Asplund Wastewater Treatment Facility NPDES 301(h) Permit Reapplication Status

Presentation to Anchorage Assembly January 21, 2021

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Clearly

Today's Presentation is Educational

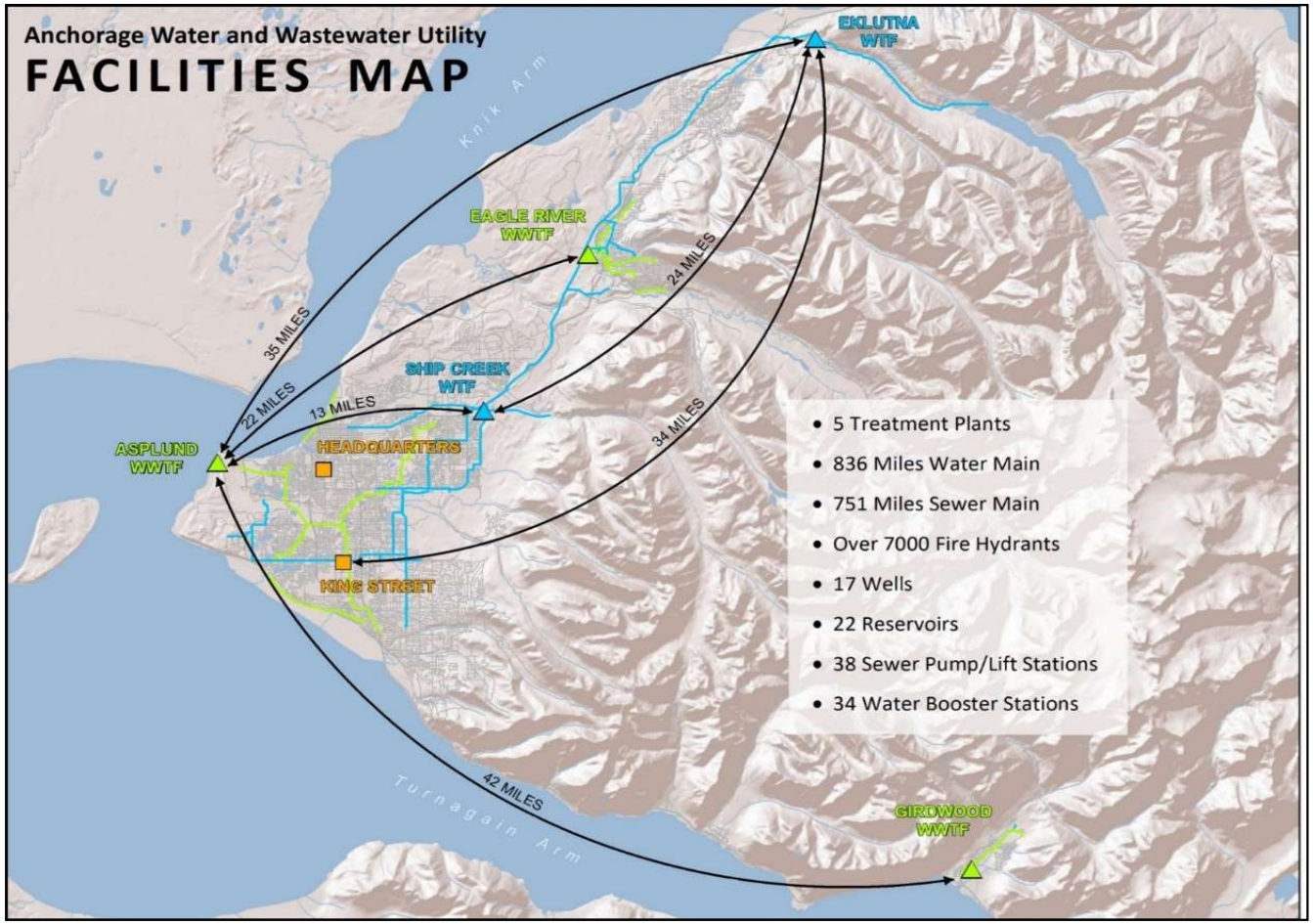
1. Provide a location overview and history of the facility
2. Provide a history of the permit and associated regulations
3. Provide an overview of the treatment process
4. Present the current permit requirements & how we comply
5. Explain the consequences of permit loss
6. Summarize permit re-application plans and status/schedule

Our goal is to provide you with information to assist you with questions you may have from your constituents

Common Acronyms & Terms

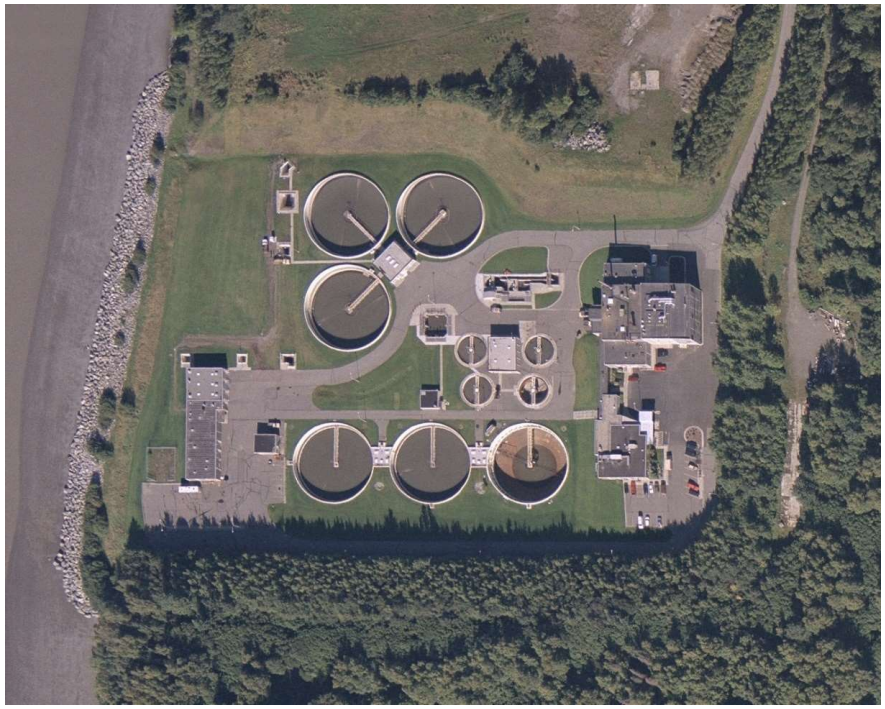
- WWTF – Waste Water Treatment Facility
- WPCF – Water Pollution Control Facility
- POTW – Publicly Owned Treatment Works
- BOD – Biochemical Oxygen Demand
- TSS – Total Suspended Solids
- MGD – million gallons per day
- Primary Treatment – current Asplund WWTF
- Secondary Treatment - $800 million to $1.2 billion addition
- ESA - Endangered Species Act
- CWA – Clean Water Act

Asplund WWTF Location



- Located at Point Woronzof at the end of Hutson Drive past Point Woronzof Park and Overlook
- It is west of the northern terminus of TSAIA north/south runways
- Adjacent to Coastal Trail
- Collects and treats all wastewater arriving at the plant from over 750 miles of the sewer collection system in the Anchorage Bowl

Asplund WWTF Ariel View



- In addition to ASU customers, wastewater is collected and treated regionally from onsite septic systems from the MatSu Borough, Anchorage and Northern Communities and the Kenai Peninsula Borough

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Asplund WWTF & Permit History

