



Level II Source Control Report- Zinc

Seattle Yachts- North Yard- BYGP#: WAG994608

For 3 Benchmark Exceedances in 2023

Report Due: March 28, 2024

Prepared by: Dave Habenicht, Seattle Yachts Facilities Manager

Introduction

This report serves as a Level Two Source Control Report in accordance with the conditions of the Boatyard General Permit (Permit) issued by the Washington State Department of Ecology (Ecology). The Permit is issued by Ecology in accordance with the federal National Pollutant Discharge Elimination System (NPDES). Stormwater discharge from the facility is covered under the NPDES Boatyard Permit No. WAG994480. This "Level Two Response" is required by the Permit because 3 stormwater samples from 2023 from the Anacortes boatyard exceeded the Zinc benchmark concentration.

This Level Two Source Control Report provides a summary of the investigation of all reasonable, available, and applicable stormwater treatment best management practices (BMPs) to reduce stormwater contaminant levels below Permit benchmark values.

Background

Seattle Yachts- North Yard is located at 2417 T Avenue in Anacortes, Washington, and a vicinity map is provided as Figure 1. As described in Seattle Yachts Stormwater Pollution Prevention Plan (SWPPP), The facility falls under Standard Industrial Code (SIC) No. 3732, Boat Building and Repairing. The facility falls under North American Industrial Classification Schedule (NAICS) code 336612, Boat Building. Activities conducted at the facility include:

- Pressure washing
- Bottom and top side painting
- Engine, prop, shaft, and rudder repair
- Hull welding and grinding
- Hull repair, joinery, and bilge cleaning
- Fuel and lubrication repair and replacement
- Buffing and waxing
- Marine sanitation device (MSD) repair and replacement
- Other activities necessary to maintain or construct a vessel

The yard has capacity of up to 18 vessels at any given time. Numerous vessels are hauled out of the water per year, and many of those vessels are pressure washed. While this activity is conducted year-round, the majority of the work takes place in the spring, summer, and fall. The boat maintenance and repair area is separate from the boat pressure wash area. The facility and the stormwater drainage features are shown on Figure 2.

Facility Stormwater Drainage

The boat maintenance and repair area is located at 2417 T Ave, Anacortes (see attached Figure 2) and consists of asphalt and concrete paved surfaces and the facility's main building with an area of approximately 0.78 acres, including the wash pad area. Most of the stormwater runoff from the boat maintenance and repair area drains into catch basins that connect into one discharge conveyance pipe that leaves the facility to eventually discharge into surface waters. The stormwater collected from the boat maintenance and repair area is sampled as part of the facility's monitoring program at a catch basin on the east side of the facility (sampling point SW-1) before leaving Seattle Yachts property.

The boat pressure wash area is located just east of the facility's main building and consists of a concrete paved drainage area with dimensions of approximately 83 ft by 51 ft (4,300 ft² or 0.10 acres; Figure 2). When vessel washing is occurring, the pressure wash area drains east to a trench drain located on the east side of the boat pressure wash area. Water collected in the trench drain is pumped to the pressure wash wastewater tank for pretreatment prior to discharge to the sanitary sewer. Outside of the wash pad area, the ground is sloped so that clean stormwater drains to separate storm drain catch basins.

Stormwater Sampling Results

In 2023, facility stormwater discharge at designated monitoring point SW-1 exceeded the Zinc benchmark during the permit-required sampling months of January, May and November. Therefore, the facility has exceeded permitted benchmarks for a monitoring period for Zinc on three occasions, thereby triggering a Level Two Response investigation and the need for this Level Two Source Control Report.

Applicable Stormwater Source Control Best Management Practices

Several applicable source control measures (e.g., use of plastic or tarpaulin barriers beneath boat hulls, use of vacuum sanders, and daily or more frequent removal of accumulated solids) have already been implemented. Additional actions to eliminate old sources, such as pressure washing storm drain trenches/pipes/vaults have been added to BMP's to further reduce zinc runoff. Seal coating the existing asphalt and concrete pad surfaces is being considered as an effective source control method for reducing the contact of stormwater to the historical accumulation of embedded metals in the asphalt and concrete surfaces that cannot be easily removed by sweeping but that continue to leach dissolved Zinc into boatyard stormwater. Storm water samples drawn from roof downspouts have revealed high levels of zinc. Consideration is being given to epoxy or DTM sealing of the roof to reduce the presence of zinc in roof water runoff to stormwater. These mitigating actions will be reviewed with DOE during an upcoming scheduled courtesy site visit on April 18, 2024.

Installing a roof over the boat pressure wash area and/or the boat maintenance and repair area could eliminate or minimize the amount of rainfall collecting in areas where paint chips and other potential boatyard pollutants are generated and could be very effective in preventing stormwater from collecting Zinc. There are significant impediments to installing roofing over boatyard areas.

These impediments include (1) the need to have approximately 45 ft of vertical clearance under the roof to allow adequate clearance for the boat travel lift, (2) building height limits in the City Code, (3) possible objection from local residents due to negative impacts to views, (4) the inability to eliminate windblown rain from entering work areas unless walled on 4 sides, and (5) the inability, even with a 45-ft-high roof, to accommodate the travel lift carrying some of the boats with large masts. Because of the low relative implementability, the impact to business operations, and the high capital cost, this alternative is given a less favorable ranking compared to other stormwater management alternatives.

Source control measures are generally the most cost-effective, involving relatively low cost for the level of water quality improvement that is possible. However, because past source control efforts have not been able to consistently achieve the benchmark values for Zinc, Seattle Yachts may still need to install stormwater treatment options, as listed in the following section. These proposed additional treatments provide future contingency options for the facility if stormwater treatment on its own is not adequate to consistently meet the Zinc benchmark values.

