

February 12, 2024
sent via email



Assembly Chair Constant
Assembly Vice Chair Zaletel
Municipal Assembly
Municipality of Anchorage
PO Box 196650
Anchorage, AK 99519-6650

Re: AR No. 2024-40: Corrections and Responses

Dear Chair Constant, Vice Chair Zaletel, and Members of the Municipal Assembly:

We, the owners of the Eklutna Hydroelectric Project (“Project”), are writing to respond to your Assembly Resolution AR-2024-40, as amended (“AR-2024-40”). We appreciate the Municipal Assembly’s interest in the Project and our implementation of the 1991 Agreement.

With due respect, however, we cannot abide by certain incorrect factual and legal assertions in AR-2024-40 and in your public statements made during the Anchorage Assembly’s special meeting on February 2, 2024. We only received a draft of AR-2024-40 on February 1 and were not given an opportunity to appear at the special meeting and respond in detail before AR-2024-40 was introduced, discussed, and passed, so we are doing so now.

Concern 1.A “Non-Compliant Process”

We agree that the process required under the 1991 Agreement is very similar to a FERC licensing process under Part I of the Federal Power Act. Thus, we hired a team of FERC hydroelectric consultant experts to run this process for the Project – the very team that led the FERC relicensing process for Chugach’s Cooper Lake Hydroelectric Project that ended in a successful FERC order and approved settlement requiring measures to enhance fish and wildlife in 2006. We know what a FERC process entails and are following and implementing the modified process outlined in the 1991 Agreement to the letter.

The major differences between the FERC process and that required under the 1991 Agreement are that the final decision for approving the Proposed Final Fish and Wildlife Program will belong to the Governor of Alaska, rather than FERC, and the federal agencies do not have mandatory conditioning authority. These differences were agreed to in 1991 when authorized representatives of NMFS and USFWS, the Governor of the State of Alaska, the CEOs of Chugach and MEA, and the Mayor of Anchorage (on behalf of the Municipality of Anchorage) signed the 1991 Agreement. It is wrong to read provisions and requirements into the 1991 Agreement that are simply not there.

We disagree that the process outlined in the 1991 Agreement requires an analysis and process under the federal National Environmental Policy Act (“NEPA”). The process prescribed in the 1991 Agreement leading to the Governor’s approval is simply not a federal process, does

not trigger a federal action, and does not fall within FERC licensing jurisdiction; no provision of the 1991 Agreement requires compliance with NEPA. Throughout the consultation, study, and alternatives assessment processes, however, we have been and remain fully engaged with federal and state resource agencies as required in the 1991 Agreement. We have met and are continuing to meet with the agencies to understand their comments and critiques of the Draft Fish and Wildlife Program and attempt to resolve differences. As contemplated in the 1991 Agreement, we are revising the program such that the Final Proposed Fish and Wildlife Program better meets the expectation of the agencies with expertise. We are also meeting with and continue to seek to resolve differences with the Native Village of Eklutna (“NVE”); we hope that the improvements we have discussed with the agencies will provide an acceptable path forward for agreement with NVE when we meet with them again.

We agree that the process under the 1991 Agreement “diverges substantially” from the process the Municipality of Anchorage uses for its own capital projects. The 1991 Agreement is simply a different process, based on different legal precedents and requirements. The 1991 Agreement does not call for the Project owners to bring a handful of alternative proposals to the Anchorage Assembly for it to make a selection. Rather, Section 4 of the 1991 Agreement specifically requires us to propose a Draft Fish and Wildlife Program to the parties of the 1991 Agreement (as we did on October 27, 2023) and work to resolve differences, hold public meetings, and receive and consider comments and suggestions before preparing a Proposed Final Fish and Wildlife Program.

