



TECHNICAL MEMORANDUM

TO: Jana Braaten— Port of Seattle
FROM: Tim Arendt, Melanie Knecht, Tom Dietrich— Gresham Smith
DATE: March 13, 2024
SUBJECT: **IWS ALTERNATIVES ANALYSIS**
SEATTLE-TACOMA INTERNATIONAL AIRPORT
Gresham Smith Project No. 44846.22

At the request of the Port of Seattle (Port), Gresham Smith recently performed an alternatives analysis to evaluate potential cost-saving alternatives for the Industrial Wastewater Treatment Plant (IWTP) Enhancements project at the Seattle-Tacoma International Airport (SEA). The purpose of this memo is to summarize the analysis assumptions, methodology, and performance results, to facilitate Port decision-making on potential changes to the IWTP Enhancements project scope.

Background

The Port is planning to implement enhancements to the IWTP, which is part of the Industrial Wastewater System (IWS) at SEA. The existing IWTP includes the following major elements:

- Two existing lagoons (Lagoons 1 and 2) that are designated as storage units for “high BOD” runoff (IWS runoff that exceeds the NPDES permit limit of 45 mg/L biochemical oxygen demand (BOD) and is not able to be discharged to surface water);
- One existing lagoon (Lagoon 3) that is designated as a storage unit for “low BOD” storage (IWS runoff that is below the NPDES permit limit of 45 mg/L BOD and could be discharged to surface water);
- Dissolved air flotation (DAF) system and associated solids management system that are used to process both low BOD and high BOD runoff before it is discharged off-site;
- Conveyance infrastructure to route flows to the sanitary sewer and surface water; and
- Monitoring instrumentation and controls to facilitate operations and flow routing.

Enhancements to the IWTP are primarily being driven by the following factors:

- Anticipated reduction in allowable BOD mass loading in future King County Industrial Waste Discharge (IWD) Permit for discharges from the IWTP to the sanitary sewer;













