

## Fact Sheet for NPDES Permit WA0032123

**BNSF Railway Company, Skykomish**  
**Permit Effective Date: October 1, 2022**

### **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 the BNSF Railway Company (BNSF) facility located in Skykomish, WA.

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

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for BNSF, NPDES permit WA0032123, were available for public review and comment from July 13, 2022 until August 13, 2022. For more details on preparing and filing comments about these documents, please see *Appendix A – Public Involvement Information*.

The applicant has 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 summarizes substantive comments and provides responses to them in Appendix E.

### **Summary**

BNSF has conducted cleanup of petroleum and heavy metals impacts associated with the former railway maintenance and fueling activities in the town of Skykomish since 2006. The cleanup actions are being conducted by BNSF with Ecology's Toxic Cleanup Program (TCP) oversight through a Consent Decree. Over the years, significant cleanup work has been accomplished at the 40 acres site including soil excavation, thermal and hot water flushing, air sparging, and restoration work. The facility continues to operate the hydraulic control and containment (HCC) treatment system to intercept and treat the petroleum impacted groundwater resulting from the contaminated soil in the railyard zone as soil excavation under the track without moving the track is not possible.

Ecology proposes to renew the previous NPDES Permit to authorize the discharge from the HCC treatment system (outfall 003) to surface water. Effluent limits for flow, pH, dissolved oxygen, oil sheen, total petroleum hydrocarbon are the same as those in the permit issued in 2014. Since excavation, hot water flushing, and air sparging cleanup work have been completed and only pump and treat through the HCC system is continued, Ecology proposes the following changes in the permit: The monitoring requirement for TPH, lead and arsenic is reduced due to good compliance records. The effluent limits for lead, arsenic, and benzene are removed due to a large series of non-detect results since treatment system start-up in January 2009. The temperature limit is removed because hot water flushing cleanup work is complete and groundwater generally has an average temperature of 10°C which is protective of the receiving water.

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

## II. Background Information

**Table 1 - General facility information**

<b>Applicant</b>	<b>BNSF Railway Company</b>
Facility name and location	BNSF Skykomish Remediation Site South Bank, South Fork of the Skykomish River Skykomish, WA
Contact at facility	Name: Shane DeGross Manager Environmental Remediation Telephone #: (253) 591-2567
Industry type	Soil and groundwater remediation
Type of treatment	Oil separation/recovery, equalization, and granular activated carbon adsorption
SIC code	4959, Groundwater Site Remediation Devices
NAIC Code	562910 Remediation and cleanup of contaminated buildings, mine sites, soil or groundwater
Permit Fee Category (WAC 173-224)	Hazardous Waste Clean Up Sites b) Non-LUST sites: 2) > 2 Contaminants of concern
Facility location (NAD83/WGS84 reference datum)	Latitude: 47.709275 Longitude: -121.360101
Discharge waterbody name and location (NAD83/WGS84 reference datum)	Outfall 003: Skykomish River Latitude: 47.709722 Longitude: -121.363611

<b>Permit Status</b>	
Issuance date of previous permit	February 11, 2014
Application for permit renewal submittal date	August 15, 2018
Date of Ecology acceptance of application	August 24, 2018
Date of last non-sampling inspection date	July 27, 2017