It is categorically incorrect for anyone to assert that we have not studied more than one alternative. Rather we have analyzed dozens of alternatives. Starting in April 2023, the Project owners, parties to the 1991 Agreement, NVE, members of the Technical Work Groups (including state and federal fish and wildlife agencies, Trout Unlimited, and The Conservation Fund) engaged in a robust examination of alternatives. Attendees at six meetings over five months were invited to submit comprehensive alternatives for analysis using a form listing the various component options; then these alternatives were discussed at subsequent alternatives analysis meetings. Alternatives such as dam replacement were proposed and analyzed, along with over 30 comprehensive alternatives submitted by the Project owners and several stakeholders. Each of the comprehensive alternatives was analyzed using engineering analysis and a Cost Effectiveness and Incremental Cost Analysis (CE/ICA) model, examining outputs such as water flows and effects on fish habitat, operations, and costs. The results of these analyses were presented at the meetings and attendees were invited to revise and resubmit their comprehensive alternatives, if desired, for further discussion at upcoming alternatives analysis meetings with the aim of narrowing down potential alternatives. At the end of the process, we had thoroughly examined all suggested alternatives (36 in total).

The first time that any participant proposed dam removal as an “alternative solution” to be studied and recommended in the alternative analysis process was by NVE on December 4, 2023 – more than a month after we circulated the Draft Fish and Wildlife Program. We are now studying that alternative, but it was not proposed for study during the April – August period

during which the 36 alternatives were studied, so it was not studied and presented in the Draft Fish and Wildlife Program.

Concern 1.B “Potential Impacts to Anchorage Drinking Water”

We fundamentally disagree with the assertion that we have not considered implications related to Anchorage’s drinking water supplies from Eklutna Lake. To be clear, we would never propose any action that would compromise or threaten the Municipal water supply. Rather, we recognize, and have been living up to, our commitment set forth in Section 7 of the 1984 “Public Water Supply and Energy Generation from Eklutna Lake, Alaska” (the “1984 Agreement”) to “take no action regarding Eklutna Lake of reducing the quality or increasing the turbidity of the lake water from those conditions which presently exist; nor will the [Project owners] take or authorize any other action with regard to Eklutna Lake which may have the effect of reducing its present suitability for use as a source of public water supply.”

During the alternative analysis process, we met and engaged with AWWU senior executives and its board regarding the possibility of using AWWU infrastructure to create instream flows in Eklutna River. Our engineers engaged with AWWU’s engineers to ensure that we understood AWWU’s system, operations, and concerns, and AWWU understood what we were trying to achieve through the construction and operation of the alternative Eklutna River Release Facility to establish instream flows in Eklutna River. We even compensated AWWU for its engineering time and review of our proposed plans.

Our respect for AWWU, its mission, its water rights, and the 1984 Agreement led us to engage with AWWU *before* we publicly proposed use of AWWU facilities to create instream flows. We explored whether AWWU would be amenable to such cooperation in support of instream flows *if, and only if*, the use of AWWU infrastructure is included in the Final Fish and Wildlife Program approved by the Governor. It would have been imprudent for the Project owners to propose publicly such an alternative without exploring whether AWWU, the owner of the facilities, is willing to do so.

In late October 2023, AWWU and the Project owners executed a binding term sheet that outlines the basic contractual terms that would govern the interconnection of a new water release facility to the AWWU pipeline, water transportation through AWWU’s infrastructure, associated compensation, and associated water rights. At this time, the term sheet is protected as confidential and privileged under an agreement between the MOA, Chugach, and MEA. Accordingly, all parties must treat the document as confidential in order to protect privileges such as the attorney-client privilege.

Importantly, the term sheet and its commitments are expressly conditioned on the contemplated usage of the AWWU infrastructure being in the Final Fish and Wildlife Program approved by the Governor as required in the 1991 Agreement. To be clear, if the Project owners’ final Fish and Wildlife Program does not include the use of the AWWU facilities or if the Governor does not approve the Fish and Wildlife Program with such use, the term sheet and its commitments will be terminated. Furthermore, the term sheet expressly recognizes that

AWWU takes no position as to whether using AWWU infrastructure is the best alternative for the Fish and Wildlife Program. Rather, the term sheet outlines the terms and conditions under which AWWU would be willing to provide the requested services *if* the AWWU infrastructure is in the Project owners' final Fish and Wildlife Program approved by the Governor.

