Fact Sheet for NPDES Permit WA0032166

Ice Floe LLC (dba) Nichols Brothers Boat Builders (NBBB)

Public Notice of Draft Permit: February 3, 2021

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 Ice Floe LLC (dba) Nichols Brothers Boat Builders (NBBB).

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 Ice Floe LLC (dba) Nichols Brothers Boat Builders (NBBB), NPDES permit WA0032166, are available for public review and comment from February 3, 2021 until March 5, 2021. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information.**

Ice Floe LLC (dba) Nichols Brothers Boat Builders (NBBB) 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

NBBB operates a ship construction facility that also does some ship repair. NBBB collects and treats their stormwater using electrocoagulation and filtration with in-line monitoring of the treatment efficiency. It discharges to an upland infiltration pond that is hydraulically connected to marine waters in Holmes Harbor.

Effluent limits for copper, zinc, total petroleum hydrocarbons, turbidity, and pH are unchanged from the permit issued in 2016. Effluent limits for chromium and lead have been removed due to no reasonable potential to violate water quality standards. Monitoring for chromium has been retained, monitoring for lead has been removed. The permit requires NBBB to continue with Best Management Practices to reduce pollution that have been in place in the previous permit.

Table of Contents

List of Tables

List of Figures

I. 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**.

II. Background Information

Table 1 — Facility Information

Applicant:	Ice Floe LLC (dba) Nichols Brothers Boat Builders
Facility Name and Address	Ice Floe LLC (dba) Nichols Brothers Boat Builders 5400 S. Cameron Road, P. O. Box 580 Freeland, WA 98249
Contact at Facility	Name: Scott Statia Telephone #: 360-331-5500
Responsible Official	Name: Gavin Higgins Title: Chief Executive Officer Address: P.O. Box 580 Telephone #: 360-331-5186
Industry Type	Ship construction and repair
Type of Treatment	Electrocoagulation and filtration
SIC Codes	3731
NAIC Codes	336611
Fee Category	Shipyard, Per crane, travel lift, small boat lift
Facility Location (NAD83/WGS84 reference datum)	Latitude: 48.0143 Longitude: -122.5405
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Holmes Harbor via upland infiltration pond Latitude: 48.014481 Longitude: -122.53863

Table 2 — Permit Status

Reissuance Date of Previous Permit	May 13, 2016
Application for Permit Renewal Submittal Date	June 23, 2020
Date of Ecology Acceptance of Application	July 22, 2020

