field data, the stage-discharge relationship, and water surface elevation. A rating curve will be developed, and the 2D model will incorporate (Light Detection and Ranging) LiDAR data collected at the proposed Project site. Ms. Thompson displayed a preliminary 2D model output of the river flow at high flow (18,000 cfs) and low flow (7,500 cfs).

Dr. Kevin Nebiolo (Kleinschmidt Associates) described the Agent-Based Model (ABM) that's been developed and is being refined for the Project. Each agent represents an individual fish and simulates fish behavior. The ABM will assist with understanding sockeye salmon passage through Nuyakuk Falls. The proof-of-concept of the ABM is complete and is currently undergoing refactoring to support vectorized operation. Validation of the model using site-specific telemetry data and expert opinion is planned for quarter 1 of 2024. Dr. Nebiolo provided initial results from the ABM, including imagery of passage routes, plots of agent movements, and agent (fish) lengths that were used in the model. Dr. Nebiolo displayed model output in the form of a video of agent movement through the Falls.

Dr. Kevin Nebiolo (Kleinschmidt Associates) provided an overview of the Fish Entrainment and Impingement Study, which will be conducted in 2024 and will utilize results from Year 1 of the Fish Community and Fish Passage studies. Dr. Nebiolo also presented an overview of Tailrace False Attraction Study, which will also be conducted in 2024 and will utilize Year 1 of the Fish Community and Fish Passage studies.

Dr. Noble Hendrix (QEDA Consulting) introduced himself and described the Chinook and Sockeye Life Cycle Model (LCM) that is currently being developed for the proposed Project. The purpose of the LCM is to provide a method for assessing proposed Project effects on different life cycles of Chinook and Sockeye salmon over multiple generations. Additionally, the LCM will allow for evaluation of proposed Project effects under different climate change and/or operational scenarios. The LCM relies on both local, site-specific data as well as long-term datasets from other regional systems. An initial "straw man" LCM has been developed and will be refined during 2024. Data from other sources/river system is being reviewed for potential inclusion in the LCM. Site-specific data collected in 2023 and 2024 will be utilized in the LCM. The next steps for the LCM include further data collection and acquiring existing datasets, data analysis, integration of other Project models (climate and water flow scenarios) and continued calibration of the model.

Dr. Kevin Nebiolo presented the Integrated Risk Assessment (IRA) of Fish Populations. The IRA is proposed to evaluate potential Project impacts to fisheries resources at the fish population/community level. A strawman list of management objectives, risk sources, their elements, and receptors (species at risk) has been developed. A risk calculation spreadsheet for a single receptor with example risk matrix was displayed. A workshop is being hosted by the Cooperative on December 6th, 2023 to further develop the management objectives and risk sources.

Fish and Aquatic Resource Studies Questions and Discussion

Ms. Audrey Thompson (Kleinschmidt Associates) stated that smolt outmigration data collection was collected from mid-May through mid-July. Currently, the fisheries team is working to evaluate the spatial and temporal distribution of outmigrating smolts.

Mr. Robert Heyano (Native Village of Ekuk) asked if the smolt assessment is being done by species. Ms. Audrey Thompson (Kleinschmidt Associate) stated that it's very difficult to discern the species in the smolt data. The Project team is working on data collection methods for 2024 to gather corroborating data that will provide more information about which species are moving through the Project area at different times. Mr. Heyano stated that he thought it was important to understand king salmon outmigration. Mr. Bryan Nass (Bristol Bay Science and Research Institute (BBSRI)) confirmed that Mr. Heyano was interested in data for all 5 species. Mr. Nass responded that during study planning, Sockeye and Chinook were identified as being the most important to

people. Dr. MaryLouise Keefe (Kleinschmidt Associates) stated that during study planning, these species were chosen for LCM evaluation. The other species will require more of a qualitative assessment via the IRA.

Mr. Tim Sands (ADF&G) emphasized the importance of looking at fish with different life histories. Ms. Audrey Thompson responded that the sonar system captures the collective group of outmigrating smolts, even though the individual species can't be differentiated, so all species are represented. Dr. MaryLouise Keefe (Kleinschmidt Associates) added that the sonar system was supposed to be installed earlier in the season, but winter conditions continued late in the season which affected fish sampling and sonar system installation. Ms. Ali Eskelin (ADNR) asked if sonar transducers could be maintained later in the season to document a longer period of the outmigration as Dr. Daniel Schindler (University of Washington) suggested in the afternoon ISR Meeting. Ms. Audrey Thompson (Kleinschmidt Associates) responded that once the sonar system is installed, it doesn't take a lot of effort to maintain it. The other consideration is how to select and analyze data, because of the dataset size generated. Ms. Mary Kate Swenarton (United States Fish and Wildlife Service (USFWS)) asked whether more data from 2023 would be released in order to inform study plan modifications. Mr. Cory Warnock (McMillen) added that the Cooperative is willing to conduct additional meetings to update the public as needed.

