

Fact Sheet for NPDES Permit WA0030805

BROOKS MANUFACTURING CO.

Date of Public Notice of Draft: October 14, 2020

Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Brooks Manufacturing Co (Brooks).

This fact sheet complies with [Section 173-220-060 of the Washington Administrative Code \(WAC\)](#), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for Brooks, NPDES permit WA0030805, are available for public review and comment from October 14, 2020 until November 13, 2020. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

Brooks Manufacturing Co. reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, discharges, or receiving water prior to publishing this draft fact sheet for public notice.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them. Ecology will include the summary and responses to comments in this fact sheet as **Appendix E - Response to Comments**, and publish it when issuing the final NPDES permit. Ecology generally will not revise the rest of the fact sheet. The full document will become part of the legal history contained in the facility's permit file.

Summary

Brooks Manufacturing Co. operates a wood treatment facility that uses pentachlorophenol (PCP) as a wood preservative and discharges stormwater to a drainage ditch that ultimately discharges to Whatcom Creek. Treated wood products are stored under cover until orders are received to be shipped out. Stormwater treatment is accomplished by retention, sedimentation, and biological and photo degradation in the stormwater collection ponds. Ecology issued the previous permit for this facility on March 26, 2015.

This type of chemically treated wood preserving operation places the facility under the federal effluent guidelines of 40 CFR Part 429, subpart H for Wood Preserving – Boulton subcategory. The federal requirement for this type of process wastewater is to achieve zero discharge of process wastewater. The facility treats the process wastewater using oil water separation, followed by sedimentation and activated carbon filtration prior to disposing the water through

evaporation. The air emissions are regulated under a permit issued by the Northwest Clean Air Agency. The freshly treated wood products are temporarily stored on covered drip pads until dripping ceases and then moved to the covered storage yard.

The effluent limits and monitoring requirements for total suspended solids and pH are unchanged from the previous permit issued in 2015. Changes in this permit include replacing the oil & grease limit with a limit on total petroleum hydrocarbons-diesel (TPH-Dx) and adding quarterly monitoring for copper and zinc to further characterize the stormwater discharge.

The technology-based effluent limits for pentachlorophenol in the previous permit remain in this permit as interim effluent limits under a compliance schedule. The final water quality-based effluent limit for PCP becomes effective after the compliance period expires in 5 years. Brooks has proposed replacing PCP with a new chemical preservative 4,5 Dichloro-2-N-Octyl-4-Isothiazolin-3-One (DCOI) in the wood treatment process during this permit cycle. The permit requires developing a suitable laboratory analytical test for this chemical. Whole effluent toxicity on fish, insects, and alga is required to characterize the toxicity of the stormwater discharge. After PCP is no longer used on-site, the PCP testing may be removed or reduced.

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Introduction

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The Legislature defined Ecology's authority and obligations for the wastewater discharge permit program in [90.48 RCW](#) (Revised Code of Washington).

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits ([chapter 173-220 WAC](#))
- Water quality criteria for surface waters ([chapter 173-201A WAC](#))
- Water quality criteria for ground waters ([chapter 173-200 WAC](#))
- Whole effluent toxicity testing and limits ([chapter 173-205 WAC](#))
- Sediment management standards ([chapter 173-204 WAC](#))
- Submission of plans and reports for construction of wastewater facilities ([chapter 173-240 WAC](#))

These rules require any industrial facility owner/operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days ([WAC 173-220-050](#)). (See **Appendix A-Public Involvement Information** for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in **Appendix E**.

Background Information

Table 1 - Facility Information

Applicant:	Shannon Terrell, President
Facility Name and Address	Brooks Manufacturing Co. 1301 Iowa Street, Bellingham, WA 98229
Contact at Facility	Name: Kevin Mosley, Technical Director Telephone #: 360.733.1700 x 332
Responsible Official	Name: Shannon Terrell Title: President Phone #: 360-733-1700 FAX #: 360-734-6668
Industry Type	Pressure Wood Preserving
Categorical Industry	40 CFR Part 429, subpart H for Wood Preserving – Boulton subcategory
Type of Treatment	Solids Settling, Photo degradation
SIC Codes	2491 – Wood Preserving
NAIC Codes	321114
Permit Fee Category (WAC 173-224)	Timber Products: e) Wood Preserving
Facility Location (NAD83/WGS84 reference datum)	Latitude: 48.75847 Longitude: -122.455893
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Drainage Ditch to Whatcom Creek Latitude: 48.756595 Longitude: -122.459098

Table 2 - Permit Status

Renewal Date of Previous Permit	March 26, 2015
Application for Permit Renewal Submittal Date	September 30, 2019, amended on January 16, 2020
Date of Ecology Acceptance of Application	May 20, 2020

Table 3 - Inspection Status

Date of Last Non-sampling Inspection Date	January 6, 2015
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Figure 1 - Facility Location Map

A. Facility description

History

Brooks Manufacturing Co. (Brooks) is the manufacturer of wood cross arms and wood transmission components for the utility industry. The site covers 11.2 acres in Bellingham, Washington. They have been in operation since the 1920s. A new wood treating facility

was constructed at this site in 1982 to comply with environmental regulations that existed at the time for both the state and USEPA, requiring no discharge of process water.

The facility installed an evaporation tower around 1984, eliminating any process related discharges from the site to surface water.

During the 1990s, Brooks consolidated all 10 outfalls on-site and directed all site stormwater except for parking lot runoff, to the southwest corner of the property where it flows to a lined settling/retention pond and then into a drainage ditch, ultimately flowing to Whatcom Creek.

Brooks appealed the 2003 permit reissuance, which resulted in the Pollution Control Hearings Board directing Ecology to modify the permit to add a maximum daily effluent limit for pentachlorophenol of 20 µg/L and a 12-month rolling average limit of 9 µg/L. The southern stormwater collection pond located southwest corner of the facility, was considered AKART (All Known, Available and Reasonable Treatment).

Industrial processes

The principal product manufactured at the Brooks facility is treated utility pole cross arms. The company also engages in custom wood drying and surfacing, including resaw, dry kiln, planning mill, boring machines, and wood treatment operations. Dimensionally cut raw wood arrives and is custom milled on-site. The wood arrives with end paint already applied; no end painting occurs here. The wood is dried, milled, retorted, stored, and shipped.

Chemicals which are used or stored on the facility include P-9 oil (refined paraffinic oil mixed with biodiesel), solid block Pentachlorophenol, treating oil (5% PCP in P-9 oil), diesel fuel, machine shop waste oil, and anti-freeze. In 2019, Brooks informed Ecology that the PCP supplier is closing business soon, and requested approval to use a new environmentally friendly chemical known as 4,5-Dichloro-2-octyl-3-isothiazolone (DCOI) in place of PCP. DCOI is considered to be less toxic and non-persistent bio-accumulative chemical (Ecology's Publication 17-04-039, Report to the legislature on non-copper antifouling paints for recreational vessels in Washington). DCOI treatment solution will be prepared the same way as PCP solution by dissolving the chemical in P-9 Oil as a carrier.

The wood treating area includes oil storage tanks, P-9 oil storage tank, and retort. PCP arrives at the plant as solid Penta blocks. The treatment solution is prepared by dissolving Penta blocks with P-9 oil to achieve a 5% PCP solution (mixed to AWWPA standards) for wood treatment in the retort.