While the term sheet is binding with respect to its basic terms, it is still preliminary to the execution of definitive contracts between the Project owners and AWWU that are currently under negotiation and will include a greater level of detail. Term sheets are not complete legal contracts. As is typical with contractual negotiations, the parties may choose to voluntarily agree to deviate from or refine terms as written in the term sheet when negotiating and finalizing definitive contracts. Disclosure of the term sheet now would violate agreed confidentiality obligations and also interfere with, and potentially disadvantage, the parties' ability to freely engage in the negotiation process necessary to move from the term sheet to the definitive documentation.

With all due respect to the consultant hired by the Anchorage Assembly, we view the analysis referenced in Section 1.B of AR-2024-40 as fundamentally flawed and out of date. While the analysis is accurate that a 70 million gallons per day (MGD) flow rate was the planned full buildout capacity of the Eklutna Water Treatment Facility in the 1980s, we were told by AWWU that this is not a flow rate they envision pursuing in the future. The actual capacity of the tunnel and pipeline is 100 MGD, but AWWU's water permit (LAS 2569) is limited to 41 MGD which corresponds to the maximum capacity of the water treatment facility. Our direction was to use 41 MGD for the basis of our design, which is about double what AWWU currently takes (an annual average 22-24 MGD). Furthermore, the consultant asserts that planned maintenance or emergency events will stop flow to the Eklutna River. While it is true that either a failure of the intake shaft valve or a collapse of the tunnel will stop flow to the Eklutna River, the current design allows the pipeline to be dewatered for maintenance, and in the event of a pipeline rupture, it allows for emergency closure at the portal valve, in both cases allowing continued operation of the Eklutna River Release Facility. In the event planned maintenance is required to replace the intake valve shaft, we have also discussed proposing that this be planned for the fall when water could alternately be released at the dam.

Concern 1.C "Incomplete Analysis and Insufficient Mitigation"

We believe you may not fully understand our proposal with regard to construction and operation of the alternative Eklutna River Release Facility to establish instream flows in Eklutna River. Contrary to the suggestion in AR-2024-40, our engineers have designed the Eklutna River Release Facility, interconnections, and controls to be able to operate at all lake levels contemplated under the operation of the Project while also maintaining AWWU's full operational flexibility up to 41 MGD. As mentioned above, we have anticipated regular and unplanned maintenance and discussed such operations with AWWU. We have specifically designed the Eklutna River Release Facility to avoid dewatering the Eklutna River and fish kills.

We understand that the Anchorage Assembly is intrigued by the dam removal alternative proposed by NVE. We are assessing the costs, risks, and benefits of NVE's new alternative and will release our assessment to NVE, the Anchorage Assembly, and the public in due course. In the meantime, it is worthwhile to point out two considerations to the dam removal alternative. First, NVE asserted that one of the benefits of removing the Project and enabling a "free-flowing Eklutna River" would be "[s]ecuring the AWWU drinking water system". Given our past conversations about the AWWU infrastructure and instream flows, however, NVE's assessment does not seem consistent with AWWU's assessment of risks to the AWWU water supply system with increased flows in the Eklutna River. Based on hydrologic calculations of flows into Eklutna Lake, removal of the Project dam would result in instream flows peaking at 2,500 cfs every few years to 4,000 cfs every 10 years. We asked AWWU for its assessment of dam removal on its infrastructure. Please see **Attachments A (our request) and B (AWWU's response)**. We are reviewing AWWU's preliminary assessment and intend to engage AWWU as we study dam removal, but as AWWU's response points out, AWWU has concerns about the effects of dam removal on Anchorage's water supply.

Second, we caution the Anchorage Assembly from relying too heavily on the assertion that two environmental organizations will pay for dam removal. Removal of hydroelectric facilities and associated restoration requirements are not minimal financial commitments. Removal and restoration work at the Elwha and Glines Canyon projects in Washington State was estimated to cost more than \$350 million (2011 Dollars)¹, including \$79 million for water treatment facilities to protect municipal and industrial water supplies during and after dam removal.² The ongoing removal of the Lower Klamath River dams has been estimated to be \$397.7 million (2018 Dollars).³ These numbers for these dam removal efforts may or may not be indicative of the costs of removing the Project, restoring the Eklutna River, and hardening the downstream infrastructure to withstand increased flows, but it would be imprudent to assume that all such costs would be borne by environmental organizations who have put forth no such commitment to pay in writing.

