

70 Degrees North: Unique Water Treatment Plant Design on the North Slope



2014 PNWS AWWA Annual Conference
Kysa Cronrath, Associate Environmental Engineer, EIT

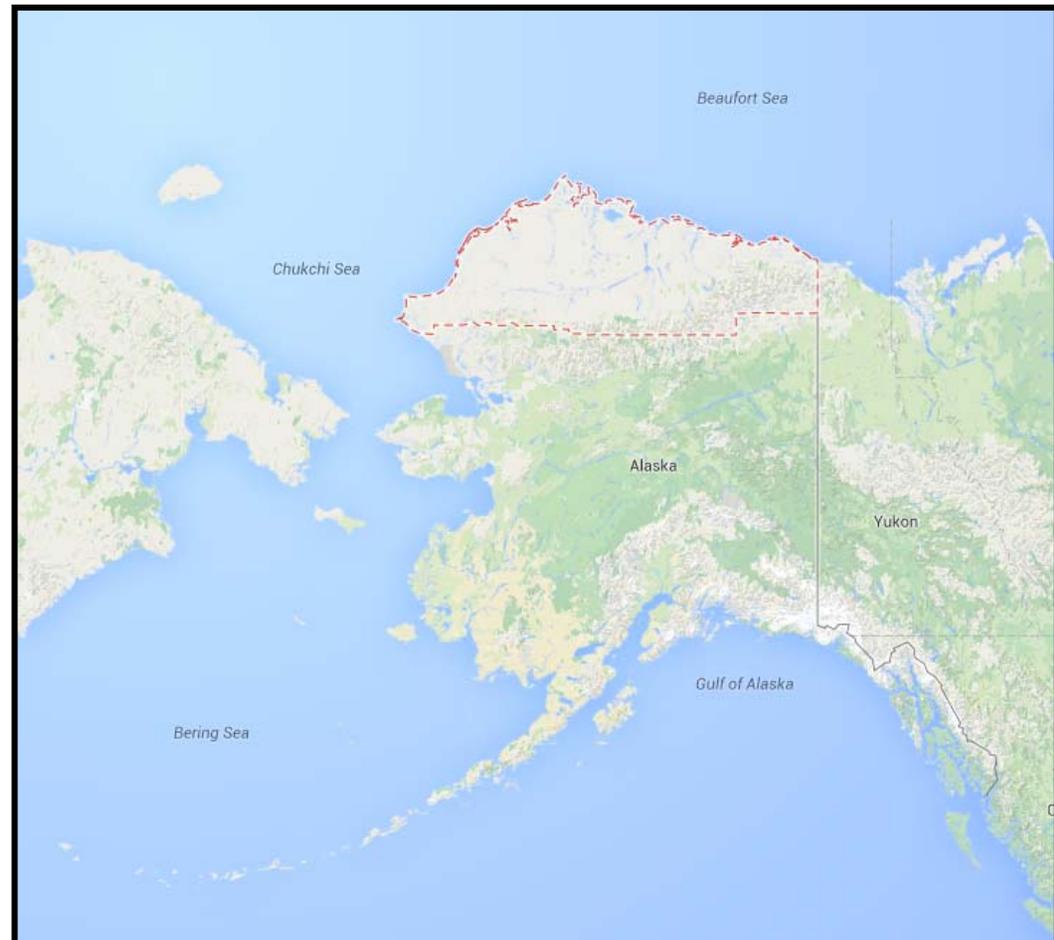
Outline

- Background
- Existing site and the problems necessitating new W&WWTP
- Design details in new plant