Ms. Leah Ellis (ADF&G) asked if the data sources used in the Updated Study Report (USR) will be provided. Dr. Kevin Nebiolo (Kleinschmidt Associates) responded that the data sources and inputs would be listed and described in the USR.

Mr. Robert Heyano (Native Village of Ekuk) asked if different flow conditions would be evaluated. Dr. MaryLouise Keefe (Kleinschmidt Associates) described how the 2D model will be used to assess different flow conditions.

Mr. Bryan Nass (BBSRI) added that the stretch of the river (the Falls) is one of the most productive stretches of the river in terms of primary production (algae), secondary production (invertebrates), tertiary production (fish). Thus, the Falls reach has high value to the overall system.

Sarah O'Neal (Trout Unlimited) asked if based on Mr. Nass's comment, some more expansive food web studies might be warranted. Mr. Bryan Nass (BBSRI) responded that food web studies are not included in the study plan, but if the Project team finds results that are concerning, some of these elements may be added to the investigation.

Mr. Monty Rogers (UTBB) asked about the plan to include indigenous knowledge in the study program. Mr. Cory Warnock (McMillen) stated that the Aquatic Resources Working Group (ARWG) included representatives from Tribal entities, and the intent is that these representatives provide indigenous knowledge for use in the studies.

[Water Resources Studies](#)

Mr. Chuck Sauvageau (McMillen) described the Water Quality study, which evaluated dissolved oxygen (DO) and water temperature in the Nuyakuk River. Mr. Sauvageau described the dissolved oxygen and water temperature data collection methods and results, compared to Alaska Department of Environmental Conservation (ADEC) water quality criteria. The Cooperative collected water temperature data from 2018-2021, and again from June 1-September 30, 2022. DO

met ADEC criteria during the monitoring period. Overall, DO concentrations upstream and downstream of the Falls were similar overall with more fluctuation seen upstream of the falls. Water temperature was nearly always below 20 degrees C, with the exception of one exceedance in 2019 between July 5-11. In 2024, at ADF&G's request, DO monitoring will occur for 3-5 days during the period when large schools of adult sockeye salmon are staging at the base of Nuyakuk Falls.

Mr. Chuck Sauvageau (McMillen) described the Flow Duration Curve Assessment. A Project-specific gage was installed and will be used to more accurately define flow volumes used to generate flow duration curves at the Project site. The Project site gage at Nuyakuk Falls provides an excellent correlation with the USGS gage located at the outlet of Tikchik Lake into Nuyakuk River, 4.6 miles upstream of the Project site. The gage was installed when the Nuyakuk River was flowing at approximately 20,000 cfs, which resulted in a lack of data collection at low flows/water levels during the winter. However, USGS gage data at the lake outlet is available during this time. A follow-up effort was made toward the end of the field season to retrofit the gage by lowering the stilling well to enable data collection at lower flows and water levels. The non-stationarity detection tool developed by the U.S. Army Corps of Engineers will be used in 2024 to determine which time periods are most appropriate for developing flow duration curves for the Project-site.

Mr. Cam Wobus (CK Blueshift) provided an overview of the Future Flows Study. The Future Flows Study utilized a Global Change Model (GCM), made as site-specific as possible. Mr. Wobus presented a summary of MikeShe/Mike Hydro software package results. The model produces a flexible, integrated water-groundwater model with a choice of spatial and temporal scales and simple to complex solutions. The climate change model produced results showing decreased winter snowpack because more precipitation is projected to fall as rain, which leads to increased winter flows and decreased summer runoff by 2040, with more potential change by late century, depending on emissions scenarios.

Mr. Chuck Sauvageau (McMillen) presented an overview of the Ice Processes Assessment that is being conducted for the Project at the National Marine Fisheries Service's (NMFS's) request. The initial assessment includes a review of available imagery provided by NMFS, information gathering from a nearby hydroelectric project (Tazimina Falls) that has ice mitigation strategies, and collection of site-specific imagery near the proposed Project intake to assess frazil ice formation and ice breakup conditions at the Project site. The cameras failed to collect site-specific ice imagery during the winter of 2022/2023, likely due to harsh winter conditions at the Project site or a programming error. Additional, more weather-resistant cameras are now in place to capture ice conditions during the winter of 2023/2024. The Cooperative has had preliminary meetings with George Hornberger, the General Manager of the Iliamna Newhalen Nondalton Electric Cooperative (INNEC), which owns and operates the Tazimina Falls Project that has been in service since 1998. Mr. Sauvageau showed some photographs of the Tazimina Falls Project, which include heated intake grates to minimize shutdowns from river icing. Mr. Will Chaney (Nushagak Cooperative) provided a summary of his conversations with Mr. Hornberger regarding the operations of Tazimina, where they have greatly reduced their diesel generation needs because they can produce electricity during periods of river icing due to the heated intake grates.