The wood is treated in a 6-foot diameter by 82-foot long pressure retort vessel. The treating oil is heated by steam in a heat exchanger and the condensate is returned to the

boiler. A vacuum is drawn with a pump. Waters removed from that process (which is contaminated with PCP) are treated to remove PCP and then evaporated in accordance with current best management practices. Heat for evaporation is supplied by waste heat or fresh steam. Drainage from the concrete track pad, oil receiving and refueling pad is discharged to two API oil/water separators with oil returned to the work tank and water to the evaporative system that includes sediment and activated carbon filtration to remove any contaminants. A flow diagram for the process wastewater is depicted in Figure 2 below.

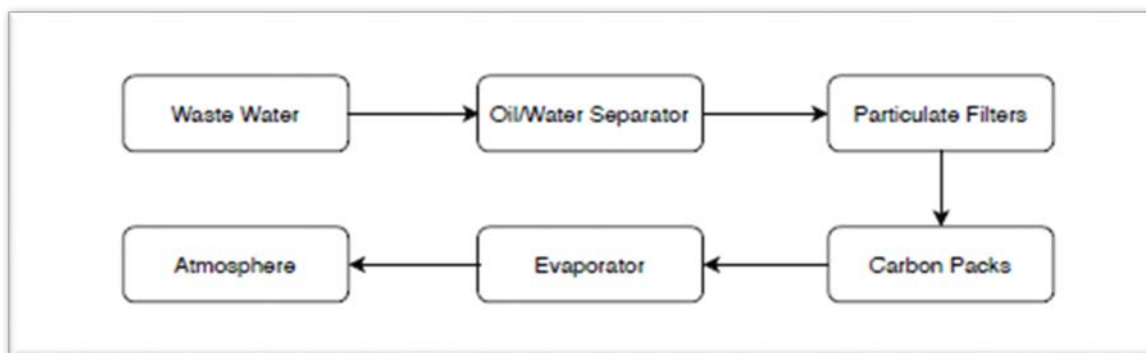


Figure 2 - Process wastewater flow diagram

Brooks engages in chemically treated wood preserving operation which falls under the federal effluent guidelines of 40 CFR Part 429, subpart H for Wood Preserving – Boulton subcategory. This effluent guidelines requires the facility to achieve zero discharge of process wastewater to surface water. Therefore, process wastewater is treated prior to routing it to the evaporator, and emission from the evaporator is regulated by Northwest Clean Air Agency.

Boiler blowdown, kiln condensate, and sanitary wastes are discharged to the City of Bellingham WWTP.

Treated wood products are stored under cover, waiting to be shipped out by truck. According to Brooks' 2019 log book, approximately 30 trucks come in and out of the facility every week. The tank farm and retort areas are roofed.

The NPDES permit (WA0030805) regulates contaminated stormwater discharges and prohibits process wastewater discharge to enforce the federal regulations of achieving "zero discharge of process wastewater".

Stormwater treatment processes

Best management practices employed by Brooks include paving, roofing of all treated wood and treatment areas, dedicated forklifts, and two sedimentation ponds. The paved areas are cleaned with vacuum machines to remove sediments.

The stormwater is collected on-site in the north stormwater collection pond (See Figure 3-Facility Layout Map). The stormwater from the upper, untreated wood storage area flows to the north stormwater pond that discharges to underground pipes which flow to the lined stormwater retention pond in the southwest corner of the facility (refers to as the south pond from here on). The solids settle out and the stormwater from the south pond discharges through a pipe into a drainage ditch, which ultimately flows to Whatcom Creek (See Figure 4 – Stormwater Flow Diagram).

Brooks submitted an AKART Engineering Report August 1996 and amended it January 1997. This report detailed plans to reduce PCP concentration in the stormwater runoff prior to discharge it to the ponds. Brooks completed roofing, stormwater rerouting to a settling pond, and paving most of the area. The treatment area was roofed, and treated wood is stored under cover.

Solid wastes

Solid waste generated from this facility is primarily sawdust and wood scraps. Untreated wood sawdust and waste wood is burned to heat the boiler to make steam for the kilns and treating process.

The built up solids in the stormwater retention pond are cleaned out as needed. This activity is regulated under the Hazardous Waste rules and regulations.

Discharge outfall

The north stormwater pond is unlined. It collects stormwater from roof drains, the large under building vault and untreated wood areas. The discharge flows through a pipe to the lined ditch that discharges to the lined stormwater detention pond in the southwest corner of the facility.

The south pond receives stormwater from all catch basins that are outside the treatment area. (Drains inside the treatment area flow to the evaporator inside the treatment area). Catch basins and collection areas are lined with filter socks and have sorbent material installed as a BMP.

Outfall #001 is the discharge from the south pond into the drainage ditch. The sampling point is at the outfall from the pond.

B. Description of the receiving water

Brooks' stormwater is discharged to a stormwater drainage ditch which flows through a pipe under Iowa Street and discharges to Whatcom Creek. There are no nearby point source outfalls. Significant nearby non-point sources of pollutants include, but are not limited to, gas stations, parking lots, and a large residential development.

C. Wastewater characterization

Brooks reported the concentration of pollutants in the discharge in the permit application and in discharge monitoring reports. The tabulated data represents the quality of the stormwater effluent discharged from September 2015 to June 2020. The stormwater effluent is characterized as follows:

Table 4 - Stormwater Characterization

Parameter	Units	# of Samples	Average Value	Maximum Value	Max Daily Limit
Flow	gpd	31	102,000	375,000	--
Oil & grease	mg/L	31	0.7	2.8	10
Pentachlorophenol (PCP)	ug/L	31	5.7 (12 months rolling average)	15.9	20 ug/L Max Daily
					9 ug/L 12 months rolling average
Total Suspended Solids (TSS)	mg/L	31	12.8	85	50
pH	standard units	31	6.8 (Minimum value)	8.6	Between 6 and 9

Table 5 - Stormwater Characterization congeners of Dioxin/Furan.

Dioxin/Furan Congeners	TEF ^a value in permit	Min DL ^b (ppq) in permit	Reported ^c (ppq)	Adjusted val (0 for <DL)	Adjusted value x TEF
2,3,78-TCDF	0.01	10	0.57	0	0
2,3,78-TCDD	1	10	1.53	0	0
1,2,3,7,8-PeCDF	0.03	50	1.06	0	0
2,3,4,7,8-PeCDF	0.03	50	1.4	0	0
1,2,3,7,8-PeCDD	1	50	2.18	0	0
1,2,3,4,7,8-HxCDF	0.1	50	3.32	0	0
1,2,3,6,7,8-HxCDF	0.1	50	2.07	0	0
2,3,4,6,7,8-HxCDF	0.1	50	2.24	0	0
1,2,3,7,8,9-HxCDF	0.1	50	2.11	0	0
1,2,3,4,7,8-HxCDD	0.1	50	3.04	0	0
1,2,3,6,7,8-HxCDD	0.1	50	6.01	0	0
1,2,3,7,8,9-HxCDD	0.1	50	5.56	0	0
1,2,3,4,6,7,8-HpCDF	0.01	50	57.2	57.2	0.572
1,2,3,4,7,8,9-HpCDF	0.01	50	4.37	0	0
1,2,3,4,6,7,8-HpCDD	0.01	50	184	184	1.84
OCDF	0.0003	100	271	271	0.0813
OCDD	0.0003	100	2000	2000	0.6
Total^c					3.0933
^a TEF defines a toxicity equivalency factors (TEF).					
^b DL defines as detection limit.					
^c Lab used test method 1613 for dioxin/furan with reporting limit of 9.62 ppq.					