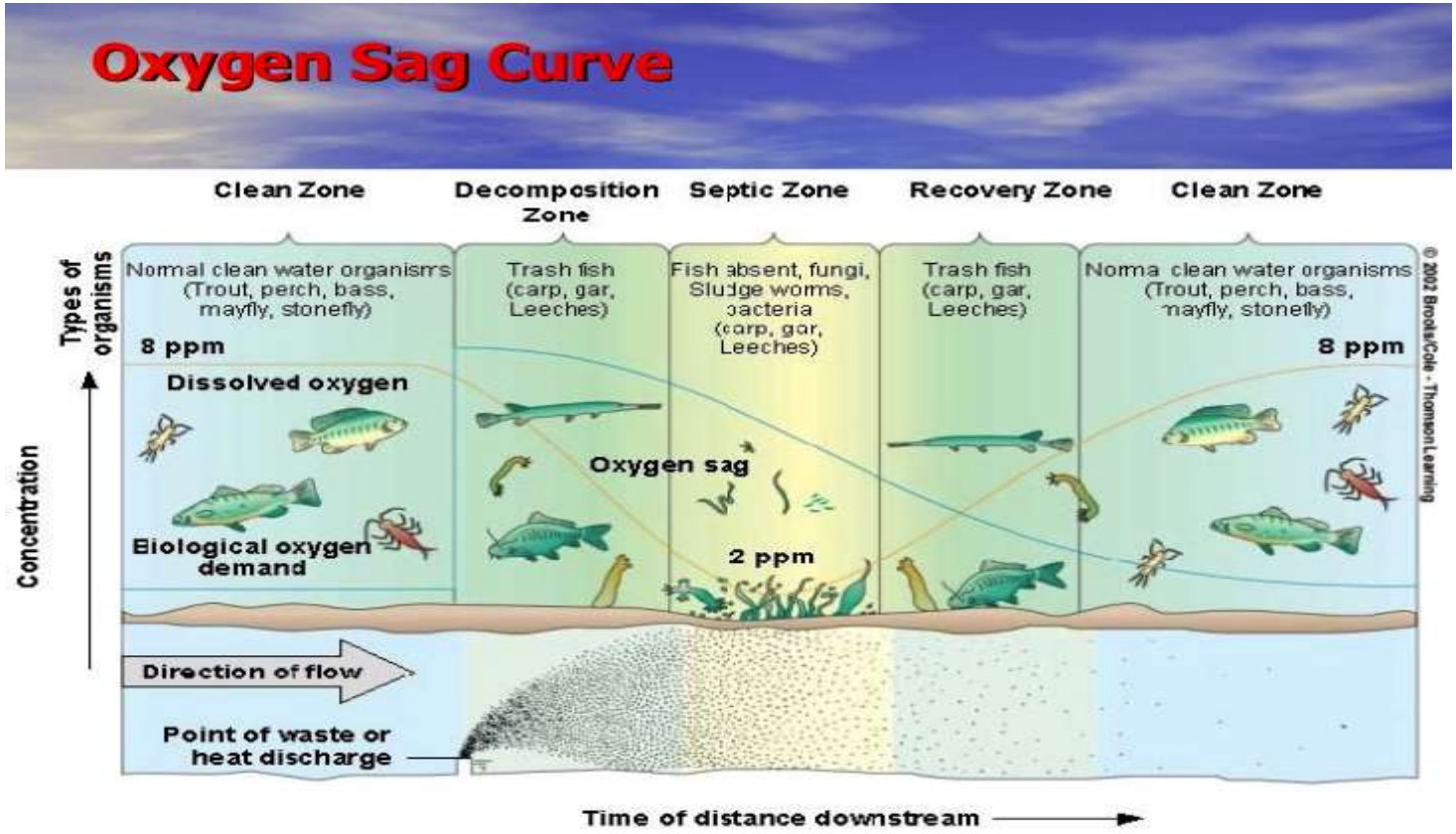
Named for Mayor John M. Asplund, a tireless advocate for wastewater treatment for Anchorage

- Began operations in 1972
- Upgraded in 1989 to 58 MGD capacity, currently operates @ 30 MGD
- Congress added Section 301(h) to Clean Water Act in 1977
- EPA permitted with 301(h) modification in 1985
- EPA reauthorized 301(h) permit in 2000
- AWWU submitted timely application in 2005 and has been on EPA Administration extension since
- Largest WWTF in Alaska
- AWWU administers an extensive marine monitoring program.
- No adverse environmental impacts.

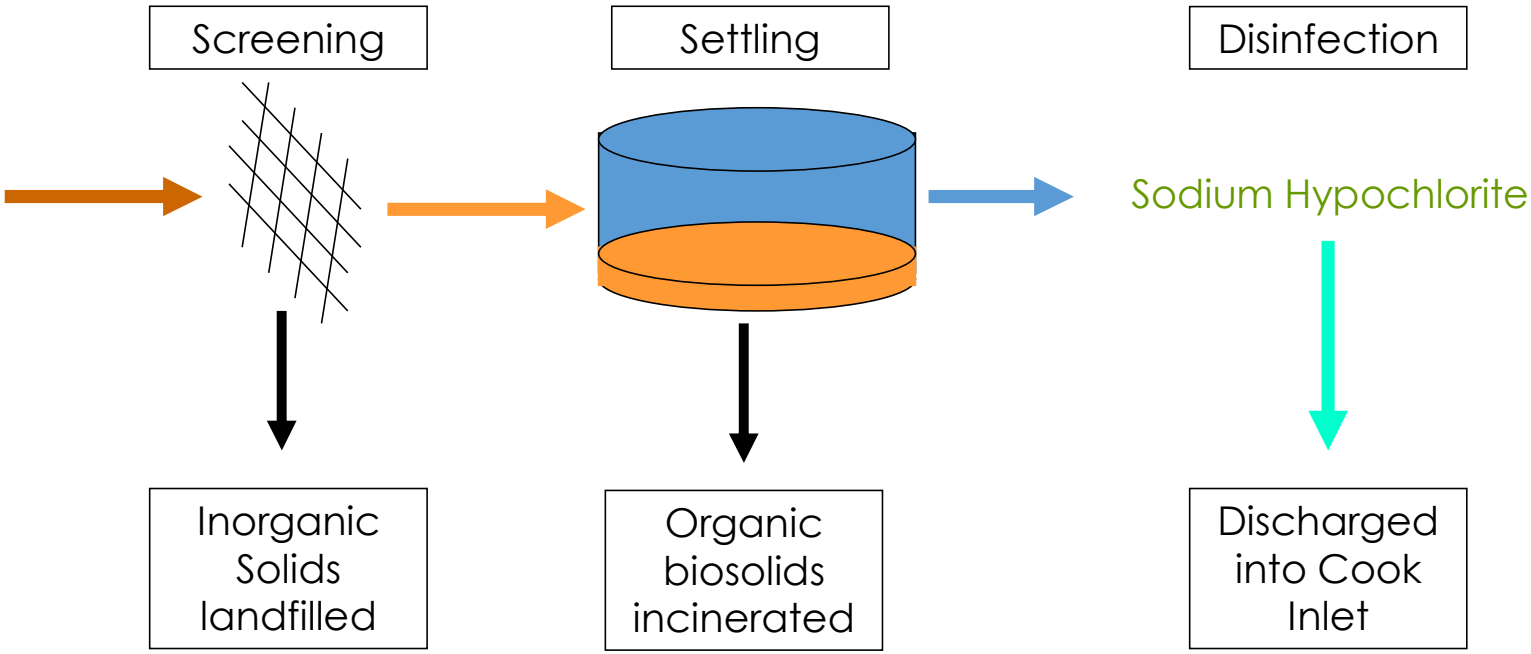
History of the Clean Water Act (CWA) and 301h

- Wastewater discharges to waters of the US are permitted under the EPA's National Pollution Discharge Elimination System (NPDES) program that was created under the 1972 Federal Water Pollution Control Act (FWPCA) amendments, commonly known as the CWA
- 1972 CWA philosophical goal was to *restore and maintain the chemical, physical and biological integrity of the nation's waters and for water quality to provide for protection and propagation of fish, shellfish, and wildlife and provide for recreation in and on the water*
- 1972 CWA required POTW's to achieve the CWA goal by meeting secondary treatment standards by 1977, which is defined as 85% removal of BOD and TSS and effluent water quality limits of 30 mg/L for BOD and TSS
- 1977 CWA amendments allowed for marine discharge POTW's with large tides and currents to apply for a 301(h) modification waiving quantitative secondary treatment requirements for BOD and TSS if they could show the CWA goals are met without secondary treatment requirements
- 301(h) permit requires that POTW's must meet primary treatment standards, which is defined as 30% removal of BOD and TSS and limits of BOD and TSS be 240 mg/L and 170 mg/L respectively
- 301(h) permitees must meet CWA goals by 9 criteria set forth in the CWA Section 301(h)