[Water Resources Studies Questions and Discussion](#)

Mr. Robert Heyano (Native Village of Ekuk) asked if ADF&G has a water right on the Nuyakuk River. Ms. Leah Ellis (ADF&G) stated that the ADF&G flow reservation varies by month and can be negotiated as necessary for projects. Mr. Heyano asked if the ADF&G water right is more than the 30% flow reservation listed in Senate Bill 91. The Project team responded that additional information regarding the specific flow reservation amounts can be provided as a follow-up.

Dr. Daniel Schindler (University of Washington) commented that in 50 years, peak river flows may be lowest at the time of peak power demand, and what percentage of river flow would need to be diverted for generation. Mr. Cory Warnock (McMillen) responded that a primary reason that the climate change model was front-loaded in the study program in 2023 is so that it could be used in the other studies and Project design. Mr. Will Chaney (Nushagak Cooperative) added that in 50 years, additional renewable generation options may be available to the Cooperative to meet energy needs, such as solar energy.

Terrestrial Resources Studies

Ms. Maria Lewis (MLP&A) presented the Wetlands and Botanical Study that was conducted for the Project. Ms. Lewis described the area studied and the data collected. The wetland delineation resulted in approximately 5 acres of wetlands within the nearly 90-acre study area. No non-native or invasive species were identified. One rare plant (*Primula spp.*) was potentially located in the Project study area, but the species identification was not certain and will be confirmed in 2024.

Ms. Lindsey Kendall (MLP&A) described the Caribou Population Evaluation that was conducted in 2023 to evaluate potential impacts to the Mulchatna Caribou Herd (MCH) in the proposed Project area. The study included a desktop literature review and analysis of survey & inventory (S&I) data collected by ADF&G. The study found that the Project may result in a small loss of habitat area, but it does not overlap current calving areas. A Terrestrial Resources Technical Working Group is being formed, and additional discussion regarding potential impacts to MCH will occur within that Technical Working Group.

Terrestrial Resources Studies Questions and Discussion

A meeting attendee stated that the caribou maps were informative and inquired as to whether there will be similar maps produced for moose. Mr. Cory Warnock (McMillen) stated that the comment is appreciated and requested that the meeting attendee please file the comment with FERC.

Cultural Resources Studies

Mr. Will Chaney (Nushagak Cooperative) provided an update regarding the implementation of the Subsistence Study. The Cooperative will utilize existing ADF&G data to assess current subsistence use and document potential impacts associated with the Project. The Cooperative has begun initial planning for the Subsistence Study including identifying the appropriate specialists to conduct the study, and the bulk of the study will be conducted in 2024.

Mr. Mike Yarborough (CRC Alaska) provided an overview of the Section 106 Evaluation that was conducted in 2023. A field investigation was conducted in a 90-acre study area similar to the study area used by the Wetlands and Botanical Study. The survey and shovel testing identified several cultural resources, including the Nuyakuk portage trail, a pre-contact archaeological site, and two

possible cache pits The Project as currently proposed would likely not adversely affect either of the two potentially significant sites. Recent radiocarbon dating results of the artifacts at the Portage Trail site showed that the site likely dates back 3477 years. Mr. Yarborough stated that it's unlikely that any further field work needs to be conducted, but a significant amount of consultation will occur in 2024. A set of letters initiating cultural resources consultation was distributed in 2023 but limited response.

Cultural Resources Studies Questions/Discussion

Mr. Monty Rogers (UTBB) asked how the Section 106 study report could be accessed and commented on by interested parties. Mr. Cory Warnock (McMillen) responded that a Privileged version of the Section 106 Evaluation was filed with FERC. Mr. Mike Yarborough (CRC Alaska) responded that he plans to redouble his efforts to initiate consultation with Tribal entities over the winter, after not getting much response to the set of letters mailed out in summer 2023. Interested parties are requested to join the Cultural Resources Technical Working Group (TWG).