There was no effluent limit set for dioxin/furan in the previous permit, only monitoring was required. Ecology's permitting guidance and policy consider stormwater discharges as intermittent discharges and not continuous discharges, and apply acute criteria but not chronic and human health criteria for stormwater discharges. In this case, there are no

aquatic life criteria for dioxin/furan, except for human health criteria. Human health water quality criteria are not applicable to intermittent stormwater discharges because they are based on continuous discharges of a lifetime 70 years of exposure to the contaminant.

D. Summary of compliance with previous permit Issued

The previous permit placed effluent limits on Oil & Grease, PCP, TSS and pH.

Brooks has generally complied with the effluent limits and permit conditions throughout the duration of the permit issued on March 26, 2015, with one exceedance occurred in September 2018 for TSS. Ecology assessed compliance based on its review of the facility's discharge monitoring reports (DMRs) and on inspections.

The following table summarizes the violations during the permit term.

Table 6 - Violations

Report	Date	Parameter	Reported Value	Permit - Max Daily Limit
DMR	9/1/2018	TSS	85 mg/L	50 mg/L

Ecology issued a warning letter to Brooks in regard to the above violation. Brooks responded that resampling was not conducted due to lack of a rain event to allow resampling that month. Rather, the facility increased sweeping throughout the property and the subsequent sample result indicated compliance with the limit.

The following table summarizes compliance with report submittal requirements over the permit term.

Table 7 - Permit Submittals

Reports	Submitted date
Dioxin/Furans Testing Report	January 1, 2017
Toxicity Testing Report	12/4/2019 (no toxicity)
Spill Plan Update	12/5/2019
Stormwater Pollution Prevention Plan Update	12/5/2019
Stormwater Treatment Plan Update (part of O&M)	12/5/2019

E. State environmental policy act (SEPA) compliance

State law exempts the issuance, reissuance or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions that are no less stringent than federal and state rules and regulations ([RCW 43.21C.0383](#)). The exemption applies only to existing discharges, not to new discharges.

Proposed Permit Limits

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis ([40 CFR 125.3](#), and [chapter 173-220 WAC](#)).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards ([chapter 173-201A WAC](#)), Ground Water Standards ([chapter 173-200 WAC](#)), Sediment Quality Standards ([chapter 173-204 WAC](#)), or the Federal Water Quality Criteria Applicable to Washington ([40 CFR 131.45](#)).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Ecology does not usually develop limits for pollutants not reported in the permit application but may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology if significant changes occur in any constituent [[40 CFR 122.42\(a\)](#)]. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

A. Design criteria

Under [WAC 173-220-150 \(1\)\(g\)](#), flows and waste loadings must not exceed approved design criteria. Brooks submitted an AKART study in 1996 and amended it in 1997. Stormwater treatment consists of two sedimentation ponds prior to discharge to the drainage ditch which ultimately discharges to Whatcom Creek. The north and south stormwater ponds have the storage capacity of 5,500 ft³, and 12,800 ft³, respectively. The north pond is not lined, but the south pond is lined. The collection ponds, especially the lined south pond are considered to be consistent with AKART (All Known, Available and Reasonable Treatment) requirements.

AKART for stormwater is constantly progressing and, as technology advances, facilities will have more cost effective, more efficient, and higher capacity treatment system options available. Ecology expects the facility to meet AKART and make the necessary improvements to its treatment system as the treatment technology evolves.

B. Technology-based effluent limits

Ecology must ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) when it issues a permit. Brooks discharges treated stormwater to Whatcom Creek. The 12-month rolling average limit for PCP is based on performance and is considered a technology-based limit under AKART. On May 26, 2004, Ecology and Brooks reached a legal agreement on the final PCP limit in the previous permit (PCHB No. 93-190; and PCHB No. 03-122), which stipulated the 12-month rolling average PCP limit of 9 µg/L, with a maximum daily limit of 20 µg/L.

This permit contains a compliance schedule to require the Permittee to take necessary actions to reduce or eliminate PCP concentration in the discharge and to achieve compliance with the final water quality-based effluent limits (WQBEL) at the end of the compliance period. These actions include but are not limited to phasing out the use of PCP preservative chemical by switching over to an alternative wood treatment chemical known as DCOI, or employ additional treatment, or implement additional BMPs to achieve compliance with the final limits. DCOI is believed to be less toxic than PCP. During the interim, the technology-based limits for PCP in the previous permit remain in this proposed permit as interim effluent limits with a compliance schedule of 5 years for the Permittee to achieve compliance with the final WQBEL for PCP.

The oil & grease limit in the previous permit is replaced by total petroleum hydrocarbons-diesel (TPH-Dx) in this permit because P-9 oil is used a carrier oil to produce the treatment solution. Therefore, it is appropriate and more accurate to analyze for total petroleum hydrocarbons diesel in the discharge. In addition, TPH-Dx is also served as a surrogate for DCOI until a laboratory is accredited to analyze samples for DCOI. The technology-based limit for TPH-Dx is set at 0.5 mg/L, consistent with other wood treating facilities with similar

wastewater characteristics and performance of oil water separators - they have consistently demonstrated meeting this limit.

The TSS and pH remain the same as those in the previous permit.

Table 8 - Technology Based Limits

Final Effluent Limits		
Parameter	Average Monthly Limit	Maximum Daily Limit
Total Petroleum Hydrocarbons-Diesel (TPH-Dx)	na	0.5 mg/L (500 µg/L)
TSS	50 mg/L	NA
Parameter	Daily Minimum	Daily Maximum
pH	6.0 standard units	9.0 standard units
Interim Effluent Limits under compliance schedule		
Parameter	12-Month Rolling Average Limit	Maximum Daily Limit
PCP	9 µg/L	20 µg/L
Final effluent limit for PCP is discussed under section G of this fact sheet, entitled "evaluation of surface water quality-based effluent limits for numeric criteria".		

C. Surface water quality-based effluent limits

The Washington State surface water quality standards ([chapter 173-201A WAC](#)) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the surface water quality standards ([WAC 173-201A-510](#)). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load study (TMDL).

Numerical criteria for the protection of aquatic life and recreation

Numerical water quality criteria are listed in the water quality standards for surface waters ([chapter 173-201A WAC](#)). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based

limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical criteria for the protection of human health

Effective numeric water quality criteria for the protection of human health are promulgated in Chapter 173-201A WAC and 40 CFR 131.45. These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative criteria

Narrative water quality criteria (e.g., [WAC 173-201A-240\(1\); 2006](#)) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters ([WAC 173-201A-200, 2016](#)) and of all marine waters ([WAC 173-201A-210, 2016](#)) in the state of Washington.

Antidegradation

Description – The purpose of Washington's Antidegradation Policy ([WAC 173-201A-300-330; 2016](#)) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).

- Apply three tiers of protection (described below) for surface waters of the state.

Tier I: ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions.

Tier II: ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities.

Tier III: prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

Facility Specific Requirements — This facility must meet Tier I requirements. The switch of preservative chemical from PCP to DCOI is expected to reduce any possible toxic impacts of Whatcom Creek as well as provide a less toxic preserved wood product for use on the landscape.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter [173-201A WAC](#).
- For waters that do not meet assigned criteria, or protect existing or designated uses, Ecology will take appropriate and definitive steps to bring the water quality back into compliance with the water quality standards.
- Whenever the natural conditions of a water body are of a lower quality than the assigned criteria, the natural conditions constitute the water quality criteria. Where water quality criteria are not met because of natural conditions, human actions are not allowed to further lower the water quality, except where explicitly allowed in chapter [173-201A WAC](#).