Concern 1.D "Poor Coordination and Questionable Use of Public Funds"

As stated above, we reject the characterizations that we investigated only one alternative, that such alternative is "stand alone", and that such alternative is self-serving and fails to meet the goals and objectives of the 1991 Agreement. To be frank, we know of no alternative that, when compared with the Eklutna River Release Facility alternative, (i) establishes similar year-round instream flows, (ii) creates as much fish spawning and rearing habitat, while (iii) also

¹ Ker Than, *Largest U.S. Dam Removal to Restore Salmon Runs*, NATIONAL GEOGRAPHIC, Sept. 1, 2011, <https://www.nationalgeographic.com/science/article/110831-dam-removal-elwha-freshwater-science-salmon>.

² National Park Service, *Dam Removal*, <https://www.nps.gov/olymp/learn/nature/dam-removal.htm> (last visited Feb. 8, 2024).

³ Klamath River Renewal Corp., *DEFINITE PLAN FOR THE LOWER KLAMATH PROJECT, APPENDIX P – ESTIMATE OF PROJECT COSTS 64* (2018), https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/lower_klamath_ferc14_803/lkp_def_plnp_q.pdf.

protecting the public water supply, and (iv) without exposing ratepayers and taxpayers to significantly higher costs.

That said, we are not done considering and analyzing all alternatives, comments, suggestions, and public input necessary to put forward our Proposed Final Fish and Wildlife Program. Please note, however, that the 1991 Agreement does not set forth only one criterion we must optimize – whether fish habitat or cost. Rather, the 1991 Agreement sets forth the following approval criteria for a final Fish and Wildlife Program: “In order to ensure that [the Project is] best adapted for power generation and other beneficial uses, the Governor shall give equal consideration to the purposes of efficient and economical power production, energy conservation, the protection, mitigation or damage to, and enhancement of fish and wildlife (including related spawning grounds and habitat), the protection of recreation opportunities, municipal water supplies, the preservation of the other aspects of environmental quality, other beneficial uses, and requirements of State law”.

Concern 2 No MOA Funding for F&W Program that Does Not Restore Full Length of Eklutna River

While we recognize that NVE, the Conservation Fund, Trout Unlimited, and the Anchorage Assembly prefer full “restoration” of the Eklutna River, no such requirement exists in the 1991 Agreement. The word “restore” does not appear in the 1991 Agreement; similarly, neither “fish passage into Eklutna Lake” nor “restoration of sockeye salmon” are required. Rather, the 1991 Agreement requires us to develop a Proposed Final Fish and Wildlife Program “to protect, mitigate and enhance fish and wildlife resources.”

It is important to note that anadromous fish runs were eliminated in the Eklutna River decades before the Project we purchased was built in 1953-55. Contrary to assertions by some, the hydroelectric developments in the lower Eklutna River that blocked fish passage in the 1920s are distinct from, and were not part of, the Eklutna Project we purchased in 1997. While we fully acknowledge the consequential impacts of all hydroelectric projects on NVE and its members, the 1991 Agreement simply does not place upon us (and our ratepayers and taxpayers) the legal or contractual requirement or responsibility to address *all* adverse effects of all hydroelectric development in the Eklutna River basin over the past 100 years. We are fully committed to doing the one thing that only we can do: establish year-round flows of water in the Eklutna River for fish spawning and rearing habitat as a foundation of our Proposed Final Fish and Wildlife Program, while balancing all the other interests required under the 1991 Agreement. We continue to work towards creating the best means to provide such instream flows and create fish habitat that satisfies all the criteria set forth in the 1991 Agreement.