Table 3 — Inspection Status

Date of Last Non-sampling Inspection Date	November 20, 2015

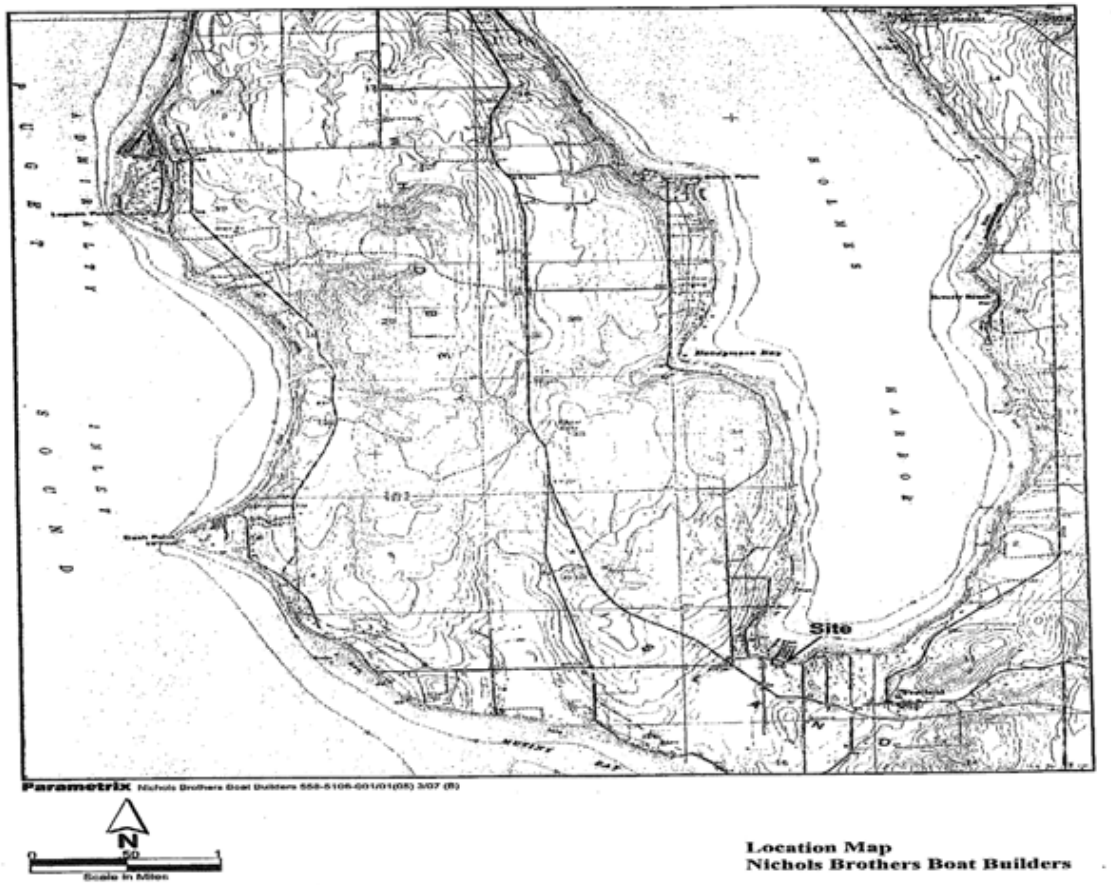

Figure 1 — Facility Location Map

A. Facility description

History

Nichols Brothers shipyard facility is located upland of the south end of Holmes Harbor in Freeland, Washington. Nichols Brothers predominantly constructs new vessels; however, it does some repair work on anywhere from 10 to 20 vessels each year. Vessel construction includes tug boats, fishing vessels, ferry superstructures, barges,

and factory ships. Nichols Brothers works almost exclusively with vessels that are constructed of steel and/or aluminum.

Nichols Brothers does not currently have a drydock or permanent marine rail system installed on the beach. There is a rock ramp that it uses for launching and recovering vessels. Nichols Brothers uses the rock ramp to launch vessels by placing the vessel on top of a cradle, which then sits on top of a crawler system that moves the vessel from the shipyard to the water. Currently, under the existing NPDES Permit WA0032166, no fabrication, repair, or construction work is done on the vessel while it is resting on the cradle that is outside of the shipyard. When vessels are hauled out for repair work, Nichols Brothers places the vessel on the cradle in the water and moves it to the shipyard via the crawler system. It then removes it from the cradle and crawler before completing any repair work and then places it back on the cradle and crawler for transfer from the shipyard to the water upon work completion. This system can manage approximately 2500 tons of weight, with no restriction on overall length or width as long as the vessel is sufficiently balanced. When not in use, the crawler system is stored out of the way in the storage or production area.

Nichols Brothers has operated as a shipyard in Freeland, Washington, since 1964. Historic industrial uses of the property included a saw mill and machine shop, which were active in the 1920s through the 1940s. A location map is given in Figure 1. The 20-acre facility is surrounded by a residential neighborhood. Nichols Brothers employs up to 355 people, and the hours and number of shifts vary depending on the number and production rate of the vessels.

In 1999, Nichols Brothers resurfaced approximately 27,000 square feet of the north end of the yard to provide for a smooth concrete base. At the end of the concrete base on the north end of the yard, it installed a gutter to catch the runoff and convey it to a catch basin.

Rocks were placed into the end of the gutter leading to the catch basin in order to allow a longer filtering opportunity for the drain-off to settle some of the larger solids. The facility cleans out the gutter regularly to remove the deposited particulates and sediment.

Nichols Brothers conducts fabrication and repair work inside several movable buildings unless the vessel is too large to be accommodated. The yard is reconfigured with every major new vessel fabricated.

Around 2007, Nichols Brothers added three 65’ x 40’ buildings and three 25’ x 35’ buildings. Approximately 25,000 square feet of concrete was laid over the southwest corner of the yard. At that time, Nichols Brothers installed another gutter from west

to east across the center of the yard to capture a larger portion of the drain-off. This gutter also contains rocks to slow down the flow into the catch basin.

Because Nichols Brothers performs work on vessels which are taller than the enclosed buildings, the current permit includes the following condition under Best Management Practices:

> Rooftops of buildings which have the potential for overspray shall be protected by tarping or shall be rinsed following the blasting operation and prior to a rain event. All discharges of wet blasting wastewater shall be collected and disposed of off-site.

Industrial Processes

At the Freeland site, Nichols Brothers performs all aspects of boat and ship construction and repair. The industrial processes involved include fabrication, pressure washing, abrasive blasting, and painting. In a typical year, Nichols Brothers works on ten to twenty vessels including high speed aluminum catamarans, tug boats, barges, sternwheelers, cruise ships, and an occasional fishing vessel. The company works almost exclusively with vessels that are constructed of steel and/or aluminum.

In the construction process, ships, or parts of ships, are fabricated inside one of several buildings on-site. The assembly and finishing work is conducted in one of the buildings. Larger vessels are assembled and finished outside on the paved areas of the facility. Except where the vessel size is prohibitive, Nichols Brothers sandblasts and paints vessels under a moveable shed or in one of the fabrication buildings which provides protection and containment during these operations. Nichols Brothers does not hydroblast or use high-pressure washing of hulls. The proposed permit requires Nichols Brothers to confine dust and overspray to vessel construction areas to the maximum extent feasible, including use of plastic barriers hung from the vessel. The company should secure and arrange temporary structures around the vessel to prevent the fugitive emissions of abrasive grit and dust, as well as effectively capture overspray from spray painting activities. Nichols Brothers must weight or fasten the bottom edge of tarpaulins and plastic sheeting to keep them in place during windy conditions. The facility must also use tarps to protect rooftops of buildings, which have the potential for overspray, or rinse to unprotected rooftops following the blasting operation and prior to a rain event. It must collect and dispose of all discharges of wet blasting wastewater off-site.