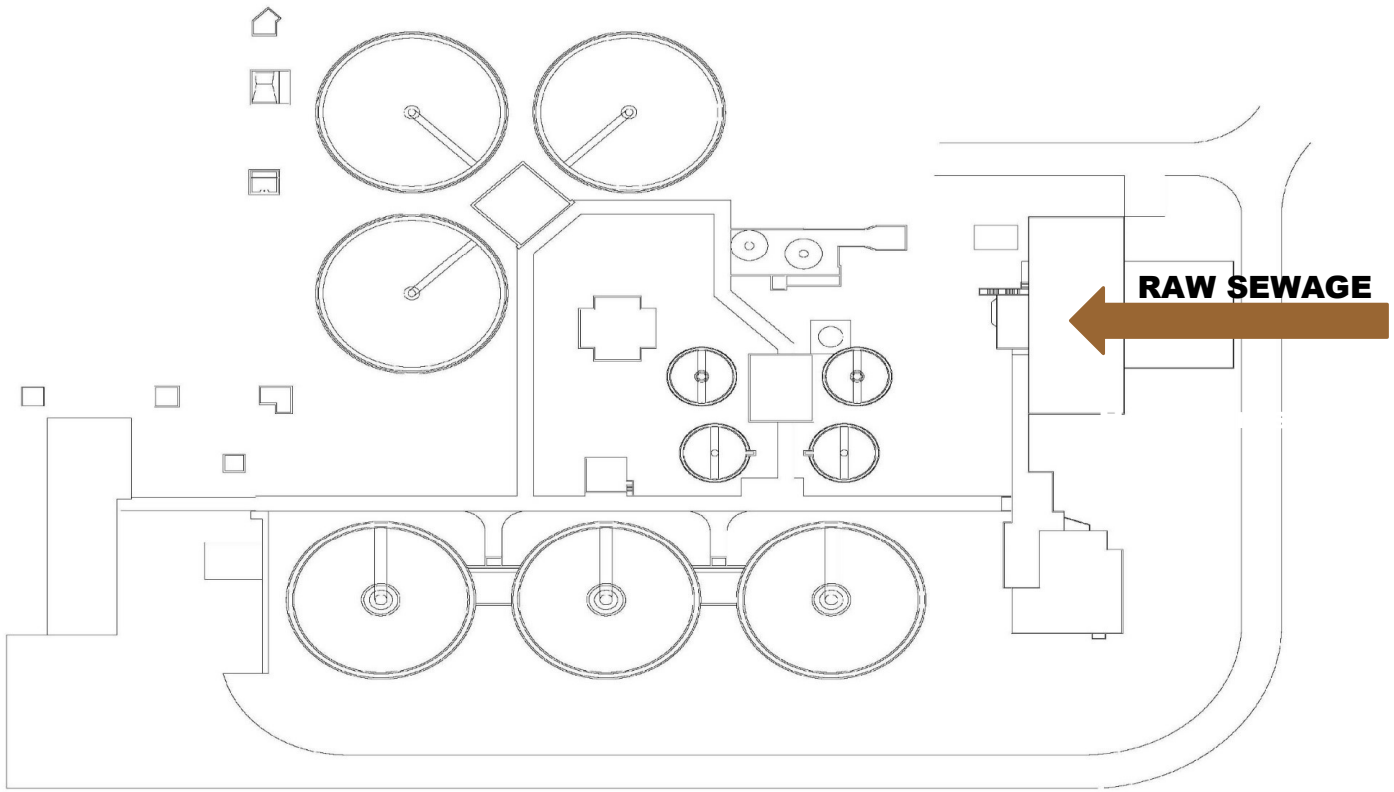
Why BOD and TSS? Primary constituents inhibiting CWA goals in freshwater discharges



