Fact Sheet for NPDES Permit WA00045403
Freeman School District Number 358

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 Freeman School District Number 358 (Freeman School).

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

Ecology makes the draft permit and fact sheet available for public review and comment at least 30-days before issuing the final permit. Copies of the fact sheet and draft permit for Freeman School's NPDES permit WA00045403, are available for public review and comment from April 22, 2021 until May 24, 2021. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

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

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

Summary

Freeman School District No. 358 owns and operates a sanitary wastewater treatment system. Wastewater from the elementary, junior and senior high schools is collected and treated by aerated and facultative lagoons, and a constructed wetland system. The facility typically discharges to Little Cottonwood Creek, a tributary of Hangman Creek and the Spokane River, via a natural drainage ditch from October through April. During the summer months, there is no discharge to the constructed wetland other than a small amount of water to sustain the wetland plants and grasses. The seasonal discharge is to Little Cottonwood Creek. Permit discharge limits are based on design values and wasteload allocations from the Hangman Creek TMDL.

Ecology updated the water contact recreation bacteria criteria in January 2019. This change will be effective January 1, 2021 and eliminated all recreational uses except for primary contact criteria in both fresh and marine waters. Primary contact criteria changed to *E.coli* for freshwater and to enterococci for marine water. No change to the indicator will occur during this permit cycle as a site-specific correlation between fecal coliform and the *E.coli* needs developing. Ecology will reevaluate bacteria limits for this discharge during the next permit development period.

Table of Contents

I. Introduction

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

The following regulations apply to domestic wastewater NPDES permits:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC)
- Technical criteria for discharges from municipal wastewater treatment facilities (chapter 173-221 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 treatment 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 requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of 30-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 D**.

II. Background Information

Table 1: General Facility Information

Facility Information	
Applicant:	Freeman School District Number 358
Facility Name and Address	Freeman School District Wastewater Treatment Facility S. 15001 Jackson Road, Spokane, WA 99030
Contact at Facility	Kirk Lally, Facilities Supervisor (509) 291-6883
Responsible Official	Randy Russell, PH.D., Superintendent (509) 291-6883
Type of Treatment	Aerated and facultative lagoons; constructed, subsurface wetlands.
Facility Location (NAD83/WGS84 reference datum)	Latitude: 47.516767 Longitude: -117.196133
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Little Cottonwood Creek Latitude: 47.514733 Longitude: -117.192