The majority of work done at the shipyard is new construction. Nichols Brothers has sandblasted and repainted about 20 percent of the complete vessel hulls in the past

year. About 80 percent needed less than one quarter of the hull sandblasted and repainted. Only about 10 percent of the paint removal consists of sanding and scraping.

Nichols Brothers has modified its sandblasting procedures and now blasts aluminum with wet blast and steel with dry blast. In 2005, Nichols Brothers began using a process called wet blast for aluminum, wherein water is injected at the nozzle end to eliminate blasting dust from dissipating into the atmosphere. During a typical year, Nichols Brothers uses approximately 200 tons of copper slag and 200 tons of Green Diamond abrasive material for sandblasting work. The amount of abrasive material used by Nichols Brothers in a given year varies based on the size of the vessels it is working on and the type of work it performs.

As noted, Nichols Brothers does not currently have a drydock and, therefore, no sandblast grit is used on drydocks. Nichols Brothers stores the sandblast grit in a containment unit in the central southeast part of the yard in a container with 5-foot concrete walls, a tin roof, and a 4-inch berm around the sides. True Blast of Tacoma picks up spent sandblast grit on an as-needed basis. The proposed permit prohibits discharge of wet blasting wastewater from discharge to ground or surface waters of the state.

Painting Practices

The common anticorrosive paints used by Nichols Brothers are International Intertuf and International Intershield. The company may use other brands of anticorrosive paint depending on specific client requests. The most common anti-fouling paint used is International Interspeed. Nichols Brothers stores these and other brands of paints it uses in a steel cargo shipping container. It mixes all paint in an enclosed container, approximately 8 ft x 8 ft x 40 ft, with a floor tapered away from the door. A still used to recycle paint thinners is located in a similar containment unit next to the paint storage. The still extracts methylethylketone (MEK) from the used paint and what is left over is a dry, solid paint waste called "still bottoms." Nichols Brothers extracts the still bottoms from the still and stores this a s hazardous waste in a haz-waste compliant covered containment area until picked up by Emerald Services for disposal off-site. Nichols Brothers has incorporated Best Management Practices (BMPs) as approved by Ecology's Hazardous Waste Section to this area. If paint is used outside of fabrication buildings, employees use visqueen and covered drip pans to contain any potential spill. No painting occurs from floats or over water at the shipyard. No painting occurs on vessels while they are being hauled out from the water and moved to the shipyard, or while the vessels are being moved from the shipyard and for launch to the water.

Engine and Equipment Repair Services

Nichols Brothers does not repair vessel engines at the shipyard. On occasion, Nichols Brothers removes engines for repair off-site, but usually there is no waste oil involved. If an engine removal generates waste oil that must be disposed of, it is stored in a 200-gallon drum. Drums are stored in a bermed and covered 600-square-foot containment area on the southeast corner of the yard. The area is locked and the concrete floor is tapered to the back of the area. The waste oil is properly disposed off-site by Safety-Kleen when a drum is full, which could be once a week or once every six months, depending upon the circumstances. Employees also drain any engine filters into the waste barrels prior to proper off-site disposal.

Nichols Brothers operates a pressure-washing steam-cleaning facility in the yard that is a closed-loop system with filtration. When cleaning equipment, Nichols Brothers uses a biodegradable HDX LPS cleaning product. The water is processed through filters within a drum and into a 500-gallon reservoir and then recycled through filters for additional use. Marine Services pumps out any sludge generated by the recycle system from the pump chamber and properly disposes of the waste off-site.

Hydraulic fluids, antifreeze, and coolants are stored in separate 55-gallon drums in the storage area described above in the southeast corner in the shipyard. Nichols Brothers contracts with Safety-Kleen for pick up and proper off-site disposal on an as-needed basis. New and used batteries are stored on shelves in a 20-foot truck container awaiting use or off-site disposal.

Vessel Transfers

At this time, Nichols Brothers does not have a drydock, railway, or other similar structure for haul out of vessels from the water. Instead, Nichols Brothers operates a hydraulically-driven tracked heavy mover, known as a “crawler.” When the vessels are hauled out for repair work, a cradle is placed on the crawler, the crawler is then "driven" into the water at the rock ramp, the vessel is positioned on the cradle in the water, and the crawler is then driven out of the water and to the shipyard. The company uses a rock ramp for launching and recovering vessels. Once in the shipyard fabrication area, employees remove the vessel from the cradle and crawler. This system can manage a load of approximately 1500 tons with no restriction on overall length or width as long as the vessel is sufficiently balanced in the cradle. When not in use, the cradle/crawler system is stored out of the way in the storage area. Vessel repair and construction-type activities are prohibited on or over the cradle or crawler when the vessel is outside of the shipyard. Minor short-term and emergency work can be conducted on the crawler

and cradle while in the shipyard fabrication area. Prior to such work completion, the cradle and crawler must be rinsed down prior to leaving the shipyard fabrication area and entering state waters per Best Management Practices (BMP).

