Fact Sheet for State Waste Discharge Permit ST0501315

Linde Inc.

Date of Public Notice: 12/10/2025

Permit Effective Date: xx/xx/xxxx

Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed State Waste Discharge (SWD) permit for Linde Incorporated (Linde), formerly known as Praxair, that allows discharge of wastewater to BP Cherry Point Refinery (NPDES Permit No. WA0022900).

State law requires any industrial wastewater facility to obtain a permit before discharging waste or chemicals to privately owned collection and treatment systems.

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 Linde, SWD Permit No. ST0501315, are available for public review and comment from 12:01 am, December 10, 2025 until 11:59 pm, January 15, 2026. For more details on preparing and filing comments about these documents, please see Appendix A - Public Involvement Information.

Linde reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, product type or production rate, 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 SWD 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

Linde discharges process wastewater (largely cooling tower blowdown) to BP Cherry Point Refinery wastewater treatment plant (BP's WWTP). Ecology issued the previous SWD permit (ST0501315) for this facility on October 8, 2018. Linde has eliminated their direct discharge to surface water (Outfall 002) and now discharges all of their process water to BP's sewer for treatment through Outfall 003. Effluent limits for the conventional pollutants Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Ammonia (N), pH, temperature, and flow remain the same from the previous permit. The proposed permit adds a new requirement of biocide usage analysis and reporting.

Table of Contents

I. Introduction

The Washington State Legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

The following regulations in the Washington Administrative Code (WAC) apply to industrial wastewater discharge to publicly or privately owned wastewater treatment plants:

- State waste discharge permit program (chapter 173-216 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 a State Waste Discharge (SWD) permit before discharging wastewater to state waters. This includes commercial or industrial discharges to sewerage systems operated by privately owned entities which discharge into public waters of the state. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Ecology prepared the draft permit and accompanying fact sheet. Ecology generally makes the draft documents available for public review before final issuance. If the volume of the discharge has not changed or if the characteristics of the discharge have not changed Ecology may choose not to issue a public notice. A public notice announcement tells 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 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:	
Facility name and address	Linde Inc. 4466 Aldergrove Road, Ferndale WA 98248
Contact at facility	Name: Erik Liebrecht Title: Environmental Specialist Telephone #: (424) 339-6832 Email: erik.liebrecht@linde.com
Responsible official	Name: Danny Gusukuma Title: Facility Manager Address: 4466 Aldergrove Road, Ferndale WA 98248 Telephone #: 360-371-6010 Email: Danny.Gusukuma@linde.com

Industry type	Processing of Carbon Dioxide into Liquid CO_2 and Dry Ice
SIC code(s)	2813
NAIC code(s)	325120
Facility location (NAD83/WGS84 reference datum)	Latitude: 48.878608 Longitude: -122.723738
Treatment plant receiving discharge	BP Cherry Point Refinery WWTP (WA0022900)
Discharge location (NAD83/WGS84 reference datum)	Latitude: 48.878657 Longitude: -122.723916

Permit status

Renewal date of previous permit: October 8, 2018

Application for permit renewal submittal date: September 8, 2023

Date of Ecology acceptance of application: September 14, 2023

Inspection status

Date of last non-sampling inspection: June 10, 2025

Figure 1 - Facility Location Map

II.A. Facility description

1. History

Linde located in Ferndale, Washington, is engaged in the liquefaction of carbon dioxide. The plant, located in Whatcom County, was constructed in 1978 by the Liquid Carbide Corporation. Linde operates three separate process plants at this location (A-plant, B-plant, and C-plant) and produces 160,000 tons of liquid carbon dioxide per year.

2. Industrial process

Plant feedstock consists of stack gases from the adjacent BP Cherry Point refinery cracker unit (also known as the hydrogen unit steam methane reformer, or SMR). The gas consists of approximately 90 percent carbon dioxide. The remaining ten percent of the gas volume consists largely of steam, air, and hydrogen.

