



WHITE PAPER

**John M. Asplund Water Pollution Control Facility
CWA Section 301(h) Waiver of
Secondary Treatment for NPDES Permit Renewal**

Recommendations of the National Tribal Water Council

Produced by the National Tribal Water Council
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John M. Asplund Water Pollution Control Facility (“Asplund WPCF”) CWA Section 301(h) Waiver of Secondary Treatment for NPDES Permit Renewal

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Introduction and Overview

The National Tribal Water Council (“NTWC” or “Council”) is a body comprised of members with technical, scientific and traditional cultural knowledge created to assist the United States (“U.S.”) Environmental Protection Agency (“EPA” or “Agency”), federally recognized American Indian and Alaska Natives Tribes (“Tribes”), and associated tribal communities and tribal organizations with research and information for decision-making on water quality issues, and water quality related concerns that impact Indigenous Peoples throughout Indian Country in the United States.

As a significant part of its activities, the NTWC works with the EPA to implement the Clean Water Act (“CWA”) and the Safe Drinking Water Act (“SDWA”) to safeguard and improve public and environmental health, and water quality, for the benefit of Tribes, marine life and aquatic species. The NTWC recognizes that subsistence and cultural practices are vital for numerous Tribes and tribal communities. In Alaska these cultural practices are threatened by the contamination of the Cook Inlet and of the plants, animals and marine life on which tribal people depend for their livelihoods and existence. Environmental justice must be considered for tribal people and for the marine life that rely on Cook Inlet waters. Subsistence and cultural practices are critically important and hinge on both environmental quality and water quality.

This white paper provides an overview, findings, and recommendations from the NTWC to the EPA regarding the Agency’s ongoing implementation of the CWA in the Cook Inlet, Alaska, area where the Anchorage Water and Wastewater Utility (“AWWU”) has for nearly 50 years discharged effluent from its Asplund Water Pollution Control Facility (“WPCF”). See **Figure 1** on page 2 for the geographic setting and bathymetry of Cook Inlet. The average daily rate of Asplund WPCF discharge has ranged from 25-35 million gallons per day, or MGD, over the past 20 years. In 2017, as part of a [Plant Profile](#) of the facility, the Wastewater Digest magazine indicated that the Asplund WPCF provides wastewater treatment services to a population in excess of 400,000, when landfill leachate and septage are taken into account. Effluent from the Asplund WPCF is ultimately discharged to the waters of Cook Inlet under a Clean Water Act National Pollution Discharge Elimination System (“NPDES”) permit, which is modified by a CWA Section 301(h) Waiver of Secondary Treatment. This is herein referred to as a CWA Section 301(h) Modified NPDES permit or a 301(h) Modified NPDES permit. Thus, the Asplund WPCF facility relies only on primary processes (no secondary or tertiary treatment), in conjunction with chlorine disinfection, for treatment of influent wastewater received at the facility. We understand that the AWWU presently is seeking to renew its 301(h) Modified NPDES permit, which is numbered by EPA as AK-002255-1, and to continue for the foreseeable future with the status quo of primary treatment only combined with chlorine disinfection.

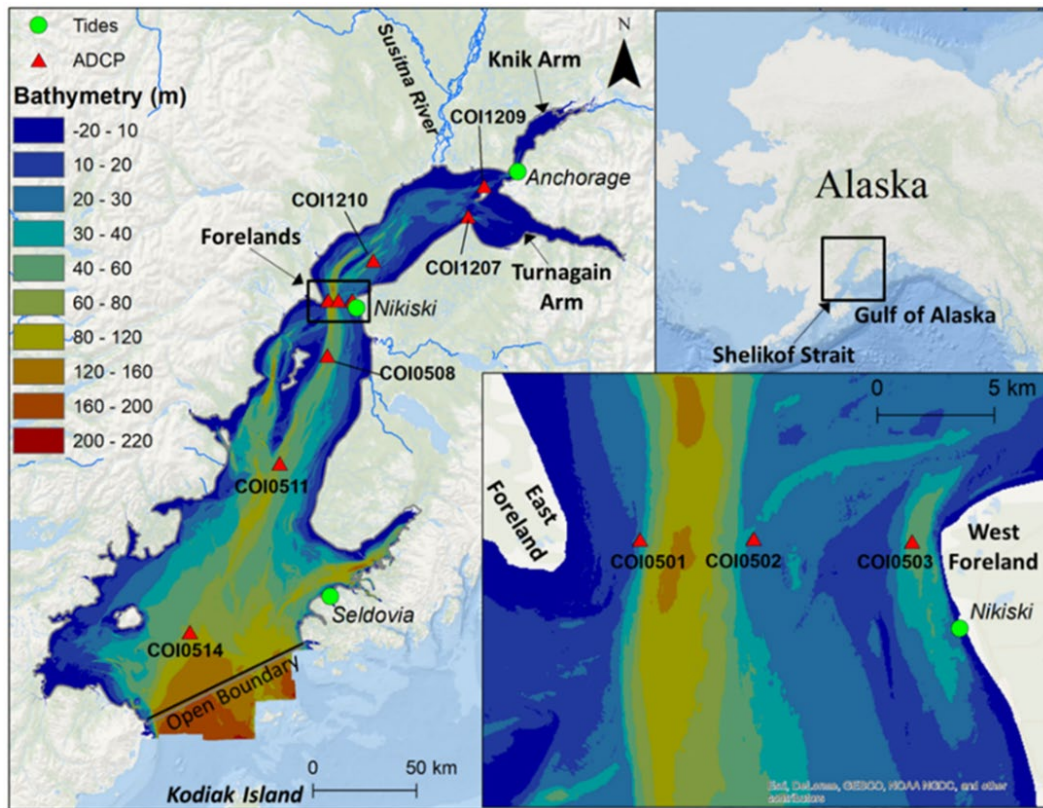


Figure 1. Geographic setting and bathymetry (water depths) of Cook Inlet, Alaska. Illustration from Wang and Yang (2020), who prepared a calibrated and validated tidal model for the entire inlet. The green circular areas indicate tidal level monitoring stations, and the red triangles are locations where the study’s simulation (modeling) results were compared to measurements of tide levels and water velocities to validate the model. Note that much of Cook Inlet is less than 120 meters deep. The inlet and particularly the Turnagain Arm in the vicinity of Anchorage, is known for tides upwards of 40 ft., which in North America are second only to the Bay of Fundy tides.

The waters of Cook Inlet, its ecosystem, broadly-defined, subsistence practices of Alaska Native Tribes and Villages, inlet area marine food harvesting, and inlet water quality are under increasing threat from contaminants originating from a large set of anthropogenic activities, including, but not limited to mining operations; oil, gas & petrochemical exploration, development, production, transport / transmission, storage, refinement and utilization; recreational uses; timber harvesting and associated road construction; suburbanization and rural land development; cruise ship and other marine transport operations; wastewater treatment plant (“WWTP”) discharges; storm-water runoff from urban and urbanizing and industrial area discharges, accidental releases of hazardous and toxic materials, and, other water pollution-generating activities. The environmental regulation of these activities occurs under long-standing beliefs and attitudes, implicit and otherwise, that the waters of Cook Inlet and the ocean waters in general are a boundless reservoir into which many pollutants can be dispersed and become “out of sight and out of mind.” In Alaska and elsewhere, the initial availability and ongoing continuation or renewal of CWA Section 301(h) waivers of secondary treatment for WWTP NPDES permits is an environmental regulatory enshrinement of such attitudes. These types of waivers are in place to allow WWTPs such as Asplund WPCF to discharge with minimal treatment following protocols that do not fully take into account the contemporary scientific and medical understanding of disease as instigated by infectious agents including, but not limited to bacteria, archaea, viruses and

other microbial lifeforms that are present in wastewater and that are not fully or not consistently attenuated by treatment methodology used in facilities such as the Asplund WPCF.

A paramount concern, ongoing and for the past several decades, is the Cook Inlet beluga whale. These whales comprise a genetically distinct and geographically isolated population that lives only in the inlet. The population saw dramatic reduction in numbers from nearly 1,300 in the 1970s to about 330 in 2023. Furthermore, the Cook Inlet beluga whale was listed in 2008 (73 Federal Register 62919) as an endangered species by the National Marine Fisheries Service (“NMFS”). Two large areas of Cook Inlet were designated in 2011 (76 Federal Register 20180) by NMFS as critical habitat for this whale. See **Figure 2**.