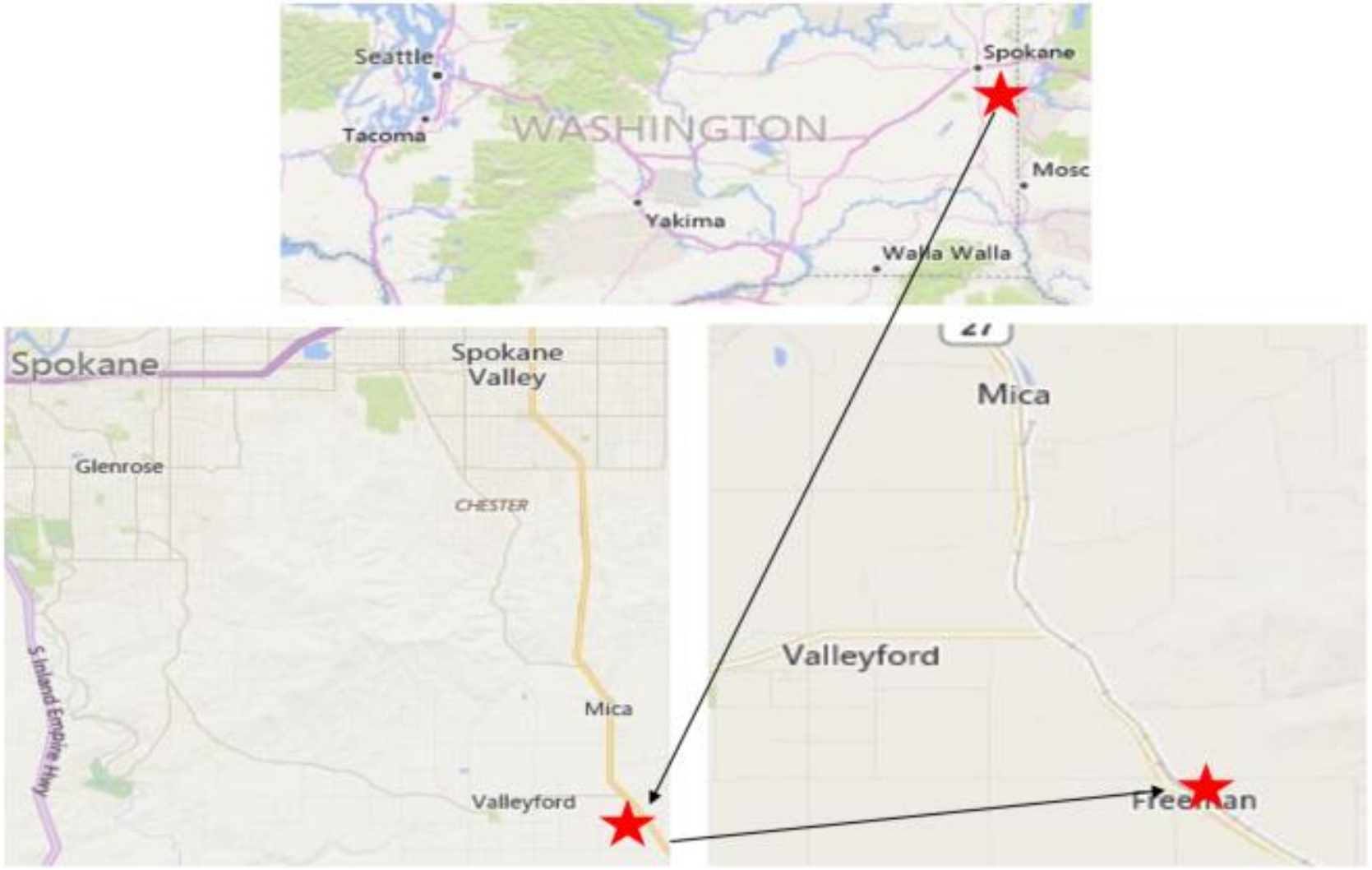
Table 2: Permit Status

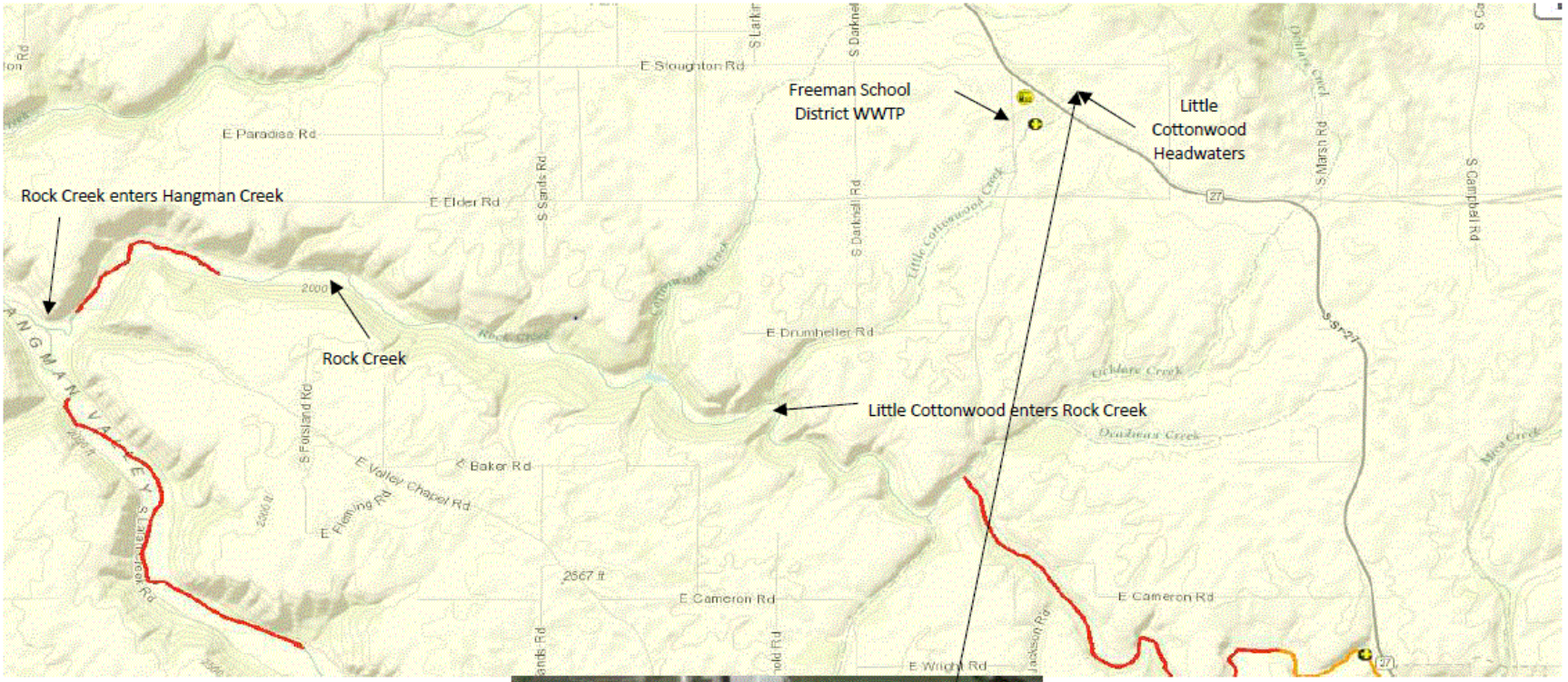
Permit Status Previous Permit	
Renewal Date of Previous Permit	December 3, 2012
Application for Permit Renewal Submittal Date	February 2, 2015
Date of Ecology Acceptance of Application	March 21, 2015

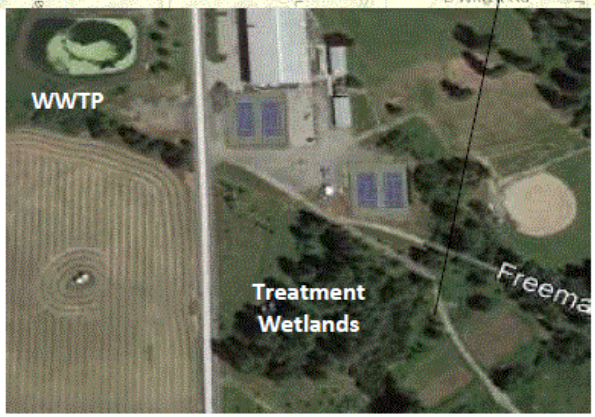
Table 3: Inspection Status

Inspection Status Previous Permit	
Date of Last Non-sampling Inspection Date	April 16, 2019

Figure 1: Facility Location Map




Freeman School District WWTP
Little Cottonwood Headwaters
Rock Creek enters Hangman Creek
Rock Creek
Little Cottonwood enters Rock Creek
E Slaughter Rd
E Paradise Rd
E Elder Rd
E Drumheller Rd
E Baker Rd
E Valley Chapel Rd
E Cameron Rd
E Wright Rd
S Sands Rd
S Darkhall Rd
S Marsh Rd
S Campbell Rd
S Fairland Rd
S Fleming Rd
S Sr27
Little Cottonwood Creek
Cottonwood Creek
Rock Creek
Cicklare Creek
Deadman Creek
Mica Creek
HANGMAN VALLEY
2000
2567 ft