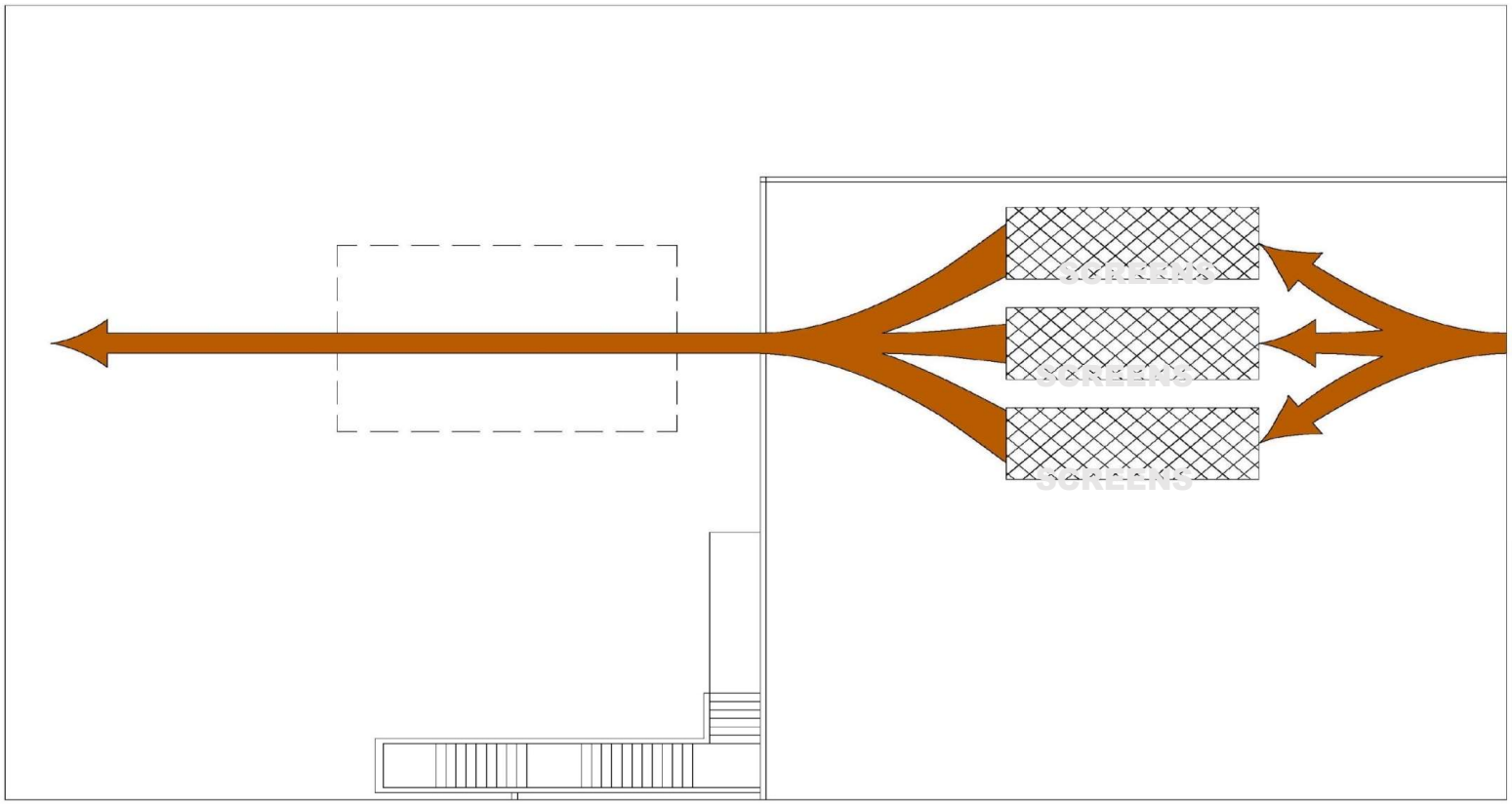
Asplund WWTF Primary Treatment Process



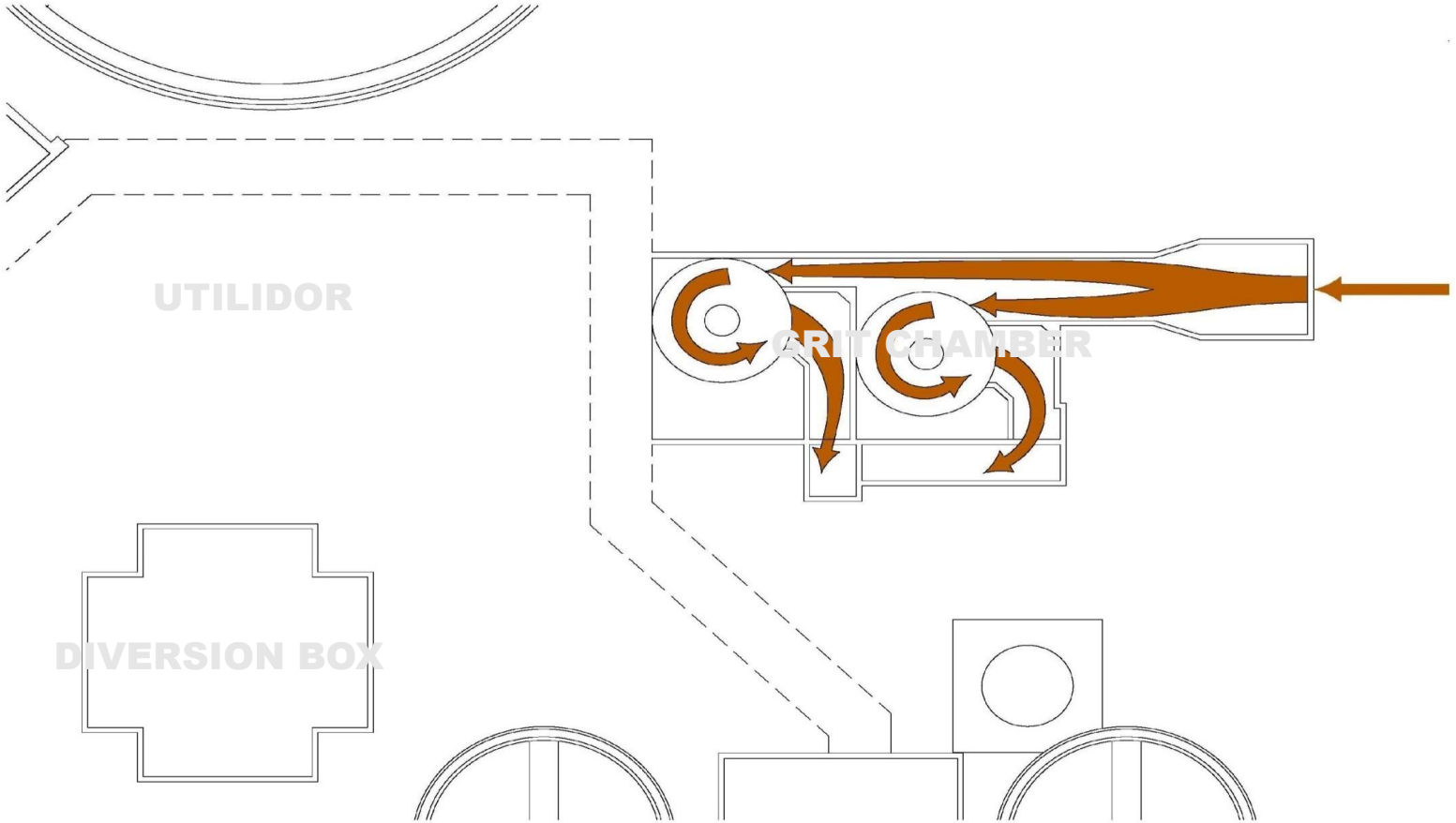
Asplund WWTF Intake Process



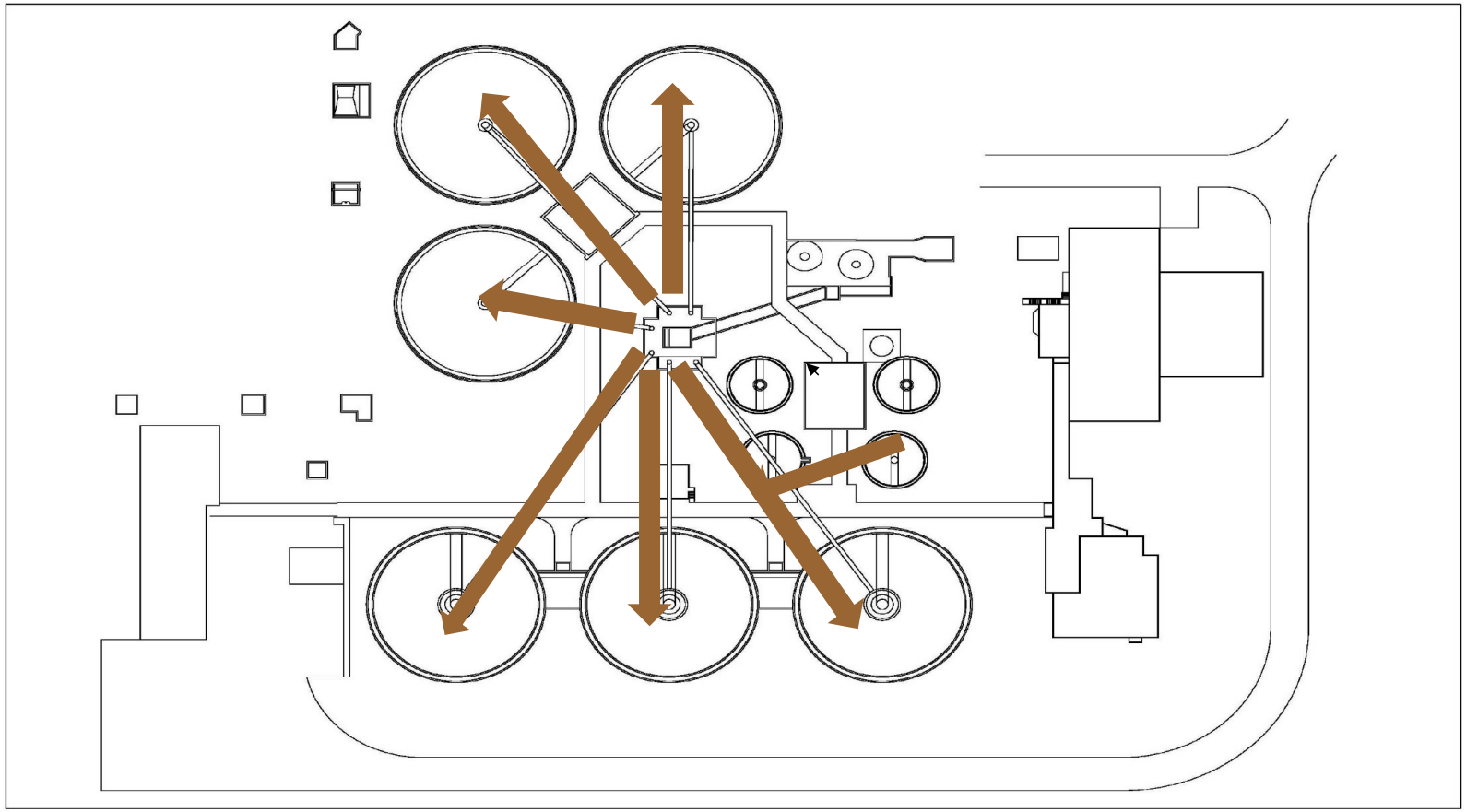
Asplund WWTF Screening



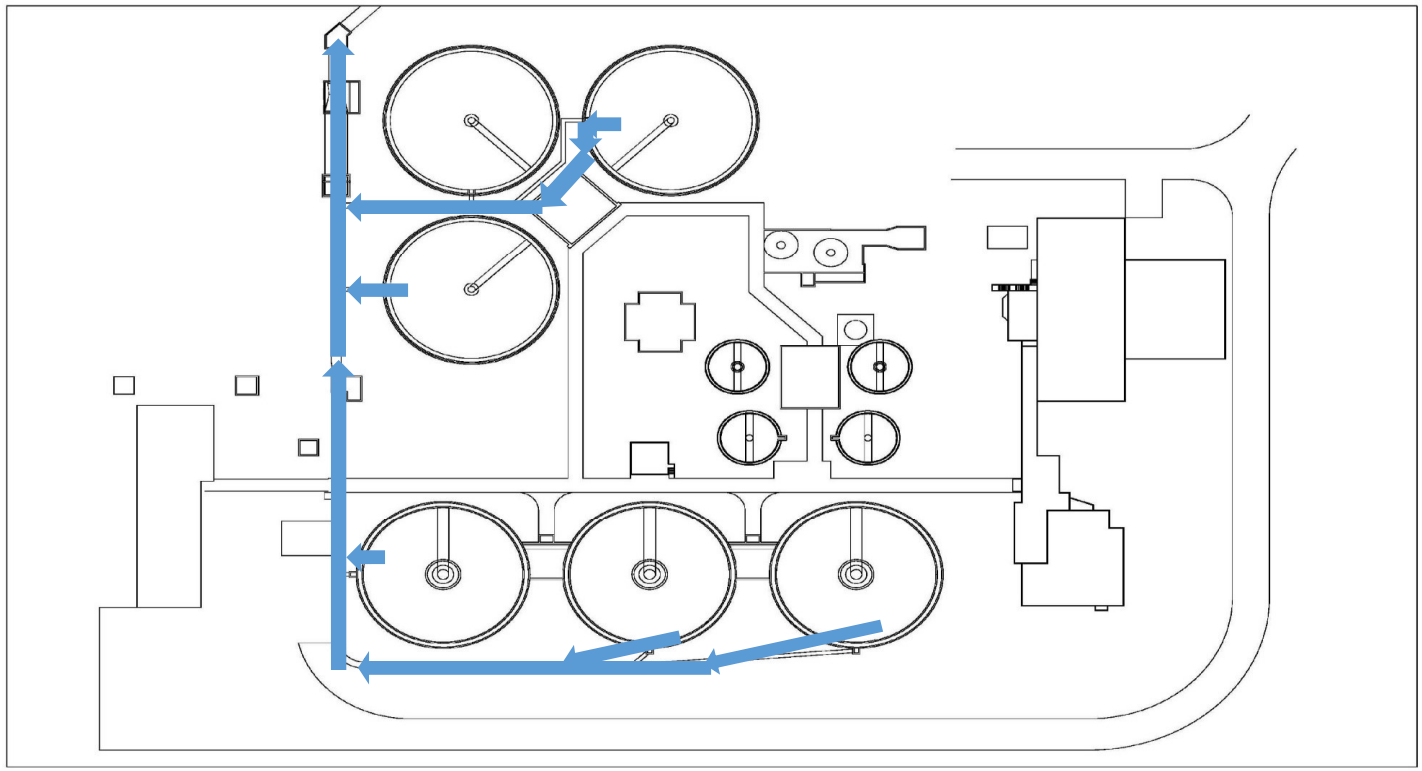
Asplund WWTF Grit Removal



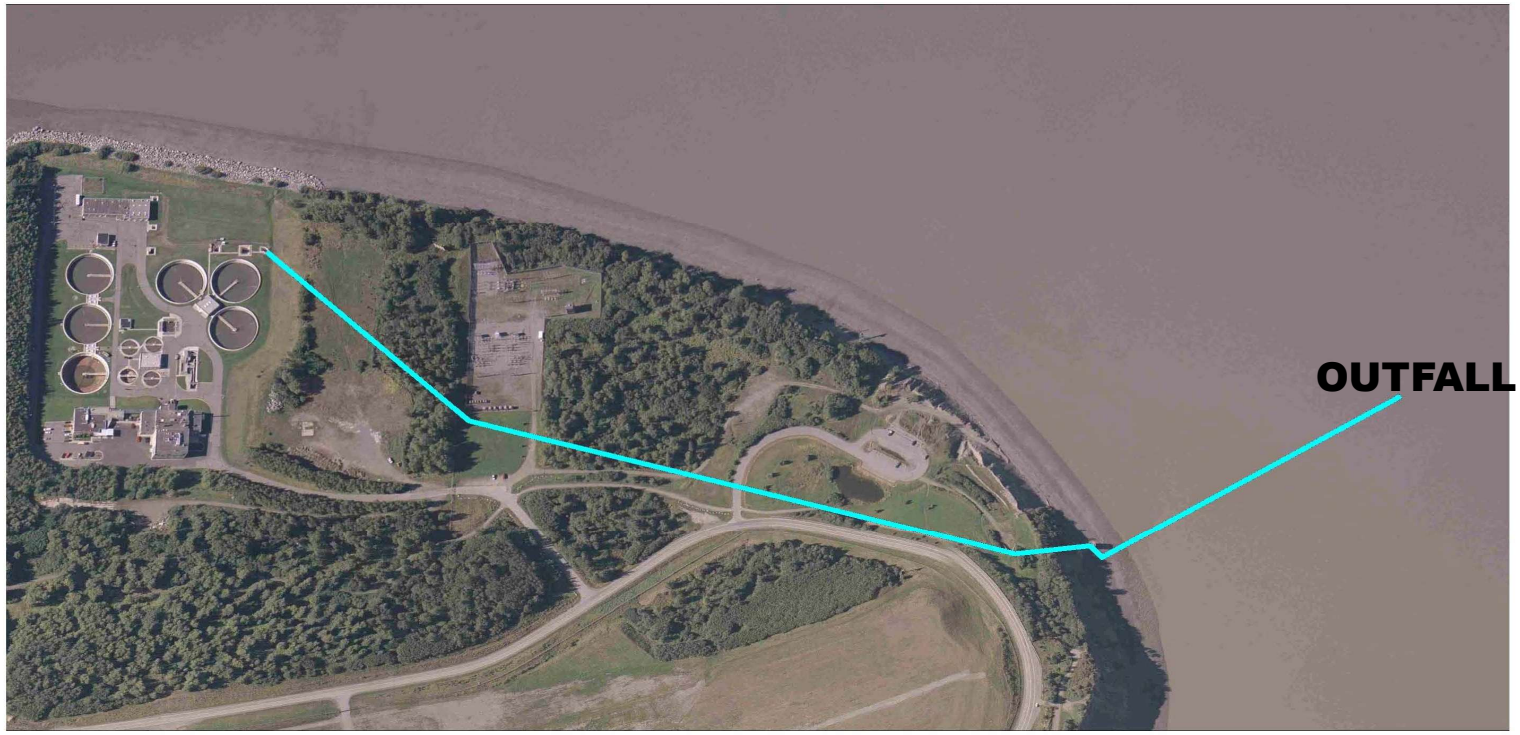
Asplund WWTF Settling & FOG Skimming



Asplund WWTF Disinfection



Asplund WWTF Effluent Discharge



- Treated effluent is discharged 800 feet offshore through an outfall diffuser where Cook Inlet tides provide for rapid dispersion.

Alaska 301 (h) Facilities & EPA Permit Status

CWA § 301(h)

North

Anchorage (58 mgd; ~290k)

Whittier (0.3 mgd; ~1k)

Skagway (0.63 mgd; ~1k;)