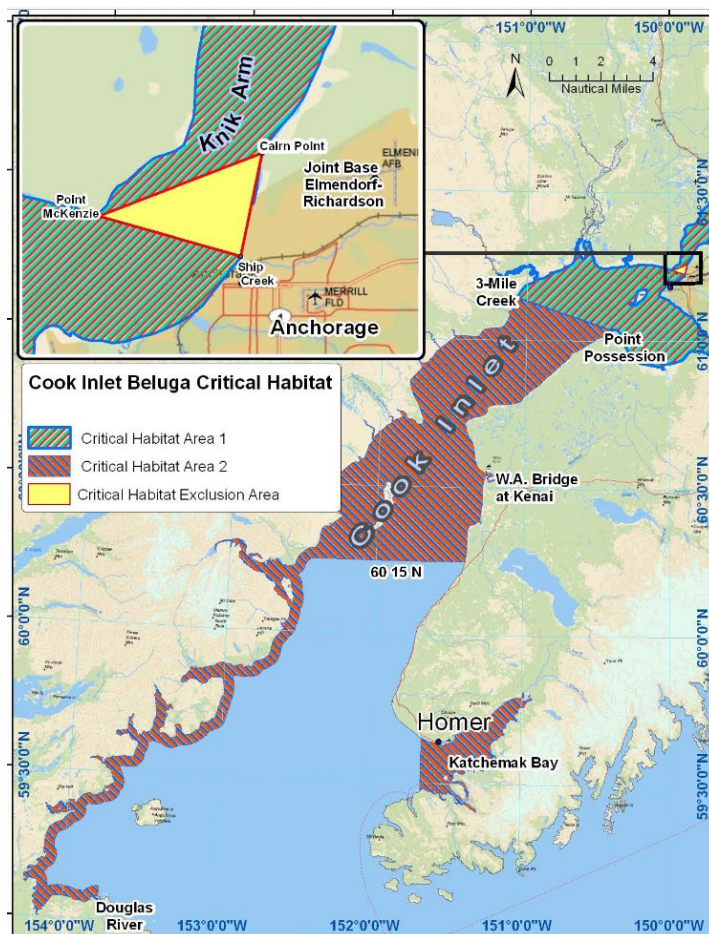


Figure 2. Cook Inlet beluga whale critical habitat as designated by the NOAA National Marine Fisheries Service in 2011. The approximate location of the Asplund WPCF Point Woronzof effluent discharge outfall is south of Point McKenzie, across the Knik Arm of the inlet, as shown in the inset map of the Anchorage vicinity, just above the legend title word “Cook.”

In the context of this white paper, water quality indicators and measures encompass a wide array of parameters ranging from concentrations of chemical constituents and contaminants both regulated and unregulated (e.g., the thousands of PFAS compounds, microplastics [e.g., Reddy & Nair, 2022], endocrine disruptors, etc.), parameters such as salinity, suspended and dissolved solids inclusive of sediment, oxygen demand, pH, and temperature, along with estimated counts of bacterial, archaeal, fungal, viral and other life forms present in and conveyed by effluent and inlet waters. Importantly,

bacteria, some pathogenic, have been found to reside on microplastic particles in municipal wastewater streams (Kruglova et al., 2022). The Council asserts that these contaminants are likely impacting the beluga whales, and likely impacting other threatened and endangered species of plants and animals, as well as species that are not yet threatened or endangered. Consequently, the contaminants are impacting the subsistence practices of Alaska Natives Tribes.

Asplund WPCF – Historical and Current Operation and Permitting Framework

Presented in this section is an overview and chronology of how the Asplund WPCF has been permitted and operated over the decades, with a brief overview of the permitting and operational options that exist going forward, together with key water quality-related issues and recommendations.

The Anchorage Water and Wastewater Utility (AWWU, a Municipality of Anchorage organization), through its ownership, management and operation of the Asplund WPCF, has for many years made use of its 301(h) NPDES modified discharge permit that incorporates a waiver from implementing secondary treatment. These waivers became available in the early 1980s. A successful application for this type of waiver, together with continuing to meet a specific set of conditions, including discharged effluent water quality conditions, allows AWWU to treat all Asplund WPCF influent wastewater using only primary processes, which consist of screening / filtration, settling and removal of biosolids, supplemented by disinfection consisting of chlorination with sodium hypochlorite, followed by discharge via the Point Woronzof outfall into Cook Inlet receiving waters. The extensive AWWU sewer service area is shown in **Figure 3** below. Asplund WPCF is the sole treatment plant for the entire AWWU sewer service area. Note that sewer service and wastewater processing and disposal for Joint Base Elmendorf-Richardson and for the Hillside Plan Area is provided by the Asplund WPCF.

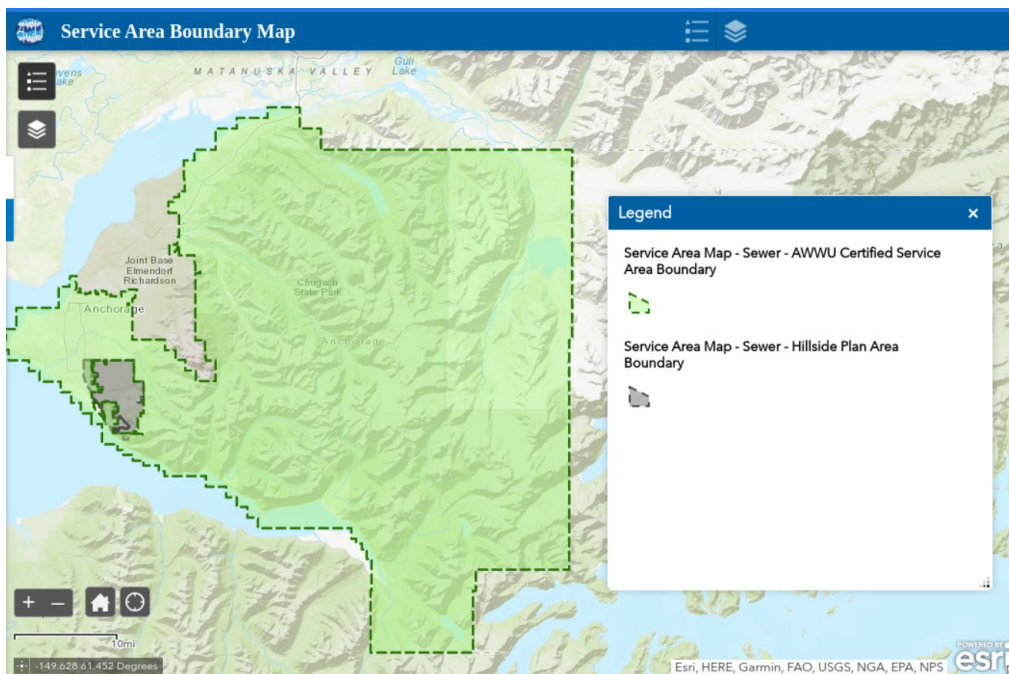


Figure 3. [AWWU Service Area Boundary map](#) as of November 2023.

The following largely verbatim summary, with some revision and edits, is based on information from the EPA (EPA Fact Sheet, 2000 – a 42-page document).

The municipality of Anchorage was first issued an NPDES permit for the Asplund WPCF on January 20, 1975. At that time there was no such thing as a 301(h) variance / waiver of secondary treatment. Section 301(b)(1)(B) of the Clean Water Act of 1972 required all publicly owned treatment works to comply with effluent limitations based upon secondary treatment by July 1, 1977. Despite all reasonable and diligent efforts, the Municipality of Anchorage could not achieve secondary treatment limitations in accordance with the July 1, 1977, deadline. On November 30, 1977, EPA exercised its prosecutorial discretion and issued an Enforcement Compliance Schedule letter specifying a schedule of compliance to achieve secondary treatment effluent limits by July 1, 1982.