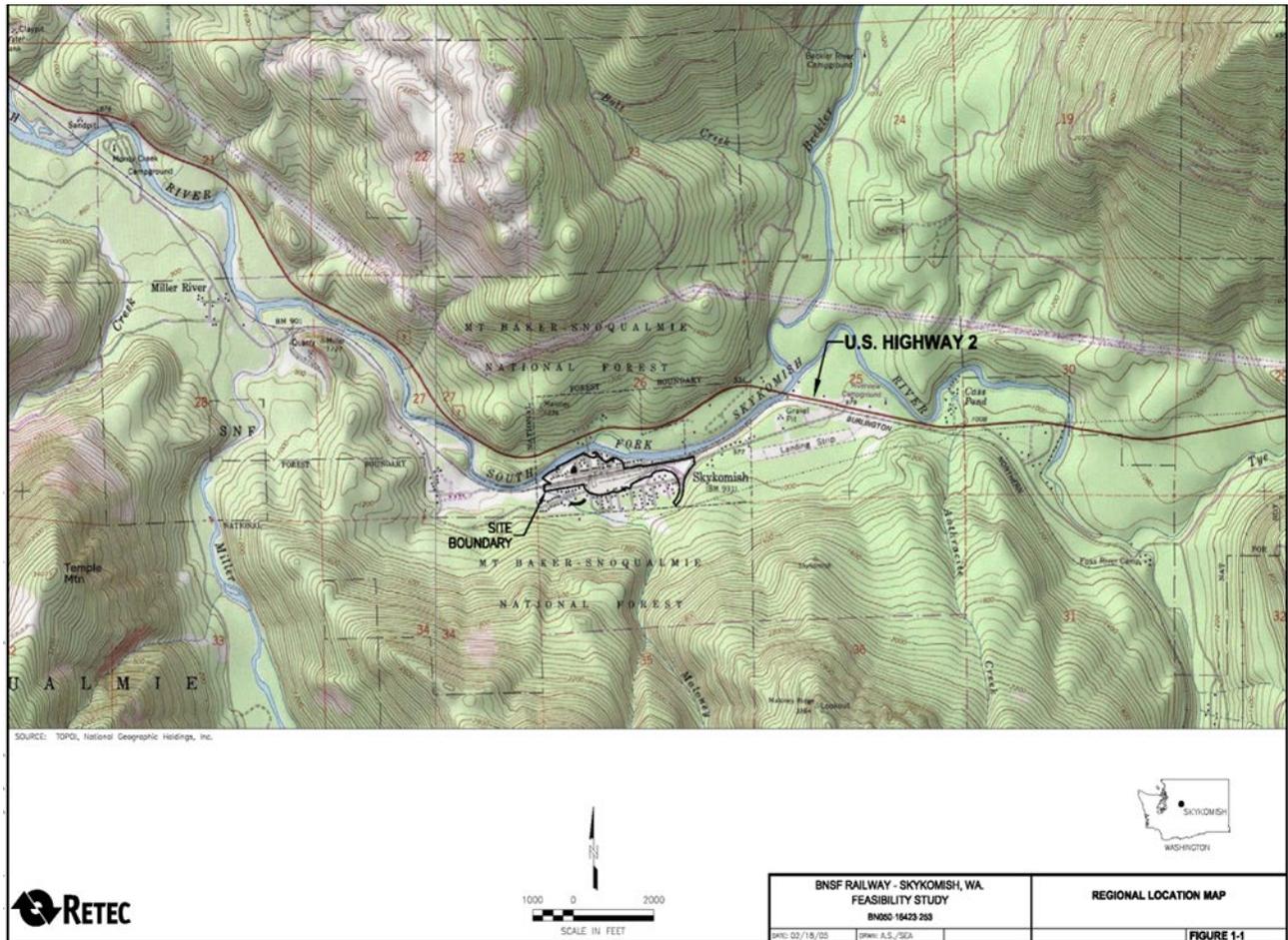


Figure 1 - Facility Location Map

## II.A. Facility description

### 1. Background

Skykomish, Washington is located on the west side of the Cascade Mountains, approximately 16 miles west of Stevens Pass. It is reached by means of Highway 2, which follows the South Fork of the Skykomish River. The location of the town and the BNSF Skykomish Cleanup site is shown in Figure 1.

The former railway maintenance and fueling facility in the town of Skykomish is owned and operated by BNSF. Historical activities at the site included refueling and maintaining locomotives and operating an electrical substation. These activities resulted in the release of petroleum and heavy metals to the surrounding environment. BNSF has been conducting soil and groundwater cleanup at the site with Ecology oversight since 2006. Significant achievements from the cleanup conducted include the following:

- Over 218,000 gallons of oil removed and recycled;
- Over 350,000 tons of petroleum-impacted soil removed;

- Over 20 million gallons of petroleum-impacted water treated;
- 21 properties cleaned with structures moved and restored;
- 2 wetlands cleaned and restored;
- Maloney Creek channel improved for habitat and reduced flooding;
- Completion and operation of the town wastewater treatment system;
- Completion of operations of hot water flushing treatment (HWF) at the Skykomish School from 2016 to 2017 which includes the removal of:
  - 14 million gallons of petroleum-impacted groundwater treated;
  - 54 gallons of dissolved oil removed from the petroleum-impacted groundwater;
  - 98 gallons of oil removed by the oil recovery system.

BNSF continues to operate a hydraulic control and containment (aka pump and treat) system at the site to address the remaining petroleum-impacts in the railyard.

## 2. Hydrology and groundwater flow direction

A shallow water table is present in a large sand and gravel aquifer that underlies the site. Groundwater levels measured during several gauging events indicate that the overall flow directions within the site are relatively consistent over time. Groundwater generally flows from south to north towards the Skykomish River, east of 4 Street, with an average gradient of 0.014 feet per foot (that is 0.014 vertical feet per one horizontal foot). The hydraulic gradient indicates that groundwater flows at an average rate of 2.5 feet per day. The groundwater levels fluctuate seasonally. Groundwater elevations are generally higher during the late fall, winter, and spring (November to April) and lower in the summer and early fall (June to early November).

