Native Village of Eklutna
Tribal Government

April 9, 2024

Submitted via Email

Samantha Owen
Senior Regulatory Consultant
McMillen Inc.
2607 Western Ave, Unit 360 Seattle, WA 98121

Re: Technical Risk Assessment of the Removal of Eklutna Dam

Dear Ms. Owen:

Thank you for providing this preliminary dam removal risk assessment analysis. While we appreciate your efforts to provide this analysis prior to submitting the utilities final proposed Fish and Wildlife Program to the Governor, we would request that this preliminary analysis not be included in the final submission to the Governor. We have begun to review the analysis and have numerous questions and concerns which we do not believe can be addressed in under 30 days, before submitting the final proposed Program to the Governor. Furthermore, as with all other analysis related to the 1991 Agreement process, we would like for the federal and state fish and wildlife agency experts to independently review this analysis and provide their feedback.

As one example of our concerns with the McMillen analysis, the entire risk assessment and cost estimates are built upon the Curran et al. (2016) model for estimating peak flows in the Ekltuna River should the dam be removed. The U.S. Fish and Wildlife Service undertook an analysis of Eklutna River peak flow estimates in 2018 that used the exact same Curran et al. (2016) model.[1] But USFWS's "preferred method" of most accurately predicting flows was to use a "weighted average between the station skew *unique to the Eklutna River* prior to flow diversion and a regional skew value from [Curran et al. (2016)]."[2] In other words, USFWS combined the available historic stream gage data before the Eklutna River was dammed and diverted with the Curran et al. (2016) model to come up with the most accurate flow estimates, rather than relying on only a broad, regional model from Curran et al. (2016). The historic gage data USFWS used was from the outlet of Eklutna Lake dam, so for comparison, we assumed that we should compare the USFWS flow estimates to the McMillen "Above Thunderbird Confluence" estimates.

[1] Franklin Dekker (USFWS Hydrologist), Eklutna River Peak Flow Estimates (Nov. 20, 2018) (Appendix B of USFWS, Upper Eklutna River Survey: Preliminary Fish Habitat Flow Assessment (Jul. 14, 2019).
[2] *Id.* (emphasis added).

What we find confusing is that when USFWS used *only* the Curran et al. 2016 model for estimating Eklutna River peak flows (what they refer to as the #4 estimate – the "Regional Skew (Curran et al 2016), as McMillen did in the dam removal analysis, USFWS came up with significantly lower peak flow estimates than the McMillen analysis at the 100-year recurrence interval, which is what McMillen used for all of its risk assessments. USFWS's results showed a 100-year recurrence peak flow estimate of 2,645 – 5,790 cfs (95% lower and upper confidence interval, respectively). USFWS's mean 100-year peak flow estimate was 4,218 cfs. On the other hand, the McMillen analysis states estimated peak flows at the 100-year recurrence interval as 7,350 cfs. McMillen does not state (concerningly) whether their estimate is the upper interval or the mean of their modeling results, but we have assumed that McMillen chose to only show the 95% upper confidence interval. Under that assumption, the McMillen estimate is ~20% higher than the USFWS estimate. If McMillen is showing the mean estimate, then McMillen's estimate is ~43% higher than the USFWS estimate. Either way, McMillen's peak flow estimates seem substantially inflated from the USFWS estimate using the exact same model. USFWS's "preferred method" for estimating peak flows (what they refer to as the #5 estimate – the "Weighted Regional Skew" – using the Curran et al. (2016) model and historic Eklutna gage data) shows slightly higher peak flow estimates than using the Curran et al. (2016) model alone. Nonetheless, McMillen's estimates are still higher than USFWS's preferred method – more than ~15% higher at the 95% confidence upper interval (USFWS's upper confidence interval was 6,076 cfs) and ~40% higher than USFWS's mean interval (USFWS's mean interval was 4,388 cfs). We do not understand why McMillen's results – using the *exact same* model as USFWS – are potentially *up to ~43% higher than USFWS's results*.

Historic stream flow data at the outlet of Eklutna Lake before Eklutna Lake dam was built shows a high peak flow of just over 2,500 cfs.[3] As far as we know, there was never a recorded peak flow event in the Eklutna watershed over ~3,000 cfs. McMillen's Initial Information Packet states that, regarding natural flows of the Eklutna River before any dams, "the maximum discharge recorded was 2,930 cfs in September 1925."[4] Taking into account climate change-driven increased precipitation and melting glaciers that feed the Eklutna River, we find USFWS's "preferred method" mean peak flow estimate of 4,388 cfs to be reasonably accurate. On the other hand, the entire McMillen risk assessment is based on peak flow estimates of ~7,400cfs that at first glance appear significantly inflated with little information to deduce how the estimates were arrived at, and what the confidence interval is. The fact that McMillen's estimates are so significantly higher than what USFWS's estimates were from the *exact same* model is very concerning. McMillen uses these peak flows estimates to arrive at the preliminary conclusion that nearly all the downstream infrastructure is threatened to the tune of hundreds of millions of dollars of modifications needed. We do not believe it is fair to advance these conclusions without additional independent expert review of McMillen's modeling and more information to understand their estimates.

In addition, we are disappointed that McMillen's dam removal analysis only includes the potential risks and costs of removing the dam. It does not factor in the significant economic benefit to the Eklutna people, the fishing community, nor Southcentral Alaska as whole, the cultural benefit to the Eklutna people for having our river restored, or the incredible ecological benefit to upper Cook Inlet with an influx of salmon and nutrients from a restored Eklutna watershed, including the critically endangered Cook Inlet beluga whale. Moreover, we are not aware of any dam removal analysis that considers the cost of replacing the lost energy as part of the cost of removing the dam. For example, the largest dam removal process in the world is taking place right now in California on the Klamath

[3] *Id.*
[4] McMillen Jacobs Associates, Eklutna Hydroelectric Project 1991 Fish & Wildlife Agreement Implementation: Initial Information Packet at 77 (Sept. 2020).

River where four large hydropower dams are being removed. That dam removal process is estimated to cost roughly $450 million. Many of those dams were still producing power and there is exponentially more infrastructure, big and small, downstream. That McMillen would provide a final cost estimate for the, relatively speaking, very small Eklutna River dam removal project that would cost over $50 million more than the largest dam removal project in the world is concerning.

Because of the concerns with the peak flow estimates upon which the entire risk assessment and cost estimate rest, and the disappointing bias of the cost-benefit narrative, we request that McMillen withhold further use of this analysis pending independent analysis by the state and federal fish and wildlife agencies, and an opportunity for the Native Village of Eklutna to provide more substantial comments.

Thank you,

Aaron Leggett