Ecology's analysis described in this section of the fact sheet demonstrates that the proposed permit conditions will protect existing and designated uses of the receiving water.

Mixing zones

This permit does not authorize a mixing zone.

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric standards, so long as the discharge doesn't interfere with designated uses of the receiving water body (for example, recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric standards.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control, and treatment (AKART). Mixing zones typically require compliance with water quality criteria within a specified distance from the point of discharge and must not use more than 25% of the available width of the water body for dilution [[WAC 173-201A-400 \(7\)\(a\)\(ii-iii\)](#)].

Ecology uses modeling to estimate the amount of mixing within the mixing zone. Through modeling Ecology determines the potential for violating the water quality standards at the edge of the mixing zone and derives any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's [Permit Writer's Manual](#)). Each critical condition parameter, by itself, has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 4 means the effluent is 25% and the receiving water is 75% of the total volume of water at the boundary of the mixing zone. Ecology uses dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

Each aquatic life *acute* criterion is based on the assumption that organisms are not exposed to that concentration for more than one hour and more often than one exposure in three years. Each aquatic life *chronic* criterion is based on the assumption that organisms are not exposed to that concentration for more than four consecutive days and more often than once in three years.

The two types of human health-based water quality criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The human health-based water quality criteria incorporate several exposure and risk assumptions. These assumptions include:

- A 70-year lifetime of daily exposures.
- An ingestion rate for fish or shellfish measured in kg/day.
- An ingestion rate of two and four tenths (2.4) liters/day for drinking water (increased from two liters/day in the 2016 Water Quality Standards update).
- A one-in-one-million cancer risk for carcinogenic chemicals.

The Permittee may submit a Mixing Zone Study, for Ecology's consideration, to evaluate whether or not a mixing zone is warranted for the discharge. If considering conducting and submitting a study the Permittee should discuss the applicable requirements with Ecology.

D. Designated uses and surface water quality criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (EPA 1992). The table included below summarizes the criteria applicable to this facility's discharge.

- Aquatic Life Uses are designated based on the presence of, or the intent to provide protection for the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species. The Aquatic Life Uses for this receiving water (Whatcom Creek) are identified below.

Freshwater Aquatic Life Uses and Associated Criteria

Table 9 - Salmonid Spawning, Rearing, and Migration

Criteria	Value
Temperature Criteria – Highest 7-DAD MAX	17.5°C (63.5°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	8.0 mg/L
Turbidity Criteria	<ul style="list-style-type: none"> • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

- The *recreational uses* for this receiving water are identified below.

Table 10 - Recreational Uses and Associated Criteria

Recreational Use	Criteria
Primary Contact Recreation (effective 1/1/2021)	<i>E.coli</i> organism levels must not exceed a geometric mean value of 100 CFU or MPN per 100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained within the averaging period exceeding 320 CFU or MPN per 100 mL.

- The water supply uses are domestic, agricultural, industrial, and stock watering.
- The miscellaneous freshwater uses are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

E. Water quality impairments

Ecology has not documented any water quality impairments in the receiving ditch water in the vicinity of the outfall. Whatcom Creek is listed on the 303(d) list for bacteria and dissolved oxygen. A total daily maximum load for temperature has been developed for Whatcom Creek. Brooks was not considered a significant contribution because critical temperatures occur during dry summer weather and Brooks discharges stormwater runoff which occurs during the wet winter months. Furthermore, temperature is not a significant stormwater pollutant parameter.

F. Evaluation of surface water quality-based effluent limits for narrative criteria

Ecology must consider the narrative criteria described in WAC 173-201A-260 when it determines permit limits and conditions. Narrative water quality criteria limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health.

Ecology considers narrative criteria when it evaluates the characteristics of the wastewater and when it implements all known, available, and reasonable methods of treatment and prevention (AKART) as described above in the technology-based limits section. When Ecology determines if a facility is meeting AKART it considers the pollutants in the wastewater and the adequacy of the treatment to prevent the violation of narrative criteria.

In addition, Ecology considers the toxicity of the wastewater discharge by requiring whole effluent toxicity (WET) testing when there is a reasonable potential for the discharge to contain toxics. Ecology's analysis of the need for WET testing for this discharge is described later in the fact sheet.

G. Evaluation of surface water quality-based effluent limits for numeric criteria

Ecology has not authorized a mixing zone in the permit.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants; their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biological oxygen demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

Ecology predicts no violation of the pH criteria under critical conditions. Therefore, the proposed permit includes technology-based effluent limits for pH of in the range of 6.0 to 9.0 standard pH units.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

Based on the effluent data submitted by Brooks, Ecology determined that the discharge has a reasonable potential to cause a violation of the water quality standards for PCP (See Appendix D for calculation). Ecology evaluated the discharge's potential to violate the water quality standards as required by 40 CFR 122.44(d) by following the procedures published in the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) and Ecology's *Permit Writer's Manual* to make a reasonable potential determination. Therefore, the proposed permit contains conditions to require Brooks to take necessary actions to achieve compliance with the water quality-based effluent limits (WQBEL) for PCP. Those actions include but are not limited to reducing or eliminating the use PCP chemical and switching to less toxic chemical such as DCOI, or providing additional BMPs or treatment to achieve compliance with the final effluent limits for PCP. During the interim, the technology-based effluent limits for PCP in the previous permit remain in this permit as interim effluent limits under a compliance schedule for Brooks to take the necessary actions to achieve compliance with the final WQBEL as listed in Table 8.

Table 11 - Water Quality-based Effluent Limits

Final Numeric Effluent Limit – Water Quality-Based Effective January 1, 2026		
Parameter	Average Monthly ^a	Maximum Daily ^b
Pentachlorophenol	6.2	9.1 µg/L

Brooks discharges treated stormwater. Ecology has determined that temperature is not a significant stormwater pollutant parameter. Therefore, the proposed permit does not include a temperature limit and it does not require the facility to monitor temperature in the stormwater discharges.

H. Human health

Washington's water quality standards include numeric human health-based criteria for 97 priority pollutants that Ecology must consider when writing NPDES permits.

Ecology's permitting guidance and policy consider stormwater discharges as intermittent discharges and not continuous discharges, and apply acute criteria but not chronic and human health criteria for stormwater discharges. In this case, Brooks discharges treated stormwater. Ecology has not identified methods for applying human health water quality criteria that are based on a continuous lifetime exposure of 70 years to discharges that are intermittent and variable in quality. The proposed permit includes water quality-based effluent limits for Pentachlorophenol.

I. Sediment quality

The aquatic sediment standards ([chapter 173-204 WAC](#)) protect aquatic biota and human

health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards ([WAC 173-204-400](#)). You can obtain additional information about sediments at the [Aquatic Lands Cleanup Unit](#) available at: <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Sediment-cleanups>

Through a review of the discharger characteristics and of the effluent characteristics, Ecology determined that this discharge has no reasonable potential to violate the sediment management standards.

J. Groundwater quality limits

The groundwater quality standards ([chapter 173-200 WAC](#)) protect beneficial uses of groundwater. Permits issued by Ecology must not allow violations of those standards ([WAC 173-200-100](#)).

Brooks does not discharge wastewater to the ground. No permit limits are required to protect groundwater.