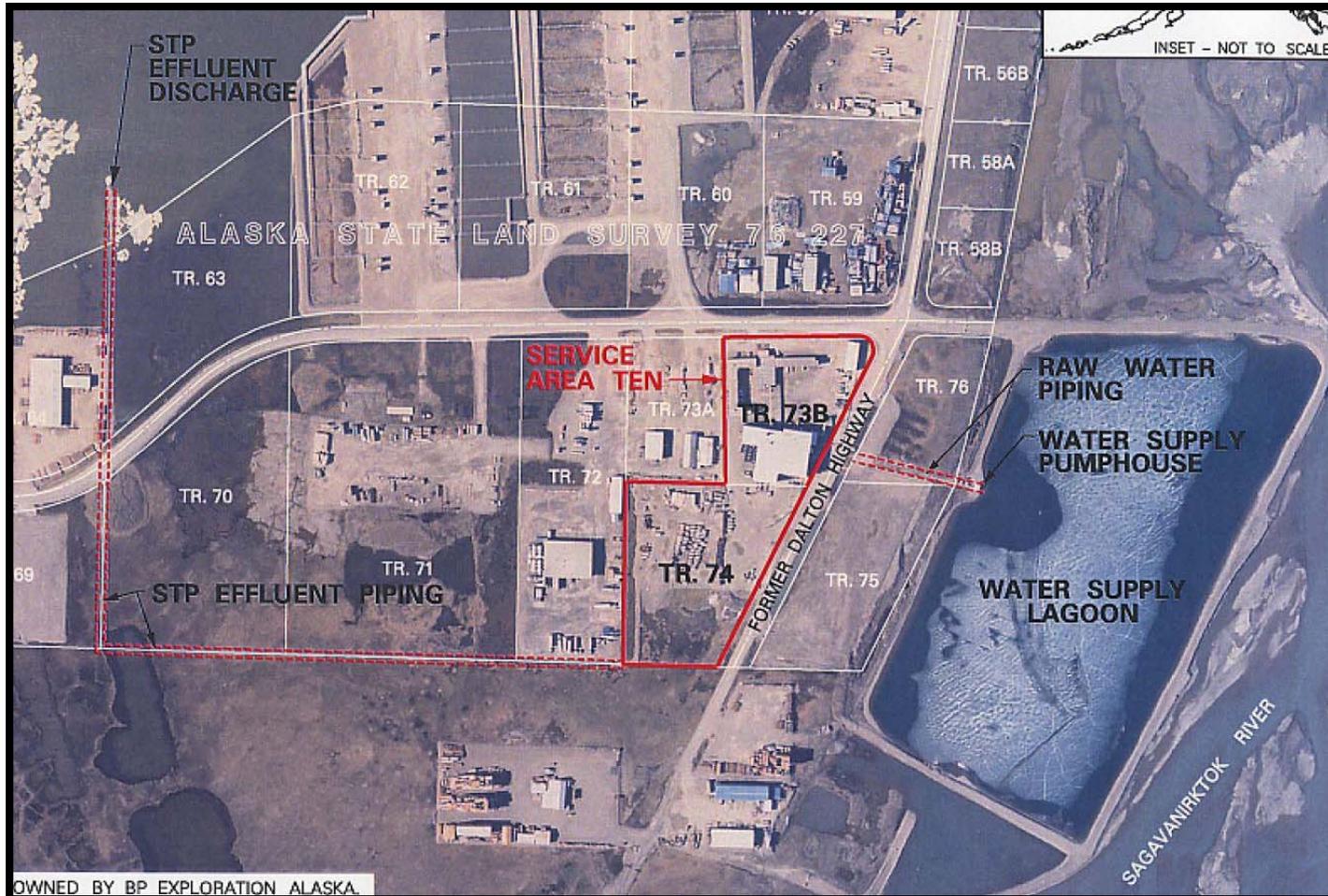


Background

- North Slope Borough is largest municipality in USA by size
- Essentially no residential component – temporary service and oil field workers
- Arctic climate with continuous permafrost