## 3. Hydraulic control and containment (HCC) system

The HCC system consists of two treatment operations, the 1,100-foot long barrier wall with GAC-filled treatment gates operation and the pump and treat operation. The barrier wall with GAC-filled treatment gates, referred to as the HCC passive treatment operation, is designed to prevent contaminated groundwater from migrating from the BNSF railyard to the Skykomish River. The HCC pump and treat operation involves retrieval of contaminated groundwater from extraction wells and treating the water in an above-ground treatment system prior to discharge to surface water.

Total petroleum hydrocarbon concentrations is quantified as the sum of diesel- and oil-range organics analyzed using Ecology Method NWTPH-Dx [NWTPH-Dx]. For groundwater flowing immediately north from the railyard boundary, the cleanup objective is to achieve a remediation level of 477 µg/L NWTPH-Dx. This remediation level is based on protecting groundwater as a potential future source of drinking water. For groundwater entering surface water at the Skykomish River, the cleanup level for groundwater is 208 µg/L NWTPH-Dx. This cleanup level is based on protection of aquatic

life in sediments. These remediation and cleanup levels are imposed by Ecology TCP through the Model Toxics Control Act cleanup regulation.

#### 4. HCC pump and treat operation

Groundwater recovered by means of the HCC pump and treat system is pumped to a dedicated above-ground treatment system, housed in a building compound with a berm around the perimeter of the building. To capture any overflow from the treatment system, the building floor is sloped toward a covered drainage trough that flows to a collection sump. System controls are configured to issue an alarm or shut down of operation if fluids accumulate in the sump while the operator is not present. The treatment system consists of oil separation/recovery, equalization, and filtration followed by granular activated carbon (GAC) adsorption columns (See Figure 4, Treatment System Layout Map). The treatment system is designed at a flow rate of 100 gpm. The facility has been operating the system at an average rate of 15 gpm.

This permit covers the discharge from the HCC pump and treat operation to the Skykomish River.

#### 5. HCC passive operation

The 1,100-foot long barrier wall with GAC-filled treatment gates was installed in 2008 to control groundwater movement within BNSF's rail yard facility property, capture free hydrocarbon products, and treat petroleum-impacted groundwater (See Figure 2 – Site Map). This HCC system barrier wall was installed on the north side of the BNSF railyard property and extends into the Railroad Avenue right of way. The objective of this HCC system is to prevent light nonaqueous-phase liquid (LNAPL) and groundwater with total petroleum hydrocarbon concentrations from migrating from the BNSF railyard to the Skykomish River.

Between 2019 and 2020, BNSF conducted a 24-month HCC system passive operation pilot study. The purpose of the pilot study is to evaluate the HCC system's ability to meet the cleanup objectives through the passive operation. Passive operation of the HCC system does not utilize pumps and relies on the HCC barrier wall and passive flow of petroleum-impacted groundwater through the GAC-filled treatment gates as the primary means of treatment.

The study results indicate that passive operation of the HCC system is effective in meeting the cleanup objectives. The LNAPL and TPH-D concentrations in groundwater exceeding the site-specific remediation level do not migrate past the HCC system barrier wall during passive operation. These results demonstrate the effectiveness of the barrier wall and GAC-filled treatment gates in meeting the cleanup objective (See Figure 3-Barrier Wall Gate Detail). Based on these observations and data, BNSF requests approval from Ecology TCP to allow the continuation of the HCC system operated in a passive mode with groundwater monitoring. According to TCP site manager, the Consent Decree will be revised in the summer of 2022 to allow the continuation of pilot

studies to assess the effectiveness of HCC passive operation meeting site cleanup standards. Data collected will be evaluated to determine whether the HCC passive operation can be used as the primary treatment and the HCC pump and treat operation can be used as the backup.

This permit does not cover the groundwater discharge from the HCC passive operation. Groundwater that flows through the GAC-filled treatment gates continues to flow through the subsurface downgradient for approximately 500 feet before reaching the river. Due to the diffuse nature of groundwater, it can be interpreted that it is no longer a point source discharge. Ecology Water Quality Program defers the groundwater discharge resulting from HCC passive operation to Ecology TCP to regulate through its Consent Decree with BNSF.

#### 6. Discharge outfall

The treated groundwater is discharged to the City storm drain located along 3<sup>rd</sup> Street (See Figure 5), outfall 003. The Town's storm sewer drains are located along West River drive (next to the levee) and often flooded during high tide in the winter season, where water backflows through the storm lines into the town. Thus, the permit specifies that the Permittee must cease the discharge of any wastewater resulting from the remediation cleanup activities when the river level exceeds the high water flood stage.

#### II.B. Description of the receiving water

The Skykomish River in Snohomish County follows Highway 2 through the communities of Gold Bar, Sultan, and Monroe before it meets up with the Snoqualmie River to form the Snohomish River, which eventually empties into the Puget Sound.