In the meantime, EPA published the CWA 301(h) regulations (40 CFR 125) in the Federal Register (44 Fed. Reg. 34784) on June 15, 1979, establishing the criteria EPA would use for issuing an NPDES permit with a variance (waiver) from secondary treatment requirements. On November 26, 1982, EPA published final amendments to the 301(h) regulations (47 Fed. Reg. 53666) which clarify, simplify, and update the regulations and application requirements. Note that the CWA was amended again in 1987. The 1987 amendments define primary treatment, added restrictions on discharges to impaired estuarine waters, and added urban area pretreatment requirements.

The municipality submitted an original application for a 301(h) variance / waiver on September 11, 1979. The municipality submitted a revised application on May 31, 1984. A CWA Section 301(h) Modified NPDES permit (permit with waiver of secondary treatment) was issued to the Municipality effective October 16, 1985, with an expiration date of October 15, 1990. The Municipality submitted an application for permit renewal on April 12, 1990 – at the end of the first 5-year cycle. Because the application for renewal was timely, under the conditions of 40 CFR § 122.6, the Municipality was authorized to continue discharging under the terms of the existing permit until a new permit was issued. This was a continuation of the existing permit, rather than renewal of the permit. This was the first time that the Asplund WPCF CWA Section 301(h) modified NPDES permit (an authorization giving exemption from secondary treatment, to discharge effluent and to dispose of biosolids) was administratively continued, rather than renewed on the originally prescribed 5-yr schedule. This was by no means the last time the discharge permit was continued without formal renewal.

On October 1, 1998, an updated application for permit renewal was submitted by the municipality. The application was approved, and permit renewal was signed June 30, 2000, effective August 2, 2000, with expiration on August 2, 2005.

As may be borne out during the current renewal process, depending on whether it meets with fruition, renewal is a non-trivial process that requires considerable effort on the part of the AWWU, the EPA, Tribes and other agencies that may be consulted with as part of the EPA's process, the public and potentially other parties. However, the AWWU has likely reaped considerable expense reduction over the decades by use of the 301(h) waiver in conjunction with the repeated relaxation by the EPA of the requirement for renewal (spanning a cumulative period of nearly 35-40 years), thus allowing for repeated administrative continuations in lieu of 5-yr renewals.

The 301(h) waiver that is incorporated into the 2000 Asplund WPCF CWA 301(h) modified NPDES discharge permit explicitly allows for relaxation of three (3) specific criteria for secondary treatment that pertain to total suspended solids ("TSS"), biological oxygen demand ("BOD"), and pH in

wastewater (EPA, 2000, 2000a). In its June 19, 2015, letter from the National Resources Defense Council (“NRDC”) to EPA, the following was stated on page 7:

“Under a secondary treatment NPDES permit, the Asplund WPCF would be required to remove a monthly average of 85 percent of biological oxygen demand constituents (BOD) and total suspended solids (TSS). However, its current procedures remove only 42.8 percent of BOD and 78 percent of TSS.”

In other words, the BOD removal stipulated under the existing 301(h) modified NPDES permit is about half of what would be stipulated or required without the 301(h) permit modification (42.7 versus 85). Stated another way, without the permit modification, Asplund WPCF effluent BOD levels can be up 15% and with the permit modification they were at nearly 57.2% in 2015 or thereabouts. BOD is a wastewater contaminant and pollutant and for the Asplund WPCF, the modified permit allows discharge of effluent with BOD levels roughly 400% greater than what would otherwise be required. The 2000 permit also mandates the establishment of monitoring programs for treatment plant influent and effluent water quality; receiving water quality; and marine biota. A review of the 2000 permit criteria, assumptions, bases and defensibility is well beyond the scope of this paper. However, the adequacy of AWWU assumptions, understanding or science, as well as the effect(s) of insufficient, inaccurate or incomplete data used to establish the 2000 permit, have apparently not been assessed. For example, it was assumed that fecal coliform and enterococcus are the only two (among a multitude of bacteria, archaea, viruses, fungi and other microbial lifeforms present in municipal wastewater streams) that needed to be monitored as part of the permit. That is surely a questionable approach, no matter how widely used at that time or in the present time, as concerns actual microbial populations in wastewater effluent.

With reference to **Appendix A**, the EPA, at this time, is anticipating that enhanced fecal coliform and enterococcus (genus designation) monitoring will be required for the Asplund WPCF as part of the ongoing permit renewal process, which may happen for the first time in nearly 25 years. This is part of a larger effort to require that the 301(h) permits being renewed in SE Alaska will have more stringent bacteria limits for fecal coliform and new limits for enterococcus. Fecal coliform levels in the environment can be indicative of bacteria levels in shellfish that can sicken humans. Additionally, enterococcus levels can be indicative of bacteria in water that trigger gastrointestinal diseases that can also sicken humans. Both pathogens, two among a multitude of pathogens, are highly relevant for subsistence-related uses of Cook Inlet and area waters by Tribes and Villages in the area. Note that the existing permit for the Asplund WPCF has a fecal coliform discharge limit that is much higher than for typical wastewater facilities. Please see **Appendix A** for more detail on the anticipated new regulations for these two microbes.

AWWU Asplund WPCF NPDES Permitting Process (2000-2024)

The EPA staff indicated to the NTWC (teleconference of July 10, 2024) that EPA Region 10 staff expect an updated application for NPDES permit renewal from the AWWU in mid-2025, inclusive of a mixing zone analysis and Endangered Species Act consultation related materials. The last permit renewal application was submitted to EPA in 2005, but due to limitations on record retention, it appears that the EPA no longer has a copy of this application, or of the 2000 application. In 2005, the discharge permit was continued rather than renewed, and apparently it has been continued every 5-years ever since. Thus, apparently the AWWU is updating the renewal application that they last submitted in 2005.

Therefore, the approach for the past 30-35 years has been continuation rather than renewal of the facility NPDES discharge permit. The EPA is presently pursuing renewal, which requires the following steps. However, there could very easily be a reversion to the permit continuation approach if the November 2024 elections result in a return to policies and actions that have historically hamstrung rather than furthered environmental protection by the EPA.

The following is an outline of Asplund WPCF NPDES 301(h) modified permit renewal steps, each of which may have a fair level of complexity and potential variations from what is written here.

- The AWWU submits: 1) a CWA Section 301(h) waiver application following instructions laid out in the regulations; and 2) a NPDES permit application.
- The EPA reviews the submittal with an eye towards the last five (5) years of water quality monitoring and discharge data (monitoring by AWWU), taking into consideration whether and how State (Alaska) water quality standards are being met. Other considerations include but are not limited to whether AWWU is meeting the nine (9) 301(h) criteria; whether there have been fish die-offs; or what sediment monitoring data indicate.
- The EPA then makes an approval or disapproval determination. Presumably, AWWU would have some recourse to revise and resubmit if their application is denied. In many regards, the Asplund WPCF falls under the description of *too big to fail*.
- In the event of approval, the EPA prepares a draft NPDES permit, a NPDES permit fact sheet, a 301(h) tentative decision document and possibly supporting document to justify / support their decision to renew the permit. EPA then notices the public and accepts comments for a period of no less than 30 days and possibly as long as 60 days. Such documents were issued in August of 2024 for the Borough of Petersburg Wastewater Treatment Plant in Alaska and can be found on EPA's website (<https://www.epa.gov/npdes-permits/proposed-permit-borough-petersburg-wastewater-treatment-plant-alaska>)
- Next, EPA would notify tribal and village entities of its action and open informal consultation. At any time, tribal or village representatives may request formal government-to- government consultation.
- Following consultation and public commenting, the EPA will at its option finalize the permit, inclusive of its response to comments. This step takes several months.
- The EPA will then issue the permit, inclusive of an effective date for the permit.
- There is then an administrative appeal period of 90 to 120 days. This is a period during which litigation by opposing parties may be initiated.

Asplund WPCF NPDES Permit Regulatory Compliance Overview

The compliance issues are generally not known to entities such as the NTWC, which is far removed from the site, far removed from the physical and digital records known primarily to staff at EPA, but also to AWWU staff, and is an external party to the relationship between the permittee and regulator. Still, as part of the preparation of this paper, the NTWC has made use of readily available public domain information to assess in a limited way regulatory compliance by AWWU concerning the CWA Section 301(h) modified NPDES permit that governs the Asplund WPCF operations.

