Vancouver Port of NuStar Cadet Swan Cleanup Site Response to Comments

Comment Period: June 15 – July 17, 2023

Cleanup Site ID:	3450
Facility ID:	1026
Address:	2565 NW Harborside Drive, Vancouver, WA 98660
County:	Clark County

Documents for review and comment

Public Review Draft Interim Action (IA) Work Plan
Draft Amendment to Agreed Order (AO) DE 18152
State Environmental Policy Act Determination of Non-Significance (SEPA DNS)

Background

This Site includes two source areas, one known as the Cadet/Swan part of the site and the other as the NuStar and KMBT part. NuStar and KMBT are located next to each other adjacent to the Columbia River, and not far from the Cadet/Swan locations. NuStar is a Port tenant that has historically handled bulk fertilizer and other bulk products. KMBT is a former Port tenant that exported copper and bentonite clay at the bulk materials facility. The stormwater treatment pond collects and treats stormwater from the KMBT and NuStar part of the Site.

Contaminants of nitrate, ammonia, copper, and other metals are found in soil and groundwater beneath the KMBT and NuStar parts of the Site. At the location of the NuStar terminal, chlorinated solvents, such as perchloroethylene (PCE) and trichloroethylene (TCE), polluted soil and groundwater. A groundwater plume of chlorinated solvents is located under the NuStar and KMBT operational areas. Additional investigations are currently being conducted to understand the nature and extent of metals and fertilizer contamination in the area.

Proposed Interim Action (IA) Work Plan

The objective of this proposed action is to remove and properly dispose of contaminated stormwater solids from the stormwater treatment pond (See Figure 1). The pond, initially constructed in the 1990s and modified several times, is designed to collect suspended and settleable solids from stormwater runoff at the KMBT and NuStar part of the Site. The drainage basin for the pond includes Terminal 3 and part of Terminals 2 and 4. This includes a portion of the Site as defined by the Washington State Department of Ecology Agreed Order DE 18152 and DE 15806. Previous investigations indicate the stormwater solids settled in the pond are impacted by oil-range petroleum hydrocarbons and several

metals. Removal of the contaminated stormwater solids would reduce the potential of environmental exposure and improve overall treatment performance of the pond.

Contaminants of nitrate, ammonia, copper, and other metals are found in soil and groundwater beneath the KMBT and NuStar parts of the Site. At the location of the NuStar terminal, chlorinated solvents, such as PCE and TCE, polluted soil and groundwater. A groundwater plume of chlorinated solvents is located under the NuStar and KMBT operational areas. Additional investigations are currently being conducted to understand the nature and extent of metals and fertilizer contamination in the area.