Haines (2.9 mgd; ~1.7k)

Pelican (0.09 mgd; ~100)

Sitka (1.8 mgd; ~8.7k)

Petersburg (1.2 mgd; ~2.7k)

Wrangell (0.54 mgd; ~2.5k)

South

Ketchikan (7.2 mgd; ~8.2k)[2]

Note: Listed flows are facility-submitted design flows.

NPDES Permits and Alaska 301(h) Facilities

U.S. EPA, Region 10

Water Division, NPDES Permitting Section

January 28, 2020

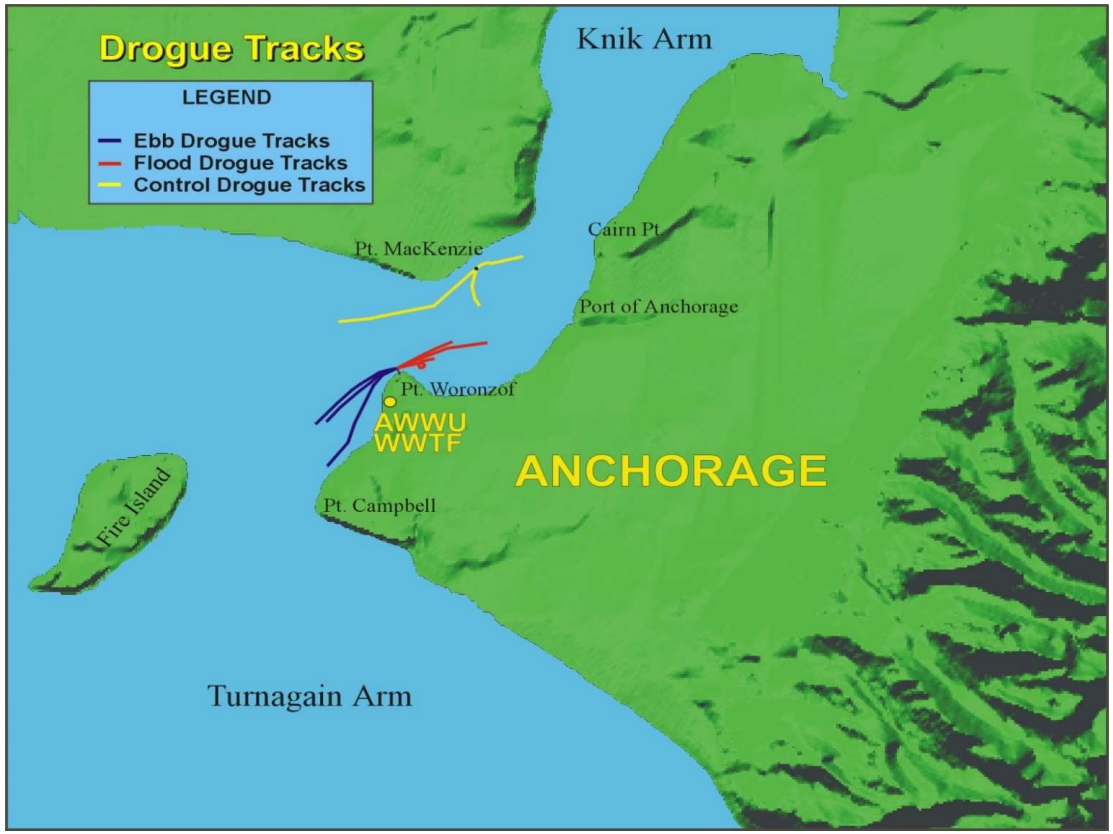
- EPA is working on all Alaska 301(h) Facilities
- Only EPA can (re)issue 301(h) modified NPDES permits
- All facilities present are covered under administratively continued NPDES permits
- AWWU is the largest and last
- EPA Region 10 is committed to its goal of reducing its backlog of administratively continued permits by September of 2022