The by-product gas from BP refinery is refined to a marketable industrial grade and culinary grade of carbon dioxide by successive compression and chilling in a refrigeration system. The cooling process results in the removal of impurities, mainly consisting of water, to be condensed and removed from the gas stream. Linde vents light phases, such as hydrogen, oxygen, nitrogen, and certain hydrocarbons to the atmosphere. Water vapor not removed by the condensation process is absorbed on activated alumina, which is then vaporized to the atmosphere using heated carbon dioxide. Linde hauls spent alumina to a landfill.

3. Wastewater

The wastewater mainly consists of cooling tower blowdown, a small volume of cooling water sand filter back-wash, process condensate, and wastewater from plant floor drains. The proposed permit contains an authorization to discharge a maximum of 40,000 gallons per day from all industrial sources at this plant to BP's WWTP.

Linde uses microbiological inhibitors, including bromine tablets, chlorine dioxide gas, and a non-oxidizing biocide, in the cooling tower makeup, as well as phosphate-based corrosion inhibitors.

Historically, Linde collected stormwater in the scale sump pit and discharged it to BP's WWTP. However, Linde eliminated use of the scale sump pit and the discharge has been eliminated. Linde is authorized to discharge its industrial stormwater per WA Industrial Stormwater General Permit No. WAR000558.

Linde discharges all sanitary wastewater generated on-site to a septic tank drain field.

4. Wastewater pretreatment

Linde does not operate a wastewater treatment facility on-site. Linde collects wastewater in a holding tank prior to discharging to the BP industrial sewer leading to BP's WWTP.

Per Linde's permit application renewal, BP's Utilities Operation Superintendent, Carol Bird-Terrell, accepted the discharge of Linde's wastewater to BP's WWTP on 8/31/2023. BP currently holds NPDES Permit No. WA0022900.

5. Solid wastes

Linde generates spent alumina from the condensation process and sludge from the annual maintenance of floor drains and the effluent pit. The sludge is not a direct result of the process, but rather composed of dirt, rust particles from drain piping, mineral deposits from water, and cottonwood fluff. The spent alumina and sludge are hauled offsite by a third-party waste transport company. Linde does not have a solid waste control plan or sludge management plan due to the minimum amount of solid waste generated on site.

II.B. Discharge location to BP's WWTP

Linde discharges wastewater underground from the effluent pit, Outfall 003 with Latitude 48.878655 and Longitude -122.724041, to BP's WWTP. The effluent pit is where pH, temperature, and flow are monitored, and sampling occurs.

II.C. Wastewater characterization

Linde reported the concentration of pollutants in the discharge in the September 2023 permit renewal application and in discharge monitoring reports. The tabulated data represents the quality of the wastewater discharged from 2022.

Table 2 - Wastewater characterization

Parameter	Units	# of Samples	Average Value	Maximum Value
Chemical Oxygen Demand (COD)	mg/L	51	144	326
Ammonia (Total N)	mg/L	12	2	11.5
Total Suspended Solids (TSS)	mg/L	12	30	70

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH	SU	365	6.65	9.45

II.D. Summary of compliance with previous permit issued on October 8, 2018

The previous permit placed effluent limits on flow, temperature, ammonia, COD, TSS, and pH.

Linde has complied with the effluent limits and permit conditions throughout the duration of the permit issued on October 8, 2018 and modification permit on October

1, 2020 with the exceptions listed below. Ecology assessed compliance based on of the facility's information in the Ecology Permitting and Reporting Information System (PARIS) and discharge monitoring reports (DMRs). Linde's effluent is treated in BP's WWTP.

The following table summarizes the violations that occurred during the permit term.