K. Whole effluent toxicity

The water quality standards for surface waters forbid discharge of effluent that has the potential to cause toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

- *Acute toxicity tests measure mortality as the significant response* to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests find early indications of any potential lethal effect of the effluent on organisms in the receiving water.
- *Chronic toxicity tests measure various sublethal toxic responses*, such as reduced growth or reproduction. Chronic toxicity tests often involve either a complete life cycle test on an organism with an extremely short life cycle, or a partial life cycle test during a critical stage of a test organism's life. Some chronic toxicity tests also measure survival.

Laboratories accredited by Ecology for WET testing know how to use the proper WET testing protocols, fulfill the data requirements, and submit results in the correct reporting format. Accredited laboratory staff know how to calculate an NOEC, LC50, EC50, IC25, etc. Ecology gives all accredited labs the most recent version of [Ecology Publication No. WQ-R-](#)

[95-80, Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria](https://fortress.wa.gov/ecy/publications/documents/9580.pdf)

(<https://fortress.wa.gov/ecy/publications/documents/9580.pdf>) which is referenced in the permit. Ecology recommends that each regulated facility send a copy of the acute or chronic toxicity sections(s) of its NPDES permit to the laboratory.

During the previous permit term, the facility conducted effluent characterization for acute toxicity. Under [WAC 173-205-060](#), Brooks must continue to conduct effluent characterization for the following reason:

The facility changed its processes, materials, or treatment practices in ways that could increase effluent toxicity [[WAC 173-205-060\(1\)](#)].

L. Comparison of effluent limits with the previous permit issued on March 26, 2015

Table 12 - Comparison of Previous and Proposed Effluent Limits

		Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
Parameter	Basis of Limit	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Oil & grease	Technology	--	10 mg/L		Replaced by TPH-Dx below
Total Petroleum Hydrocarbons-Diesel (TPH-Dx)	Technology	N/A	N/A	--	500 µg/L
Total Suspended Solids	Technology	50 mg/L	--	50 mg/L	--
Interim Effluent Limits Under Compliance Schedule Pentachlorophenol (PCP)	Technology	9 µg/L (12-month rolling average)	20 µg/L	9 µg/L (12-month rolling average)	20 µg/L
Final Effluent Limits Pentachlorophenol (PCP)	Water Quality	N/A	N/A	6.2 µg/L	9.1 µg/L
Parameter	Basis of Limit	Limit		Limit	
pH	Technology	Within the range of 6 to 9 std units		Within the range of 6 to 9 std units	

Monitoring Requirements

Ecology requires monitoring, recording, and reporting ([WAC 173-220-210](#) and [40 CFR 122.41](#)) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

If a facility uses a contract laboratory to monitor wastewater, it must ensure that the laboratory uses the methods and meets or exceeds the method detection levels required by the permit. The permit describes when facilities may use alternative methods. It also describes what to do in certain situations when the laboratory encounters matrix effects. When a facility uses an alternative method as allowed by the permit, it must report the test method, detection level (DL), and quantitation level (QL) on the discharge monitoring report or in the required report.

A. Wastewater monitoring

The monitoring schedule is detailed in the proposed permit under Special Condition S.2. Given the number of loading trucks coming in and out of the facility, copper and zinc are required to be monitored to determine whether the volume of truck traffic has an adverse impact to the stormwater discharge. The proposed monitoring frequency is quarterly. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

B. Lab accreditation

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of [chapter 173-50 WAC](#), Accreditation of Environmental Laboratories, to prepare all monitoring data (with the exception of certain parameters).

C. Effluent limits which are near detection or quantitation levels

The method detection level (MDL) also known as detection level (DL) is the minimum concentration of a pollutant that a laboratory can measure and report with a 99 percent confidence that its concentration is greater than zero (as determined by a specific laboratory method). The quantitation level (QL) is the level at which a laboratory can reliably report concentrations with a specified level of error. Estimated concentrations are the values between the DL and the QL. Ecology requires permitted facilities to report estimated concentrations. When reporting maximum daily effluent concentrations, Ecology requires the facility to report "less than X" where X is the required detection level if the measured effluent concentration falls below the detection level.

Other Permit Conditions

A. Reporting and record keeping

Ecology based Special Condition S3 on its authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges ([WAC 173-220-210](#)).

B. Spill plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [[Section 402\(a\)\(1\) of the Federal Water Pollution Control Act \(FWPCA\)](#) and [RCW 90.48.080](#)].

Brooks developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the facility to update this plan and submit it to Ecology.

C. Operation and maintenance manual

Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state and federal regulations [[40 CFR 122.41\(e\)](#) and [WAC 173-220-150 \(1\)\(g\)](#)]. The facility prepared and submitted an operation and maintenance manual as required by state regulation for the construction of wastewater treatment facilities ([WAC 173-240-150](#)). Implementation of the procedures in the operation and maintenance manual ensures the facility's compliance with the terms and limits in the permit.

D. Stormwater pollution prevention plan

In accordance with [40 CFR 122.44\(k\)](#) and [40 CFR 122.44 \(s\)](#), the proposed permit includes requirements for the development and implementation of a SWPPP along with BMPs to minimize or prevent the discharge of pollutants to waters of the state. BMPs constitute Best Conventional Pollutant Control Technology (BCT) and Best Available Technology Economically Achievable (BAT) for stormwater discharges. Ecology has determined that Brooks must update its existing SWPPP and implement adequate BMPs in order to meet the requirements of "all known, available, and reasonable methods of prevention, control, and treatment" (AKART). A SWPPP requires a facility to implement actions necessary to manage stormwater to comply with the state's requirement under [chapter 90.48 RCW](#) to protect the beneficial uses of waters of the state.

The SWPPP must identify potential sources of stormwater contamination from industrial activities and identify how it plans to manage those sources of contamination to prevent or minimize contamination of stormwater. Brooks must continuously review and revise the SWPPP as necessary to assure that stormwater discharges do not degrade water quality. It must retain the SWPPP on-site or within reasonable access to the site and available for review by Ecology.

Best Management Practices (BMPs)

BMPs are the actions identified in the SWPPP to manage, prevent contamination of, and treat stormwater. BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment systems, operating procedures, and practices used to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage. Brooks must ensure that its SWPPP includes the operational and structural source control BMPs listed as “applicable” in Ecology’s stormwater management manuals. Many of these “applicable” BMPs are sector-specific or activity-specific, and are not required at facilities engaged in other industrial sectors or activities.

Ecology-Approved Stormwater Management Manuals

Consistent with [RCW 90.48.555 \(5\) and \(6\)](#), the proposed permit requires the facility to implement BMPs contained in the Stormwater Management Manual for Western Washington (2005 edition), or any revisions thereof, or practices that are demonstrably equivalent to practices contained in stormwater technical manuals approved by Ecology. This should ensure that BMPs will prevent violations of state water quality standards, and satisfy the state AKART requirements and the federal technology-based treatment requirements under [40 CFR part 125.3](#). The SWPPP must document that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including: The technical basis for the selection for all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs selected.

An assessment of how the BMPs will satisfy AKART requirements and the applicable technology-based treatment requirements under [40 CFR part 125.3](#).

Operational Source Control BMPs

Operational source control BMPs include a schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the pollution of waters of the state. These activities do not require construction of pollution control devices but are very important components of a

successful SWPPP. Employee training, for instance, is critical to achieving timely and consistent spill response. Pollution prevention is likely to fail if the employees do not understand the importance and objectives of BMPs. Prohibitions might include eliminating outdoor repair work on equipment and certainly would include the elimination of intentional draining of crankcase oil on the ground. Good housekeeping and maintenance schedules help prevent incidents that could result in the release of pollutants. Operational BMPs represent a cost-effective way to control pollutants and protect the environment. The SWPPP must identify all the operational BMPs and how and where they are implemented. For example, the SWPPP must identify what training will consist of, when training will take place, and who is responsible to assure that employee training happens.