Stormwater Treatment Best Management Practices

Catch basin insert filters stormwater have been added to treatment BMPs and implemented as solutions to assist in reducing Seattle Yachts's Zinc levels to below Permit benchmark values. Constructed wetlands, StormwaterRx Aquip treatment, detention pond/wet pond installation, bioswale installation, infiltration, and discharge to the sanitary sewer have proposed as additional potential solutions.

Discharge of Stormwater to the Sanitary Sewer

Seattle Yachts currently sends treated pressure wash wastewater and stormwater that falls onto the pressure wash pad to the City of Anacortes' wastewater treatment plant but does not discharge stormwater from the wash pad to the sanitary sewer during times when no washing activity is occurring and does not discharge stormwater from the rest of the boat maintenance and repair area to the sanitary sewer.

Report prepared by: Dave Habenicht, Seattle Yachts Facilities Manager

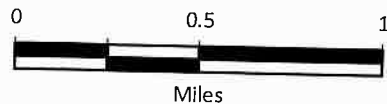
Date: April 9, 2024

Signature:  _____

Attachments: Figure 1. Vicinity Map

Figure 2. Stormwater Drainage in Boat Maintenance and Repair Area

G:\Projects\1987\001\020\Level 3 Eng Report\F01 VicMap.mxd 10/6/2022 NAD 1983 StatePlane Washington North FIPS 4601 Feet



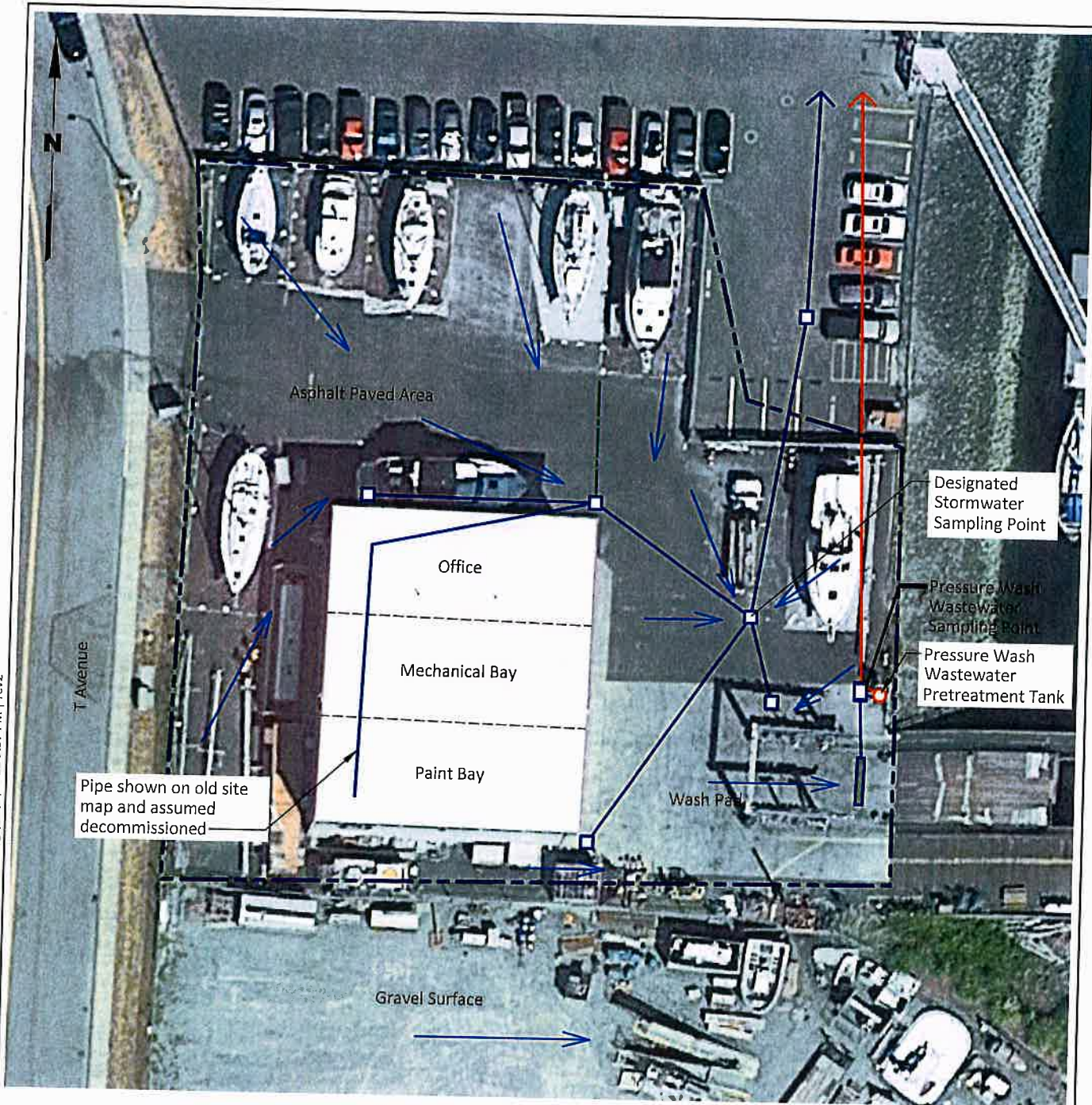
Data Source: Esri 2012

LANDAU
ASSOCIATES






Seattle Yachts Service
2417 T Avenue
Anacortes, Washington

Vicinity Map

Figure
1



Legend

-  Approximate Stormwater Drainage Direction
-  Catch Basin and Storm Drain Pipe
-  Sanitary Sewer Pipe
-  Perforated Pipe for Groundwater Drainage (capped)
-  Approximate Drainage Basin Boundary



Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.