Ms. Alannah Hurley (UTBB) asked for confirmation that the Subsistence Study has not been done, and a consultant has not been identified. Mr. Will Chaney (Nushagak Cooperative) confirmed that the Subsistence Study was planned for 2023 but couldn't be implemented as planned in 2023. The Subsistence Study will be conducted in 2024.

Ms. Alannah Hurley (UTBB) asked for confirmation that the Section 106 Evaluation was done without consulting Tribes and appropriate contacts. Mr. Mike Yarborough (CRC Alaska) confirmed that a series of letters was distributed in early summer 2023. Mr. Will Chaney (Nushagak Cooperative) stated that the Cooperative definitely wants to reach out to the community in the best way possible. Mr. Yarborough stated that the Section 106 Evaluation started with the field work that we knew we would need to do for the Project. Ms. Hurley responded that on multiple occasions, UTBB has offered to assist with outreach efforts to ensure that the appropriate contact lists and approach are utilized and cautioned the Cooperative not to draw conclusions from limited information or consultation efforts. Mr. Chaney responded that over 20 letters were sent out, and that the Cooperative will work to adjust approach and contact lists as needed to obtain effective input from the community.

Ms. Shelley Cotton (UTBB) commented about the value of information provided by community and Tribal members and that people should be compensated for their contributions. She stated that compensation may increase participation. Ms. Cotton asked whether cultural resources work along the transmission line will be able to be conducted in 2024. She stated that there are a lot of camps in the area for duck, caribou, moose, etc. and it seems like a lot of work to survey all of these locations. Mr. Will Chaney (Nushagak Cooperative) responded that the assessment can add a lot of regional data to existing datasets, and that he is not aware of many camps along the potential transmission line route. Mr. Chaney stated that he is hopeful that the Cooperative can grow meaningful datasets for the region which bring great value, similar to the 3400-year-old date from the radiocarbon dating analysis conducted at the Portage Trail.

Recreation and Aesthetic Studies

Mr. Dave Jones (SLR Consulting) presented the Noise Study. The study measured ambient sound levels at four locations near the proposed Project, modeled future sound levels, and investigated

potential noise impacts from the Project including construction and operations. The study results show that the proposed Project is expected to have increased sound levels during the daytime only, near the Project site. No change in noise level is expected at the Royal Coachman Lodge. The study also evaluated the construction blasting noise and the aircraft operations associated with the proposed Project. Noise impacts due to blasting are anticipated to be infrequent and during daytime hours. Noise impacts due to aircraft operations will be significantly lower at the Royal Coachman Lodge compared to existing activities. The noise impacts due to long-term operations is expected to be extremely minimal.

Ms. Taryn Oleson-Yelle (R&M Alaska) provided a summary of the Recreation Inventory that was conducted during 2023. Recreation and intercept surveys were conducted in 2023. In 2024, study efforts will focus on resident surveys, based on paper and online surveys, as well as community visits to conduct in-person interviews in Spring 2024. Recreational business operator surveys will also be conducted in 2024.

Recreation and Aesthetic Studies Questions and Discussion

Ms. Delores Larson (UTBB) asked how the recreational studies and the subsistence studies will be differentiated. Ms. Larson stated that most people in the region that engage in subsistence activities consider subsistence activities recreational activities as well. Ms. Taryn Oleson-Yelle (R&M Alaska) stated that she's interested in input from the community regarding how to accomplish this differentiation. Mr. Will Chaney (Nushagak Cooperative) suggested that he, Ms. Larson, and Ms. Oleson-Yelle have a follow-up meeting to discuss this topic.

Conceptual Project Design and Operations

Mr. Sean Ellenson (McMillen) described two alternatives that have been evaluated for design of the proposed Project. Alternative 1 will utilize 30% of the flow in the Falls for generation purposes (estimated at 9 MW peak), and Alternative 2 is based on projected future regional power needs (estimated at 14 MW peak). Mr Chaney and Mr. Ellenson emphasized that these scenarios were conducted to accurately document potential and were in no way meant to imply that the Cooperative was not cognizant of and adhering to the current Senate Bill 91 flow allowance. Mr. Ellenson showed summary graphs showing the potential power output of each alternative and flow remaining in the Falls in an average year. Mr. Ellenson also presented the variation in flow between dry, average, and wet years.