On November 8, 2024, we queried the EPA ECHO database and generated a Detailed Facility Report for the Asplund WPCF, which ECHO records as: JOHN M ASPLUND WASTEWATER CONTROL FACILITY, 2300 HUTSON DR, ANCHORAGE, AK 99502, Facility Registry Service ID

110000523595, EPA Region 10. The report states that the facility is not in Indian Country. However, the impacts extend far beyond the facility into Indian Country.

The ECHO report indicates that regarding all environmental permits for the Asplund WPCF that the EPA administers, in the past twelve quarters, there were no quarters with a finding of noncompliance as concerns the CWA, CAA (Clean Air Act) and RCRA (Resource Conservation and Recovery Act) facility permits, and in the past five (5) years one informal enforcement action was taken by the EPA. The report's summary of CWA Discharge Monitoring Report (DMR) Pollutant Loadings data indicates that while 2019 to 2022 annual loading by the plant was about 22 to 23 million pounds a year; in 2023, the loading was only 11.5 million pounds a year. This is a dramatic change though we were not able to investigate the cause.

By means of the repeated continuation rather than renewal of the Asplund WPCF CWA 301(h) modified NPDES discharge permit of 2000, which stipulates sediment and bioaccumulation monitoring in the fourth year after the effective date of the permit, there has been no new sediment or bioaccumulation monitoring since 2004. This illustrates how permit compliance requirements can be circumvented without violation, otherwise known as *using a permit as a shield*. The routine use of continuation rather than renewal by means of repeated joint actions of the facility management and EPA regulators is a major loophole in the implementation of CWA 301(h) waiver requirements at the Asplund WPCF.

Historic and Current Issues

There are numerous issues concerning Cook Inlet water quality in relation to Asplund WPCF effluent discharges to Cook Inlet and the regulation thereof.

- The elephant in the room, so to speak, is the collective ongoing, historic and anticipated possible future impacts associated with permitting the Asplund WPCF facility using a CWA Section 301(h) waiver modified NPDES permit. The principal outcome is a 25–30-million-gallon daily discharge of effluent that has received only primary treatment followed by disinfection by means of chlorination. This practice commenced at lower average daily discharge rates early on, ever since the waiver was first put in place, nearly 40 years ago, and continues at higher rates today. At this time, there is no end in sight for these discharges, their water quality characteristics and the many implications of the associated Cook Inlet water quality (broadly rather than narrowly defined) degradation.

Note that the CWA 301(h) waivers from secondary treatment are very much a part of the CWA, not exemptions from the CWA. The waivers allow exemption from certain secondary treatment standards, in this case biochemical oxygen demand (“BOD”) and total suspended solids (“TSS”), if discharge into the ocean occurs in a hydrodynamic ocean environment where mixing brings levels of BOD and TSS below defined regulatory limits. However, the fact is that in such a coastal mixing zone, contaminant levels that are at the point of wastewater treatment plant discharge (outfall) unacceptable from a regulatory point of view are diminished by dilution / mixing to levels that are acceptable under existing environmental regulations and standards.

- As indicated in the introduction, Cook Inlet is home to a population of beluga whales that have been listed as endangered. The Natural Resources Defense Council, in its June 29, 2015, letter to EPA, indicated that water quality contaminants / pollutants wastewater discharge from the Asplund plant is a “major threat” to this population as the plant is authorized to discharge 25-35

million gallons a day of primary-treated effluent into a habitat that has been designated as critical. In this area of critical habitat, the National Marine Fisheries Service (NMFS) has stated that water quality is essential for the whales' conservation in both designated habitat areas 1 and 2. See **Figure 2**.

The pollution from wastewater discharges is one of the major threats to the Cook Inlet beluga whale population. Currently, the Asplund WPCF is authorized to discharge primary treated effluent directly into the beluga whales' designated critical habitat, pumping millions of gallons into Cook Inlet every day. In designating critical habitat, the NMFS determined that water quality was essential to [the beluga whales] conservation within both [critical habitat] areas 1 and 2. As part of the NMFS Draft Recovery Plan for the beluga whales, the Agency spoke to the water quality benefits of Asplund WPCF moving from primary only to secondary treatment by means of a plant upgrade. In 2011, the NMFS identified that "waters free of toxins or other agents of a type and amount harmful to Cook Inlet beluga whales" is essential to the conservation of beluga whales (76 Federal Register 20203). Because there is no monitoring of Asplund WPCF discharges for pathogens other than fecal coliform and enterococcal bacteria, the role of Asplund WPCF discharges in releasing specific species of microbial life, including viruses, into the waters of the Cook Inlet and its ecosystems conveniently remain an unknown. Finally, species such as the beluga whale, which bioaccumulate water-borne contaminants in fats within their blubber, where it is subject to probable future metabolization and the ensuing toxic effects on the whale (Norman, 2011), are especially susceptible to contaminants that are held by AWWU and EPA to be within regulatory limits, or to the vast number of contaminants that are not even monitored, or not monitored with adequate frequency or consistency.

- A key implication of the Cook Inlet water quality impacts associated with cumulative wastewater and pollutant discharges into the inlet, including Asplund WPCF discharges under its 301(h) waiver, are the subsistence impacts, inclusive of human impacts, (see for example, Merrill & Opheim, 2013) and this is of great concern for inlet area Tribes and Villages. Subsistence and cultural practices on tributaries of Cook Inlet are at risk, for example, as numerous species of anadromous fish must traverse Cook Inlet with potential exposure to Asplund WPCF-sourced pathogens occurring not once but twice during their life cycles.
- The Cook Inlet water quality is not something that is understood or monitored in a comprehensive way or in a manner intended to provide answers to the overarching environmental issues presented here. It is of course monitored in a very limited way by the AWWU to satisfy the Asplund WPCF NPDES permit requirements.

There are various tribal water quality initiatives underway in Cook Inlet areas. One such program is the Tyonek Tribal Conservation District stream temperature monitoring program (Cook Inlet Water Quality Summit Book, 2023), which has been in progress for nearly nine (9) years.

As noted earlier, an environmental group based in San Francisco conducted a study on beluga whales found deceased in Cook Inlet in 1997, as part of their research to show that the Asplund Treatment Facility was in part at fault for the demise of the beluga whales. Their study did show the beluga whales suffered kidney and liver failures because of toxicant likely originating from Asplund. This was a specific study only on the beluga whales, and totally ignored other marine life in the Cook Inlet, such as seals, sea otters, sea lions, orcas, humpback whales; and fish populations of halibut, founder, bass, wide varieties of seaweed and clams. Now, there is a need to address the health of the anadromous fish such as salmon, steel head, Dolly Varden trout,

lamprey, eulachon and herring. The Salamatof Tribe is seeking to conduct water sampling throughout the Cook Inlet to measure to what extent the pollutants and toxins are in the water from Asplund's effluent discharges.

At the present time, the United States Geological Survey ("USGS") conducts minimal water quality monitoring (1 location, per Jeff Conaway, USGS, personal communication, November 2023) and the last serious effort by USGS to monitor water quality in Cook Inlet wrapped up nearly 20 years ago (Glass, 1999; Glass et al., 2004). Much of the emphasis was on freshwater tributaries to the inlet. See the [USGS National Water System Information Mapper](#) for locations of USGS monitoring sites.

Per its NPDES permit, the AWWU annually monitors Cook Inlet receiving waters during the summer in dry weather conditions at locations close to Point Woronzof near the discharge for the Asplund WPCF and in the zone of initial dilution or ZID for Total Residual Chlorine, Total Aqueous Hydrocarbons ("TaqH"), Total Aromatic Hydrocarbons ("TAH"), Metals and Cyanide, Total Suspended Solids ("TSS"), Turbidity, pH, Temperature, Dissolved Oxygen (DO) and Salinity. Additionally, AWWU conducts intertidal sampling and testing for fecal coliform bacteria at eight (8) stations (in 2023).

For the past 40 years or so, the AWWU has only once or twice conducted mandated monitoring of sediment and bioaccumulation of chemicals, due to circumvention of the mandate through continuation rather than permit renewal. As noted above, this is known as *using a permit as a shield*.