Activities which Nichols Brothers must **not** conduct on the cradle or crawler include:

1. Pressure washing or blasting of hulls.
2. Painting and coating of hulls and underbelly of catamarans.
3. Engine and propulsion system repair and replacement.
4. Hull repair.
5. Joinery.
6. Bilge cleaning.
7. Fuel and lubrication system repair and replacement.
8. Welding and grinding of hulls.
9. Buffing and waxing.
10. Marine sanitation device (MSD) repair and replacement. This definition extends to mobile facilities as well.

Activities which the company may conduct on the cradle or crawler:

1. Engine repair or maintenance within the engine space of the vessel without vessel haul-out.
2. Topside cleaning.
3. Detailing and bright work.
4. Electronics servicing and maintenance.
5. MSD servicing and repair that does not require haul-out.
6. Vessel rigging.
7. Minor repairs or modifications to the vessel's superstructure.
8. Carpentry and finishing work done within the vessel areas.

Wastewater Treatment processes

The Nichols Brothers work yard generates two process wastewater streams and stormwater. The process wastewater streams include wet blasting wastewater and intermittent process rinse waters (for example, yard hose down, vessel rinsing). Nichols Brothers currently treats its domestic wastewater in a septic tank and discharges it to a drain field.

Pressure Wash Wastewater Streams

Nichols Brothers currently only uses pressure washing for equipment cleaning. It conducts this activity in an isolated area with a separate collection system, reuses all

pressure wash wastewater, and eventually hauls it away to a separate treatment and disposal site.

Each washing event generates approximately zero to 900 gallons of wastewater. The holding tank for the pressure wash wastewater stores 2500 gallons. Pressure wash water is typically the most contaminated waste stream generated from shipyards. It often contains high levels of suspended solids and total and dissolved metals (copper, lead, zinc, and chromium). Nichols Brothers has not discharged pressure wash water to the infiltration basin since 1998. Since then, Nichols Brothers has collected and hauled all wastewater generated by pressure washing of hulls and equipment off-site to a licensed treatment and disposal facility. Currently, Nichols Brothers no longer hydroblasts or conducts high pressure washing on hulls. If they resume this activity, they must ship this material off-site for appropriate treatment.

The proposed permit prohibits the discharge of the pressure wash wastewater to the stormwater treatment and subsurface infiltration system or to surface water.

Wet Blasting Wastewater Streams

Nichols Brothers has added water to their abrasive blasting operation. It conducts this activity in the same area where it cleans equipment as described above. Wet sandblasting helps to contain particulates within the construction yard. Wastewater from this waste stream has been characterized at other shipyards as containing similar contaminants as high pressure wash water. Ecology determined that AKART for wet blast wastewater is to collect and haul it off-site for treatment. The proposed permit prohibits Nichols Brothers from discharging wet blasting wastewater to groundwater of the state.

Sandblast grit is stored in a containment unit in the central southeast part of the yard. The container has concrete walls up to about 5 feet, a tin roof, and a 4-inch berm around the sides, with a sliding metal door. On an as-needed basis, Safety-Kleen Industrial Services picks up the spent sandblast grit for disposal at True Blast.

Rinse Water Wastewater Streams

Process rinse water is generated from a variety of activities at the Nichols Brothers facility, including yard cleaning, vessel hull wetting for pressure testing, deck and hull cleaning, and crawler rinse down. The facility uses city water for all of these operations. The waste waters generated from these operations are similar in quality to general stormwater runoff from the yard. The proposed permit allows Nichols Brothers to discharge rinse water through the stormwater treatment system and the

infiltration basin; however, it prohibits discharge of this wastewater, as a result of overflows and seeps, directly to surface waters of the state.

Stormwater Wastewater Streams

Stormwater runoff is generated from the property as a result of incidental precipitation. Through its Stormwater Pollution Prevent Plan (SWPPP) and Best Management Practices (BMPs), Nichols Brothers has instituted a series of controls to minimize the contamination of stormwater runoff from the industrial activity areas. Stormwater runoff from the paved areas of the yard is collected through a series of catch basins and collection trenches. The company conducts all fabrication and painting of vessels on the paved or covered part of the yard. The stormwater runoff from this area is collected in the stormwater collection system, treated and discharged via the infiltration basin to Holmes Harbor.

Septic Effluent Wastewater Stream

Domestic wastewater collected on-site from bathroom and kitchen activities is treated in a septic tank and the effluent is discharged to a drain field. The company is treating septic tank effluent with a pilot electrocoagulation unit, and if it determines the treatment is effective, it plans to treat septic effluent with electrocoagulation and disinfection prior to discharging it to the drain field. The discharge of treated domestic wastewater shall comply with Chapter 173-221 WAC.

Best Management Practices

Nichols Brothers updated its Stormwater Pollution Prevention Plan (SWPPP) during 2020 and forwarded it to Ecology upon completion. The plan includes Nichols Brothers' maintenance plan that is designed to prevent accidental loss of oil, fuel, paint, etc., due to equipment failure. It sets forth the BMPs for routine cleaning, sweeping, and vacuuming of paved work areas and catch basins. It also identifies the responsible parties for each task.

