# FACT SHEET FOR NPDES PERMIT WA0031526
# COOKE AQUACULTURE PACIFIC, LLC
# CLAM BAY SALTWATER I

## 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 Cooke Aquaculture Pacific, LLC, Clam Bay Saltwater 1.

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 30 days before issuing the final permit. Copies of the fact sheet and draft permit for Cooke Aquaculture Pacific, LLC, Clam Bay, NPDES permit WA0031526, are available for public review and comment. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

Cooke Aquaculture Pacific, LLC, 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 D - 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

Cooke Aquaculture Pacific, LLC (Cooke), Clam Bay is a marine net pen facility rearing Atlantic salmon *(Salmo salar)* to market size. This facility is located in Rich Passage, Clam Bay near Manchester in Kitsap County. There are 22 cages at the Clam Bay location with the aggregate length and width of net pens is 1010 feet x 185 feet. The individual pens are approximately 82.5 feet square and 49 feet deep. The minimum depth at the site (at MLLW) is 65 feet.

The previous permit for this facility was issued in 2007, and administratively extended in 2012. In 2018, following the collapse of Cooke's net pen facility Cypress Island—Site 2 and the resulting escape of approximately 250,000 Atlantic salmon, the Washington State legislature passed Engrossed House Bill 2957, phasing out marine rearing of Atlantic salmon as the facility aquatic lands leases expire. Under the provisions of EHB 2957, Ecology is authorized to renew the NPDES permits for the marine Atlantic salmon net pens until the leases, administered by Department of Natural Resources (DNR) expire. Ecology anticipates this to be the final reissuance of the permits for these facilities.

This permit increases the frequency of sediment sampling from twice per permit cycle to annually between August 15 and September 30, and to conduct additional sediment monitoring within two weeks before or after each fish harvesting. Underwater video survey is also required annually rather than twice per permit cycle. Daily dissolved oxygen (DO) sampling at the edge of the pens in August and September has been added to the permit, to verify that aeration of the pens, a best management practice (BMP) employed to maintain DO levels within the pens, is effective during this critical period. Monitoring of current velocity has been added to this permit, as strong currents contribute to wear on the net pen structures. With this issuance of the permit, the Permittee is required to use the Water Quality Permitting Portal to submit electronic discharge monitoring reports (DMRs) and other required permit submittals and reports.

As part of the required pollution prevention plan, fish escape prevention plan, and fish escape reporting and response plan, this permit adds requirements related to engineering documents, notification of structural issues and repairs, net cleaning to prevent excess biofouling, and staff training in escape prevention and response.

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## 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**.

The presence of Atlantic salmon rearing in Washington State dates back to the 1970s when the first Atlantic salmon farm was established by the National Oceanic and Atmospheric Administration (NOAA) at their Manchester facility. Atlantic salmon farms became economically viable in the 1980s, and in 1991, the Net Pen Advisory Workgroup (NPAW) was formed to provide input for a model NPDES permit for marine Atlantic salmon net pens. The group consisted of state and local regulators, tribes, industry, and environmental groups. The permit developed by NPAW was used as a model for 12 individual marine salmon net pen NPDES permits issued in September 1996. Ten of those permits were appealed to the Pollution Control Hearings Board (PCHB) by environmental groups based on challenges citing the Clean Water Act, the state Water Pollution Control Act, and the State Environmental Policy Act (SEPA).

In 1997, the PCHB issued a First Order on Summary Judgment finding that escaped Atlantic salmon are pollutants but do not cause or tend to cause pollution. In November 1998, the PCHB issued its final ruling, raising concerns about large escapes of Atlantic salmon from net pen facilities and remanded the permit to Ecology with directions to incorporate additional conditions.

Between 1996 and 1999, three separate large escapes occurred, totaling approximately 590,000 fish. Requirements for escape prevention and response plans were developed by the Washington Department of Fish and Wildlife (WDFW) and codified in WAC 220-370-110 and WAC 220-370-220. Escape prevention and response plans developed to comply with these WACs were submitted by the previous owner of the net pens, American Gold Seafoods, in May 2005. These plans and their updates have historically been considered to satisfy the plan requirements of the NPDES permit, and were incorporated in the reissurance of the permit. The permit was reissued in 2007, and upon timely submission of reapplication, was administratively extended in 2012.