There is an ongoing initiative to prepare a synthesis of contaminants data for Cook Inlet that will include evaluation of existing available water and sediment quality data to establish baseline conditions and to develop recommendations for further water and sediment quality monitoring (Cook Inlet Water Quality Summit Book, 2023). The initiative is funded by the Bureau of Ocean Energy Management and led by individuals, including Susan Saupe from the Cook Inlet Regional Citizen Advisory Council, and a group of private sector environmental consultants. The initiative will look at water and sediment quality data collected by diverse entities over the past several decades. Sediment quality is of great interest due to adsorption / coatings of contaminants on naturally-occurring sediment particles and sediment-sized particles of contaminants that settle out from inlet waters over time – and that are subject to future cycles of erosion, transport and deposition in the dynamic waters of Cook Inlet.

- When it comes to WWTPs that have CWA Section 301(h) waivers, the EPA serves as the primary regulatory authority, rather than the State. In the case of Asplund WPCF, this means that EPA (Region 10) is the primary regulator, rather than the State of Alaska. If and when the waiver is eliminated, the State of Alaska will assume sole regulatory responsibilities for Asplund WPCF environmental permitting and permit enforcement. This could be problematic, as the State has a reputation for being lenient (e.g., Miller, 2024) when it comes to environmental regulation.
- An additional consideration is that as long as EPA is the primary regulatory authority for Asplund WPCF discharge permitting and enforcement, when it comes time for permit renewal, tribal consultations are required as are Endangered Species Act (ESA) Section 7 consultations by the EPA. **If the State of Alaska is the primary environmental regulator for permitting of the Asplund WPCF effluent discharges to Cook Inlet, no ESA or tribal consultations are required.**

- The State of Alaska does play a role concerning NPDES permit that utilizes a 301(h) waiver. The following is a synopsis of content that appears in Appendix A. *It is a requirement that when EPA writes such modified NPDES permits, EPA must request certification under Section 401 of the CWA from the jurisdiction, in this case the State of Alaska, where the permittee discharges. Thus, EPA will need to request 401 certification from the ADEC [Alaska Department of Environmental Conservation] for 301(h) permit renewal. The ADEC's role is to review the permit for conformance with Alaska's Water Quality Standards and state law, and to provide a 401 certification of the modified permit. EPA cannot issue a 301(h) permit unless the State grants 401 certification or waives their right to certify.*
- A major issue with the 301(h) waiver for Asplund WPCF is the very long time between permit renewals. These renewals were originally intended to occur on a 5-yr cycle. However, the present cycle is more like 20 years. The EPA staff would like to get back to the 5-yr cycle, but whether this will happen or not is unknown.
- Often there is disconnect between the public health side of government and the environmental regulatory side of government. In the case of Cook Inlet, the regulatory side tends to be crisis-driven, for example, a major fish die-off from contaminated water will trigger action by the EPA. It seems that there are generally no mechanisms in place that take into consideration gradual non-catastrophic incremental degradation of species health (including human species) or numbers. Also, public health is generally not investigated or monitored by environmental regulators once a regulatory standard has been set. And the public health regulators may or may not be paying attention, as all regulatory authorities are resource and scope limited. This is problematic in many settings in which water or air quality is regulated by the EPA.
- Another issue of concern that falls outside of the purview of 301(h) waivers, but is linked is regulation of so-called emerging contaminants. The term “emerging” is a misnomer for known contaminants that are not regulated but should probably be regulated, (e.g., the multitude of PFAS chemicals). This reflects the snail's pace of advancement in the EPA regulatory oversight and in public law over the decades since EPA was established and foundational legislation (CWA, CAA) was passed by Congress and signed into law by various presidents. The capabilities of the Agency and utility of the legislation as concerns environmental and public health protection are subject to manipulation by the executive, judicial and legislative branches of the federal government.
- The state of the art in testing for microbial agents in wastewater plant fluid streams at Asplund WPCF and many other places appears to rely almost exclusively on fecal coliform and enterococci testing, which are proxies for the multitude of infectious agents in wastewater, but this is not adequate. Under the status quo, we know little about the microbial content of Asplund WPCF effluent and that is not likely to change soon without a concerted effort by the EPA and other regulatory authorities. There is a considerable lag at EPA and in other agency settings between advances in knowledge about pollutants and their impacts and when that knowledge makes its way into regulation and implementation thereof. The NTWC recommends that EPA make greater use of peer review of critical studies and reports supplied by regulated entities such as the AWWU and that the Agency begin using and relying upon advanced microbiologic and genetic assaying tools that are widely used in research, but little used in certain industries, where analytical practices may lag by decades. Here we are referring to quantitative assessment of microbial populations in discharged effluent and in Cook Inlet waters using genomic analysis methods that rely on the DNA or RNA present in a wastewater sample, or using other newer methods (e.g., methods used to analyze for Covid-19 viral presence in wastewater influent or

effluent). This could be something the EPA takes on in partnership with one or more academic research institution(s).

One possible avenue that Asplund WPCF could pursue is participation in the CDC National Wastewater Surveillance System (NWSS) Program. This program tests wastewater influent twice weekly for covid-19 and flu, (including variants), RSV, and monkey pox. The program has grown in the past several years, is free for participants and publicly available. There are also very affordable options available to test for different high-risk substances, such as methamphetamine, nicotine, cocaine, fentanyl and xylazine in wastewater streams, some of which have been shown to have effects on fish populations (Miller, 2019; Horký et al., 2021). These programs are easy to participate in and require minimal time and expertise, so they are not burdensome to operators. It is acknowledged that participation in such program is outside the purview of NPDES, however, this is something EPA and AWWU could promote as a tool for better understanding the nature of the discharge going into Cook Inlet, and participation provides a great way of getting additional data at an affordable cost to the treatment plant. Considering the unique biology within the Cook Inlet, and the endangered status of the beluga whale, this seems like an excellent opportunity to get high quality data into the hands of decision makers.

- The current regulatory approach to Asplund WPCF effluent discharges is based on mid-20th-century attitudes toward waste disposal by means of ocean dumping. Environmental and marine species impacts are considered only with limited depth and breadth both spatially and temporally. The CWA 301(h) waiver process is built on an antiquated premise that the ocean depths are a suitable dumping ground for human societal wastes of many if not all types, even though the CWA 301(h) waiver process itself deals only with a specific waste type – wastewater treatment plant effluent. It is probably safe to say that the ocean depths have been at one time or another identified and used as disposal sites for the majority of contaminants / pollutants generated by our society. Additionally, as pointed out earlier, the waters of Cook Inlet are relatively shallow; it appears that the inlet is being used in essence as a shallow open drain to the ocean depths.

While "the solution to pollution is dilution" approach may be suited to pollutants consisting of familiar WWTP effluent constituents / contaminants, such as chlorine, TDS, BOD, pH, nitrates, etc., the efficacy of this approach for infectious agents observed to be present in wastewater influent and effluent streams (e.g., Jankowski et al., 2022; Qiu et al., 2015; Ariyadasa, et al., 2023) has not been demonstrated. Further, the increasing global impacts, including harmful algal blooms (HABs) stimulated by nutrients in both wastewater and runoff, which have known impacts on marine species important for subsistence practices by Tribes, are global in scale and distribution (Thuholske et al., 2021) and occur in Cook Inlet (Farrugia, 2023); please see **Figure 4** below for a map of estimated nitrogen loading in Cook Inlet due to human wastewater discharges.



Figure 4. Map of estimated anthropogenic (human-sourced) nitrogen loading from human wastewater in grams per year per square km of Cook Inlet and other nearby Alaska coastal waters. This illustration was developed using a mapping tool found at: <https://www.globalwastewatermodel.com/webmap.html>. See Tuholske et al. (2021) for information on the development of this map and the data therein, as well as the interpretation of the simulation results. The simulations and resulting map thereof reveal possible geographic extent and magnitude of Asplund WPCF impacts to Cook Inlet from nitrogen loading though there are of course other lesser sources of inlet nitrogen loading. Nitrogen loads of upwards of 10,000,000 grams per year per square kilometer are estimated in the vicinity of the Point Woronzoff outfall.