9 Criteria Required to Qualify for 301(h)

1. Balanced Indigenous Population
2. Environmental Monitoring Program
3. Does not constrain other discharges
4. Meets State Water Quality Standards
5. Pretreatment requirements enforced
6. Pretreatment program implemented
7. Toxics control from non-industrial sources
8. Meets NPDES permit limits
9. Removes 30% of BOD/TSS

"*large tides and currents*": Rapid Dispersion

- Tidal velocities can exceed 8 feet per second
- Tides travel upstream as much as 20 miles
- Tides travel downstream as much as 23 miles
- Knik Arm waters refreshed in days
- Discharge meets Alaska Water Quality Standards criteria for receiving water



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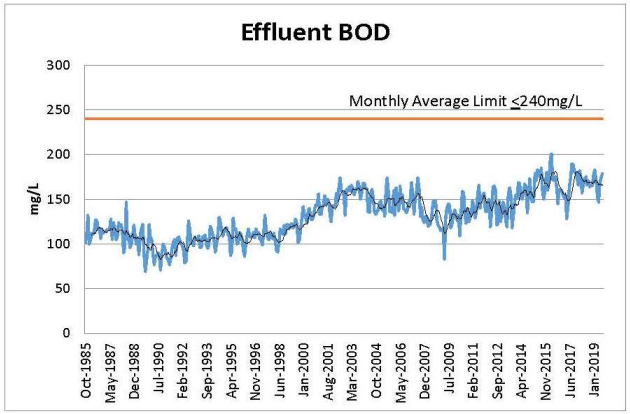
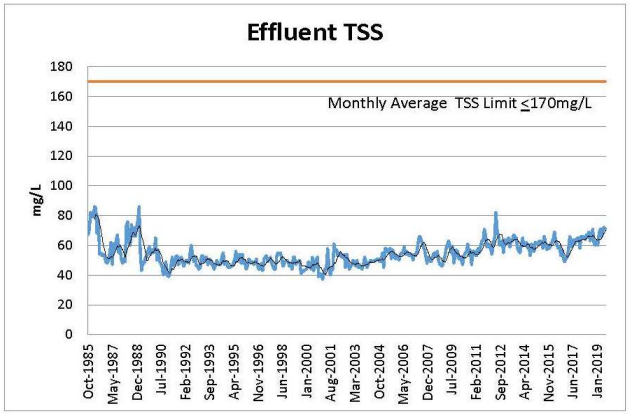
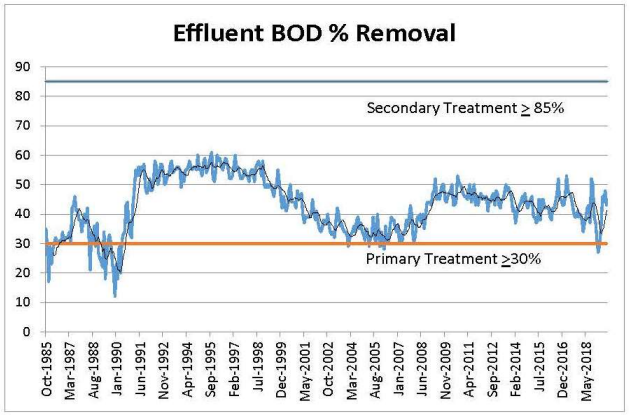
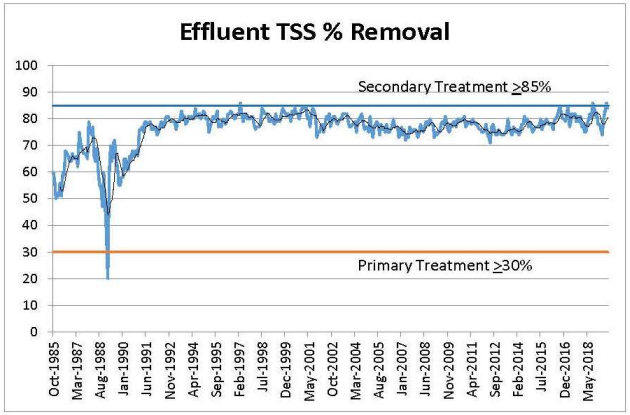
Asplund WWTF Discharge Quality

Asplund WWTF TSS & BOD Performance History (October 1985 thru August 2019)





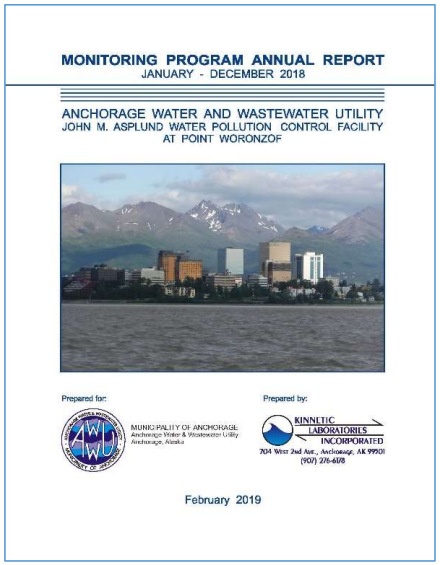


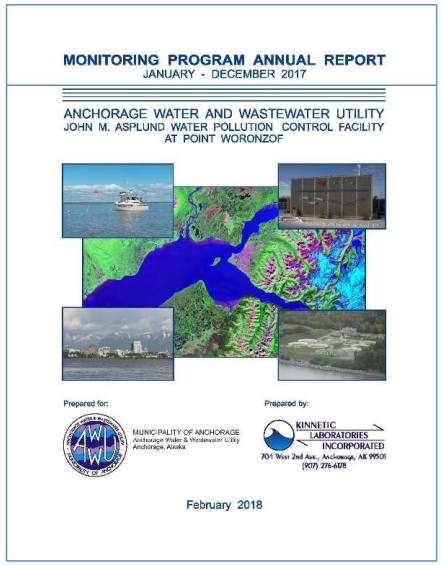


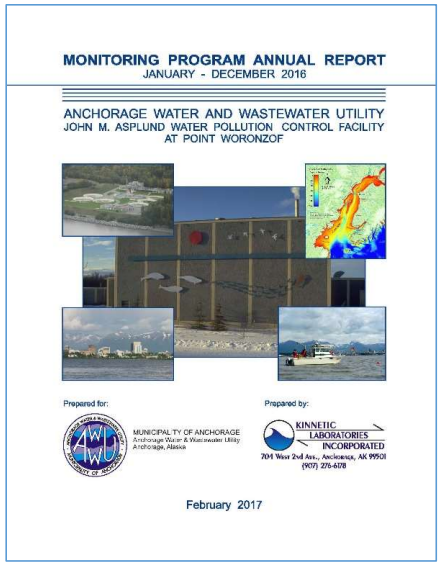
AWWU's Pre-Treatment Program

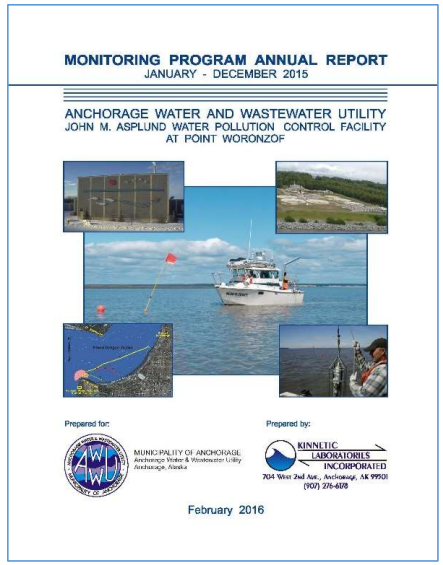
- Focuses on industrial discharges and enforcement of the Municipal Sewer Use Ordinance.
- 10 permitted Industrial discharge permittees with focus on elimination of toxics
- Visits to over 450 Food Service Establishments to minimize potential for grease input that could lead to sewer blockages
- AWWU contributes funding for the Municipal Household Hazardous Waste Collection program
- Regular reporting and oversight from EPA Region X Pre-Treatment Coordinator