The net pens in Puget Sound have changed owners several times since the original permits were issued in 1996. In April 2017, the current owner of the eight marine Atlantic salmon net pens in Puget Sound, Cooke Aquaculture Pacific, LLC (Cooke), submitted applications for renewal of the NPDES permits.

In August 2017, Cooke's Cypress Island Site 2 facility experienced a catastrophic structural failure that caused the release of approximately 250,000 Atlantic salmon into Puget Sound. Following the Cypress Island 2 escape, the 2018 Washington Legislature passed, and Governor Inslee signed, House Bill 2957, prohibiting the use of non-native finfish for commercial marine net pen aquaculture, and requiring the phase-out of Atlantic salmon facilities on state aquatic lands as their leases expire, over the next four to seven years. Under the bill, Ecology is authorized to issue and administer NPDES permits to the Atlantic salmon net pen facilities for the duration of their operations, as long as they have valid aquatic lands leases with the Washington Department of Natural Resources (WDNR). This reissuance of the permits is intended to continue to ensure compliance with water quality and sediment quality standards, as well as apply the lessons learned from the 2017 Cypress Island Site 2 failure, in order to prevent fish escapes for the duration of the marine Atlantic salmon net pen industry in Washington State.

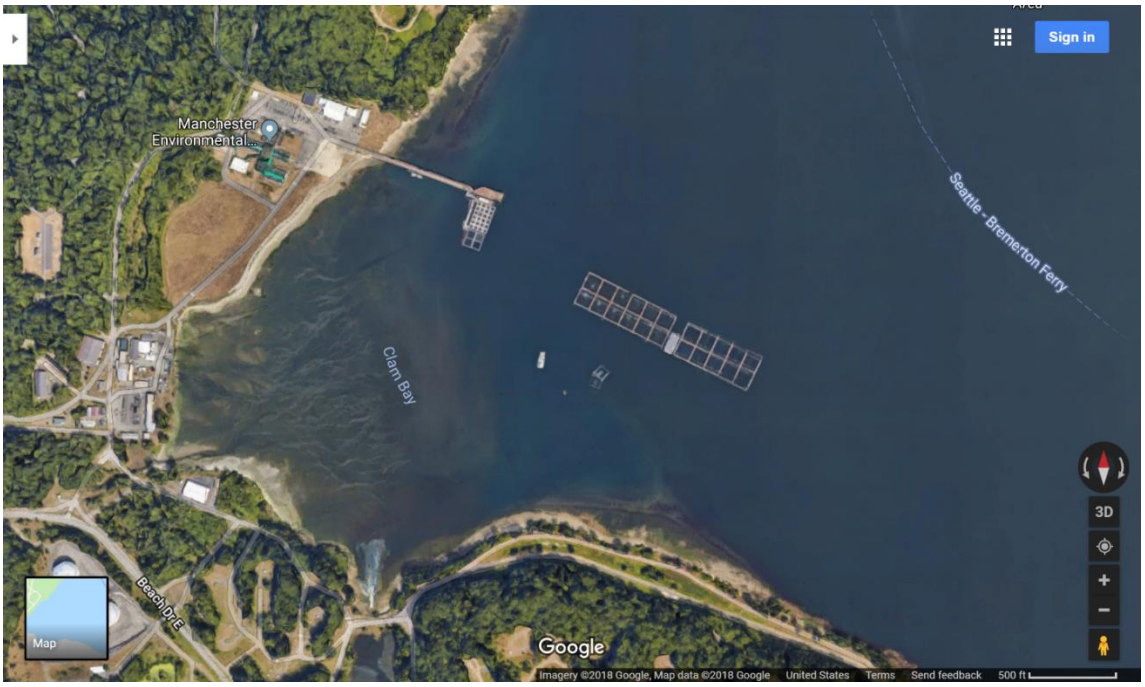
## II. BACKGROUND INFORMATION

**Table 1 General Facility Information**

| **Facility Information** | |
|---|---|
| Applicant: | Cooke Aquaculture Pacific, LLC |
| Facility Name and Address | Clam Bay, Saltwater 1<br>PO Box 79003<br>Seattle, WA 98119 |
| Contact at Facility | Name: Kevin Bright, Permit Coordinator<br>Telephone #: 360-391-2409 |
| Responsible Official | Name: Rodney D. Gould<br>Title: Chief Legal Officer<br>Address: P.O. Box 79003, Seattle, WA 98119 |
| Industry Type | Marine Atlantic Salmon Net Pen |
| SIC Codes | 0273 |
| Facility Location (NAD83/WGS84 reference datum) | Latitude: 47° 34’ 17” N<br>Longitude: 122° 32’ 25” W |
| Discharge Waterbody Name and Location (NAD83/WGS84 reference datum) | Clam Bay<br>Latitude: 47° 34’ 17” N<br>Longitude: 122° 32’ 25” W |