This plan also includes Nichols Brothers' Spill Prevent and Counter-Measure Plan. Nichols Brothers will continue to update all plans accordingly. In addition, during December 2004, Nichols Brothers provided Ecology with a copy of Nichols Brothers' Employee and Customer Information packet that it provides to vessel crews upon arrival regarding the NPDES Program and Stormwater Pollution Prevention.

Stormwater Treatment System Design

Prior to 2008, Nichols Brothers treated its stormwater using a treatment vault (holding capacity of 4900 gallons), four 200-micron fabric filters, and an infiltration basin. The company is currently treating stormwater with the aid of a multi-stage electrocoagulation and filtration system in order to ensure compliance with state water quality criteria. The electrocoagulation treatment system uses an electric current to induce coagulation and precipitation of suspended particulates.

The vault is also equipped with baffles to contain oil in the event of a spill. Bag filters follow the treatment vault to remove filterable suspended solids prior to release into the infiltration basin where soils in the basin further treat the water through filtration and adsorption before it enters the ground water.

A more detailed description of the waste streams and treatment system is available in the "Engineering Report July 2007: Nichols Brothers Boat Builders, Freeland, Washington."

The stormwater treatment facility accommodates the 10-year, 24-hour storm event. This requirement will minimize pollutants discharging to Holmes Harbor and the adjacent wetlands. The discharge is intermittent and influenced by rainfall patterns which justifies using only daily maximum effluent limits.

Discharge outfall

The treated stormwater effluent flows into an infiltration basin that is hydraulically connected to Holmes Harbor.

B. Wastewater characterization

Nichols Brothers reported the concentration of pollutants in the treated discharge in the permit application and in discharge monitoring reports. The tabulated data represents the quality of the wastewater effluent discharged from September 2016 through September 2020. The wastewater effluent is characterized as follows:

Table 4 — Wastewater Characterization

Parameter	Units	# of Samples	Average Value	Maximum Value
Chromium	µg/L [a]	40	6.1	40
Copper	µg/L	40	1.76	9.7
Lead	µg/L	40	0.013	0.51

Parameter	Units	# of Samples	Average Value	Maximum Value
Petroleum Hydrocarbons	mg/L [b]	40	0	0
Turbidity	NTU [c]	38	2.66	4.9
Zinc	µg/L	40	25.5	330
pH	standard units	38	6.0 (Minimum)	8.85 (Maximum)

a	µg/L = Micrograms per Liter.
b	mg/L = Milligrams per Liter.
c	NTU = Nephelometric Turbidity Units

C. Summary of compliance with previous permit Issued

Table 5 — Effluent violation history

Begin Date	Parameter	Statistical Base	Units	Value	Limit Min/Max	Violation
6/20/2017	Zinc (Total)	Single Sample	µg/L	150	95.1	Numeric effluent violation
9/26/2017	Copper (Total)	Single Sample	µg/L	9.7	5.8	Numeric effluent violation
5/9/2018	Zinc (Total)	Single Sample	µg/L	160	95.1	Numeric effluent violation
5/23/2018	Zinc (Total)	Single Sample	µg/L	330	95.1	Numeric effluent violation
11/27/2018	Zinc (Total)	Single Sample	µg/L	120	95.1	Numeric effluent violation
6/25/2019	Copper (Total)	Single Sample	µg/L	9	5.8	Numeric effluent violation

Nichols Brothers has largely complied with the effluent limits and permit conditions throughout the duration of the permit issued on May 13, 2016. Permit limits for zinc and copper were exceeded six times during the last permit cycle, usually in early summer (May or June) or late summer (September). Regular maintenance has restored the treatment facility into proper working order. Ecology assessed compliance based on its review of the facility's information in the Ecology Permitting

and Reporting Information System (PARIS), discharge monitoring reports (DMRs) and on inspections.

The previous permit placed effluent limits on chromium, copper, lead, petroleum hydrocarbons, pH, turbidity, and zinc. The proposed permit maintains limits for copper, petroleum hydrocarbons, pH, turbidity, and zinc.

D. 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. This permit covers an existing discharge.

III. 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. For the stormwater electrocoagulation unit, Ecology approved design criteria for this facility's treatment were obtained from the engineering report dated July 2007 prepared by Parametrix. The table below includes design criteria from the referenced report.

Storm events that exceed the hydraulic design criteria of stormwater treatment systems may bypass the treatment system when Ecology has determined the system meets AKART requirements. Ecology would not consider this a violation of the conditions of the permit, if the bypass can meet water quality criteria. 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.

Table 6 — Design Criteria for Stormwater Electrocoagulation Unit

Parameter	Design Quantity
Maximum Flow for Electrocoagulation	300 gpm
Maximum Flow to the Infiltration Basin	400 gpm

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. The turbidity limit of 5 NTU of daily maximum is based on similar facilities and experience of the Department, and best professional Judgment (BPJ) of the permit writer.