The facility discharges to the South Fork of the Skykomish River. Another nearby point source outfall includes Skykomish Drop Box's stormwater discharge (Industrial Stormwater General Permit). The South Fork of the Skykomish River begins at the confluence of the Tye River and the Foss River, to the east of Skykomish. The South Fork flows northwest from the confluence and the Beckler River joins it near the eastern boundary of the City of Skykomish. To the west of the City of Skykomish, the Miller River joins it. Shortly before converging with the North Fork, the river drops over Eagle Falls followed by Canyon Falls, and then finally, Sunset Falls, before its confluence with the North Fork.

The designated uses listed in WAC 173-201A for South Fork of the Skykomish River are as follows: char spawning and rearing; primary contact recreation; domestic, industrial, and agricultural water supply; stock watering; wildlife habitat; fish harvesting; commerce and navigation; boating; and aesthetic values.

#### II.C. Wastewater characterization

The facility reported the concentration of pollutants in the permit application and in discharge monitoring reports. The tabulated data represents the quality of the effluent

discharged from the HCC treatment system from January 2016 to September 2021 for outfall 003. The wastewater is characterized as follows:

**Table 2 - Effluent concentrations at outfall 003**

Parameter	Units	Average reported value	Max. reported value	Max. daily limit
Flow	gpm	15	82	100
TPH-D	µg/L	202	3600 <sup>1</sup>	208
Lead (Total)	µg/L	0.34	2	17.5
Arsenic (Total)	µg/L	0.81	2.8	360
pH	Standard Units	6.6	8.5	Between 6 and 9

<sup>1</sup>See Summary of compliance below

**II.D. Summary of compliance with previous permit issued February 11, 2014**

Ecology staff last conducted a compliance inspection on July 27, 2017. Ecology assessed facility compliance based on our review of the facility's Discharge Monitoring Reports (DMRs) and inspections conducted by Ecology. The facility's discharge had the following violations during the history of the permit issued on February 11, 2014.

**Table 3 - Violations occurred during the last permit cycle Outfall 003**

Parameter	Reporting Period	Reported Value	Permit Limit
TPH, µg/L	January and February 2017	1170 and 3600 respectively	208 µg/L

The above violation occurred due to a maintenance activity during carbon change out in the GAC system. The carbon was not packed properly which led to a channeling problem within the vessel column that caused TPH breakthrough. The facility took immediate action to shut down the HCC treatment system, assess all system functioning components to determine the problem, then followed up with replacing and packing the carbon column again. The treatment system was returned to normal operation after that. No enforcement action was necessary because corrective action had been taken to resolve the problem.

Since starting operations in January 2009, BNSF has continued to make modifications and improvements to the treatment system to maintain compliance and mitigate unanticipated operational conditions, including periodic cleaning and disinfection to mitigate the influence of iron-fouling bacteria in the system, and enhancing the system to support remote operation and monitoring.

**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 discharge.

### III. Proposed Permit Limits

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

Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology may develop 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), Model Toxics Control Act Cleanup Levels (Chapter 173-340 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 (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, or 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 which 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.

#### III.A. Design criteria/outfalls flow rates

Under WAC 173-220-150(1)(g), neither flows nor waste loadings may exceed approved design criteria. Ecology accepted the Hydraulic Control and Containment (HCC) System Special Design Report including Addendum 1 and 2 of the Report in August 2008. The design flow rate for the HCC treatment system is 100 gpm (See Figure 4).

Due to the historical flooding along the levee from the high water level in the Skykomish river during some winter days, discharge from outfall 003 is restricted when the river water level exceeds the high water level mark. The ordinary high water level of the Skykomish River at outfall 003 is 928.56 feet. Ecology proposes the maximum discharge flow rate for outfall 003 be set at 100 gpm when the river level is below 928.56 feet and requires BNSF to cease discharge when the river level is above 928.56 feet.

**Table 4 - Design criteria for the treatment system**

Parameter	Design Quantity
Maximum flow rate when river level is below 928.56 feet	100 gpm

The maximum capacity available in the 3<sup>rd</sup> Street storm sewer during a 2-year, 24-hour storm event is 377 gpm (Technical Memorandum prepared by KPG dated November 21, 2007). Should BNSF upgrade the treatment system to handle a higher flow, BNSF may discharge up to that flow rate upon written approval from Ecology.

### III.B. Technology-based effluent limits

There are no technology-based effluent limits in this permit.

### III.C. Surface water quality-based effluent limits

The Washington State surface water quality standards (Chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure that 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).

#### 1. 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.

#### 2. Numerical criteria for the protection of human health

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

### 3. 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.

### 4. Antidegradation

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 Tier II analysis must be conducted 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](#).