| **Permit Status** | |
|---|---|
| Issuance Date of Previous Permit | October 26, 2007 |
| Application for Permit Renewal Submittal Date | April 17, 2017 |
| **Inspection Status** | |
| Date of Last Non-sampling Inspection Date | September 28, 2017 |

**Figure 1 Facility Location Map**




## A. Facility Description

*History*

Cooke Aquaculture Pacific, LLC (Cooke), Clam Bay Saltwater 1 is located in Clam Bay, Rich Passage near Manchester, Washington.

There are 22 cages at the Clam Bay location with the aggregate length and width of net pens is 1010 feet x 185 feet. The individual pens are approximately 82.5 feet square and 49 feet deep. The minimum depth at the site (at MLLW) is 65 feet.

*Industrial Processes*

Marine salmon net pens fall under the definition of marine finfish rearing facilities, defined by RCW 90.48.220 as "those private and public facilities located within the salt water of the state where finfish are fed, nutured, held, maintained, or reared to the size of release or for market sale.

Marine salmon net pens located in state waters are operated to rear fish for eventual release (enhancement) or rear fish for eventual market sale (commercial).

Marine salmon net pens which produce more than 20,000 net pounds of fish annually or feed more than 5,000 pounds of fish food per calendar month meet the federal and state NPDES discharge permit threshold requirements and are required to obtain permit coverage (WAC 173-221A-110). Most of the enhancement facilities are presently not required to obtain an NPDES permit because their production levels are below the current permit threshold requirements.

The descriptions and requirements of this permit are intended to solely address commercial rearing of Atlantic salmon in marine net pens.

Atlantic salmon are reared in marine net pens for eventual harvest and market sale. The pens operate year-round. The rearing densities at these facilities range from 1 to 1.5 pounds of fish per cubic foot. Marine net pens may have a measurable environmental effect on the seafloor in the immediate vicinity of the pens due to the accumulation of fish waste and uneaten fish food

Cooke Aquaculture Pacific, LLC, based in Washington State, bought its Washington farms from Icicle Seafoods in May 2016 in an acquisition valued at $70 million. The company has fish farms in multiple countries and employs about 5,000 people worldwide. Cooke used to employ over 80 individuals in Washington State. However, the number of employees is reduced due to layoff after cencallation of DNR leases.

Cooke imports eggs from Iceland which are reared in freshwater hatcheries for 12 to 16 months. The smolts are then transferred to the net pens and reared in the marine environment for 18 to 24 months until they reach harvest size (approximately 10 pounds). The fish are harvested prior to reaching sexual maturity.

The following state and federal agencies have regulatory authority over the marine salmon net pen industry in Washington State:

- Washington State Department of Fish and Wildlife (WDFW) – Management and regulatory authority over commercial aquaculture for disease control and escapement.

- Department of Agriculture – Jointly develops regulations for commercial aquaculture with WDFW.

- Department of Ecology – Regulates the discharges from net pens by issuing NPDES permits containing operational conditions to protect water quality and sediment standards.

- Department of Natural Resources (DNR) – Leases aquatic lands to net pen operators.

- Washington State Counties – Issue Shoreline Permits to net pens to operate in State waters.

- Treaty Tribes of Washington State – Tribes co-manage natural resources in Washington and have input into aquaculture disease control regulations developed by WDFW.

- National Marine Fisheries Service (NMFS) – NMFS administers Endangered Species Act (ESA) for anadromous salmonids.

- Army Corps of Engineers – The Corps requires net pens to have a "Section 404" navigation permit.

*Solid Wastes*

The Permittee is required to handle and dispose of all solid waste material in such a manner as to prevent its entry into state waters. Solid wastes of concern for marine salmon net pens include fish mortalities under normal operations, fish mortalities due to a fish kill involving more than five percent of the fish,

blood and waste from harvesting operations, and sanitary waste and operational debris. The Permittee is required to develop a pollution prevention plan that addresses how solid and biological wastes are collected, stored, and ultimately disposed of at an upland facility.