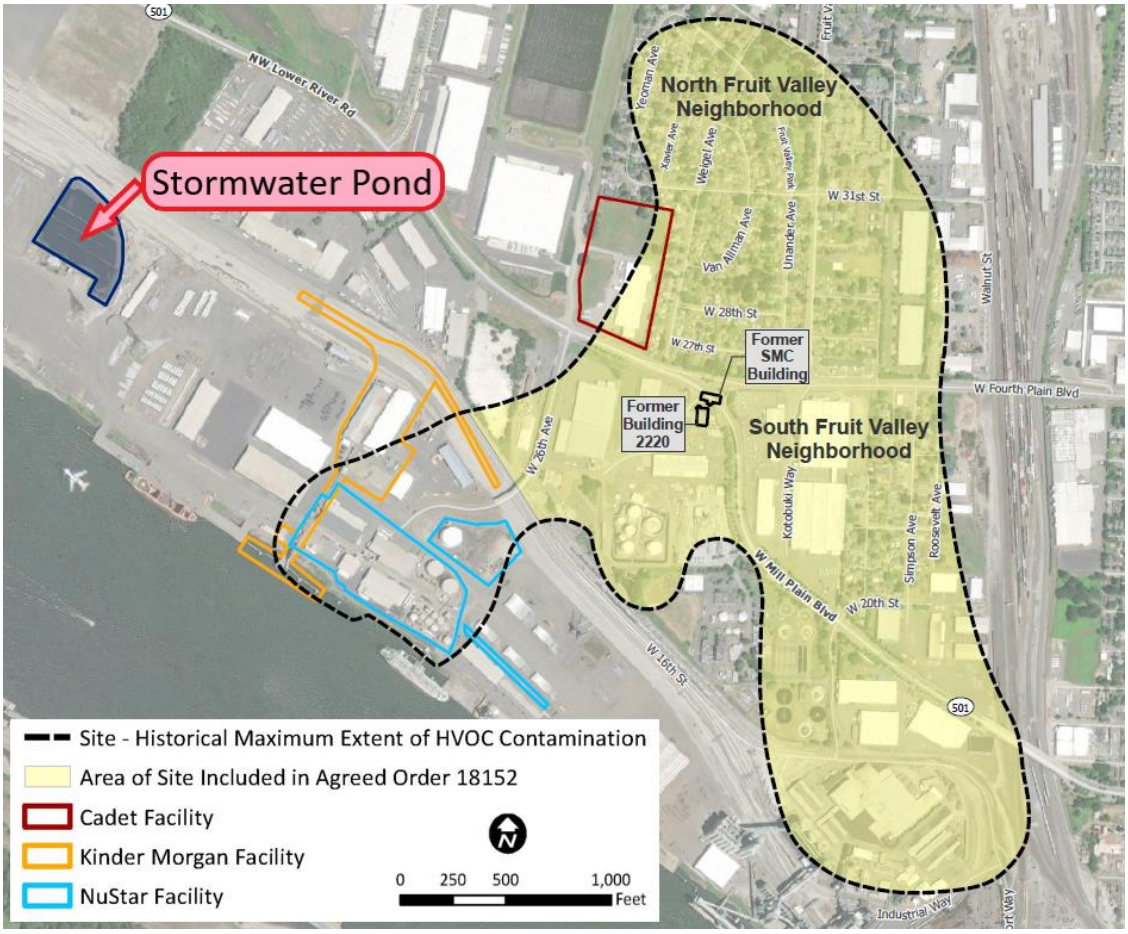

Figure 1. The black line shows the maximum extent of solvent contamination. The maximum extent of the plume was identified in 2009.The pink arrow and dark blue outline indicate the location of the Stormwater Pond which receives stormwater runoff from the KMBT (orange) and NuStar (blue) parts of the Site.

Contamination and possible pathways for exposure

Contamination at the Site has not adversely affected City of Vancouver, Clark Public Utilities, or Port public drinking water supply wells. Even so, cleanup of the groundwater plume and other contaminants is important because exposure to these substances can be harmful to human health and the environment, including the neighboring Columbia River.

Previous cleanup actions and proposed plan for cleanup

Figure 2 below shares the major steps of the cleanup process and where Ecology makes cleanup plans and documents available for public review and comment.

The Port has been conducting interim actions with Ecology oversight at the Site since 1998. Figure 1 includes a black dashed line that defines the maximum historic extent of the solvent plume at the Site. Until recently, Ecology considered the solvent plume from the Swan/Cadet and NuStar source areas to be one area-wide plume.

The yellow shaded area within the Site outline is the area considered in AO DE 18152. Cleanups, called interim actions, have reduced the solvent contaminant levels so the solvent plume between the Cadet/Swan and NuStar source areas is no longer connected.

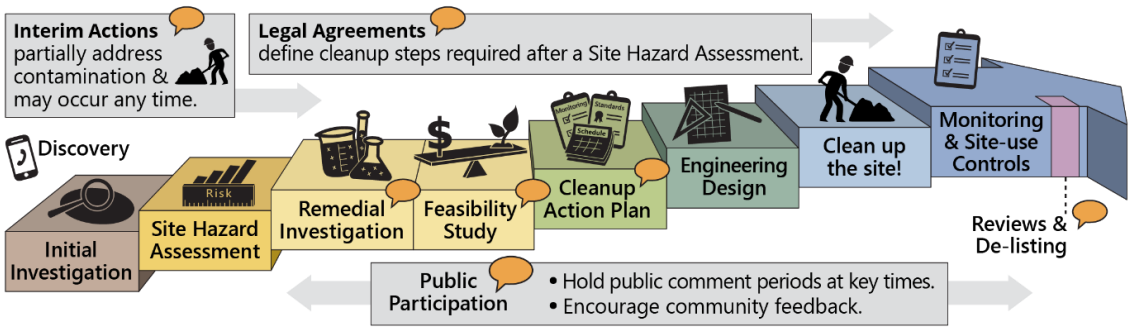

Figure 2. The Model Toxics Control Act (MTCA) is Washington's cleanup law. There are several steps in the MTCA cleanup process. The comment bubbles indicate major milestones in the process when there is an opportunity for public comment.