Table 7 — Technology-based Limits

Parameter	Maximum Daily Limit
Turbidity	5 NTU

Table 8 — Technology-based Limits

Parameter	Daily Minimum	Daily Maximum
pH	6.0 standard units	9.0 standard units

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

In 1992, U.S. EPA published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State in its National Toxics Rule 40 CFR 131.36 (EPA, 1992). Ecology submitted a standards revision for 192 new human health criteria for 97 pollutants to EPA on August 1, 2016. In accordance with requirements of CWA section 303(c) (2) (B), EPA finalized 144 new and revised Washington specific human health criteria for priority pollutants, to apply to waters under Washington’s jurisdiction. EPA approved 45 human health criteria as submitted by Washington. The EPA took no action on Ecology submitted criteria for arsenic,

dioxin, and thallium. The existing criteria for these three pollutants remain in effect and were included in 40 CFR 131.45, Revision of certain Federal Water quality criteria applicable to Washington.

These newly adopted criteria, located in WAC 173-201A-240, 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.

- 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.

Mixing zones

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.

This permit does not authorize a mixing zone. 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. The table included below summarizes the criteria applicable to this facility's discharge.

1. Excellent quality salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

   The Aquatic Life Uses and the associated criteria for this receiving water are identified below.

Table 9 — Marine Aquatic Life Uses and Associated Criteria — Excellent Quality

Criteria	Value
Temperature Criteria – Highest 1D MAX	16°C (60.8°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	6.0 mg/L
Turbidity Criteria	• 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.
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

- To protect shellfish harvesting, fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, and not have more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies/100 mL.
- The recreational uses are primary contact recreation and secondary contact recreation.

The recreational uses for this receiving water are identified below.

Table 10 — Marine Aquatic Life Uses and Associated Criteria — Recreational Uses

Recreational Use	Criteria
Primary Contact Recreation (effective 1/1/2021)	Enterococci organism levels within an averaging period must not exceed a geometric mean of 30 CFR or MPN per 100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample values exist) obtained within the averaging period exceeding 110 CFU or MPN per 100 mL.

- The miscellaneous marine water uses are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

E. Water quality impairments

Holmes Harbor is listed on the current 303(d) list as impaired for bacteria in an area approximately a half-mile east from the discharge point, apparently associated with an unnamed tributary to Holmes Harbor that discharges through Freeland Park. Ecology is not currently conducting a Total Maximum Daily Load (TMDL) Analysis nor is one planned in the near future. The facility's discharge does not contribute to this 303(d) listing.

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.

pH — Compliance with the technology-based limits of 6.0 to 9.0 will assure compliance with the water quality standards of surface waters because of the high buffering capacity of marine water.

Turbidity — Compliance with technology based limits of average daily maximum of 5 NTU will assure compliance with the water quality standards of 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.

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.

The following toxic pollutants are present in the discharge: chromium, copper, lead, and zinc. Ecology conducted a reasonable potential analysis (See *Appendix D)* on these parameters to determine whether it would require effluent limits in this permit.

Ecology derived effluent limits for the toxic pollutants (copper and zinc) determined to have a reasonable potential to cause a violation of the water quality standards. Ecology calculated effluent limits using methods from EPA, 1991, as shown in *Appendix D.*

The resultant effluent limits are as follows:

Table 11 — Effluent Limits

EFFLUENT LIMITS	
Parameter	**Maximum Daily**
Copper, as Total	5.8 µg/L
Zinc, as Total	95.1 µg/L

Water quality criteria for most metals published in Chapter 173-201A WAC are based on the dissolved fraction of the metal (see footnotes to Table WAC 173-201A-240(3); 2006). ICE FLOW LLC may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Ecology may adjust metals criteria on a site-specific basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge.

Ecology determined that chromium and lead pose no reasonable potential to exceed the water quality criteria at the critical condition using procedures given in EPA, 1991 (**Appendix D**) and as described above. Ecology's determination assumes that this facility meets the other effluent limits of this permit. The previous permit had limits for chromium and lead based on erroneously high assumptions of treated discharge concentrations. Several samples approached the previous effluent limit for chromium during the last permit cycle, so monitoring for chromium is retained. All samples for lead showed very low concentrations for lead, so monitoring for lead has been removed.

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 determined the applicant's discharge is unlikely to contain chemicals regulated to protect human health. Ecology will reevaluate this discharge for impacts to human health at the next permit reissuance.

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. All work is done upland of the marine sediments.

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).

Nichols Brothers discharges wastewater to the ground where it is in continuity with marine waters. Permit limits are set to meet marine standards that are more protective than groundwater standards for the pollutants of interest.

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.

Using the screening criteria in chapter 173-205-040 WAC, Ecology determined that toxic effects caused by unidentified pollutants in the effluent are unlikely. Therefore,

this permit does not require WET testing. Ecology may require WET testing in the future if it receives information indicating that toxicity may be present in this effluent.