Ecology has guidance related to net pens at https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Aquaculture/State-guidance-for-net-pens.

## B. Description of the Receiving Water

The Cooke Aquaculture marine salmon net pen facilities are located in marine waters designated as excellent (Hope Island) or exceptional (Orchard Rocks, Clam Bay, Fort Ward). The characteristic uses of these designations are:

- Aquatic life uses. 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.

- Shellfish harvest

## C. Discharge Characterization

Discharges from these facilities may contain the following potential pollutants: uneaten fish feed, fish feces, disease control chemicals administered in feed, marine fouling organisms displaced from the nets during routine net cleaning, and escaped fish.

The primary water quality concerns associated with marine net pens are nutrient loading and sediment organic enrichment.

The following categories of conventional and nonconventional pollutants are based on federal NPDES regulations (40 CFR 401.16):

- Nonconventional pollutants: turbidity, disease control medications (Romet 30 and Oxytetracycline), nutrients (including nitrogen compounds), and settleable solids.

- Conventional pollutants: biochemical oxygen demand (BOD), total suspended solids (TSS), pH, fecal coliform, oil and grease.

## D. Summary of Compliance with Previous Permit Issued

Cooke Aquculture is the current owner of the eight marine Atlantic salmon net pens at various locations in Puget Sound after purchasing those facilitites from the previous owner American Gold Seafood Company in 2016. American Gold, previous owner of the netpens conducted sediment sampling at all the netpen sites during the summer of 2007, 2010, 2011, 2013, 2015 and 2017. Test results indicated all the sites complied with the DO limit and sediment criteria except that two sites at the Cypress Island exceeded sediment Total Organic Carbon (TOC) criteria. The Cypress Island sites had been shut down and Ecology will not re-issue the NPDES permits for those sites. In addiiton to the TOC issue at Cypress Island, Cookes also has two vioaltions of its NPDES permits listed as follows.

On August 19, 2017, Cooke's Cypress Island Site 2 facility experienced a catastrophic structural failure that caused the release of approximately 250,000 Atlantic salmon into Puget Sound. Three state

agencies with regulatory and proprietary responsibilities over net pen operations, Department of Ecology (water quality), Department of Fish & Wildlife (fish health), and Department of Natural Resources (land leasing) formed an Incident Investigation Review Panel to investigate the failure. As a result of the investigation, the Department of Ecology determined Cooke violated provisions of RCW 90.48, 173-220 WAC and several conditions of NPDES permit WA0031577 and issued a penalty in the amount of $332,000 against Cooke on January 30, 2018. Cooke had appealed the penalty and a hearing is scheduled to be held in April 2019. As part of its appeal, Cooke has argued that the release of approximately 250,000 Atlantic salmon into Puget Sound constitutes a single violation of Cooke's Permit. This was not Ecology's intent when it issued the Permit in 2007, and this reissuance of the Permit clarifies that the release of each Atlantic salmon is a separate violation of the Permit.

On December 12, 2017, after multiple conversations, email correspondence, warning letters, and a Notice of Violation regarding Cooke staff illicit discharges at the Bainbridge Island service dock for the three facilities in Rich Passage, Ecology issued Cooke a penalty of $8,000 for violations of RCW 90.48. Though the service dock was not included in the NPDES permits for the facilities, this reissuance of the permit requires, as part of the pollution prevention plan, that Cooke include procedures for conducting routine maintenance of the facility and supporting structures (including barges and docks) and equipment in such a way as to prevent pollutants from entering state waters in violation of RCW 90.48.