Concern 3 RCA Investigation Before Governor Approval

As regulated public utilities, we understand very well the jurisdiction and authorities that the Regulatory Commission of Alaska (“RCA”) has over our decisions, actions, and the rate recovery of the costs we incur in providing electric service to our member-ratepayers. We completely disagree that it is appropriate for the RCA to initiate an investigation regarding the

development of the Fish and Wildlife Program required under the 1991 Agreement. The 1991 Agreement does not contemplate such RCA investigation or approval. Rather, the RCA will have its opportunity to review and approve costs incurred under the Fish and Wildlife Program in the normal course of utility rate cases filed with the RCA pursuant to its authorities under AS 42.05.

The Anchorage Assembly is correct, however, to point out that we should remain focused on impacts to ratepayers and their access to uninterrupted electric service. As we have repeatedly stated, this Project is very important to providing low cost, reliable, and dispatchable power year-round. The importance of this generation asset was recently demonstrated during an extended period of cold weather in the Anchorage area when ENSTAR experienced gas deliverability problems with CINGSA, the gas storage facility that the Railbelt depends on. During this time of ENSTAR's difficulties, Chugach and MEA voluntarily maximized their usage of the Project (and other hydro resources) to maintain system reliability during a time of critical operations. The Project provided 8% and 9% of their respective energy needs to meet MEA's load and Chugach's load during the cold snap; The Project's operations created an estimated fuel savings of over 27,300 thousand cubic feet (MCF) of natural gas for MEA consumers at a time when ENSTAR was seeing record high natural gas demand compounded by deliverability issues. Likewise, Chugach also voluntarily maximized its use of the Project during the cold snap and accordingly reduced its gas consumption by approximately 60,000 MCF over the same period. Chugach and MEA's combined use of the Project saved 87,300 MCF of natural gas during the cold snap and allowed the gas utility to avoid issuing a yellow designation for natural gas delivery. A yellow designation from ENSTAR would have included requiring MEA and Chugach to shift to available diesel generation to provide additional gas to ENSTAR. Diesel generation by both utilities is more than twice as expensive as natural gas and would have increased bills for all ENSTAR customers under the terms of utility cooperation agreements. This recent situation demonstrated how critical the Project's hydro capacity and energy can be to Railbelt reliability and cost during critical times.

Concern 4 Request for Two Year Extension

The 1991 Agreement is a contract between the State of Alaska, two federal agencies, and the three owners of the Project. The 1991 Agreement does not have any provision for extensions or amendment; it has no decision-making process or authority empowered to grant an extension or impose changes to the 1991 Agreement. Consequently, the Project owners see no path to pausing the process required under the 1991 Agreement without liability. Accordingly, we will not delay the implementation of the Fish and Wildlife Program for two years in order to perform additional analysis, consultations and coordination.

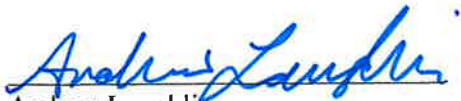
We have been fully engaged in this process since 2019 and we have performed each step of the process deliberately and with consultation with the Parties to the 1991 Agreement, NVE, State and federal resource agencies, and others interested in the Project or the 1991 Agreement. We excluded no key stakeholders. Even though they were not a party to the 1991 Agreement, we afforded NVE enhanced opportunities for engagement. Additionally, we have presented

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status reports to, and have held quarterly updates with, the Assembly and its Enterprise and Utility Oversight Committee 11 times as listed on <https://eklutnahydro.com/project-updates/>.

There has been no “rush to judgment” or effort to “exclude stakeholders”. Rather, we have been developing and continue to seek a measured and comprehensive approach guided by respectful coordination to reach a solution the enjoys broad consensus. We are now revising our draft Fish and Wildlife Program to reflect input from the parties to the 1991 Agreement, NVE, state and federal resource agencies, and the general public as solicited in six public meetings and as received in the form of hundreds of comments submitted by email and via our website. We hope that the Proposed Final Fish and Wildlife Program we deliver to the Governor for approval meets all legal requirements of the 1991 Agreement and provides a set of protection, mitigation, and enhancement measures grounded on year-round flows in the Eklutna River that all parties will accept and appreciate.