## 5. 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)].

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

There is no mixing zone granted in this permit for this discharge because the discharge will meet water quality standards at the end of pipe.

III.D. Designated uses and surface water quality criteria

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

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

**Table 3 - Freshwater aquatic life uses and associated criteria: Core Summer Salmonid Habitat**

Critical Conditions	Value
Temperature Criteria – Highest 7-DAD MAX	16°C (60.8°F)
Dissolved Oxygen Criteria	9.5 mg/L
Turbidity Criteria	5 NTU over background when the background is 50 NTU or less; or A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5, with a human-caused variation within the above range of less than 0.2 units.

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

**Table 4 - Recreational uses and associated criteria**

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

Table 6 Footnotes:

<sup>a</sup> CFU = Colony Forming Units.

<sup>b</sup> MPN = Most Probable Number.

The *water supply uses* are domestic, agricultural, industrial, and stock watering.

The *miscellaneous freshwater uses* are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

III.E. Water quality impairments

Ecology has not documented any water quality impairments in Skykomish River.

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

Ecology has not authorized a mixing zone in the permit for Outfall 003.

**Table 7 - Surface water quality-based effluent limits**

Parameter	Maximum Daily Limitation
pH (s.u.) <sup>a</sup>	Between 6.5 and 8.5 standard units
Dissolved Oxygen <sup>a</sup>	Minimum 8 mg/L
Oily Sheen <sup>a</sup>	No visible sheen
Total Petroleum Hydrocarbon (TPH) <sup>b</sup>	208 µg/L

Footnotes for Table 7:

<sup>a</sup> Effluent limits are based on water quality criteria, Chapter 173-201A WAC.

<sup>b</sup> This site-specific Cleanup Level (CUL) represents the maximum TPH concentration permissible in surface water to prevent recontamination of sediment. It was derived by the EPA Equilibrium Partitioning Model for Sediment, using percentages of equivalent hydrocarbon ranges derived from a sediment sample analyzed by the volatile and extractable petroleum hydrocarbons (VPH/EPH) methodology. It protects against sediment recontamination above the TPH CUL of 40.9 mg/kg.

The previous permit contains a water quality-based effluent limit for lead and arsenic of 17.5 µg/L and 360 µg/L, respectively. However, based on the last 100 sampling events conducted for effluent since 2011, there have been no exceedances of effluent limits for lead and arsenic. The maximum reported values for lead and arsenic collected since 2011 were 2 µg/L and 10 µg/L while the effluent limits were 17.5 µg/L and 360 µg/L, respectively. BNSF has consistently demonstrated compliance with arsenic and lead effluent limits. They achieved this through effective treatment. Therefore Ecology is proposing to eliminate the arsenic and lead effluent limits in this permit. BNSF is still required to monitor and report Arsenic and Lead quarterly. Removal of effluent limits due to demonstrated compliance is not considered backsliding. Ecology reserves the right to re-introduce effluent limits if the site compliance status changes.

III.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 Permittee’s discharge does not contain chemicals of concern based on existing effluent data or knowledge of discharges to the system. The previous permit contains a freshwater numeric human health-based criterion of 1.2 µg/L for benzene. However, the Permittee has demonstrated through 59 sampling events since System start-up in January 2009 with no detections and no effluent limit exceedances.

For this reason, Ecology determines that an effluent limit for benzene is no longer necessary, and therefore proposes to remove the benzene limit in this permit. Removal of this effluent limit due to demonstrated compliance is not considered backsliding. Ecology reserves the right to re-introduce effluent limits if the site compliance status changes.

### III.H. Sediment quality

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

Ecology has determined the specific cleanup level (CUL) established for TPH (208 µg/L) for the discharge represents the maximum TPH concentration permissible in surface water to prevent recontamination of sediment. It was derived by applying the EPA Equilibrium Partitioning Model for Sediment, using percentages of equivalent hydrocarbon ranges derived from a sediment sample analyzed by volatile and extractable petroleum hydrocarbons (VPH/EPH) methodology. It protects against sediment recontamination above the TPH CUL for sediment of 40.9 mg/kg TPH, as determined by the NWTPH-Dx analytical method. If the Permittee complies with this TPH limit and other effluent limits proposed in this permit, it is anticipated that the discharge has no reasonable potential to violate the sediment management standards.

### III.I. Groundwater quality limits

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

The previous permit allowed re-injection of treated groundwater at a flow rate of up to 5 gpm into the ground to provide operational flexibility in controlling rail yard groundwater gradients. BNSF did not re-inject treated groundwater during the past permit cycle and they are not anticipating any need to re-inject in the future. Ecology proposes to remove this option from the permit, and therefore, no groundwater limits are necessary to be placed in this permit.