### E. State Environmental Policy Act (SEPA) Compliance

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

## 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 National Toxics Rule (40 CFR 131.36).

- 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. 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. Technology-Based Effluent Limits

The 1972 amendments to the Federal Clean Water Act (CWA) established a two-step program for the reduction of the discharge of pollutants into the nation's waters. The first step required dischargers to meet a level of conventional pollutant control based on the application of best practicable control technology currently available (BPT). The second step required effluent limitations to be achieved by the application of the best available technology economically achievable (BAT). The 1977 amendment to the CWA redefined BAT to include only toxic and nonconventional pollutants and best conventional pollutant technology (BCT) for the conventional pollutants. Ecology must ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) when it issues a permit. Currently, there are no federal effluent guidelines or standards for discharges from the marine Atlantic salmon net pen industry. When the previous permit was issued in 2007, Ecology determined that for conventional pollutants, BCT is the equivalent to BTP. A normally operated marine salmon net pen should not generate or discharge toxic pollutants in toxic amounts as defined in 40 CFR Prt 401.15. Based on monitoring data from the previous permit cycle, Ecology has determined that Best Management Practices to minimize the discharge of nonconventional pollutants such as escaped fish, turbidity, disease control chemicals, nutrients, and settleable solids, represent BAT.

In 1995, Ecology adopted discharge standards representing AKART for marine salmon net pens as part of chapter 173-221A WAC. The adoption of these standards was required by RCW 90.48.220. In accordance with the marine salmon net pen discharge standards, the permit requires the same operational requirements applicable to all facilities (WAC 173-221A-110(4)). These requirements address feeding, disease control chemicals, chemical storage, and the development and implementation of a Pollution Prevention Plan designed to reduce or prevent the discharge of pollutants.

Prior to the issuance of the previous (2002) permit, the PCHB heard testimony on three alternative technologies to marine net pens. The Board ruled that none of the technologies constituted AKART because they were not technologically reliable and/or economically feasible, and dismissed with prejudice all AKART issues relating to all structural alternatives to net pens.

Typically AKART is re-evaluated with each permit reissuance. However, with the passage of HB 2957, the marine Atlantic salmon net pen industry in Washington State will be phased out by 2022. Ecology concludes requiring any major changes to net pen siting is not feasible in the limited time the pens can continue to operate. With the legislative ban taking effect and the short anticipated lifespan of the industry, Ecology has determined that it is more important to reissue the permits for the net pens and continue to implement lessons learned since the previous permit issuance, and since the 2017 Cypress Island failure.

## B. 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 (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 as adopted in the National Toxics Rule (40 CFR 131.36) remain in effect.

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, 2006) and of all marine waters (WAC 173-201A-210, 2006) in the state of Washington.

*Antidegradation*

**Description--**The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) 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.

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

In accordance with Ecology Tier II guidance manual, a Tier 2 analysis is required when:

- A physical expansion of the facility (production or wastewater system expansions with a potential to allow an increase the volume of wastewater or the amount of pollution) or activity.
- An increase (either monthly average or annual average) to an existing permitted concentration or permitted effluent mass limit (loading) to a water body greater than 10%.

In its 2017 NPDES permit applications for the four netpens, Cooke requested some increase in their maximum net pounds of annual fish production for three netpens but the production increases are all below the criteria stipulated in Ecology's guidance manual.

Ecology determined that this facility does not need to complete a Tier II analysis at this time. The receiving water quality constituents have not been demonstrated to be higher than the criterion designated by state water quality standards. Ecology is increasing monitoring during the permit cycle.

*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.

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

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

This permit does not authorize a mixing zone. The permit requires that the discharge comply with the water quality standards at the edge of the net pens.

## C. Designated Uses and Surface Water Quality Criteria

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

- Aquatic life uses are designated using the following general categories. All indigenous fish and non-fish aquatic species must be protected in waters of the state.

    a. Extraordinary 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.

    b. 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.

    c. Good quality salmonid migration and rearing; 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.

d. Fair quality salmonid and other fish migration.

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

**Table 2 Marine Aquatic Life Uses and Associated Criteria**

| **Extraordinary Quality** | |
|---|---|
| Temperature Criteria – Highest 1D MAX | 13°C (55.4°F) |
| Dissolved Oxygen Criteria – Lowest 1-Day Minimum | 7.0 mg/L |
| Turbidity Criteria | • 5 NTU over background when the background is 50 NTU or less; or<br>• 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 0.2 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.

## D. Water Quality Impairments

Ecology has not documented any water quality impairments in the receiving water in the vicinity of the outfall.

## E. Evaluation of Surface Water Quality-Based Effluent Limits for Narrative Criteria

Ecology must consider the narrative criteria described in WAC 173-201A-160 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.

## F. Evaluation of Surface Water Quality-Based Effluent Limits for Numeric Criteria

Ecology has not authorized a mixing zone in the permit.