Structural Source Control BMPs

Structural source control BMPs include physical, structural, or mechanical devices or facilities intended to prevent pollutants from entering stormwater. Examples of source control BMPs include erosion control practices, maintenance of stormwater facilities (e.g., cleaning out sediment traps), construction of roofs over storage and working areas, and direction of equipment wash water and similar discharges to the sanitary sewer or a dead end sump. Structural source control BMPs likely include a capital investment but are cost effective compared to cleaning up pollutants after they have entered stormwater.

Treatment BMPs

Operational and structural source control BMPs are designed to prevent pollutants from entering stormwater. However, even with an aggressive and successful program, stormwater may still require treatment to achieve compliance with water quality standards. Treatment BMPs remove pollutants from stormwater. Examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands.

E. Compliance schedule

The proposed permit includes a compliance schedule of 5 years for Brooks to take the necessary actions to eliminate or reduce the PCP concentration in the discharge and come into compliance with the final water quality-based effluent limits for PCP and obtain a laboratory certified to test for DCOI. (See S12 of the permit).

F. General conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

Permit Issuance Procedures

A. Permit modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for groundwaters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a stormwater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of 5 years.

References for Text and Appendices

Brooks Manufacturing Company

2019. NPDES Permit Application EPA Form 1 and 2C, amended on January 16, 2020.

2020. DCOI presentation by Dupont and Viance Treated Wood.com.

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. *Technical Support Document for Water Quality-based Toxics Control*. EPA/505/2-90-001.

1988. *Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling*. USEPA Office of Water, Washington, D.C.

1985. *Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water*. EPA/600/6-85/002a.

1983. *Water Quality Standards Handbook*. USEPA Office of Water, Washington, D.C. Tsivoglou, E.C., and J.R. Wallace.

1972. *Characterization of Stream Reaeration Capacity*. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

1979. *In-stream Deoxygenation Rate Prediction*. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology

July 2018. [Permit Writer's Manual. Publication Number 92-109](https://fortress.wa.gov/ecy/publications/documents/92109.pdf)
(<https://fortress.wa.gov/ecy/publications/documents/92109.pdf>)

September 2011. [Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation. Publication Number 11-10-073](https://fortress.wa.gov/ecy/publications/summarypages/1110073.html)
(<https://fortress.wa.gov/ecy/publications/summarypages/1110073.html>)

October 2010 (revised). [Water Quality Program Guidance Manual – Procedures to Implement the State's Temperature Standards through NPDES Permits. Publication Number 06-10-100](https://fortress.wa.gov/ecy/publications/summarypages/0610100.html)
(<https://fortress.wa.gov/ecy/publications/summarypages/0610100.html>)

February 2007. [Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees. Publication Number 07-10-024](https://fortress.wa.gov/ecy/publications/documents/0710024.pdf). (<https://fortress.wa.gov/ecy/publications/documents/0710024.pdf>) Wright, R.M., and A.J. McDonnell.

[Laws and Regulations](http://leg.wa.gov/LawsAndAgencyRules/Pages/default.aspx) (<http://leg.wa.gov/LawsAndAgencyRules/Pages/default.aspx>)

[Permit and Wastewater Related Information](https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance) (<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance>)

Appendix A — Public Involvement Information

Ecology proposes to reissue permit to Brooks Manufacturing Company. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application on August 5 and August 12, 2020 in *The Bellingham Herald* to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology placed a Public Notice of Draft on October 14, 2020 in *The Bellingham Herald* to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Urges people to submit their comments, in writing, before the end of the Comment Period
- Tells how to request a public hearing of comments about the proposed NPDES permit.
- Explains the next step(s) in the permitting process.

Ecology has published a document entitled [Frequently Asked Questions about Effective Public Commenting](https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html) which is available on our website at <https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html> .

You may obtain further information from Ecology by telephone, 425-649-7201, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

The primary author of this permit and fact sheet is Jeanne Tran, P.E.

Appendix B — Your Right to Appeal

You have a right to appeal this permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of the final permit. The appeal process is governed by [chapter 43.21B RCW](#) and [chapter 371-08 WAC](#). “Date of receipt” is defined in [RCW 43.21B.001\(2\)](#) (see glossary).

To appeal you must do the following within 30 days of the date of receipt of this permit:

File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in [chapter 43.21B RCW](#) and [chapter 371-08 WAC](#).

Table 13 - Address and Location Information

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 Pollution Control Hearings Board 1111 Israel RD SW STE 301 Tumwater, WA 98501	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

Appendix C — Glossary

1-DMax or 1-day maximum temperature – The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or 7-day average of the daily maximum temperatures – The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute toxicity – The lethal effect of a compound on an organism that occurs in a short time period, usually 48 to 96 hours.

AKART – The acronym for “all known, available, and reasonable methods of prevention, control and treatment.” AKART is a technology-based approach to limiting pollutants from wastewater discharges, which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with [RCW 90.48.010](#) and [RCW 90.48.520](#), [WAC 173-200-030\(2\)\(c\)\(ii\)](#), and [WAC 173-216-110\(1\)\(a\)](#).

Alternate point of compliance – An alternative location in the groundwater from the point of compliance where compliance with the groundwater standards is measured. It may be established in the groundwater at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An “early warning value” must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with [WAC 173-200-060\(2\)](#).

Ambient water quality – The existing environmental condition of the water in a receiving water body.

Ammonia – Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual average design flow (AADF – average of the daily flow volumes anticipated to occur over a calendar year.

Average monthly (intermittent) discharge limit – The average of the measured values obtained over a calendar months' time taking into account zero discharge days.

Average monthly discharge limit – The average of the measured values obtained over a calendar months' time.

Background water quality – The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of groundwater at a particular point in

time upgradient of an activity that has not been affected by that activity, [\[WAC 173-200-020\(3\)\]](#). Background water quality for any parameter is statistically defined as the 95% upper tolerance interval with a 95% confidence based on at least eight hydraulically upgradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

Best management practices (BMPs) – Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅ – Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD₅ is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass – The intentional diversion of waste streams from any portion of a treatment facility.

Categorical pretreatment standards – National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties, which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories.

Chlorine – A chemical used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic toxicity – The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean water act (CWA) – The federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance inspection-without sampling – A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance inspection-with sampling – A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for

municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite sample – A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction activity – Clearing, grading, excavation, and any other activity, which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous monitoring – Uninterrupted, unless otherwise noted in the permit.

Critical condition – The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Date of receipt – This is defined in [RCW 43.21B.001\(2\)](#) as five business days after the date of mailing; or the date of actual receipt, when the actual receipt date can be proven by a preponderance of the evidence. The recipient's sworn affidavit or declaration indicating the date of receipt, which is unchallenged by the agency, constitutes sufficient evidence of actual receipt. The date of actual receipt, however, may not exceed forty-five days from the date of mailing.

Detection limit – The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Dilution factor (DF) – A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Distribution uniformity – The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Early warning value – The concentration of a pollutant set in accordance with [WAC 173-200-070](#) that is a percentage of an enforcement limit. It may be established in the effluent, groundwater, surface water, the vadose zone or within the treatment process. This value acts as a trigger to detect and respond to increasing contaminant concentrations prior to the degradation of a beneficial use.