- Apparently, the most recent biological evaluation of the Asplund WPCF impacts on Cook Inlet biota that includes the beluga whale was conducted in 2011 (CH2M Hill, 2011). The report consists of two main elements. The first describes a hydrodynamic-contaminant transport modeling effort to determine the transport and fate of contaminants in Cook Inlet from Asplund WPCF discharges at Point Woronzoff. This two-phased effort first simulated dilution of the discharge in what is known as the near field, that is, within several thousand feet or so of the outfall. It is not clear that near-field modeling was ever validated. The second phase of the modeling effort simulated the movement of water far from the discharge, also known as the far field, as water in the inlet is transported, mixed and the contaminant load is progressively further diluted. Far-field modeling made use of calibration and validation procedures though contaminant transport calibration was done only for temperature. It does not appear that an uncertainty analysis was done as part of the simulations, and that is a major shortcoming. Overall, the near-field and far-field modeling allowed for estimation of concentrations of effluent pollutant parameters of concern (“POC”). The second element described in the report is an assessment of toxicological impacts to beluga whales and specific beluga prey species from a

set of pollutant POC, both regulated and unregulated / emerging, with concentrations based on the flow and transport modeling. It appears that the toxicological assessment is incomplete as it does not address or estimate impacts to beluga health and morbidity from contaminants such as microbial agents.

There is no apparent consideration in the 40 CFR Part 125 Subpart G (Nov. 17, 2023) 301(h) waiver process to address cumulative water quality impacts, which continue to grow over time in Cook Inlet. In their attempts to justify permit renewal, the AWWU and its consultants have not assessed cumulative water quality impacts from all major waste discharges into Cook Inlet. Until such time that cumulative water quality impacts are assessed, looking at Asplund WPCF discharges in isolation is an application of a flawed approach – no matter how widely and often it may be relied upon, regarding water quality and related impacts from contaminant releases into the environment.

- It appears that there is no pretreatment of medical facility wastewater streams prior to their discharge into the wastewater collection system. See Yadav et al. (2020) for an overview of this issue. The absence of this pretreatment underscores the overall limited attention given to the fate of nutrients, microbial life forms and chlorine disinfection residuals discharged from the Asplund WPCF into Cook Inlet. The AWWU has not demonstrated that disinfection pretreatment of medical wastes entrained in water and discharged to the Anchorage municipal wastewater collection system from area hospitals and medical facilities is unnecessary. Neither has the AWWU demonstrated that medical wastes slated for entrainment in wastewater at those medical facilities and transported to Asplund WPCF through the AWWU sewage collection system should not be designated as hazardous waste and handled by processes other than that of the apparent current practice of disposal at these facilities into the Anchorage municipal wastewater collection system.
- There appears to be no consideration by the AWWU for water quality impacts due to its wastewater discharges on subsistence and cultural uses, such as subsistence harvesting of plants or animals or use of the Cook Inlet area marine and freshwater environments by Tribes and tribal communities or members.
- The first CWA Section 301(h) permit waiver was issued in 1985. The permit was last renewed under normal procedures (5-yr cycle) in 2000, and it has been administratively continued since 2005. Thus, the normal CWA Section 301(h) permit renewal process has been circumvented for nearly 35-40 years with the Asplund WPCF NPDES permit continued rather than renewed, other than for one permit renewal in 2000. During that time, apparently there has been no Asplund WPCF related consultation with or input from Alaskan Tribes or Native Villages, though informal consultation by the EPA has commenced and is anticipated as part of the ongoing permit renewal process, which is expected to be completed in 2025.

Recommendations to Improve the 301(h)-Modified NPDES Permit for the Asplund WPCF

The EPA's CWA Section 301(h) waiver renewal / administrative continuation process should give the following recommendations serious consideration through a process that is both transparent and documented.

- The NTWC is opposed to EPA simply continuing the existing waiver, as has been done for most of the past 35-40 years. The Council understands that the formal waiver renewal process that is underway is slated to be completed under the next administration in Washington, D.C., with AWWU completion of their application submittal anticipated in mid-2025. Thus, either outcome (renewal versus continuation) remains within the realm of possibility. We expect that denial of the waiver is highly unlikely and do not speak to that in this paper.
- The NTWC strongly recommends consultation between the EPA and tribal and village representatives concerning potential impacts to cultural and subsistence practices. There should be an assessment of Asplund WPCF wastewater nutrient impacts on harmful algal blooms (e.g., Vandersea et al., 2018; see also Tuholske et al., 2021). In addition, as reported by the Seldovia Village Tribe (Merrill & Opheim, 2013), *the average fish consumption rate of Seldovia, Port Graham, Nanwalek, and Tyonek surveyed tribal members is approximately 5 times greater than the average consumption rate recommended by EPA and 15 times greater than the rate used by ADEC [Alaska Department of Environmental Conservation] in calculating human health based ambient water quality criteria and standards for toxins. These results suggest that EPA and the State of Alaska adopted ambient water quality criteria and standards for toxic pollutants based on their [the agencies'] current [assumed] fish consumption rates may not be sufficient to protect Native Alaskans residing in Cook Inlet.* This issue needs to be examined fully and rapidly by the EPA.
- There was no effort made in the 2011 CH2M Hill biological evaluation to address potential or actual impacts to health or morbidity of beluga whales and their prey species from bacteria, viruses, archaea, fungi or other microbes. The NTWC believes that the existing biological evaluation (CH2M Hill, 2011) is thus incomplete and recommends that as part of the current application process, these potential or actual impacts be addressed and that the study and report be reviewed by an external panel of individuals with demonstrated expertise in the relevant modeling, toxicology and analysis.
- An independent investigation of the value, need and feasibility of pretreatment of influent to the Anchorage Water and Wastewater Utility wastewater collection system from medical centers such as, but not limited to, Alaska Regional Hospital; Providence Alaska Medical Center; St. Elias Specialty Hospital; Providence Alaska Children's Hospital; Alaska Native Medical Center; and Joint Base Elmendorf-Richardson Hospital is needed. This needs to be done in the context of Cook Inlet water quality, as well as potential ecosystem and species (inclusive of human, and subsistence) impacts related to Asplund WPCF discharges.
- The AWWU should demonstrate and document that the fecal coliform and enterococci bacterial test methods in use are suitable proxies for testing the broad spectrum of bacteria, archaea, fungi, viruses and other infectious agents, including microbial genomic fragments, presumably present in the Asplund WPCF influent (in amounts that may vary considerably over time). Assays of this pantheon of infectious agents have been in wastewater plants; for example, see Jankowski et al., 2022). Furthermore, AWWU needs to demonstrate and document that the locations of sampling, species sampled, test methods, and frequency of testing at important Asplund WPCF locations and in Cook Inlet are adequate and appropriate for protection of Cook Inlet water quality, as well as for ecosystem and species health. Quantitative focused assays of bacteria, archaea, viruses and other infectious agents present in the influent and effluent streams at the plant are needed to understand the presence and attenuation of these species by the existing treatment processes and by mixing in the Inlet.

- The AWWU should demonstrate that the sodium hypochlorite disinfection process presently in use at the Asplund WPCF and upon which the Asplund WPCF apparently plans to continue to rely upon, has a documented adequate kill rate for representative members of the broad spectrum of infectious agents present in the influent to the disinfection section of the Asplund WPCF. Also, the AWWU should address the broad environmental and species impacts of the continuous sodium hypochlorite discharges into the Cook Inlet that result from Asplund WPCF operations.
- The AWWU should characterize through appropriate wastewater collection system sampling, testing and monitoring the wastewater effluent stream from Joint Base Elmendorf-Richardson. It is possible that this is being done and we missed it.
- The NTWC recommends that the AWWU, as probably the largest wastewater discharger on Cook Inlet, be required as part of any waiver renewal to meaningfully address, from a scientific and engineering perspective, the cumulative water quality and ecosystem and species health impacts of all major wastewater streams discharged into Cook Inlet.
- It is evident that AWWU has saved, is saving, and plans to save a great deal of money by means of its utilization of the 301(h) waiver. This is abundantly clear from their own documentation; see the image below of a portion of a slide from the *Asplund Wastewater Treatment Facility NPDES 301(h) Permit Renewal - Status Update, Presentation to Assembly Enterprise and Utility Oversight Committee on April 21, 2022*.