L. Comparison of effluent limits with the previous permit issued on May 13, 2016

Table 12 — Comparison of Previous and Proposed Effluent Limits

		Previous Effluent Limits: Outfall # 001	Proposed Effluent Limits: Outfall # 001
Parameter	**Basis of Limit**	**Maximum Daily**	**Maximum Daily**
Total Petroleum Hydrocarbons diesel range (TPH-D)	Technology	5 mg/L	5 mg/L
Turbidity	Technology	5 NTU	5 NTU
Chromium, as Total	WQS	50 µg/L	N/A
Copper, as Total	WQS	5.8 µg/L	5.8 µg/L
Lead, as Total	WQS	14.0 µg/L	N/A
Zinc, as Total	WQS	95.1 µg/L	95.1 µg/L
pH	Technology	6.0 – 9.0 Std. Units	6.0 – 9.0 Std. Units

IV. 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

Nichols Brothers monitors for flow, total chromium, total copper, total lead, total zinc, total petroleum hydrocarbons (diesel fraction), turbidity and pH to further characterize

the effluent. These pollutants could have a significant impact on the quality of the surface water.

The monitoring schedule is detailed in the proposed permit under Special Condition S.2. 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.

V. 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. Non routine and unanticipated wastewater

Occasionally, this facility may generate wastewater which was not characterized in the permit application because it is not a routine discharge and was not anticipated at the time of application. These wastes typically consist of waters used to pressure-test storage tanks or fire water systems or of leaks from drinking water systems.

The permit authorizes the discharge of non-routine and unanticipated wastewater under certain conditions. The facility must characterize these waste waters for pollutants and examine the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and on any opportunities for reuse, Ecology may:

- Authorize the facility to discharge the wastewater.
- Require the facility to treat the wastewater.
- Require the facility to reuse the wastewater.

C. 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].

Nichols Brothers 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.

D. Solid waste control plan

Nichols Brothers could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

This proposed permit requires this facility to update as necessary the approved solid waste control plan designed to prevent solid waste from causing pollution of waters of the state. You can obtain an Ecology guidance document, which describes how to develop a Solid Waste Control Plan, at:
https://apps.ecology.wa.gov/publications/documents/0710024.pdf

E. 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 has 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.

F. 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 Nichols Brothers must maintain and continue to implement a 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. Nichols Brothers 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.

G. 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. Nichols Brothers 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 (*2019* 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.

Volume/Flow Control BMPs

Ecology recognizes the need to include specific BMP requirements for stormwater runoff quantity control to protect beneficial water uses, including fish habitat. New facilities and existing facilities undergoing redevelopment must implement the requirements for peak runoff rate and volume control identified by volume 1 of the *Western Washington SWMM* and chapter 2 in the *Eastern Washington SWMM* as applicable to their development. Chapter 3 of volume 3 *Western Washington SWMM* and chapter 6 in the *Eastern Washington SWMM* lists BMPs to accomplish rate and volume control. Existing facilities in western Washington should also review the requirements of volumes 1 (Minimum Technical Requirements) and chapter 3 of volume 3 in the *Western Washington SWMM*. Chapter 2 (Core Elements for New Development and Redevelopment) in the *Eastern Washington SWMM* contains the minimum technical requirements for facilities east of the Cascades. Although not required to implement these BMPs, controlling rate and volume of stormwater discharge maintains the health of the watershed. Existing facilities should identify control measures that they can implement over time to reduce the impact of uncontrolled release of stormwater.

H. Best management practices

Best management practices (BMPs) are the actions identified 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.

I. 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.

VI. 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 wastewater 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.

VII. References for Text and Appendices

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(EE2). (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology

July 2018. *Permit Writer's Manual*. Publication Number 92-109 (https://apps.ecology.wa.gov/publications/documents/92109.pdf)

September 2011. *Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation*. Publication Number 11-10-073 (https://apps.ecology.wa.gov/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://apps.ecology.wa.gov/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://apps.ecology.wa.gov/publications/documents/0710024.pdf) Wright, R.M., and A.J. McDonnell.

Laws and Regulations (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)

Appendix A — Public Involvement Information

Ecology proposes to reissue a permit to Ice Floe LLC (dba) Nichols Brothers Boat Builders (NBBB). 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 Draft on February 3, 2021 in the Whidbey News Times to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

1. 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).
2. Offers to provide the documents in an alternate format to accommodate special needs.
3. Urges people to submit their comments, in writing, before the end of the Comment Period
4. Tells how to request a public hearing of comments about the proposed NPDES permit.
5. Explains the next step(s) in the permitting process.

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting* which is available on our website at https://apps.ecology.wa.gov/publications/SummaryPages/0307023.html

You may obtain further information from Ecology by telephone, 206-594-0167, or by writing to the address listed below.

Water Quality Permit Coordinator Department of Ecology
Northwest Regional Office
P.O Box 330316
Shoreline, WA 98133-9716

The primary author of this permit and fact sheet is Robert Nolan.

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 BOD_5 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:

1. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
2. 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:

1. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
2. 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, or 5) x 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 wastestream 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 BOD_5 – 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 BOD_5 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 BOD_5 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

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found in the PermitCalc workbook on Ecology's webpage at: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance.