## G. 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 effluent may contain chemicals of concern for human health, specifically federally-approved antibiotics for fish. These approved antibiotics have the potential to create antibiotic resistant bacteria in the sediment, and that resistance could be transmitted to human bacteria. Used in accordance with product label instructions and/or under the supervision of a veterinarian, Ecology has determined that these antibiotics should not represent a threat to human health.

Ecology continues to require reporting of disease control chemical use in the permit, and reserves the right to require sediment antibiotic resistance monitoring. No new information has been brought forward in the past permit cycle to indicate a threat to human health exists from the discharges from marine Atlantic salmon net pens.

## H. Sediment Quality

Ecology has promulgated sediment management standards (chapter 173-204 WAC) to protect sediment biota and human health. These standards have a section (WAC 173-204-412) which regulates marine salmon net pen sediment impacts. The section designates an explicit sediment impact zone (SIZ) and a total organic carbon (TOC) standard to use as a screening tool for determining compliance for these facilities. The marine salmon net pen standards were established as a result of rulemaking required by RCW 90.48.220.

In accordance with WAC 173-204-412, Ecology placed conditions in the proposed permit which requires the Permittee to meet the sediment standard numerical criteria 100 feet from the outer edge net pen rearing area and monitor the sediments for compliance. If routine sediment monitoring indicates the discharge has violated the listed standards, Exceedance Monitoring is required, as outlined in the permit, which included benthic infaunal abundance analysis. If those limitations are not met Enhanced monitoring is required.

## I. 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.

## IV. MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that BMPs are being successfully implemented and the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under condition S2. Specified monitoring frequencies take into account the critical period for the receiving water, the variability of the discharge based on production, past compliance, significance of pollutants, and cost and feasibility of monitoring. The use of sediment silt-clay particles/TOC monitoring as a trigger for benthic infaunal compliance monitoring is required by WAC 173-204-412, and is included in the permit. The frequency of monitoring has been increased to annually between August 15 and September 30, and during the period of fish harvesting for each generation of fish.

Monitoring for DO in the water column will continue to be required in this permit. A requirement for daily monitoring of DO at the pens during August and September has been added to this permit to ensure that BMPs are effectively addressing DO during the critical period.

This permit adds current Doppler assessment in order to assess the degree of stress put on the net pen structures by tidal currents.

This permit continues to require monthly reporting of biomass, feed fed, and disease control chemicals, but requires the Permitee to use the Water Quality Web Portal for electronic reporting.

Annual summaries and reports continue to be required.

## 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. Pollution Prevention Plan

The Permittee is required to develop and implement a pollution prevention plan under WAC 173-221A-110(4)(c). The pollution prevention plan components are specified under permit section S8. The Permitee is required to submit the plan with issuance of the new permit, and review the plan at least annually. The plan must be updated when changes occur, and changes sent to Ecology. The plan must be implemented, and staff trained in the procedures. A copy of the plan must be posted at the facility.

This permit adds a requirement to include in the plan procedures for conducting routine maintenance of the facilities, including barges and service docks, and equipment in such a way as to prevent pollutants from entering state waters in violation of RCW 90.48. This requirement was added following prior instances of power washing over water and equipment maintenance conducted over water at the Rich Passage service dock during the prior permit cycle.

**C. Fish Escape Prevention Plan**

The Permittee is required to review, update, and maintain a fish escape prevention plan as detailed in permit section S9. Plans developed for WDFW that comply with chapter 220-76 WAC may be submitted, provided the conditions of section S8, S9, and S10 of this permit are addressed in the plan.

This permit incorporates lessons learned from the Cypress Island Site 2 failure into the fish escape prevention plan requirements. The Permittee is required to address structural issues and repairs to the facility, including notification to Ecology, procedures for documenting the efficacy of net cleaning at the facilities, and procedures for documenting suspected escapes due to holes in the nets, and when to notify Ecology and WDFW.

**D. Fish Escape Reporting and Response Plan**

The Permittee is required to review, update, and maintain a fish escape reporting and response plan as detailed in permit section S10. Plans developed for WDFW that comply with chapter 220-76 WAC may be submitted, provided the conditions of section S8, S9, and S10 of this permit are addressed in the plan.