Source, Existing & New Site, Discharge



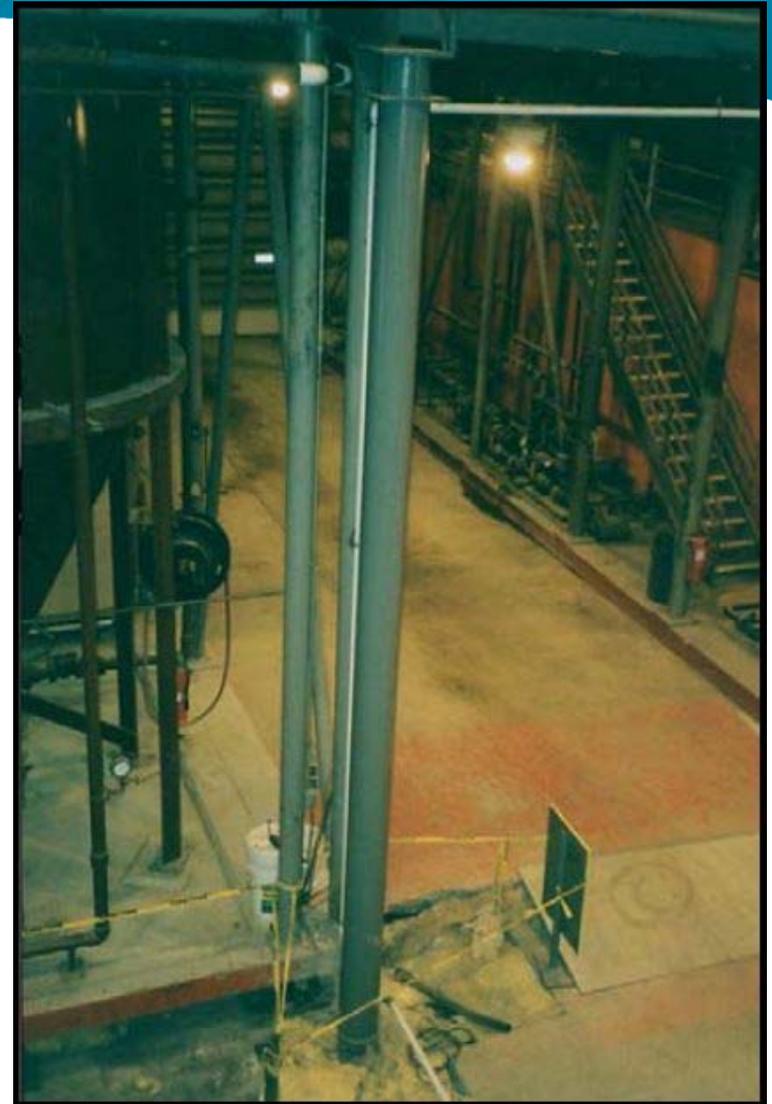
Issues with Existing W&WWTP



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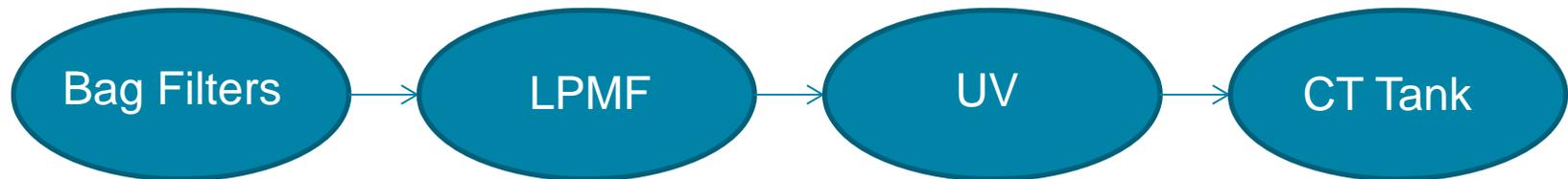