Conceptual Project Design and Operations Questions and Discussion

Mr. Robert Heyano (UTBB) asked if diverting 30% of the river flow would result in a 9 MW project, and Mr. Sean Ellenson (McMillen) confirmed that was correct. Mr. Heyano asked how much flow a 14 MW project would utilize. Mr. Ellenson responded that more than 30% of flow would be required during some portions of the year. Mr. Heyano asked if the slides showing flow were included in the ISR. Mr. Cory Warnock (McMillen) stated that they were not but will be available via the Cooperative's website and as part of the ISR Meeting Summary. Mr. Heyano stated that he sees similarities between this Project and Pebble Mine. Mr. Will Chaney (Nushagak Cooperative) responded that he appreciates Mr. Heyano's comment.

Dr. Daniel Schindler (University of Washington) asked how much water is left in the river if Mr.

Cam Wobus's (CK Blueshift) climate change model is used to evaluate the operations of a 14 MW project in 50 years. Dr. Schindler stated that this potential Project configuration would use much of the water in the river. Mr. Chaney responded that the Cooperative is committed to scoping out the 9 MW project (Alternative 1), limited to 30% of flows. Dr. Schindler stated that there are progressive risks to development if a Project is constructed and later retrofitted to meet demand. Dr. Schindler stated that the last decade has had record numbers of Sockeye salmon, and the upper lakes in the system could be the breadbasket for sustaining those populations. Mr. Chaney thanked Dr. Schindler for his comments.

Ms. Ali Eskelin (ADNR) inquired about the anticipated lifespan of the Project relative to the anticipated maturity of the Project. Mr. Will Chaney (Nushagak Cooperative) responded that a FERC project license period is 30-50 years and the typical life span of hydropower projects can be more than 100 years.

Ms. Alannah Hurley (UTBB) asked how the TWGs will share information and integrate with the ARWG. Mr. Cory Warnock (McMillen) stated that cross-resource discussions will be identified during the process for integration across TWGs, and subsets of experts can meet as needed to work through particular resource issues or analyses.

Meeting Conclusion

Mr. Cory Warnock (McMillen) stated that Technical Working Groups for Terrestrial, Cultural, and Recreation resources will be started shortly, and people that are interested in these resources should sign the sheets in the entryway (if attending in-person) or email ljohnson@mcmillen.com (if attending virtually) to be included in the respective TWGs.

Mr. Cory Warnock (McMillen) provided an overview of the ILP timeline and milestones. Mr. Warnock described the FERC comment period associated with the ISR and ISR meeting, and also the ability to file comments about the Project at any time. Mr. Warnock described the community survey that the Cooperative has launched to gather additional input on the proposed Project. Mr. Will Chaney (Nushagak Cooperative) provided a conclusion statement to the meeting participants, including the need for the proposed Project and the cost and risks to Cooperative members of continuing to use diesel generation.

Ms. Sarah O'Neal (Trout Unlimited) stated that she appreciates the licensing process approach, and that she hopes the Project team evaluating the full scope of both risks and benefits of the Project. Mr. Will Chaney (Nushagak Cooperative) thanked Ms. O'Neal for the comment and agreed that there are both risks and benefits of the Project, and that the Cooperative is seeking to provide a beneficial resource for the region.

Ms. Alannah Hurley (UTBB) stated that the comment period is short and she would like the Cooperative to support a FERC extension of time. Ms. Hurley stated that cultural resource interest letters were sent out in June which is during fishing season and that was why there was little response. Ms. Hurley stated that in the future, meetings in the villages should be considered. She stated that in the community, there is a rushed feeling with respect to the process. Mr. Cory Warnock (McMillen) responded that the Cooperative worked to avoid the community's important seasons for study reporting and will try to avoid them in the future.

The meeting adjourned at 10:07pm Alaska Time.

Attachment A
ISR Meeting Participant Lists (Sign-in Sheet and Virtual Attendees)



Nuyakuk River Hydroelectric Project (FERC No. 14873)
 Interim Study Report Meeting Sign-in Sheet
 December 5, 2023
 6:00 PM – 9:00 PM (AK Time)
 Cooperative Boardroom

| Name | Affiliation (if applicable) | Phone Number | Email Address |
|---------------|-----------------------------|--------------|-------------------------|
| Robert Heyano | SELF | 907-843-0839 | rheyano@gmail.com |
| Leah Ellis | ADFG | 267-2404 | leah.ellis@alaska.gov |
| Gordon Isaacs | SELF | 843-0474 | gordon.isaacs@gmail.com |
| Cory Waprock | McMillen | 360-739-0187 | waprock@mcmillen.com |
| Sho Isaacs | self | 843-0474 | bobbinfo@gmail.com |
| Tim Sands | ADFG | 842-5227 | |
| Ted Krieg | self | 843-1613 | tmkrieg@gmail.com |
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Attachment B
Initial Study Report Meeting Presentation

Attachment C
Federal Energy Regulatory Commission Presentation