You can follow the progress of cleanup at the Vancouver Port of NuStar Cadet Swan webpage.[1]

Prepared by

Sam Meng
Cleanup Project Manager

Matt Fuller
Public Involvement Coordinator

[1] https://apps.ecology.wa.gov/cleanupsearch/site/568

Comments received during the June 15 – July 17, 2023 comment period

(1) Comment from Jean Avery (Vancouver, WA) June 16, 2023

YES to a full and complete cleanup of the Cadet Swan site--for our communities, our water, the waterways, and wildlife.

Ecology Response:
Thank you, Jean for your support for the effort to cleanup this site. Please keep an eye on our webpage for the site for updates and opportunities to provide feedback on the cleanup process.

(2) Comment from Jean Avery (Vancouver, WA) July 1, 2023

I agree: -1-Cleanup of the groundwater plume and other contaminants is important because exposure to these substances can be harmful to human health and the environment, including the neighboring Columbia River.

Ecology Response:
The MTCA regulations and Ecology's implementation of the law seeks to ensure the health and well-being of people and the environment. The health of the Columbia River is an important consideration in this work. Thank you for sharing your comment on protecting people, the environment and the Columbia River.

(3) Comment from Farmer Tom Lauerman (Vancouver, WA) July 8, 2023

Bioremediation can play a significant role in eliminating the issue of contaminated stormwater in the pond receiving runoff from NuStar Terminals Services and Kinder Morgan Bulk Terminals. Potentially saving time, money, and effort by eliminating the issue, in place of excavating and placing the contamination somewhere else. Here's how certain components can contribute:

Microbes: Certain species of bacteria and other microorganisms have the ability to break down and metabolize pollutants present in stormwater. For example, some bacteria can degrade hydrocarbons, such as those found in oil and petroleum products. By introducing specific strains of bacteria into the pond, it is possible to enhance the natural microbial activity and accelerate the degradation of contaminants.

Enzymes: Enzymes are biocatalysts produced by living organisms, including microbes and fungi. They play a crucial role in accelerating chemical reactions, including the breakdown of complex organic compounds. Enzymes can be isolated from various microbial and fungal sources and used as additives in the pond to facilitate the degradation of contaminants. For instance, enzymes like lipases can break down fats and oils, while peroxidases can help in the breakdown of certain toxic compounds.

Fungi: Certain types of fungi, particularly those belonging to the group of white-rot fungi, have the remarkable ability to degrade a wide range of organic pollutants, including chlorinated solvents. These fungi produce ligninolytic enzymes, such as lignin peroxidase and manganese peroxidase, which can effectively break down complex organic molecules. Introducing white-rot fungi to the contaminated pond can assist in the remediation process by breaking down the chlorinated solvents that have leaked into the soil and groundwater.

By utilizing a combination of these biological agents, it is possible to enhance the natural remediation processes in the pond. However, it is important to note that the specific choice of microbes, enzymes, and fungi will depend on the nature and extent of the contaminants present in the stormwater. Additionally, regular monitoring and maintenance should be conducted to ensure the effectiveness of these biological approaches in eliminating the contamination issue.

Ecology Response:
Thank you for your detailed comment regarding how bioremediation technologies could be utilized to remediate the water in the stormwater treatment pond. The pollutant reduction in the stormwater currently relies on biological activity within the pond through uptake of dissolved constituents by vegetation planted along the berms and pond side slopes, and floating wetland. The main goal of the proposed interim action is to restore the capacity (effective volume) of the stormwater pond since stormwater solids has accumulated in the pond since it was expanded in 2012. Removing the solids settled on the bottom of the pond by excavation is considered the most effective and fastest way to achieve the goal allowing the pond back to function before the wet season start. The excavated solids will be deposed of at a permitted landfill based on waste characterization.