Issues With Existing W&WWTP

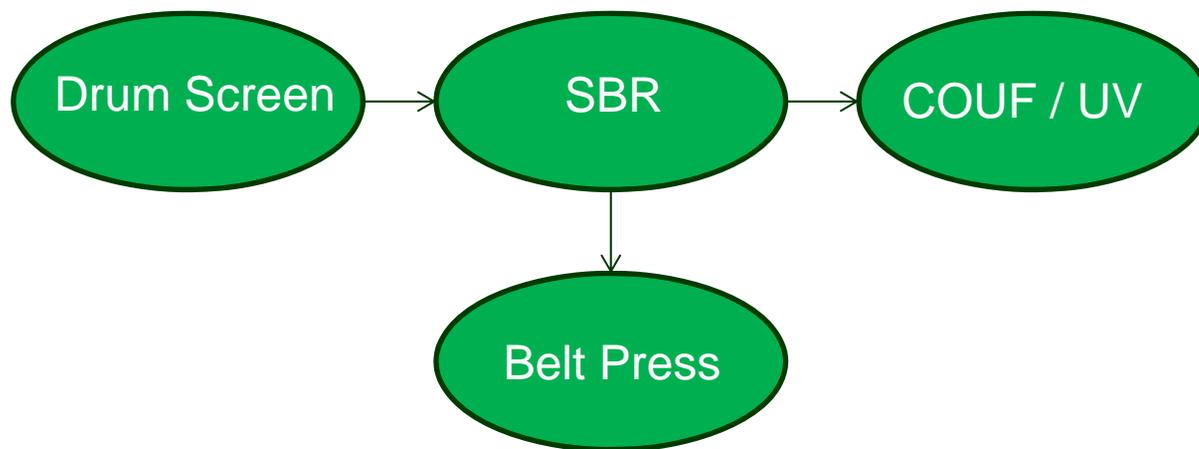


Process Trains for New W&WWTP

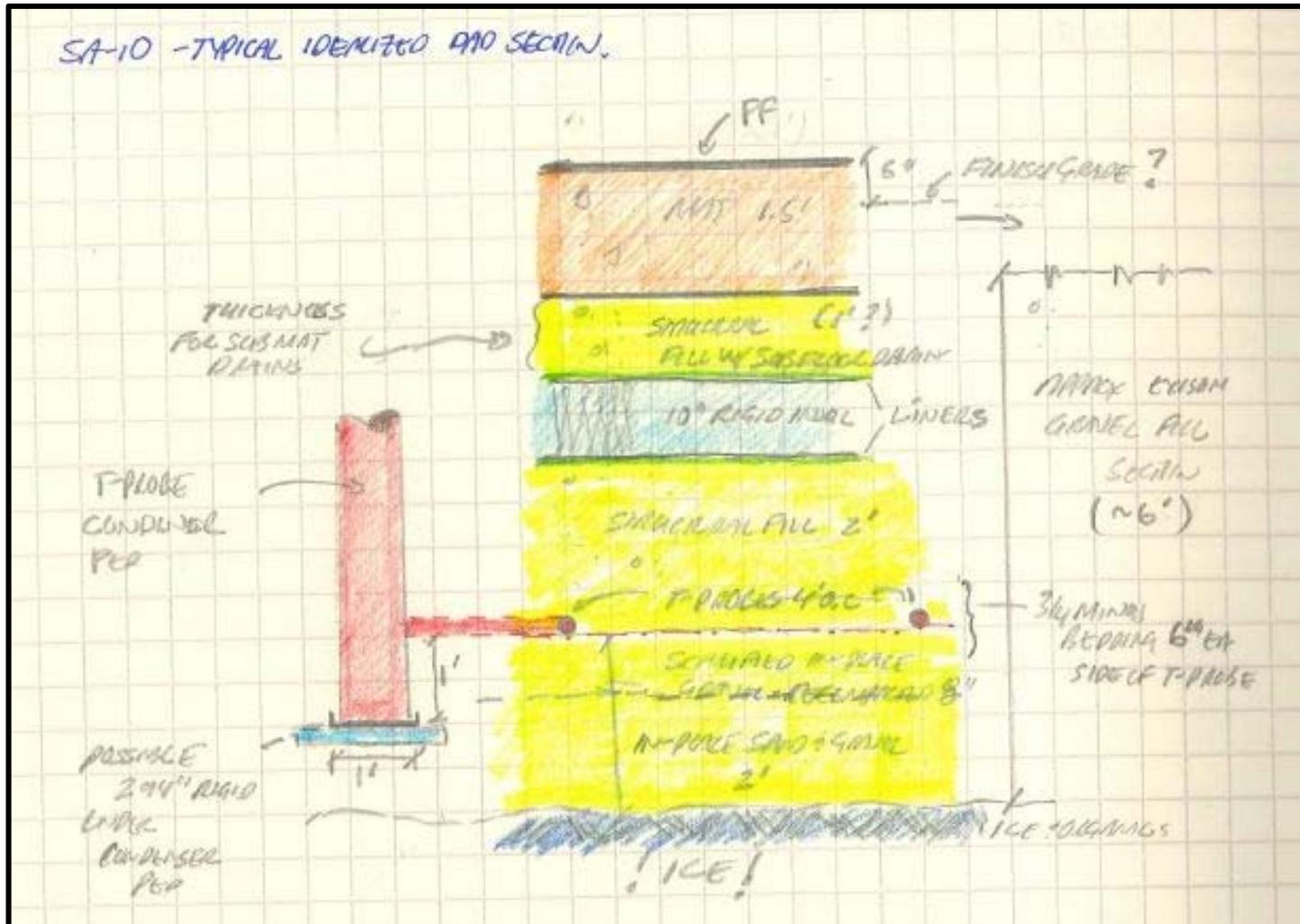
0.32 MGD WTP



0.36 MGD WWTP

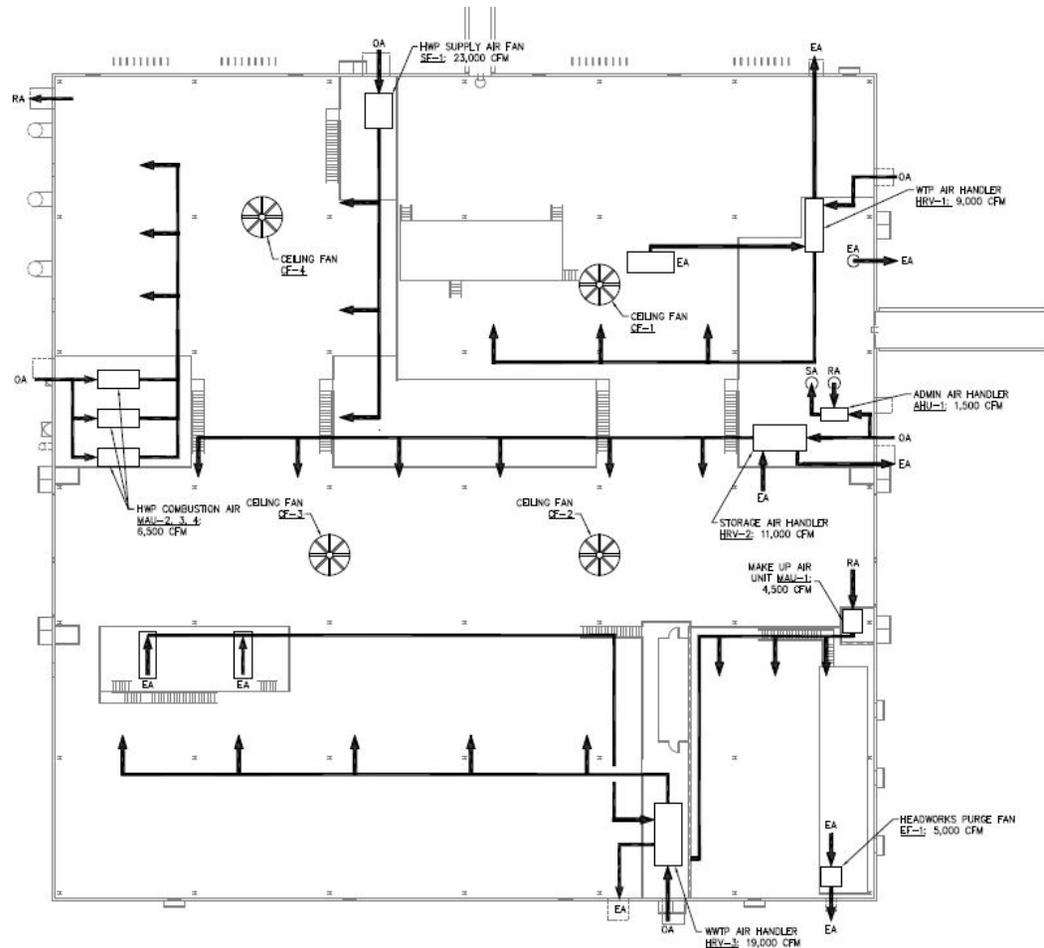


The New Thermosyphon Foundation



Design Features – New W&WWTP

- Schedule and budget
- Equipment placement
- Separate HVAC systems for WTP area and WWTP area
- Robust backup power plan due to frequent outages



Design Features – New W&WWTP

- No wastewater collection system
- No potable water distribution system
- Beware of polar bears!



Questions?

Kysa Cronrath, E.I.T.
Associate Civil/Environmental Engineer

MWH Global, Inc.
806 SW Broadway
Suite 200
Portland, Oregon 97205
United States

Office: (503) 226 - 7377
Mobile: (509) 988 - 3145

kysa.cronrath@mwhglobal.com
www.mwhglobal.com