Table 3 - Violations

Violation Date	Parameter Type	Unit Type	Max Limit	Measurement Value Quantity	Statistical Base Type	Violation
11/1/2019	TSS	mg/L	100	101	Daily Max	Numeric effluent violation
3/1/2023	Flow	gpd	16,000	16,706	Average Monthly	Numeric effluent violation
12/31/2023	pH	SU	10	10.31	Daily Max	Numeric effluent violation
1/1/2024	pH	SU	10	10.37	Daily Max	Numeric effluent violation
1/2/2024	pH	SU	10	10.36	Daily Max	Numeric effluent violation
1/30/2024	COD	mg/L	700	869	Daily Max	Numeric effluent violation
5/29/2024	pH	SU	10	10.2	Daily Max	Numeric effluent violation

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

Table 4 - Permit Submittals

Submittal Name	Submittal Status	Due Date	Received Date
Permit Application Renewal	Submitted	9/1/2023	9/8/2023

II.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

State regulations require that Ecology base limits in a State Waste Discharge permit on the:

- Technology and treatment methods available to treat specific pollutants (technology-based). Technology-based limits are set by the EPA and published as a regulation (40 CFR 400-471), or Ecology develops limits on a case-by-case basis (40 CFR 125.3, and RCW 90.48). Dischargers must treat wastewater using all known, available, reasonable methods of prevention, control, and treatment (AKART).
- Effects of the pollutants on the treatment works. Wastewater must not interfere with the operation of the treatment works
- Applicable requirements of other local, state, and federal laws.

Ecology applies the most stringent applicable 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 engineering and monitoring 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, or are not listed in regulation.

Ecology does not usually develop limits for pollutants not reported in the permit application that may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the 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. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

III.A. Design criteria

BP's WWTP is designed to treat 13 million gallons per day (MGD) of industrial wastewater. The proposed permit authorizes Linde to discharge a maximum of 40,000 gallons per day to BP's WWTP which is less than 1% of the design capacity of BP's WWTP. Ecology does not expect that the additional volume of wastewater from Linde will result in an overloading of BP's WWTP. Linde has indicated that it is willing to abide with the requirements set forth by BP, which includes a maximum flow of 40,000 gallons per day, to be achieved by shutdown of the Linde plant, if necessary.

III.B. Technology-based effluent limits

Waste discharge permits issued by Ecology specify conditions requiring the facility to use all known available and reasonable methods of prevention, control, and

treatment of discharges AKART before discharging to waters of the state (RCW 90.48).

The state waste discharge permit regulations include restrictions and prohibitions to protect publicly owned sewerage systems. A facility may not discharge any wastewater having a pH less than 5.0 or greater than 11.0 or having any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel unless the system is specifically designed to accommodate such discharge, and the discharge is authorized by a permit (WAC 173-216-060).

The proposed permit contains limitations for discharging to the BP's WWTP. Normally, the discharges to wastewater treatment plants not owned by the entity responsible for producing the wastewater are covered by regulations associated with discharges to the publicly owned treatment works (POTW), and the limitations developed by a local jurisdiction and codified in its ordinance are used as one of the primary bases for development of permit limitations. In contrast, the discharge from Linde will be to a privately owned treatment works (BP). Ecology had examined the proposed limitations specified in BP's letter dated January 3, 2007, and has determined that they will be sufficient to prevent pass-through and interference at the BP's WWTP. Ecology is using the prevention of pass-through and interference as a sufficient basis for establishment of AKART. Following connection to the BP's WWTP, virtually all of the treatment of the Linde wastewater, with the exception of some primary solids removal, will occur at the BP's WWTP. On June 21, 2022, Ecology reissued the NPDES renewal permit for the BP. The limitations in the BP permit are consistent with both technology-based (AKART) requirements and water quality requirements. BP's industrial wastewater has been designed to treat, by means of microbiologically mediated process, a wastewater which is normally more resistant than typical domestic wastewater. Under these circumstances, the potential for oxygen uptake required for adequate treatment is more appropriately quantified by using COD (chemical oxygen demand) as opposed to BOD5 (five-day biochemical oxygen demand) as the descriptive parameter. Therefore, Ecology has used COD, as opposed to BOD5 as the limited parameter for the proposed indirect discharge.

To protect BP's WWTP from pass-through, interference, concentrations of toxic chemicals that would impair beneficial or designated uses of sludge, or potentially hazardous exposure levels, Ecology believes it necessary to impose limits for certain parameters. Ecology based these limits on limits established by BP and Ecology's best-professional judgement.

