



# Technical Memorandum

To: Janis Kristiansen

Date: October 30, 2023

From: Ada Banasik, PE and Derek Heitz, CPSWQ

Project No.: M0120.01.006

Re: Western Wood Preserving Co. Stormwater Biofiltration Pond Maintenance and Compliance with National Pollutant Discharge Elimination System Waste Discharge Permit No. WA0040738 10-30-2023

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Maul Foster & Alongi, Inc. (MFA) prepared this memorandum on behalf of Western Wood Preserving Co. (WWPC) to summarize the recently completed maintenance of WWPC's stormwater biofiltration pond and WWPC's compliance with the final effluent limits outlined in the National Pollutant Discharge Elimination System Waste Discharge Permit No. WA0040738 (Permit) at the WWPC facility located at 1313 Zehnder Street in Sumner, Washington (the Facility).

## Background

The Facility currently discharges stormwater consistent with the Permit that was issued to WWPC on August 5, 2021 by the Washington State Department of Ecology (Ecology). This Permit authorizes WWPC to discharge stormwater runoff from two outfalls: Outfall 001 and Outfall 002. Outfall 001 discharges stormwater from an area that is subject to industrial activities associated with treated wood storage, and Outfall 002 discharges stormwater runoff from an area where white wood (i.e., untreated wood) is stored. Stormwater that discharges to Outfall 001 is treated via settling and biofiltration in a vegetated pond. The pond consists of multiple cells divided by walls constructed of gabion baskets filled with rock. These walls enhance the efficacy of sedimentation and biofiltration in the pond. This memorandum focuses discharges from Outfall 001.

The Permit established pollutant Interim Effluent Limits (Interim Limits) that are in effect until August 31, 2024, and Final Effluent Limits (Final Limits) that will become effective on September 1, 2024. The Permit established effluent limits for total arsenic, total chromium, total copper, oil and grease, chemical oxygen demand (COD), total suspended solids (TSS), pH and flow. To prevent these pollutants from being discharged from the Facility, WWPC has implemented and long practiced operational, structural and treatment best management practices (BMPs) throughout their Facility.

The Interim Limits are higher than the Final Limits to allow WWPC time to evaluate the efficacy of the existing biofiltration pond and if needed, implement changes to meet the Final Limits. A comparison of the Interim and Final Limits is included in the following table.

**Table 1: Permit Interim and Final Effluent Limits**

Pollutant of Concern	Interim Limits	Final Limits	Units
Total Arsenic	67	19.4	µg/L
Total Chromium	100	35.1	µg/L
Total Copper	127	97.1	µg/L
Chemical Oxygen Demand	n/a	120	mg/L
Oil and Grease	10	10	mg/L
Total Suspended Solids (TSS)	50	50	mg/L

Note:

All listed permit limitations are Maximum Daily Values.

µg/L = micrograms per liter

n/a = Interim Limit not established for Chemical Oxygen Demand.

## Operational and Structural Source Control BMPs

WWPC implements operational and structural source control BMPs to control the pollutant levels in stormwater that discharges to the biofiltration pond. These BMPs include the following:

- WWPC uses dedicated equipment in the drip pad and does not allow non-process equipment traffic on the drip pad to prevent the tracking of treatment chemicals to other areas of the site. Non-dedicated lift trucks that enter the drip pad are cleaned prior to leaving the drip pad.
- Treated wood is stored on the drip pad until it is free of drips. If any wood is observed to be dripping chemicals in the treated wood storage area, it is relocated to concrete chemical containment structure until the surface is clean and until it is drip free and dry on the surface.
- Treated wood is completely top- and side-wrapped with no lumber left uncovered in the drying or storage areas until it has been so wrapped, completely covered or otherwise completely isolated from contact from with rainfall and stormwater runoff. "Cap-wrapping" is acceptable as long as the lumber is stored the Outfall 001 drainage area.
- Treated wood is completely covered or otherwise completely isolated from contact with rainfall and stormwater runoff.
- If treated lumber needs to be washed down, it is moved to the drip pad to be sprayed down and allowed to drip dry before moving it off the drip pad.
- Catch basin filter fabric inserts are installed, inspected and maintained in working condition to minimize the discharge of floating and settleable pollutants into the biofiltration pond.
- Stormwater from areas that contain fixed process equipment (i.e., the drip pad) is reused in the wood treating process and not discharged to the pond or surface waters.
- Outdoor areas are maintained such that they are free of treated wood debris that is exposed to rainfall and stormwater runoff.

- WWPC implements BMPs to prevent tracking of process wastewater contaminants from process areas into storage areas, including the use of boot covers for all employees working in process areas, or similar measures, and dedicated vehicles in process areas. When vehicles, other than dedicated vehicles, must access process areas, WWPC decontaminates these vehicles to prevent tracking of pollutants out of the process area.
- Accessible paved areas are swept regularly to remove pollutants from paved surfaces.

## Treatment BMPs

Stormwater from areas used to store wrapped treated wood is conveyed to a biofiltration pond. The pond is equipped with two walls that separate it into three cells. The walls are constructed with gabion baskets filled with drain rock and vegetated. This slows the flow of stormwater through the pond, enhancing sedimentation and biofiltration in each cell. The vegetation also removes pollutants via plant uptake. Stormwater slowly filters through the void space in the rock as it flows from one cell to the next through the walls.