Sincerely,



Andrew Laughlin
Chief Operating Officer
Chugach Electric Association, Inc.



Tony R. Zellers
Chief Operating Officer
Matanuska Electric Association, Inc.



Kolby Hickel
Deputy Municipal Manager
Municipality of Anchorage

Attachments

cc: Parties to the 1991 Agreement
Native Village of Eklutna
Anchorage Water and Wastewater Utility

Attachment A

Request to AWWU re NVE's Dam Removal Alternative

[See Attached]

December 15, 2023
sent via email



Mark A. Corsentino, P.E.
General Manager
Anchorage Water and Wastewater Utility
3000 Arctic Blvd
Anchorage, AK 99503

Re: Assessment of Dam Removal

Dear Mark:

We, the owners of the Eklutna Hydroelectric Project, are writing to request that Anchorage Water and Wastewater Utility (AWWU) provide us with an assessment of a new alternative for the Fish and Wildlife Program proposed by the Native Village of Eklutna (NVE).

As you are well aware, we are in the process of developing a Fish and Wildlife Program related to fish and wildlife protection, mitigation, and enhancement measures pursuant to the 1991 Agreement. We circulated our Draft Fish and Wildlife Program on October 27, 2023, and requested comments and input from the parties to the 1991 Agreement and the NVE. We received comments from all of the parties and NVE in the past few weeks and met with each of them independently this week in an attempt to resolve differences as required under the 1991 Agreement.

Among the comments and feedback, we received one new preferred alternative that we had not previously studied as part of our analysis of alternatives during the past six months. NVE's new recommended alternative states:

To meaningfully meet the purpose of the Agreement, NVE proposes an alternative solution – removing the Eklutna Lake dam within ten years when sufficient renewable power generation is available to offset the lost power generation from dam removal.¹⁴ In 2011, the U.S. Army Corps of Engineers (“USACE”) proclaimed that “[t]rue restoration of the Eklutna River ecosystem would require removal of both dams [...]”.¹⁵ The Eklutna Lake dam does not impound Eklutna Lake but merely increases lake storage capacity for hydropower generation. Doing so severs the connection between the lower Eklutna River, Eklutna Lake, and upper tributaries, blocking all outflow of water, drying up the Eklutna River, and decimating the salmon runs.¹⁶ Now that the lower Eklutna dam is gone, it is time to plan for a future with a free-flowing Eklutna River and salmon runs truly restored.

See attached NVE letter, dated December 4, 2023.


We are planning to assess the costs, risks, and benefits of NVE's new alternative to the extent possible given the limited available time before our April 2024 filing with the Governor and we need your input. NVE states that one of the benefits of removing the Eklutna Project and enabling a “free-flowing Eklutna River” would be “[s]ecuring the AWWU drinking water system”. Given our past conversations about the AWWU infrastructure and instream flows, NVE's assessment does not seem consistent with your assessment of risks to the AWWU water

supply system with increased flows in the Eklutna River and fish migration into Eklutna Lake. We have estimated that, based on calculations of historical inflows into Eklutna Lake, removal of the Eklutna Project dam would result in uncontrolled instream flows into the Eklutna River peaking at ~1,200 cfs every July/August on average. Every few years flows would exceed 2,000 cfs, and every ten years flows would exceed 4,000 cfs for a significant period. We have not conducted a scour analysis, but we would guess that such flows might significantly impact AWWU pipeline infrastructure below the existing portal valve facility. That being said, we know that you know your infrastructure far better than we do, so we would like AWWU's assessment of NVE dam removal alternative.

If possible, please provide us with your assessment of potential effects of the NVE's dam removal alternative on AWWU infrastructure and operations by February 2, 2024, so that we can include the information in our assessment of alternatives and deliberations on the best path forward. In the meantime, we can make members of our team available to meet and discuss this topic with you and your staff if that would be helpful.