Loss of 301(h) variance would have tremendous financial consequences

- Cost of going secondary treatment estimated to be \$1.0 – 1.4 Billion (2022 dollars)
- O&M costs would increase about \$4,400,000 per year on top of MUSA

There should be an independent peer-reviewed engineering costs analysis of improvements necessary for transitioning the Asplund WPCF from a facility that utilizes only a primary process to a facility that utilizes primary and secondary treatment processes, together with appropriate disinfection processes. This analysis needs to be truly impartial and independent, and it should address O&M costs.

- The Asplund WPCF water quality monitoring should include sampling and monitoring of PFAS compounds in both influent and effluent per the December 5, 2022, direction from EPA Office of Water entitled: *Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program*. We understand that this is now a requirement of the NPDES permit for facilities of this type, but WPCF may not be sampling and monitoring PFAS compounds.
- The NTWC recommends that the EPA convene a panel of outside independent experts, inclusive of experts in tribal and village subsistence practices and environmental protection, to address, in a serious defensible way, at least two questions. First, what type of Cook Inlet water quality monitoring would be of value to addressing questions of ecosystem health and public health, e.g., of subsistence users and other users, from the Asplund WPCF discharges and in the

context of cumulative water quality impacts in the inlet? Second, what should be done concerning the utilization of the 301(h) waiver by the AWWU for its operation of the Asplund WPCF, looking at the time frame from five (5) years and beyond? The panel may formulate questions that it identifies as priorities for its consideration.

- A health impacts analysis or HIA (see Bhatia et al, 2014) seems to be an appropriate tool for evaluating and communicating some of these potential effects: impacts to community health, social cohesion, access to healthy food, equity; generally promoting health in policies and plans. The HIA process is a proactive, collaborative, and systematic process that precedes decision-making, such as the issuance of a permit. Through early and broad stakeholder engagement, it provides a framework for quantifying the potential health benefits and adverse health effects of policies, plans or projects. It can reveal insights into the equitable distribution of benefits or burdens across different communities or populations, and lead to increased awareness and understanding of health consequences by agencies, tribal communities, and the public at large. Health Impact Assessment is premised on the fact that the majority of our health (approximately 60-80%) is determined by factors that can be changed: the social determinants of health. From the Society of Practitioners of Health Impact Assessment (Schuldt et al., 2018):

HIA provides a structured process that aims to protect and promote health and reduce health inequities during a decision-making process. The HIA process can help transform how decisions are made, who has an active voice in the decision, and how those decisions impact the health of those most vulnerable. An HIA uses analytic methods and stakeholder input to systematically determine the potential population health effects of a proposed policy and provides recommendations to decision-makers to provide equitable distribution of health benefits.

- It appears that the pretreatment influent monitoring at the Asplund WPCF is mainly done to assess for metals. Apparently, the monitoring follows particulars set forth by AWWU or its predecessor in 1982 in a submission to the EPA entitled *Municipality of Anchorage Industrial Pretreatment Program*. The criteria set forth by AWWU (2023) are:

As part of the pretreatment program sampling requirements, arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel, silver, and zinc in influent, effluent, and sludge will be sampled, along with percent solids (in sludge only). These metals were analyzed for and reported as both total recoverable metals and dissolved metals for influent and effluent and as total metals in dry weight for sludge. Sampled as follows: Influent and effluent as three separate 24-hr flow composite samples taken on three consecutive days, one day of which coincides with the twice-yearly sampling (summer-dry and summer-wet conditions); and sludge as one composite of eight grabs/day when influent and effluent samples are being taken. In addition, the other five metals from the toxic pollutant list are analyzed in the summer-wet / summer-dry samples: beryllium, molybdenum, antimony, thallium, and selenium.

A review of the above sampling protocol raises the question as to what might pass through the plant during the spring, fall or winter quarters of the year when, apparently, there is no sampling or monitoring. We recommend a more robust pretreatment monitoring program developed in part to address the various ways in which the objectives of the monitoring may be circumvented by a discharger that intends to do so. Additionally, the basis for the monitoring is over four (4) decades old, and the multitude of prospective pollutants beyond a dozen or so metals does not appear to be considered by the current pre-treatment monitoring. This needs to be fully addressed.

- The AWWU non-industrial source control program does not appear to incorporate any specific monitoring and there appear to be no measures of its efficacy, as concerns the influent to Asplund WPCF. This situation appears to have been the status quo since 1982. The relevant practices should be updated as part of any permit renewal and source control efficacy should be meaningfully assessed with control practices revised as appropriate.
- The EPA should soon comprehensively review the appropriateness of CWA Section 301(h) waivers of secondary treatment using contemporary science, particularly concerning cumulative ecosystem and species impacts related to infectious constituents of contemporary wastewater effluent streams from plants with these waivers. The NTWC is concerned that there may be pressure to maintain the status quo concerning the CWA Section 301(h) waiver program. The NTWC recommends that the EPA, as part of any permit renewal or continuation, formulate a plan for the future of the Asplund WPCF concerning treatment beyond primary. Or is it the Agency's and AWWU's expectation that the 301(h) waiver for the Asplund WPCF shall be maintained in perpetuity?
- An independent evaluation should be done to identify the disinfection processes and practices that are best for the actual current and anticipated future levels of the entire spectrum of infectious agents present in effluent from the Asplund WPCF primary clarifiers.
- As part of the consultation process, the EPA should identify, particularly concerning highly technical reports on mixing zone analyses and numerical simulations, as well as toxicological analyses, the personnel (with their qualifications and affiliations), either in-house or contracted, that critically reviewed and evaluated the relevant materials submitted to EPA by the AWWU as part of the ongoing 301(h) waiver renewal process.
- The EPA consultation with Tribal and Village representatives concerning Asplund WPCF 301(h) waiver renewal should occur in a way that is structured and organized so that Tribal and Village participation is not burdensome to their organizations and representatives, and that the outcomes are satisfactory to the Tribes and Villages. Consultation needs to occur at the outset of when the EPA begins its review and consideration of the AWWU application for NPDES permit renewal. Additionally, given the large volume of highly-technical permit renewal supporting materials and documentation that will likely be submitted to the EPA by AWWU, the EPA should provide adequate time for the tribal and village representatives to review the documentation, and, if requested by the representatives, provide independent technical experts who can assist the representatives with their review and understanding of the materials and documentation, which after all help form the basis for the permit renewal if approved by the EPA.
- The EPA should put teeth in the Asplund WPCF 301(h) waiver renewal stipulations so that the AWWU doesn't get to run for decades on what is supposed to be a 5-year permit renewal cycle.
- The Asplund WPCF NPDES discharge permit renewal stipulations concerning Cook Inlet water quality monitoring and biological monitoring should be developed in consultation with interested Cook Inlet Tribal and Village representatives in a way that Tribal and Village input is taken seriously and incorporated.
- Unless it has already done so or is doing so, the EPA should respond to or otherwise address the key Asplund WPCF 301(h) issues raised by the NRDC in its June 19, 2015, letter to the Agency. NRDC asserted the following as bases for its recommendation that the EPA should deny Asplund WPCF's application for renewal of the Asplund WPCF 301(h) waiver.

First, the Clean Water Act prohibits discharge of any pollutants under a 301(h) waiver into saline estuarine waters, like Cook Inlet waters, that do not support a balanced indigenous population of shellfish, fish, and wildlife. Second, the primary treated effluent discharge from the plant is thought to interfere with the attainment of water quality for the protection of a balanced indigenous population of beluga whales as required under the Clean Water Act. Third, at times, the Asplund plant has not achieved consistent compliance with water quality standards in accordance with its permit. Fourth, the reissuance of the 301(h) waiver would violate the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and other state and federal antidegradation requirements.

The NTWC recommends that the EPA indicate which if any of these issues have merit from its perspective.