Table 5 – Discharge Limits

Parameter	Monthly average	Daily maximum
Flow	16,000 gallons/day	40,000 gallons/day
Instantaneous Flow	40 gallons/minutes	70 gallons/minutes
Temperature	--	90 ºF

Ammonia (total ammonia nitrogen, as N)	--	400 mg/L
COD	500 mg/L	700 mg/L
TSS	--	100 mg/L

Parameter	Daily minimum	Daily maximum
pH	5.0 standard units	10.0 standard units

Pollutant concentrations in the proposed discharge with technology-based controls in place will not cause problems at BP's WWTP such as interference, pass-through or hazardous exposure conditions to treatment plant workers nor will it result in unacceptable pollutant levels in the BP's WWTP sludge/biosolids.

III.C. Comparison of effluent limits with the previous permit modified on April 28, 2021

Table 6 - Comparison of Previous and Proposed Effluent Limits – Outfall 003

Parameter	Basis of Limit	Existing permit limit	Proposed permit limit
Flow, Average Monthly, (gpd)	Local	16,000	16,000
Flow, Maximum Daily, (gpd)	Local	40,000	40,000
Instantaneous Flow, Average Monthly, (gpm)	Local	70	70
Instantaneous Flow, Maximum Daily, (gpm)	Local	140	140
Temperature, Average Monthly, (ºF)	Local	90	90
Ammonia, Average Monthly, (total ammonia nitrogen as N) (mg/L)	Local	400	400
COD, Average Monthly, (mg/L)	Local	500	500
TSS, Average Monthly, (mg/L)	Local	100	100
pH, Daily Minimum, (SU)	Local	5.0	5.0
pH, Daily Maximum, (SU)	Local	10.0	10.0

IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-216-110) to verify that the treatment process is functioning correctly, the discharge meets groundwater criteria, 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.

The monitoring schedule is detailed in the proposed permit under Special Condition S.2. Specified monitoring frequencies consider the quantity and variability of the discharge,

the treatment method, past compliance, significance of pollutants, and cost of monitoring.

V. Other Permit Conditions

V.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 173-216-110).

V.B. Operation and Maintenance

The proposed permit contains Special Condition S.4 as authorized under RCW 90.48.110, WAC 173-216-110, and WAC 173-240, to ensure proper operation and regular maintenance of equipment, and to ensure that Linde takes adequate safeguards so that it uses constructed facilities to their optimum potential in terms of pollutant capture and treatment.

Special Condition S.4 requires Linde to update as needed 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.

V.C. Prohibited discharges

Ecology prohibits certain pollutants from being discharged to BP's WWTP. These include substances which cause pass-through or interference, pollutants which may cause damage to the BP's WWTP or harm to the BP's WWTP workers (chapter 173-216 WAC) and the discharge of designated dangerous wastes not authorized by this permit (chapter 173-303 WAC).

V.D. Dilution prohibited

Ecology prohibits the facility from diluting its effluent as a partial or complete substitute for adequate treatment to achieve compliance with permit limits.

V.E. Non-routine and unanticipated wastewater

Occasionally, this facility may generate wastewater that 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.

V.F. 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].

The facility currently has 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.

V.G. Biocide Usage Analysis Report and Annual Biocide Report

Ecology has included new requirements for a *Biocide Usage Analysis Report* and an *Annual Biocide Report*. The purpose of these reports is to have the Permittee review its use of biocides, determine if safer alternatives exist, establish written procedures for their use, and document the type and amount of biocides used. The regulatory basis for this report is the requirements in 173-216 WAC which state that:

"Any permit issued by the department shall specify conditions necessary to prevent and control waste discharges into the waters of the state, including the following whenever applicable:

(a) All Known, available, and reasonable methods of prevention, control, and treatment…"

V.H. General conditions

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

VI. Public notification of noncompliance

Ecology may annually publish a list of all industrial users in significant noncompliance with pretreatment standards or requirements during any of the previous four quarters in a local newspaper. Accordingly, this permit Special Condition informs the Facility that noncompliance with this permit may result in publication of the noncompliance.