### III.J. 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.

III.K. Comparison of effluent limits with the previous permit issued on Feb. 11, 2014.

**Table 8 - Comparison of previous and proposed effluent limits: Outfall 003**

Parameter	Previous Effluent Limits	Proposed Effluent Limits
	Maximum Daily	Maximum Daily
Flow (003), when river level <928.56 feet	100 gpm	100 gpm
Temperature (September 1 to June 30)	13°C (55.4°F)	--
Temperature (July 1 to August 31)	12°C (53.6°F)	--
Chitosan Acetate	0.1 mg/L	--
pH (s.u.)	Between 6.5 and 8.5 standard units	Between 6.5 and 8.5 standard units
Dissolved Oxygen	Minimum 8 mg/L	Minimum 8 mg/L
Oily Sheen	No visible sheen	No visible sheen
Benzene	1.2 µg/L	--
Total Petroleum Hydrocarbon (TPH)	208 µg/L	208 µg/L
Lead (total) <sup>c</sup>	17.5 µg/L	--
Arsenic (total) <sup>d</sup>	360 µg/L	--

The temperature limits are not necessary because no thermal in situ remediation will be implemented. The facility is only engaged in extracting groundwater and treat it to discharge to surface water. Since groundwater generally has a constant temperature of approximately 10°C which is well under the surface water temperature standard, therefore, temperature limits are no necessary in this permit.

The chitosan acetate limit is no longer needed because the Permittee does not use chitosan acetate for treatment.

The benzene, lead and arsenic limits are not necessary because data submitted since System start-up in January 2009 indicates compliance with no effluent limit exceedances (more discussion is provided in Section F and G above).

#### IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits. Ecology has determined that the monitoring frequency listed in Special Condition S2 of the permit is adequate.

If a facility uses a contract laboratory to monitor wastewater, it must ensure that the laboratory uses the approved analytical methods that meet or exceed the method detection levels required by the permit. The permit describes when facilities may use alternative methods, and 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 limits (DL), and quantitation level (QL) on the discharge monitoring report or in the required report.

##### IV.A. Wastewater monitoring frequencies

The monitoring schedule is detailed in the proposed permit under Special Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

#### 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 173-220-210).

##### V.B. Operation and maintenance manual (S4.A of the permit)

Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state and federal regulations [40 CFR 122.41(e) and WAC 173-220-150 (1)(g)]. The facility will submit an updated 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. Annual groundwater quality evaluation (S7 of the permit)

The purpose of this requirement is to require the Permittee to evaluate the effectiveness of the groundwater remediation system, and report the groundwater quality data collected during the previous calendar year from wells distributed across the site, to evaluate long-term groundwater quality trends, and to support future development of site remediation planning efforts. The monitoring data should be presented in a tabular format as well through map drawings. The map drawings should

show the distribution of contaminants in the ground water. The report should include one contaminant per map and provide information about sampling date and measured concentrations. The Permittee is currently required to submit an Annual HCC Systems Operation Report under the Consent Decree. This report meets the requirements for the Annual Groundwater Quality Evaluation Report as outlined in S7 of the permit. Therefore, submittal of that annual HCC Systems Operation Report satisfies the requirements of permit condition S7.

#### V.D. Well construction details

Ecology requires industries to follow the requirements in Chapter 173-160 WAC when constructing new wells. Figure 7 in Chapter 173-160 WAC illustrates the standards of well construction, and Part 1 and 3 in Chapter 173-160 WAC specify the minimum standards for construction and maintenance of wells. The facility must submit a Well Design Report to Ecology within thirty (30) days after well construction.

#### V.E. 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

### VI.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 groundwater, 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.

### VI.B. Proposed permit issuance

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

## VII. References for Text and Appendices

### **BNSF Railway Company**

- 2018. National Pollutant Discharge Elimination System Waste Discharge Permit Application, EPA forms 1 and 2C.
- 2021. Hydraulic Control and Containment System Passive Operation Pilot Study Report.

### **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.
- 1972. *Characterization of Stream Reaeration Capacity*. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)
- 1979. *In-stream Deoxygenation Rate Prediction*. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

### Washington State Department of Ecology.

- July 2018. [Permit Writer's Manual. Publication Number 92-109](https://apps.ecology.wa.gov/publications/documents/92109.pdf)  
(<https://apps.ecology.wa.gov/publications/documents/92109.pdf>)
- September 2011. [Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation. Publication Number 11-10-073](https://apps.ecology.wa.gov/publications/summarypages/1110073.html)  
(<https://apps.ecology.wa.gov/publications/summarypages/1110073.html>)
- October 2010 (revised). [Water Quality Program Guidance Manual – Procedures to Implement the State's Temperature Standards through NPDES Permits. Publication Number 06-10-100](https://apps.ecology.wa.gov/publications/summarypages/0610100.html) (<https://apps.ecology.wa.gov/publications/summarypages/0610100.html>)
- February 2007. [Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees, Publication Number 07-10-024](https://apps.ecology.wa.gov/publications/documents/0710024.pdf). (<https://apps.ecology.wa.gov/publications/documents/0710024.pdf>) Wright, R.M., and A.J. McDonnell.