This permit incorporates lessons learned from the Cypress Island Site 2 failure into the fish escape reporting and response plan requirements. The Permittee is required to develop site-specific response plans, identify resources in advance that can be called upon to recover escaped fish, and commit to have personnel trained in participating in a Unified Command under the National Incident Management System (NIMS) and consistent with the Northwest Area Contingency Plan. The permit also requires the plan to contain commitment from the Permittee to actively and cooperatively participate in or establish a Unified Command Structure in the event of a large escape, and to conduct and participate in preparedness training such as tabletop exercises and/or active drills.

**E. Operation and Maintenance Manual**

Ecology has placed operating requirements in the permit as required in the Waste Discharge Standards and Effluent Limitations for marine finfish rearing facilities (WAC 173-221A-110(4)). The Permittee is required to review the manual at least annually and submit changes or updates to the manual to Ecology for review and approval.

With this permit, the manual is required to address structural maintenance, documentation of net cleaning, and documentation of the efficacy of the net cleaning. Requirements of the plan also include clarification that the Permittee may not pressure wash any portion of the net pen structure or apparatus associated with the operation of the facility that could cause water from pressure washing to enter waters of the state. In situ washing of stock nets and predator exclusion nets is the only permitted use of pressure washing. The manual must also address procedures to keep items associated with the net pens secured on the structures and associated service areas, in order to prevent debris from entering the water.

**F. Netpen Structural Integrity Assessment Report**

The permit requires the permittee to hire a marine engineering firm to conduct inspections to assess structural integrity of the netpens. Inspections must occur within two years of the effective date of the permit, when net pens are fallow, and must include topside and mooring assessments related to escapement potential, structural integrity, permit compliance, and operations. The netpen structural

integrity assessment reports must be certified by a licensed engineer and submitted to Ecology within 60 days of the completion of the inspections.

### G. 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 five 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.)

Washington State Department of Ecology.

January 2015. *Permit Writer's Manual*. Publication Number 92-109 (https://fortress.wa.gov/ecy/publications/documents/92109.pdf )

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

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

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 )

February 2007. *Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees*, Publication Number 07-10-024. https://fortress.wa.gov/ecy/publications/documents/0710024.pdf

Wright, R.M., and A.J. McDonnell.

1979. *In-stream Deoxygenation Rate Prediction*. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

Additional citations:

Prior permit and fact sheet

Draft net pen recommendations

NPDES data summary

IRP report (lessons learned)

## APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to reissue a permit to Cooke Aquaculture Pacific, LLC, Clam Bay. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application on October 25, 2018, in the *Skagit Valley Herald* and the *Kitsap Sun* to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology will place a Public Notice of Draft on December 27, 2018, in the *Skagit Valley Herald* and the *Kitsap Sun* to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

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

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

You may obtain further information from Ecology by telephone, 360-407-6280, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

The primary author of this permit and fact sheet is Gary Lee, P.E..

## APPENDIX B--YOUR RIGHT TO APPEAL

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

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

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

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

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

## ADDRESS AND LOCATION INFORMATION

| Street Addresses | Mailing Addresses |
|---|---|
| **Department of Ecology**<br>Attn: Appeals Processing Desk<br>300 Desmond Drive Southeast<br>Lacey, WA 98503<br><br>**Pollution Control Hearings Board**<br>1111 Israel Road Southwest, Suite 301<br>Tumwater, WA 98501 | **Department of Ecology**<br>Attn: Appeals Processing Desk<br>PO Box 47608<br>Olympia, WA 98504-7608<br><br>**Pollution Control Hearings Board**<br>PO Box 40903<br>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 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 month's 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 173-240-130.

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

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

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

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

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

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

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water

Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

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

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

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

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

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

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

**Method detection level (MDL)** -- See Detection Limit.

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

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

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

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

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

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

**Peak instantaneous design flow (PIDF)** -- The maximum anticipated instantaneous flow.

**Point of compliance** -- The location in the groundwater where the enforcement limit must not be exceeded and a facility must comply with the Ground Water Quality Standards. Ecology determines

this limit on a site-specific basis. Ecology locates the point of compliance in the groundwater as near and directly downgradient from the pollutant source as technically, hydrogeologically, and geographically feasible, unless it approves an alternative point of compliance.

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

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).
Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

**Quantitation level (QL)** -- Also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1,2,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--RESPONSE TO COMMENTS

[Ecology will complete this section after the public notice of draft period.]