VII. Permit Issuance Procedures

VII.A. Permit modifications

Ecology may modify this permit to impose or change numeric limits, if necessary to comply with changes in the pretreatment requirements, conditions in local sewer ordinances, or based on new information from sources such as inspections and effluent monitoring.

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

VII.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 the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of five years.

VIII. References for Text and Appendices

Ecology. (2023). *Criteria for Sewage Works Design, Publication 98-37 (Orange Book).* Retrieved from https://apps.ecology.wa.gov/publications/SummaryPages/9837.html

Washington State and Ecology website general reference links:

Laws and Regulations[1]

Permit and Wastewater Related Information[2]

Appendix A – Public Involvement Information

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

Ecology will place a Public Notice of Draft on December 10, 2025 in The Ferndale Record to inform the public and to invite comment on the proposed draft State Waste Discharge 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 State Waste Discharge permit.
- Explains the next step(s) in the permitting process.

[Attach printed copy of the Public Notice mail-out]

[1] https://leg.wa.gov/state-laws-and-rules/
[2] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance

Frequently Asked Questions about Effective Public Commenting[3]

You may obtain further information from Ecology by telephone, Liem Nguyen at 360-790-4730, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Industrial Section
P.O. Box 47706
Olympia, WA 98504-7600

The primary author of this permit and fact sheet is Liem Nguyen.

[3] https://apps.ecology.wa.gov/publications/SummaryPages/0307023.html

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 as defined in WAC 371-08-305 and -335. "Notice of appeal" is defined in WAC 371-08-340.
- Serve a copy of your appeal and this permit on Ecology on the Department of Ecology mail, in person, or by email (see addresses below).
- You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

Filing with the PCHB

For the most current information regarding filing with the PCHB:
visit https://eluho.wa.gov/[4] or call 360-664-9160.

Service on Ecology

Street Address:

Department of Ecology
Attn: Appeals Processing Desk
300 Desmond Drive SE
Lacey, WA 98503

Mailing Address:

Department of Ecology
Attn: Appeals Processing Desk
PO Box 47608
Olympia, WA 98504-7608

E-Mail Address:

ecologyappeals@ecy.wa.gov

[4] https://eluho.wa.gov/

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.

BOD_5 – 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 BOD_5 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 level – or method detection limit means the minimum concentration of an analyte (substance) that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results as determined by the procedure given in 40 CFR part 136, Appendix B.

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

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

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

Enforcement limit – The concentration assigned to a contaminant in the groundwater at the point of compliance for the purpose of regulation, [WAC 173-200-020(11)]. This limit assures that a groundwater criterion will not be exceeded and that background water quality will be protected.

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

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

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

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

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

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

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

Industrial wastewater – Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of

any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated stormwater and, also, leachate from solid waste facilities.

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

- Inhibits or disrupts BP's WWTP, 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 BP'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 BP's WWTP.

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 limit (MDL) – See Detection level.

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) – Section 402 of the Clean Water Act, 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 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 BP's WWTP 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 BP'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:

- Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- 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 (ML) – The term ‘‘minimum level’’ refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (DL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the DL in a method, or the DL determined by a laboratory, by a factor of 3. For the purposes of NPDES compliance monitoring, EPA considers the following terms to be synonymous: ‘‘quantitation limit,’’ ‘‘reporting limit,’’ and ‘‘minimum level’’.

Reasonable potential – A reasonable potential to cause or contribute to 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) –

- All industrial users subject to Categorical Pretreatment Standards under 40 CFR Chapter I, Subchapter N and 40 CFR 403.6 and;
- 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 the second paragraph 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 BP's WWTP. This may include any pollutant released at a flow rate that may cause interference or pass through with the BP's WWTP or in any way violate the permit conditions or the BP's WWTP 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.]