Annual Environmental Monitoring Reports









Published since 1985:

https://www.awwu.biz/water-quality/cook-inlet-water-quality

Environmental Monitoring : Conclusions

- Plant meets all permit conditions
- Effluent yields very low levels of trace contaminants
- Background trace metals from glacial silt
- No measurable water quality effects
- No toxicity in effluent bioassays
- No bioaccumulation of toxic materials
- No sediment effects at outfall
- No sediment contamination from outfall

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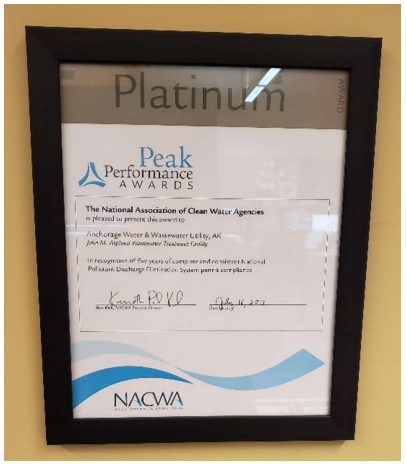
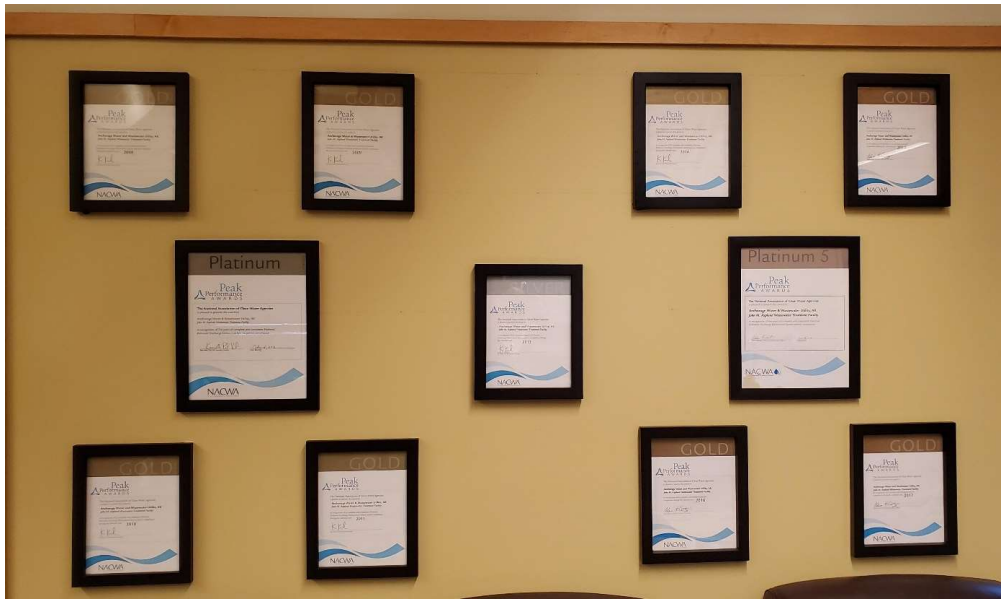
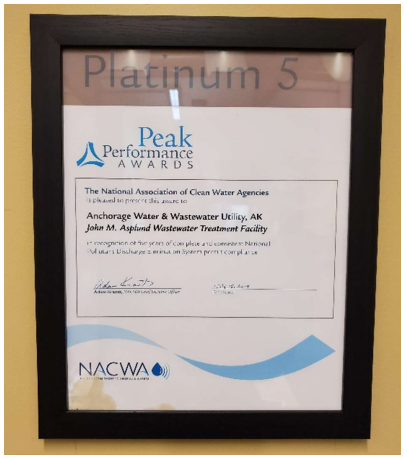
Asplund is an Award-Winning Operation







Asplund requires Continually Investment

- Since 1985, AWWU has invested over **$64 MM** in improvements at the plant to ensure capacity, reliability and to ensure operations continue to satisfy all requirements for the statutory 301(h) modification.

- Improvements at the plant over the past five years have included:
  - On-site generation of hypochlorite for disinfection
  - SCADA improvements
  - Rehabilitation of clarifiers and sludge thickening vessels
  - Rehabilitation of the grit system
  - Rehabilitation of the scum removal system

- Another **$31 MM** is planned for investment through 2025.

Cook Inlet Beluga Whales

- **Listed in 2008 under the Endangered Species Act (ESA)**
- Federal action to re-authorize the permit requires consultation between EPA and National Marine Fisheries Service
- A Biological Evaluation (BE) of potential toxic effects was prepared and provided to EPA in 2011 for use in ESA consultation
- The BE identified circulation of waters in upper Cook Inlet and potential for exposure of whales to low levels of wastewater effluent
- The hazard of exposure to potentially toxic wastewater constituents was calculated for whales and their prey throughout the Inlet

The ESA Biological Evaluation: results

- 30 years of monitoring shows no ill effects
- Body burdens of CIBW less than other stocks
- Effluent contains low levels of contaminants
- Effluent is rapidly mixed and dispersed
- Refreshments of Knik Arm is reduced in winter but…
- Water column never more than 0.1% effluent
- Maximum duration of exposure near outfall: minutes
- Hazard Quotients in vicinity of outfall <1, indicating no threat.
- Hazard Quotients in areas of chronic exposure <<<1.

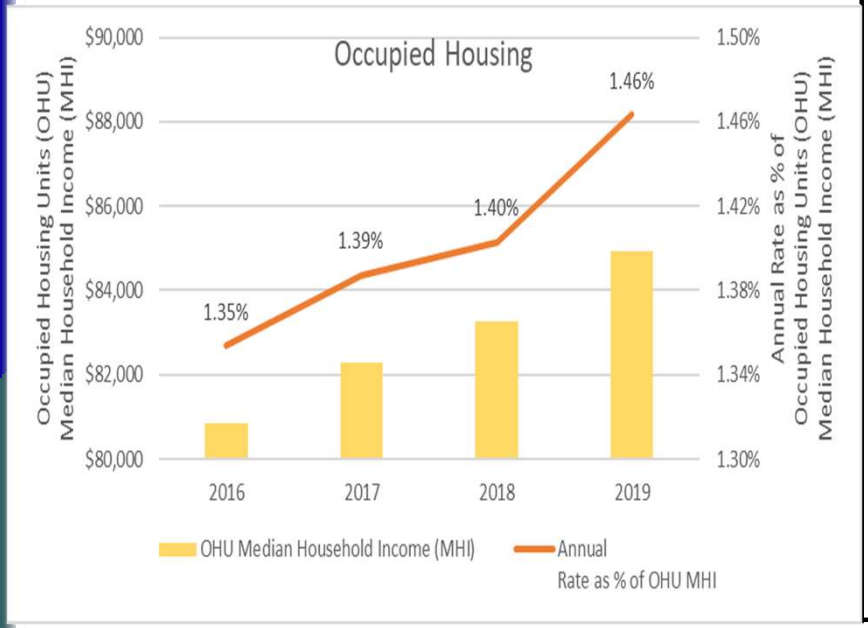
Conclusion: No adverse effects on beluga whales associated with Asplund Discharge