Reasonable Potential Analysis:

The spreadsheets Input 2 – Reasonable Potential, and LimitCalc in Ecology's PermitCalc Workbook determine reasonable potential (to violate the aquatic life and human health water quality standards) and calculate effluent limits. The process and formulas for determining reasonable potential and effluent limits in these spreadsheets are taken directly from the *Technical Support Document for Water Quality-based Toxics Control*, (EPA 505/2-90-001). The adjustment for autocorrelation is from EPA (1996a), and EPA (1996b).

Reasonable Potential Calculation

Facility	Nichols Brothers
Water Body Type	Marine

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

Pollutant, CAS No. & NPDES Application Ref. No.		CHROMIUM(HEX) 18540299 - Dissolved	COPPER - 744058 6M Hardness dependent	LEAD - 7439921 7M Dependent on hardness	ZINC- 7440666 13M hardness dependent						
Effluent Data	# of Samples (n)	40	40	40	40						
	Coeff of Variation (Cv)	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)	40	9.7	0.51	330						
	Calculated 50th percentile Effluent Conc. (when n>10)				25.5						
Receiving Water Data	90th Percentile Conc., ug/L		2.5		25						
	Geo Mean, ug/L										
Water Quality Criteria	Aquatic Life Criteria, ug/L Acute	1100	4.8	210	90						
	Chronic	50	3.1	8.1	81						
	WQ Criteria for Protection of Human Health, ug/L	-	-	-	1000						
	Metal Criteria Translator, decimal Acute	-	0.83	0.951	0.946						
	Chronic	-	0.83	0.951	0.946						
	Carcinogen?	N	N	N	N						

Aquatic Life Reasonable Potential

Effluent percentile value		0.950	0.950	0.950	0.950						
s	$s^2=\ln(CV^2+1)$	0.555	0.555	0.555	0.555						
Pn	$Pn=(1-\text{confidence level})^{1/n}$	0.928	0.928	0.928	0.928						
Multiplier		1.00	1.00	1.00	1.00						
Max concentration (ug/L) at edge of...	Acute	40.000	8.051	0.485	312.180						
	Chronic	40.000	8.051	0.485	312.180						
Reasonable Potential? Limit Required?		**NO**	**YES**	**NO**	**YES**						

Aquatic Life Limit Calculation

# of Compliance Samples Expected per month											
LTA Coeff. Var. (CV), decimal			0.6		0.6						
Permit Limit Coeff. Var. (CV), decimal			0.6		0.6						
Waste Load Allocations, ug/L	Acute		4.8		90						
	Chronic		3.1		81						
Long Term Averages, ug/L	Acute		1.5412		28.8975						
	Chronic		1.635		42.7221						
Limiting LTA, ug/L			1.5412		28.8975						
Metal Translator or 1?			0.83		0.95						
Average Monthly Limit (AML), ug/L			**#DIV/0!**		**#DIV/0!**						
Maximum Daily Limit (MDL), ug/L			**5.8**		**95.1**						

Calculation of Water Quality-Based Effluent Limits:

Water quality-based effluent limits are calculated by the two-value wasteload allocation process as described on page 100 of the TSD (EPA, 1991) and shown below.

A. Calculate the acute wasteload allocation WLA_a by multiplying the acute criteria by the acute dilution factor and subtracting the background factor. Calculate the chronic wasteload allocation (WLA_c) by multiplying the chronic criteria by the chronic dilution factor and subtracting the background factor.

WLA_a = (acute criteria x DF_a) – [(background conc. x (DF_a - 1)]
WLA_c = (chronic criteria x DF_c) – [(background conc. x (DF_c -1)]
where: DF_a = Acute Dilution Factor
DF_c = Chronic Dilution Factor

B. Calculate the long term averages (LTA_a and LTA_c) which will comply with the wasteload allocations WLA_a and WLA_c.

$LTA_a = WLA_a \times e^{[0.5\sigma^2 - z\sigma]}$
where: $\sigma^2 = \ln[CV^2 + 1]$
$z = 2.326$
CV = coefficient of variation = std. dev/mean
$LTA_c = WLA_c \times e^{[0.5\sigma^2 - z\sigma]}$
where: $\sigma^2 = \ln[(CV^2 \div 4) + 1]$
$z = 2.326$

C. Use the smallest LTA of the LTA_a or LTA_c to calculate the maximum daily effluent limit and the monthly average effluent limit.

MDL=Maximum Daily Limit

$MDL = LTA \times e^{(z\sigma - 0.5\sigma^2)}$

where: $\sigma^2 = \ln[CV^2 + 1]$
$z = 2.326$ (99th percentile occurrence)
LTA = Limiting long term average

AML = Average Monthly Limit

$$AML = LTA e^{(z\sigma_n - 0.5\sigma_n^2)}$$

where: $\sigma^2 = \ln[(CV^2 \div n) + 1]$

n = number of samples/month

z = 1.645 (95^{th} % occurrence probability)

LTA = Limiting long term average

Appendix E — Response to Comments

Ecology did not receive any comments during the public notice of draft period.