



PHONE: (360) 371-7100 (24 hrs)
FAX: (360) 371-2806

Birch Bay Water and Sewer District

Serving the Greater Birch Bay Area Since 1968

7096 POINT WHITEHORN ROAD
BIRCH BAY, WA 98230-9675
office@bbwsd.com

COMMISSIONERS

Don Montfort
Jeff Benner
Fred Reid

GENERAL MANAGER

Dan Eisses

Nitrogen Optimization Report – 2025

Question Number 13

Permit Section S5.C.3.a and S5.C.3.b – Influent Nitrogen Reduction Measures/Source Control

Birch Bay Water and Sewer District (BBWSD) is a resort/bedroom community with no manufacturing or industrial dischargers, and few commercial facilities. The primary industry is tourism. The WWTP does not accept septage. The overall sanitary sewer system has typical residential wastewater characteristics. The 2024 average influent TIN was 31.5 mg/L, or 222 pounds TIN per day. BBWSD will consider TIN reduction public education and outreach opportunities in our newsletter and website.

The WWTP serves one large refinery. The refinery's sewer system is tightly sealed, is domestic sanitary sewer only, and represents about 7% of the WWTP's average load for BOD and TSS. Because the system is tightly sealed and has very little I&I, refinery wastewater is concentrated, with higher BOD, TSS, and ammonia (for a given volume) than elsewhere in BBWSD's collection system. For example, typical WWTP influent ammonia ranges from 20 to 40 mg/l, whereas ammonia from the refinery's wastewater stream ranges from 40 to 80 mg/l (with peaks over 100 mg/l). The lift station (LS11) includes on-line monitoring equipment such as LEL and pH instruments to ensure that any potential issues are identified and that any substance that could cause upsets, interference, or pass through is restricted before it can get to the WWTP.

BBWSD has successfully implemented the use of Magnesium Hydroxide [Mg(OH)₂] at LS11. Chemical dosing pumps have been set up to run each time a submersible pump runs in the wet well. This addition has improved pH stability, decreased H₂S formation, prevented plugging in the force main, and added alkalinity to the raw influent for improved nitrification. We are also in close communication with refinery staff, to prevent issues and provide early notice if unusual events do occur.