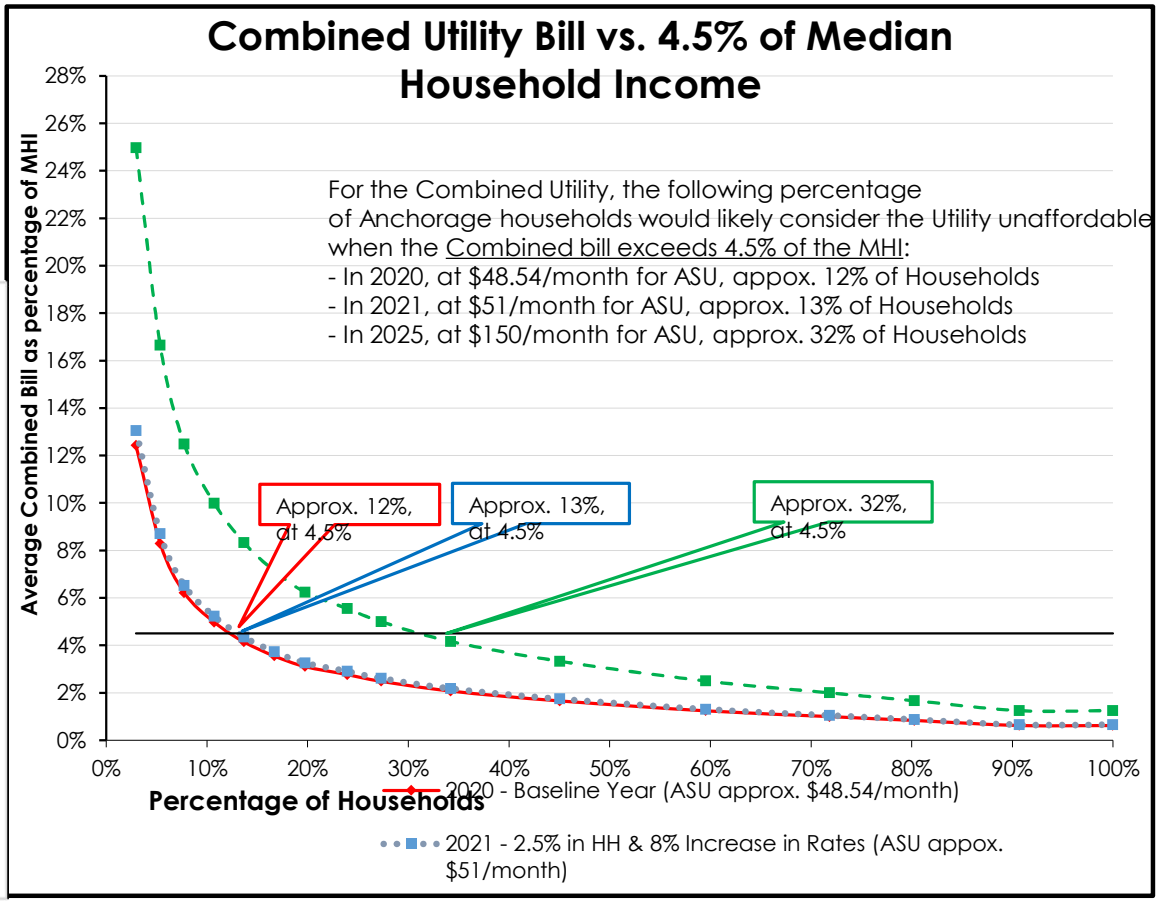
What if Permit is not renewed?

- Asplund would be required to meet at least Secondary Treatment standards
- Upgrade estimates range from $800 Million to $1.2 Billion
- Assume: Expansion takes place on the adjacent parcel controlled by AWWU, permanently re-routing a section of the Coastal Trail
- Capital expenditure could add upwards of $100 per month per residential customer bills
- Impact could be as early as 2030 or possibly sooner
- Current rates are $48 per month: adjusted rate approximately $150
- Significant impact to community affordability

EPA Affordability Metric at 4.5% MHI

1. Our rates are affordable when evaluated with EPA's metric
2. However, if we modify the metric to look at specific census tracts that exclude those tracts not in our service area, we can see the impact to the cost of secondary treatment





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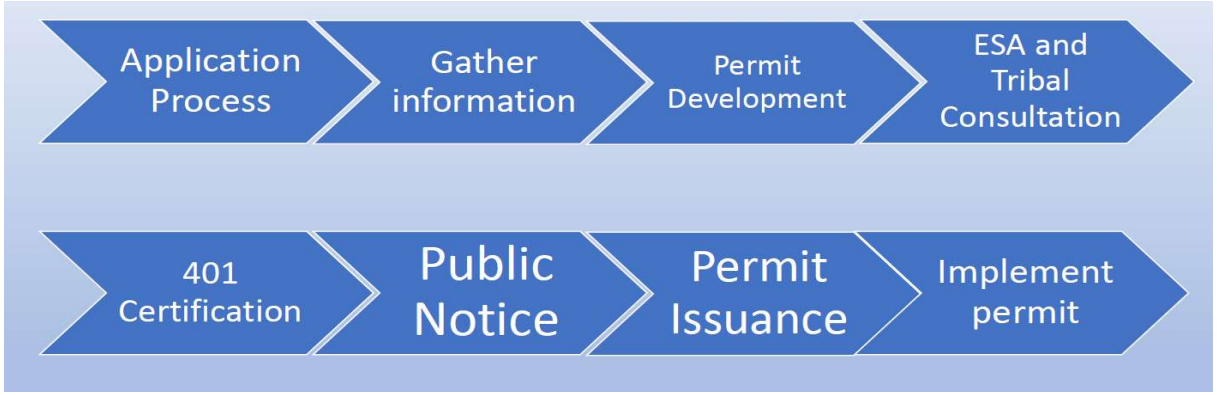
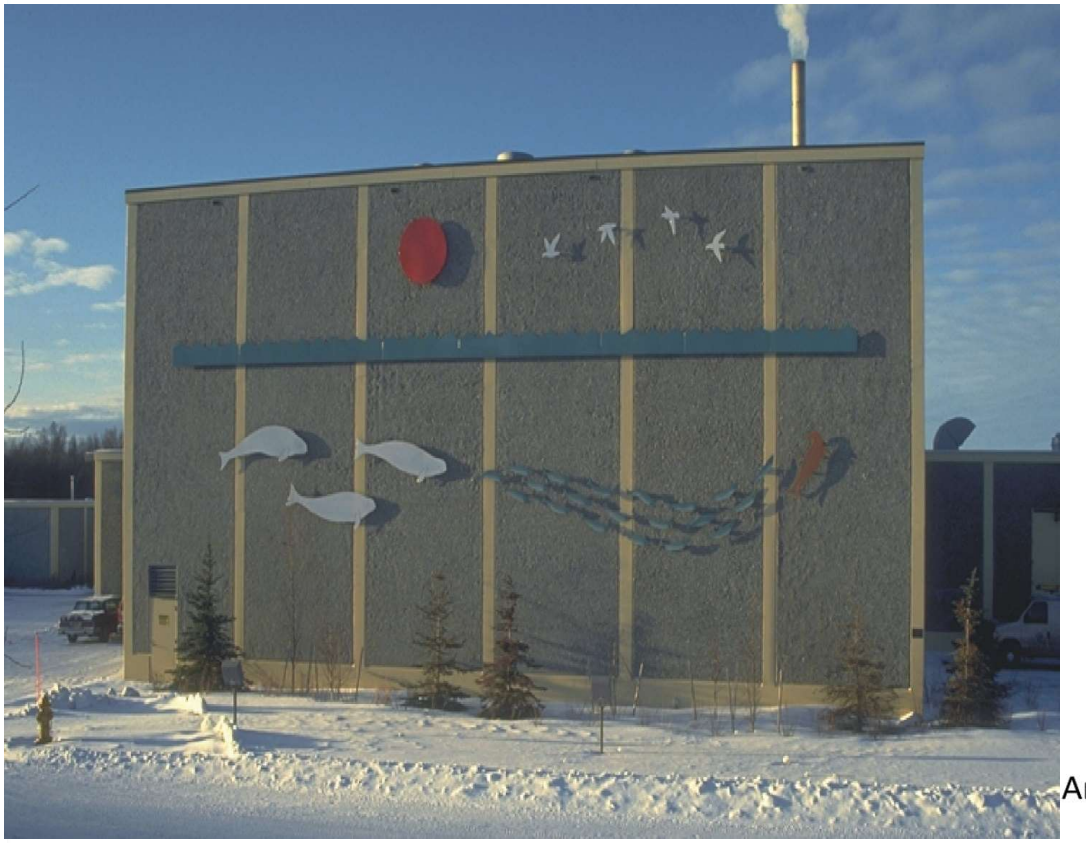
Summary of Current Status: January 2021

1. Application for permit extension on-file with the EPA since 2005
2. EPA has let it be known of intent to renew all 301(h) extended permits by September 2022
3. This is a goal of the EPA : not a requirement
4. AWWU, in collaboration with the EPA, is standing by to furnish any information requested: as of January 2021, no additional information has been requested
5. Process is very important as there are known to the EPA intervenors that may challenge
6. To mitigate risk, AWWU will retain specialized legal council to advise future action: may require Assembly action



AWWU is committed to operating the facility to meet all permit requirements and protect the marine environment of the Cook Inlet



Questions?