Sincerely,


Andrew Laughlin
Chief Operating Officer
Chugach Electric Association


Tony R. Zellers
Chief Operating Officer
Matanuska Electric Association

Kolby Hickel

Kolby Hickel
Deputy Municipal Manager
Municipality of Anchorage

Attachment B

AWWU Response re NVE's Dam Removal Alternative

[See Attached]



Anchorage Water & Wastewater Utility

General Manager's Office



February 1, 2024

Attention: Andrew Laughlin, Chief Operating Officer, CEA
Tony Zellers, Chief Operating Officer, MEA
Kolby Hickel, Deputy Municipal Manager, MOA

Eklutna Hydroelectric Project

Sent via email

Re: Assessment of Dam Removal

Dear Eklutna Hydroelectric Project Owners,

Anchorage Water and Wastewater Utility (AWWU) appreciates the request to provide initial comments on the Native Village of Eklutna proposed alternative to remove the existing Eklutna Lake Dam under the Fish and Wildlife Program as part of the mitigation measures for fish and wildlife protection, mitigation, and enhancement pursuant to the 1991 Agreement for your consideration.

AWWU understands that the alternative described in the letter dated December 16, 2023, will include the eventual removal of the Eklutna Lake Dam and allow for a free-flowing river with full connection between Eklutna Lake and the Knik Arm. Further details of the dam removal alternative were not provided; nor did the letter indicate what changes may occur to operations of the Eklutna Hydroelectric Project (EHP).

The importance of Eklutna Lake for public health to meet community drinking water and fire protection needs cannot be overstated, as it provides over 90% of Anchorage's water supply. Eklutna Lake provides resilience to Anchorage's water supply by operating via gravity supply versus pumped, so it can continue to operate during emergency power outages.

It is important to note that AWWU is not taking a position with respect to the benefits of any of the proposed fish and wildlife alternatives, including this one. Our obligation is to provide feedback specifically about the impacts of any proposed alternative on Anchorage's water supply and the evaluation and mitigation measures necessary to protect that essential community service.



To that end, your letter of December 16 asks AWWU to assess potential effects of this dam removal alternative. More details about dam removal are needed to make a full assessment; however, the following list reflects some of AWWU's general concerns and topics requiring further consideration and study.

1. **Water Rights:** Eklutna Lake is the primary source of potable water and public fire protection for the Municipality of Anchorage and its nearly 300,000 residents. AWWU began diverting Eklutna Lake water for its Eklutna Water Treatment Facility (EWTF) in 1988, and it will soon apply to the Alaska Department of Natural Resources (ADNR) to transform its water use permit into a permanent certificate of appropriation. The EHP also holds a certificate of appropriation for Eklutna Lake water. The removal of the dam and resulting changes to EHP operations will likely impact EHP's water appropriation certificate for power production, and this, in turn, may affect AWWU's portion of the water certificate.

As stated in our comments on the Draft Study Plan, dated January 4, 2021, AWWU needs its full appropriation quantity from Eklutna Lake to support Anchorage's public water and fire safety demands. *There are no other practical public water supply sources known that can match the existing Eklutna Lake diversions; further analysis would be necessary to find, locate and fund other water sources to meet Anchorage's public water supply needs.*

2. **Intake and Lake Level Evaluation:** There is substantial annual variation in the level of Eklutna Lake. Modeling anticipated water surface elevations and lake depths after dam removal will be essential to forecasting the impact removing the dam will have on AWWU's water rights, operations, and infrastructure.

Changes in lake water levels and water quality impact AWWU's existing intake and other mechanical equipment (i.e., valves and gates). The effect of removing the dam on velocities, temperature, sediment and debris loading, and water quality will need to be studied. These factors may affect the design of water intake infrastructure and its maintenance.

If it is determined that the existing intake will cease to function at lower lake levels, then an alternative water supply or a new water intake system needs to be evaluated as part of the dam removal alternative.

Agreements between the EHP and AWWU are likely to require updating to account for impacts to the cost of water, ownership, and operations resulting from changes to EHP operations.