Enforcement limit – The concentration assigned to a contaminant in the groundwater at the point of compliance for the purpose of regulation, [\[WAC 173-200-020\(11\)\]](#). This limit

assures that a groundwater criterion will not be exceeded and that background water quality will be protected.

Engineering report – A document that thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in [WAC 173-240-060](#) or [WAC 173-240-130](#).

Enterococci – A subgroup of fecal streptococci that includes *S. faecalis*, *S. faecium*, *S. gallinarum*, and *S. avium*. The enterococci are differentiated from other streptococci by their ability to grow in 6.5% sodium chloride, at pH 9.6, and at 10°C and 45°C.

E. coli – A bacterium in the family Enterobacteriaceae named Escherichia coli and is a common inhabitant of the intestinal tract of warm-blooded animals, and its presence in water samples is an indication of fecal pollution and the possible presence of enteric pathogens.

Fecal coliform bacteria – Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab sample – A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Groundwater – Water in a saturated zone or stratum beneath the surface of land or below a surface water body.

Industrial user – A discharger of wastewater to the sanitary sewer that is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial wastewater – Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated stormwater and, also, leachate from solid waste facilities.

Interference – A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act

(RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Local limits – Specific prohibitions or limits on pollutants or pollutant parameters developed by a POTW.

Major facility – A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum daily discharge limit – The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Maximum day design flow (MDDF) – The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

Maximum month design flow (MMDF) – The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

Maximum week design flow (MWDF) – The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

Method detection level (MDL) – See Detection Limit.

Minor facility -- A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing zone – An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The permit specifies the area of the authorized mixing zone that Ecology defines following procedures outlined in state regulations ([chapter 173-201A WAC](#)).

National pollutant discharge elimination system (NPDES) – The NPDES ([Section 402 of the Clean Water Act](#)) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

pH – The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

Pass-through – A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

Peak hour design flow (PHDF) – The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

Peak instantaneous design flow (PIDF) – The maximum anticipated instantaneous flow.

Point of compliance – The location in the groundwater where the enforcement limit must not be exceeded and a facility must comply with the Ground Water Quality Standards. Ecology determines this limit on a site-specific basis. Ecology locates the point of compliance in the groundwater as near and directly downgradient from the pollutant source as technically, hydrogeologically, and geographically feasible, unless it approves an alternative point of compliance.

Potential significant industrial user (PSIU) – A potential significant industrial user is defined as an Industrial User that does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation level (QL) – Also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to $(1, 2, \text{ or } 5) \times 10^n$, where n is an integer. ([64 FR 30417](#)).
ALSO GIVEN AS:

The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

Reasonable potential – A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible corporate officer – A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures ([40 CFR 122.22](#)).

Sample Maximum – No sample may exceed this value.

Significant industrial user (SIU) –

- 1) All industrial users subject to Categorical Pretreatment Standards under [40 CFR 403.6](#) and [40 CFR Chapter I, Subchapter N](#) and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process waste stream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with [40 CFR 403.8\(f\)\(6\)](#)].

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with [40 CFR 403.8\(f\)\(6\)](#), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

Slug discharge – Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge to the POTW. This may include any pollutant released at a flow rate that may cause interference or pass through with the POTW or in any way violate the permit conditions or the POTW's regulations and local limits.

Soil scientist – An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3, or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

Solid waste – All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

Soluble BOD₅ – Determining the soluble fraction of Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of soluble organic material present in

an effluent that is utilized by bacteria. Although the soluble BOD₅ test is not specifically described in Standard Methods, filtering the raw sample through at least a 1.2 um filter prior to running the standard BOD₅ test is sufficient to remove the particulate organic fraction.

State waters – Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater – That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based effluent limit – A permit limit based on the ability of a treatment method to reduce the pollutant.

Total coliform bacteria – A microbiological test, which detects and enumerates the total coliform group of bacteria in water samples.

Total dissolved solids – That portion of total solids in water or wastewater that passes through a specific filter.

Total maximum daily load (TMDL) – A determination of the amount of pollutant that a water body can receive and still meet water quality standards.

Total suspended solids (TSS) – Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset – An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water quality-based effluent limit – A limit imposed on the concentration of an effluent parameter to prevent the concentration of that parameter from exceeding its water quality criterion after discharge into receiving waters.

Appendix D — Technical Calculations

Reasonable Potential Calculation

Facility	Brooks Mfg
Water Body Type	Freshwater
Rec. Water Hardness	24.9 mg/L

Dilution Factors:		
Aquatic Life	Acute	Chronic
	1.0	1.0
Human Health Carcinogenic		1.0
Human Health Non-Carcinogenic		1.0

Pollutant, CAS No. & NPDES Application Ref. No.		PENTACHLOROPHENOL 87865 9A (pH dependent in freshwater)												
Effluent Data	# of Samples (n)	31												
	Coeff of Variation (Cv)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)	14.625												
	Calculated 50th percentile Effluent Conc. (when n>10)	4												
Receiving Water Data	90th Percentile Conc., ug/L	0												
	Geo Mean, ug/L	0												
Water Quality Criteria	Aquatic Life Criteria, Acute	9.07025												
	Chronic	5.7259												
	WQ Criteria for Protection of Human Health, ug/L	0.046	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Metal Criteria Acute	-												
	Translator, decimal	-												
	Carcinogen?	Y	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

Aquatic Life Reasonable Potential

Effluent percentile value		0.950												
s	$s^2 = \ln(CV^2 + 1)$	0.555	0.555	0.555	0.555	0.555	0.555	0.555	0.555	0.555	0.555	0.555	0.555	0.555
Pn	$Pn = (1 - \text{confidence level})^{1/n}$	0.908												
Multiplier		1.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Max concentration (ug/L) at edge of...	Acute	14.625												
	Chronic	14.625												
Reasonable Potential? Limit Required?		YES												

Aquatic Life Limit Calculation

# of Compliance Samples Expected per month		1												
LTA Coeff. Var. (CV), decimal		0.6												
Permit Limit Coeff. Var. (CV), decimal		0.6												
Waste Load Allocations, ug/L	Acute	9.07025												
	Chronic	5.7259												
Long Term Averages, ug/L	Acute	2.91231												
	Chronic	3.02003												
Limiting LTA, ug/L		2.91231												
Metal Translator or 1?		1.00												
Average Monthly Limit (AML), ug/L		6.2												
Maximum Daily Limit (MDL), ug/L		9.1												

+The aquatic life water quality standards for PCP in fresh water is based on a pH of 7 std unit in the receiving water (Whatcom Creek).

+The median hardness value in Whatcom Creek is 24.6 mg/L, data collected from Jan through Dec 2015 by the SAM program (Ecology's EIM).