Conclusion

As part of its mission, the NTWC works with the EPA to implement the Clean Water Act (CWA) and Safe Drinking Water Act (SDWA). The comments and recommendations provided in this document are fully intended by the NTWC to fulfill its mission by promoting a 301(h) waiver utilization and renewal process for the AWWU Asplund WPCF that is truly protective of Cook Inlet public and environmental health, and water quality for the benefit of Tribes, marine life and aquatic species.

The Cook Inlet subsistence and cultural practices are vital for numerous Tribes, Villages and their communities and the viability of these practices critically depends on environmental, ecosystem, biota and water quality. The NTWC believes that these comments and recommendations, if acted upon by the EPA, will help to promote and sustain subsistence practices on the Cook Inlet that have been part of tribal and village cultures since time immemorial.

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Appendix A

(Attached)

Southeast Alaska CWA Section 301(h) Questions and Answers

Last Updated: 3/5/24

CONTACT: Jamey Stoddard, EPA Region 10 (206.553.6110; stoddard.jamey@epa.gov)

SE AK 301(h) Q&A: EXTERNAL USE

Last Updated: 3/5/24 (JS)

CONTACT: Jamey Stoddard, EPA Region 10 (206.553.6110; stoddard.jamey@epa.gov)

1. What is a 301(h) waiver?

- When cities discharge wastewater, they have to treat it to a certain minimum level – at least secondary treatment - under the Clean Water Act (CWA).
- Under CWA Section 301(h), cities that discharge to oceans or saline estuaries were able to apply for a waiver from the minimum secondary treatment. The deadline to apply was Dec. 29, 1982.
- The 301(h) waiver means they don't need to treat their wastewater as much, because there can be a lot of mixing in oceans and estuaries.
- Cities were only granted a waiver if they met a set of factors in the regulations that make sure that the biological community isn't harmed by the wastewater discharge.

2. Does a 301(h)-permit exempt a facility from the requirements of the Clean Water Act?

- No. Section 301(h) only “waives” secondary treatment requirements. Secondary treatment requirements pertain only to total suspended solids (TSS), biological oxygen demand (BOD), and pH in wastewater. TSS is a measure of the solids in the discharge, BOD is a measure of the organic material, which can impact oxygen levels in the receiving water, and pH is a measure of the acidity or alkalinity of the discharge. Secondary treatment requires 85% removal of TSS and BOD in effluent and a pH from 6.0 to 9.0. The “waiver” relaxes the secondary treatment requirement to 30% removal of TSS and BOD in the effluent. The pH range can be below 6.0 and above 9.0 if state WQS can be met.
- A 301(h) “waiver” is NOT a waiver from ANY other pollutant.
- 301(h) facilities must still meet ALL applicable state WQS and CWA 304(a)(1) criteria for ALL parameters, including toxics, bacteria, and nutrients.

3. Why are 301(h) waivers allowed?

- Federal law provides for it in Section 301(h) of the Clean Water Act if facilities can prove they meet a set of criteria designed to ensure the discharge will be protective of human health and the environment and meet state WQS.

4. How common are 301(h) waivers?

- There are twenty-four (24) 301(h)-modified permits in the United States and territories, with 9 of them in Alaska.

5. How do you get a waiver? Is it becoming harder to keep a waiver? Have the number of waivers decreased? Why? Is there a policy to eliminate 301(h) waivers?

- Only facilities which applied for an original 301(h) waiver by Dec. 29, 1982, and met the statutory and regulatory criteria of CWA section 301(h) were eligible for a 301(h)-modified permit.
- There are no new 301(h) facilities. The number of waivers has declined from a high of ~45 to 24 today; 9 of the remaining 24 are in Alaska.
- There are several reasons for the steady decline in the number of 301(h) permits, including new state water quality requirements, facilities not complying with their permits, not meeting primary treatment, and some communities deciding to upgrade to secondary treatment technology.
- CWA section 301(h) is a statutory provision and there is no EPA policy to eliminate 301(h) waivers. If facilities and their receiving waters continue to meet the 301(h) criteria, they can continue to operate under a 301(h) waiver in perpetuity.

6. Why is EPA issuing these permits? What is the role of the State of Alaska?

- Only EPA can issue 301(h)-modified NPDES permits, so EPA is writing the permits for the 301(h) facilities in Alaska.
- When EPA writes permits, EPA must request certification under Section 401 of the CWA from the jurisdiction where the permit discharges. Since these permits discharge to Alaska waters, EPA will need to request 401 certification from the Alaska Department of Environmental Conservation (ADEC).
- Alaska's role is to review the permit to ensure it meets Alaska's WQS and state law, and to provide a 401 certification of the 301 modified permit. The 401 certification is the State's concurrence that the permit meets State law, including WQS. EPA cannot issue a 301(h) permit unless the State grants 401 certification or waives their right to certify.
- The 401 certification issued by ADEC can contain conditions to meet state water quality requirements including the authorization of mixing zones and schedules of compliance to meet new permit requirements.
- EPA has been working in close coordination with ADEC throughout the permit renewal process for each facility.

7. Why are new/more stringent bacteria limits required now?

- The 301(h) permits being renewed in SE Alaska are proposing more stringent bacteria limits for fecal coliform and new limits for enterococcus. Fecal coliform is an indicator of bacteria levels in shellfish that can make people sick. Enterococcus is an indicator of bacteria in water for gastrointestinal diseases that can also make people sick.

- The proposed limits are a condition of Alaska’s draft 401 certification, or concurrence, of the renewed permits, and are necessary for the discharge to comply with Alaska water quality standards.
- The existing permits have bacteria limits for fecal coliform that are much higher than typical wastewater facilities.
- For fecal coliform, the new draft permit limits will require the SE facilities to treat their wastewater more to make sure their discharge meets Alaska’s water quality standards and ensures the protection of human health and the environment.
- For enterococcus, ADEC established new water quality standards in 2017 that were not in effect the last time the SE permits were issued. The new reissued permits will include limits to ensure the discharge complies with these new water quality standards.

8. How long will facilities have to meet the new bacteria limits?

- None of the communities with 301(h) waivers currently provide consistent disinfection treatment to meet the proposed lower bacteria limits.
- The 301(h) facilities will need to upgrade the type of treatment they have at their facility to comply with the new bacteria limits. This will require investments to install or expand disinfection treatment in their plants (UV or chlorination).
- Since the facilities will need to upgrade, ADEC is providing them with a compliance schedule that will allow the facility more time to comply with the new bacteria limits. ADEC will include the compliance schedule in the 401 certification.
- The compliance schedule for bacteria requires communities to meet final effluent limits in five years. It also contains interim steps the facilities must take to ensure consistent progress toward achieving the final limits.

9. What are the 301(h) criteria?

- The CWA has nine criteria and regulations that implement those nine criteria.
- In general, the criteria are designed to ensure the facility is well-operated and monitored, does not cause harm to the receiving water, human health, or biota, meets all State requirements and WQS, and is discharging to a healthy receiving water.

10. Why did EPA perform new dilution modeling of these discharges? Why is ADEC requiring additional modeling?

- Dilution modeling was not conducted during the last permit development cycle for many communities.
- For other communities, dilution modeling occurred over 20 years ago.
- EPA and ADEC required new modeling to determine the dilution achieved after initial mixing.

- The modeling is necessary to determine how much pollution a facility can discharge from their wastewater and still be safe for the biological community after dilution in a certain area, which is called the zone of initial dilution (ZID).
- Alaska has its own set of mixing zone requirements. To conduct the mixing zone analysis under Alaska state law, ADEC needed to conduct additional modeling. ADEC determined that this supplemental modeling was needed to be consistent with how they establish mixing zones in permits that Alaska DEC issues. The mixing zones are smaller than the ZIDs and ADEC has included these mixing zones as conditions of the 401 certifications.

11. How much will disinfection cost?

- The cost to upgrade the facility with disinfection technology depends on many factors.
- Communities will likely need to engage the services of professional engineering firms to assess disinfection options considering the size and flow of the facility, current levels of performance, and other factors.

12. What resources are available to assist communities with the financial burden of system upgrades?

- Several programs exist to assist communities with the financial burden of upgrading or expanding wastewater infrastructure (CWSRF and WIFFIA).
- EPA is also aware of some communities requesting and receiving congressionally directed funding (i.e., earmarks) for anticipated future wastewater requirements.