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

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

## Appendix A - Public Involvement Information

Ecology proposes to re-issue a discharge permit to BNSF Railway Company. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology will place a Public Notice of Draft on July 13, 2022 in the Everett Herald to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

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

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

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

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

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

## Appendix B - Your Right to Appeal

You have a right to appeal this permit to the Pollution Control Hearing Board (PCHB) within thirty (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 Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel RD SW STE 301 Tumwater, WA 98501	Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

## Appendix C - Glossary

**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).

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

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

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

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

**BOD5** -- Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD<sub>5</sub> 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.

**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.

**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.

**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.

**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 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 storm water 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.

**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.

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

**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.

**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.

**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 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).

**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<sub>5</sub>** -- 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<sub>5</sub> 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<sub>5</sub> 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 storm water 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 maximum daily load (TMDL)** -- A determination of the amount of pollutant that a water body can receive and still meet water quality standards.

**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 - Site maps

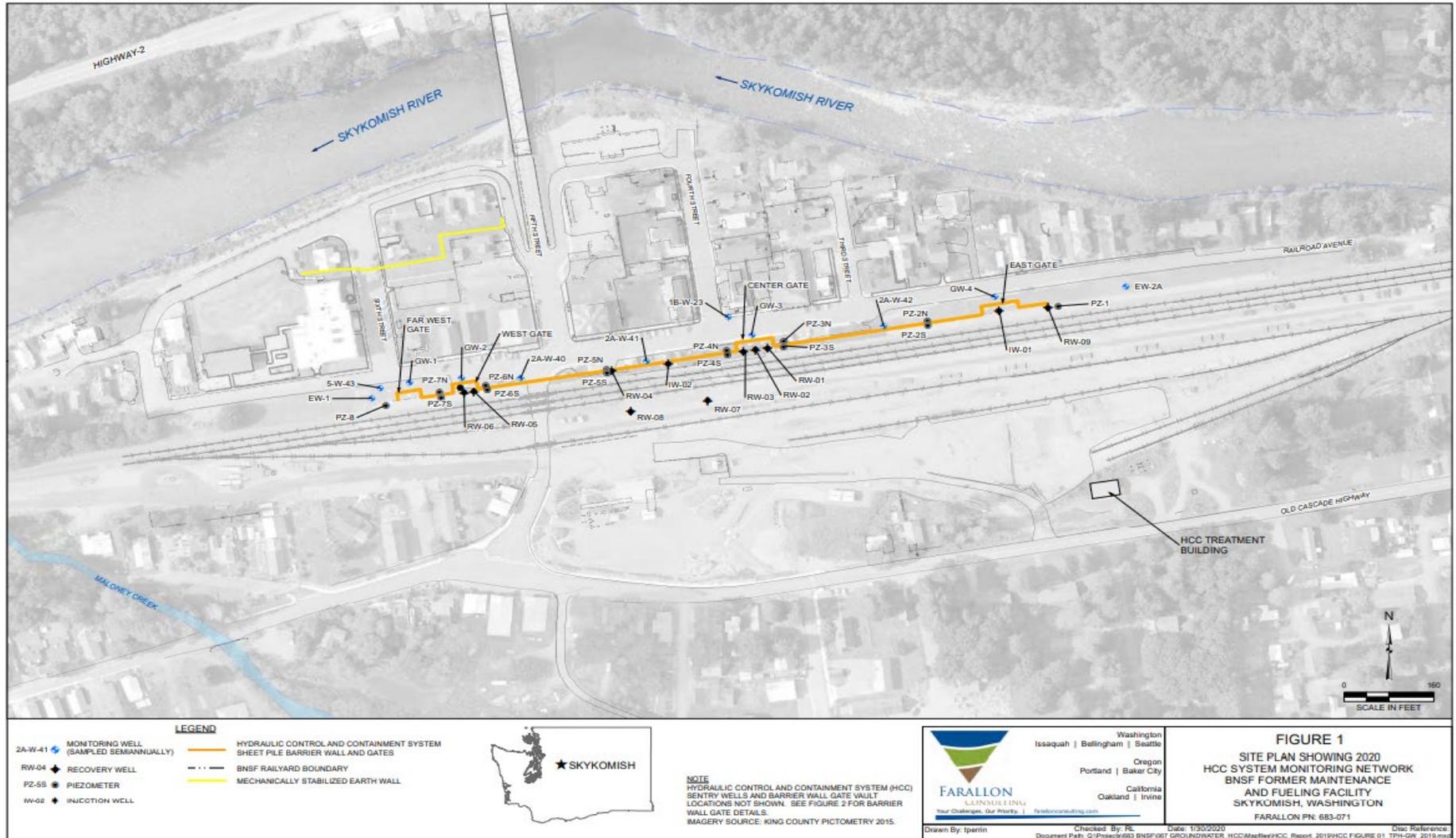


Figure 2 – Site Plan



Figure 3 – Barrier Wall Gate Detail

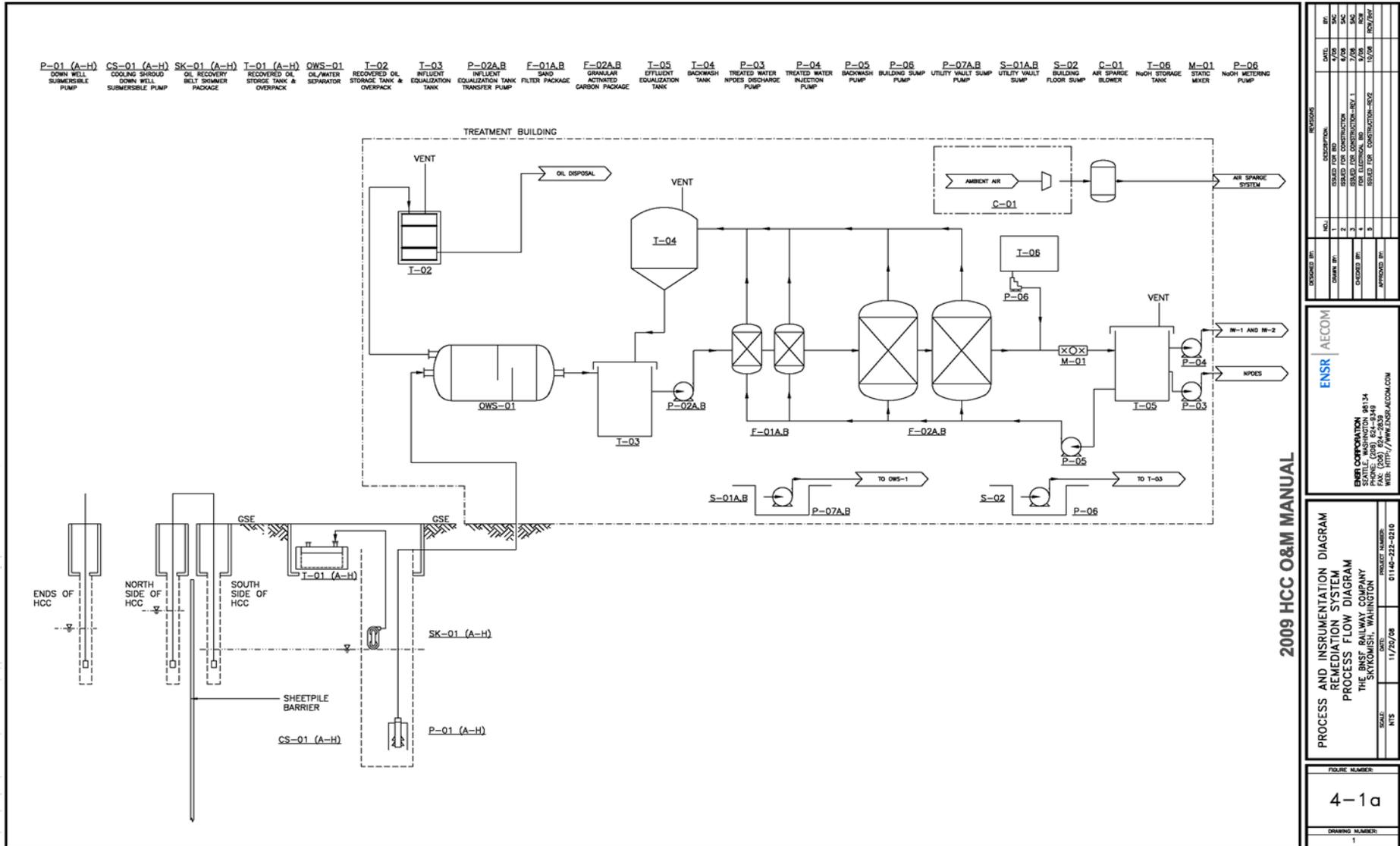


Figure 4 – HCC Treatment System Layout



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## Appendix E - Response to Comments

The Department of Ecology received no comments during the public notice period.