Appendix E – Site Maps

Figure 3 - Facility layout map

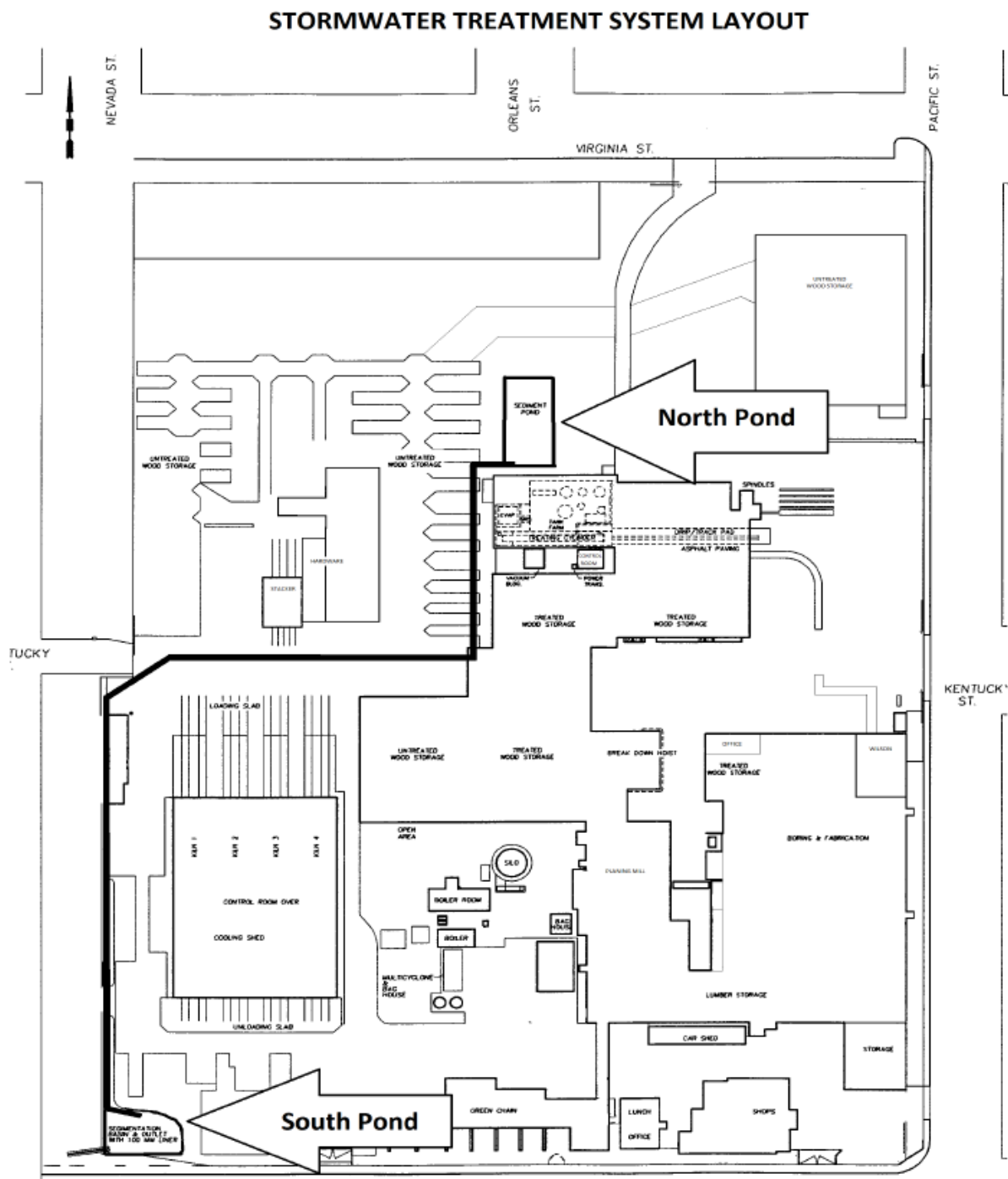
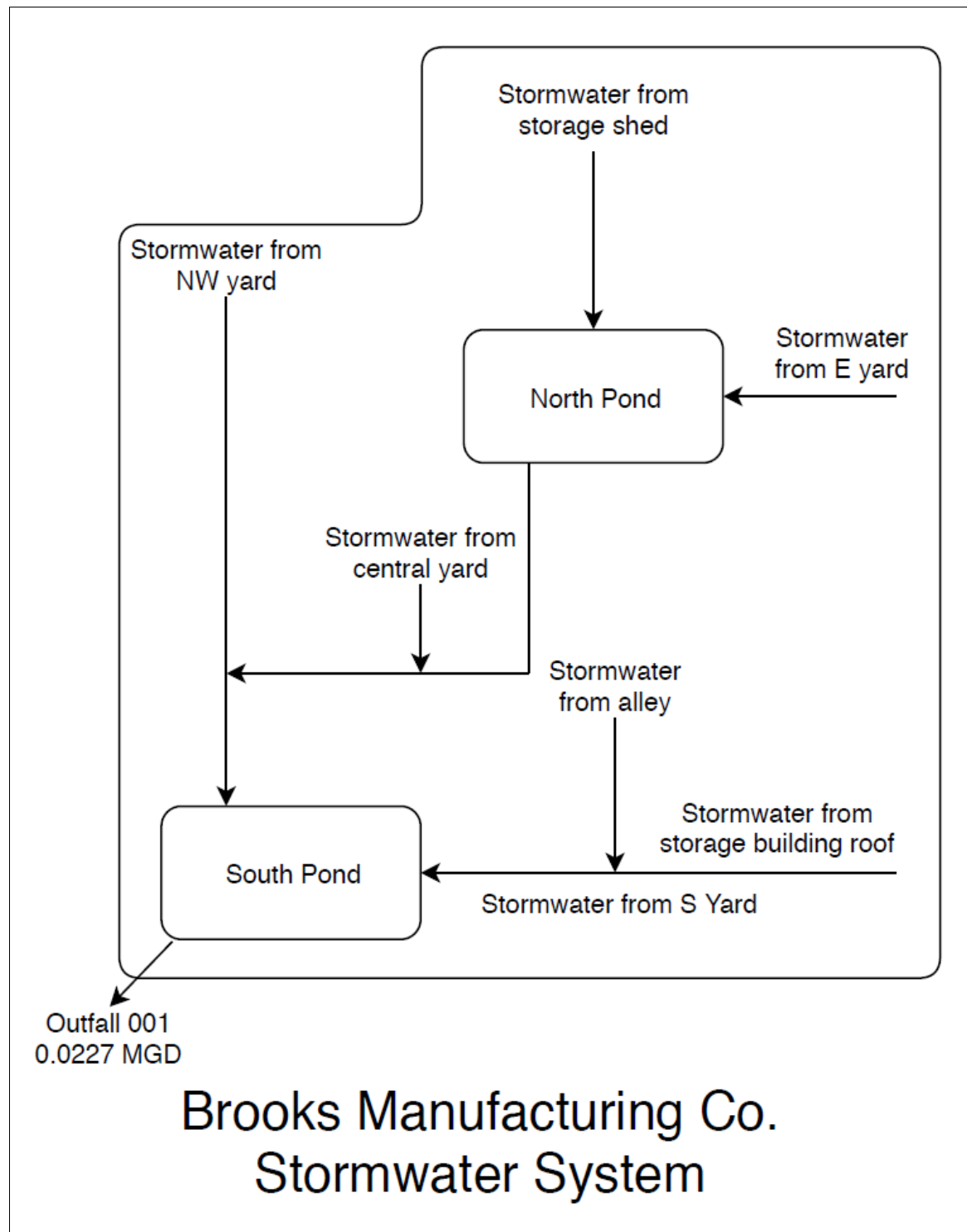


Figure 4 - Stormwater flow diagram



Appendix E — Response to Comments

Ecology received one comment from Doug Lyons of Poulsbo, WA, during the public comment period.

Comment: I would like to encourage you all to provide the most possible latitude in granting the permit in a timely manner to Brooks Mfg. This is just another company, and an important one, that provides products important to our economy and much needed jobs to say nothing of their taxes and fees that pay your wages.

Response: Thank you for taking the time to review the permit and fact sheet, and for providing your comments.