3. **Raw Water Quality & Supply:** Evaluation of Eklutna Lake impacts relate both to the intake systems and the raw water supplied to EWTF. A determination of whether Eklutna Lake can provide sufficient capacity for continuous raw water supply after dam removal is needed, especially in the winter when there are minimal flows into the lake.



Increased fish counts in the lake may impact biological loading. Lake level and velocity changes can be expected to change debris and sediment loads. These potential changes may affect lake water quality. Further study of the impact on AWWU operations, including the equipment needed for treatment and operator certification, is required as part of studying the dam removal alternative.

- 4. Pipe Protection, Stream, and Scour Modeling:** AWWU is concerned that scour action from uncontrolled flows by the reestablished river may expose the water main, which could damage the water main and threaten AWWU's ability to reliably provide water to the Municipality.

The impacts to AWWU's raw water infrastructure are unknown and will require further study. Stream and scour modeling analysis would need to be updated and extensively studied. The AWWU raw water main lies within the Eklutna River floodplain for over five miles from the AWWU portal valve shaft to the canyon's terminus exit, with the crown of the pipe as little as six feet below ground currently. The pipeline is a large prestressed concrete cylinder pipe that ranges in size from 54 to 60 inches in diameter. According to as-built drawings, the pipeline closely parallels the existing channel and crosses underneath it at eight locations.

The original raw water pipe design contemplated irregular dam spillage into the river with flows up to 2,240 cubic feet per second (cfs). Measures were put in place to protect the pipe as part of the original design conditions. However, the current location and depth of the streambed has likely changed in the past 30 or more years. Critical sections of the pipeline vulnerable to damage with increased flows will need to be identified for mitigation measures.

- 5. Meandering River Channels:** AWWU anticipates that the reestablished river may meander over time, exposing AWWU's infrastructure to damage at locations that are not currently predicted to be at risk. A risk assessment will be necessary to identify how a meandering river will impact canyon walls, sloughing, and erosion. Such a risk assessment will be needed to assess potential increasing soil loading over the pipe or scouring. A meandering river may also hinder AWWU's ability to access the pipeline to perform maintenance.
- 6. Maintenance Road & Bridge Analysis:** Reestablished Eklutna River flows can be expected to impact maintenance access. AWWU must maintain the ability to inspect, physically access, and service all segments of its water main. An overall assessment of the existing maintenance access road and associated bridge crossings will be necessary to provide for appropriate mitigation. Existing and proposed bridge designs will need to be evaluated for stability based on anticipated flows, updating span, freeboard, and scour protection, as needed.



7. **Pipeline Maintenance:** The segments of the water main located under the reestablished Eklutna River will require access for maintenance and operations. The effect of increased river flows, and the presence of salmon on maintenance of AWWU infrastructure, needs to be studied, and appropriate mitigation considered.

If a pipe failure occurs, a mechanism for permitting will be needed for AWWU to complete repairs, including, but not limited to, obtaining permits for excavation dewatering and diversions of the river. Analysis will be necessary to define the requirements for AWWU to inspect, repair, and possibly replace segments of its water main.

For segments not directly under the reestablished Eklutna River, increased groundwater in the vicinity will likely impact pipeline stability and access. Buried access points, cathodic protection, etc., will be harder to expose and access when maintenance or repairs are required. Changes to overall operations will need to be assessed.

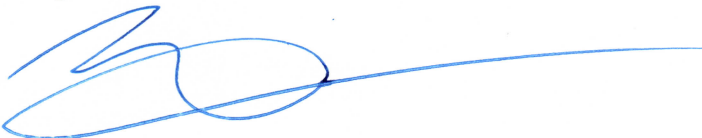
This concludes our initial assessment of the potential effects of the dam removal proposed alternative on Anchorage's primary source of drinking water and fire protection.

When reviewing this letter, understand that AWWU has limited information on the dam removal proposal.

As such, the assessment is, by nature, not comprehensive, and other items and issues could be revealed later.

I hope this provides you with information of value in your analysis. AWWU appreciates the opportunity to comment on the proposed alternative.

Regards,



Mark A. Corsentino, P.E.
General Manager
(907) 786-5511
mark.corsentino@awwu.biz