### 2023 Biofiltration Pond Maintenance

WWPC conducted significant maintenance of the biofiltration pond in August 2023 to enhance the treatment efficiency. Maintenance activities consisted of the removal of vegetation from the two upstream pond cells and rebuilding of the downstream gabion basket wall.

The cell was drained to confirm that the total depth matches the pond design depth of 4 feet. The height of the reconstructed gabion-rock wall extends above the design height to prevent stormwater from flowing over the wall and ensure all runoff is filtered through the rock. The gabion baskets were filled with 2- to 3-inch drain rock to provide sufficient void space for runoff to flow through, while also providing filtration and slowing the flow velocity to enhance settling and biofiltration. The below photo shows the reconstructed gabion-rock wall.



WWPC will monitor Outfall 001 discharges during the winter of 2023-2024 to evaluate long-term efficacy of enhanced treatment in the pond. It is anticipated that the improvements will reduce suspended solids and particulate-bound pollutant loading via enhanced settling, as well as dissolved pollutant reduction via enhanced biofiltration in discharges from Outfall 001.

## Anticipated Compliance with Permit Limits

MFA reviewed WWPC's monitoring results from Outfall 001 to evaluate compliance with the Interim Limits and the expected compliance with the Final Limits that will be effective on September 1, 2024. The monitoring results are summarized in the attached table. Since the Permit was issued, WWPC exceeded the Interim Limit for total arsenic once (the reported concentration of 67.8 micrograms per liter [ug/L] slightly exceeded the Interim Limit of 67 ug/L). Outfall 001 monitoring results exceeded the Interim Limit for copper once since the Permit was issued. The Final Limits are significantly lower than the Interim Limits. Comparison of the existing data to the Final Limits shows two samples that would have exceeded the Final Limit for total arsenic and two samples that would have exceeded the Final Limit for total copper. All recent sample results (from within the last year) have met the Final Limits and the pond maintenance is expected to reduce the likelihood of future Permit Final Limit exceedances.

As noted by Ecology during inspections, WWPC has an excellent track record of maintaining BMPs. These infrequent Permit Interim Limit exceedances were caused by inefficient implementation of source control BMPs (i.e., sweeping and or covering of treated wood products) and not inefficient treatment in the pond. WWPC implemented additional employee training to ensure the source control BMPs are properly implemented and maintained to prevent the likelihood of Permit limit exceedances and no exceedances occurred since then. The 2023 pond maintenance activities are expected to enhance effectiveness of treatment in the pond and further reduce the likelihood of Permit Final Limit exceedances.

## Contingency Planning for Improvements to the Treatment BMPs

WWPC will contract with MFA to develop a contingency plan for potential future improvements to the treatment BMPs that would be implemented during the summer of 2024 if Outfall 001 monitoring results from the winter of 2023-2024 show concentrations that would exceed the Permit Final Limits. These efforts may include update of (or implementation of new) source control measures, increased pond maintenance frequencies, additional or enhanced treatment BMPs. The contingency plan will be developed during the spring to allow for preparation of an engineering report and plans, as well as implementation, if needed, prior to the Final Limits effective date.

## Attachments

Limitations

Table—Outfall 001 Permit Results

## Limitations

The services undertaken in completing this technical memorandum were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This technical memorandum is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this technical memorandum apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this technical memorandum.

# Table

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**Outfall 001 Monitoring Results Summary**  
**Western Wood Preserving Co.**  
**Sumner, Washington**



Collection Date	Total Arsenic	Total Chromium	Total Copper	Chemical Oxygen Demand	Oil and Grease	Total Suspended Solids
Units:	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L
Interim Effluent Limits <sup>(a)</sup> :	67	100	127	--	10	50
Final Effluent Limits <sup>(a)</sup> :	19.4	35.1	97.1	120	10	50
09/30/2021	8.1	0.4	2.4	6.4	--	--
10/31/2021	--	--	6.7	3.03	--	4.8
11/30/2021	21.5	5.68	54.1	10.1	5	4
12/31/2021	--	1.05	8.98	4.72	--	1.37
01/31/2022	17.8	18.9	204	16.8	--	3.2
02/28/2022	--	--	22.3	10.1	--	3.48
03/31/2022	11.7	6.7	76	15.2	--	5.76
04/30/2022	--	4.86	65.5	15.2	--	3.4
05/31/2022	12.1	20.6	120	18.5	--	8
10/31/2022	67.8	1.6	6.68	2.36	--	0.8
11/30/2022	7.02	5.59	35.2	--	--	3
12/31/2022	--	3.79	25.3	6.06	--	6
01/31/2023	10.2	2.67	22.6	3.37	5	0.8
02/28/2023	--	8.6	32.9	11.1	--	7
03/31/2023	4.4	3.76	17.7	10	5	4
04/30/2023	--	8.94	23	10	--	2
05/31/2023	5.83	0.47	7.87	10	5	2

**Notes**

Shading (color key below) indicates values that exceed effluent limits.

Interim Effluent Limits

Final Effluent Limits

-- = not available.

mg/L = milligrams per liter.

NV = no value.

ug/L = micrograms per liter.

<sup>(a)</sup>Effluent limits (maximum daily values) from National Pollutant Discharge Elimination System Waste Discharge Individual Permit No. WA0040738.