



DEPARTMENT OF THE NAVY

PUGET SOUND NAVAL SHIPYARD
AND INTERMEDIATE MAINTENANCE FACILITY
1400 FARRAGUT AVENUE STOP 2090
BREMERTON WASHINGTON 98314-2090

IN REPLY REFER TO:

5090
Ser 106.32/176
31 Oct 2023

Maia Hoffman
Permit Manager
Washington Department of Ecology
Northwest Regional Office
PO Box 330316
Shoreline, WA 98133-9716

Dear Ms. Hoffman:

Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF) is hereby providing the annual Salinity Report as required by section S11.E of State Waste Discharge Permit (SWDP) ST0007374.

Uses of Marine Water

During the past 12 months PSNS & IMF discharged to the sanitary sewer the following major sources of high salinity wastewater that were identified in the Naval Base Kitsap, Bremerton (NAVBASE Kitsap, Bremerton) Wastewater Salinity Study of March 2022: naval vessel domestic wastewater, drydock Process Water Collection System (PWCS) wastewater, Oily Water Treatment System (OWTS) treated effluent, and sanitary sewer groundwater infiltration at lift station 9.

Smaller sources of high salinity wastewater include seawater for sewage hose flushing and disinfection, seawater for freeze protection of temporary hoses used to transfer naval vessel domestic wastewater to the sanitary sewer, and residual seawater in the drydock after docking events.

Marine Water Reduction Efforts

Two seawater usage reduction efforts were completed during this reporting period. The use of freshwater instead of seawater for ten drydock cleaning events resulted in approximately 600,000 gallons of seawater not being discharged to the sanitary sewer. The calibration of PWCS's flow meters and PWCS's tank level indicators was also performed with freshwater which resulted in a reduction of seawater discharge of approximately 280,000 gallons annually. These efforts reduce seawater flow to sample point 105, which is lift station WB-3.

Best Management Practices for Reducing Salinity Inputs

Per section S11.D of the State Waste Discharge Permit staff and contractors were trained on the importance of controlling salinity discharges to the sanitary sewer. Environmental requirement training was provided to new contractors working at PSNS & IMF on a monthly

basis. This training was updated to include the information that high salinity discharges may interfere with the City of Bremerton's wastewater treatment plant operations and therefore, usage of seawater must be minimized for any process that could discharge to the sanitary sewer. In addition, annual mandatory training for all shipyard workers was also updated to include a discussion of the requirement to not discharge seawater to the sanitary sewer due to concern with high salinity. Internal process instructions and contracts are also revised where applicable to require minimization of usage of marine water or use freshwater when feasible.

Summary of Reportable Salinity Events Requiring Source Identification

Since the SWDP modification of April 2023, when the requirement of salinity source identification became effective, there were thirteen reportable events: five in May 2023, six in August 2023, and two in September 2023. Of these events twelve out of thirteen were attributed to contributions from drydock PWCS and OWTS. The PWCS and OWTS contributed between 69.1 and 80.3 percent of total base salinity loading for these events. For the remaining event salinity loadings from drydock PWCS and OWTS accounted for only 43 percent of the total base salinity loading. Due to the current lack of conductivity data at locations throughout NAVBASE Kitsap, Bremerton we could not identify other sources that could have led to this reportable event. In the future once more conductivity data at other locations from the NAVBASE Kitsap, Bremerton conductivity monitoring system is available we may be able to better find the sources.

Generally, for OWTS the high salinity comes from the presence of seawater in naval vessels' bilge and ballast water. For one reportable event the wastewater treated at an OWTS plant had elevated salinity levels due to seawater leakage from a submarine that was inadvertently collected for treatment during a post docking drydock cleaning event. Generally, for drydock PWCS the high salinity comes from groundwater infiltration at Drydocks 2, 5, and 6. For seven out of twelve reportable events Drydock 1 contributed to the high salinity due to elevated levels of seawater leakage at the caisson.

Concerning the reportable salinity events, when feasible the following reduction actions were implemented. For the seawater leakage at Drydock 1 caisson a temporary pumping system was installed to route the seawater to the drydock drainage system, which discharges to the bay. Failure of the temporary pumping system caused sporadic elevated salinity level from Drydock 1 PWCS. In addition, four of the seven reportable events partially caused by Drydock 1 PWCS happened during consecutive days which was discovered together due to the weekly lift station 1 data download frequency. For the groundwater intrusion into the Drydock 6 PWCS, which was caused by a failure of the temporary fixes installed in 2022, temporary fixes were reinstalled. A project to permanently repair the Drydock 6 groundwater relief system has started and is scheduled to be completed May 2024.

It should also be noted that these reportable salinity events averaged between 11 and 12.7 milliSiemen per centimeter (mS/cm), which were less than 50 percent of the daily average conductivity of 28.5 mS/cm, the level below which the City of Bremerton Wastewater Treatment Plant is unlikely to be impacted per the Salinity Study.

Comparative Analysis of Conductivity Measurements at Lift Station 1 and WB-3

For the purpose of meeting high conductivity source identification requirement, the SWDP allows the use of conductivity data from lift station 1 since its conductivity data is similar to WB-3 due to the vast majority of wastewater that goes through WB-3 also goes through lift station 1 and PSNS & IMF also has more frequent access to this data. This comparative analysis is provided as required by the SWDP to demonstrate the acceptability of using lift station 1 conductivity data for high conductivity source identification requirement.

From May 2023 to September 2023 conductivity measurements at lift station 1 and WB-3 were compared against each other. The averages of the daily average conductivity measurements at lift station 1 and WB-3 during this period were 10.5 mS/cm and 8.6 mS/cm, respectively. Lift station 1 daily average conductivity measurements were 22.7 percent higher than WB-3. The reason for this is because there are lower conductivity discharges downstream of lift station 1 such as the boiler blowdowns from the steam plant at Building 912 and other smaller domestic wastewater lift stations. Using lift station 1 values for high salinity source identification requirement is beneficial since lift station 1 values are higher which means more high salinity source identification will occur, leading to earlier detection of any abnormal high salinity discharges.

If you have any questions, please contact Mr. Duy Pham, Wastewater Environmental Engineer Lead, (Code 106.32), at (360) 476-0122.

Sincerely,

J. R. AYERS
Head, Environmental Division
Environment, Safety, and Health Office
By direction of the Commander

Copy to:
City of Bremerton