WWTP
Treatment Wetlands

A. Facility description

History

Freeman School District owns and operates a wastewater treatment facility constructed in 1996. The facility consists of aerated and facultative lagoons, a chlorine disinfection basin, and four subsurface-type constructed wetlands. Final discharge is through a natural drainage topography which flows seasonally and is considered the headwaters of Little Cottonwood Creek. Little Cottonwood Creek flows through a culvert under Highway 27 and through a series of pastures used for cattle grazing and farming before entering Rock Creek approximately three miles away. Little Cottonwood Creek is not a listed waterbody, and the portion of Rock Creek where the waterbodies meet is not listed. Rock Creek is a tributary of Hangman Creek, which is a major tributary of the Spokane River. Both Hangman Creek and the Spokane River are on Washington State's list of impaired waterbodies for fecal coliform, bacteria, pH, temperature, dissolved oxygen, and turbidity.

The previously issued permit contained requirements for receiving water sampling to be conducted during the months of March through October. The generally recognized "critical season" for the Spokane River basin is May through October. Freeman School does not discharge during the critical season. Because there is no upstream area to sample, and because the downstream portion of Little Cottonwood Creek is so compromised by nonpoint source pollution, a receiving water study would not generate accurate results about Freeman School's impact on the creek. A receiving water study will not be included in this permit cycle. Temperature limits for the months of June through August will continue to be included in the permit; however, Freeman School will not be permitted to discharge during those times.

Collection system status

The collection system is primarily a gravity flow system from the high school and grade school where flows were originally treated by septic systems. The septic systems were replaced in 1975 by locating two lagoons south of the high school. A junior high school was constructed in 1989 and has a small lift station that conveys flow to the primary lagoon. There is no evidence from reported flow measurements that Freeman School has any infiltration/inflow (I/I) in their collection system.

Treatment processes

You can find basic information describing wastewater treatment processes included in a booklet on the Water Environment Federation website at https://www.wef.org/resources/for-the-public/public-information/.

Wastewater from the school's flow to the surface-aerated primary lagoon. The two lagoons are connected by an equalization pipe and both are lined with 60ml HDPE liners.

Discharge to the lagoons can be controlled and diverted as necessary. Freeman School will utilize this feature to perform visual leak detection testing each June in both lagoons. A chlorine contact basin is installed as a part of the treatment process, but Freeman School does not chlorinate the effluent discharge to the wetlands. The discharge to the wetlands is controlled through the concrete basin and is seasonal in nature.

Wastewater is stored in the lagoons during most of the year. Discharge to the wetlands typically begins in mid-November and ends towards the end of the school year. Freeman School sends a small amount of potable water to the wetlands in the summer to protect the liner and plants, but the water is not discharged to the creek.

Solid wastes/Residual Solids

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings) in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. As part of its current process, the Freeman facility does not currently screen solids per WAC 173-308-205. Therefore, Freeman will need to screen solids per WAC 173-308-205 prior to final disposition of any sludge removed from the facility.

Discharge outfall

The treated effluent from the wetland flows into the natural drainage through a PVC pipe that extends from the main collection site at the end of the wetland cells.

B. Description of the receiving water

Freeman School discharges seasonally (November to April) to a natural drainage channel. The channel flows along Jackson Road and ultimately discharges to Little Cottonwood Creek, a seasonal creek.

There are no other nearby point source outfalls. The Town of Rockford's outfall discharges to Rock Creek, approximately 5.5 miles upstream of the mouth of Little Cottonwood Creek. The next source outfall is the City of Spokane's Advanced Wastewater Treatment Facility, which discharges to the Spokane River and is more than 15 miles away.

There are significant nearby non-point sources of pollutants surrounding the drainage channel and the downstream tributaries. Little Cottonwood Creek flows directly through a pasture that grazes cattle. Farming is prevalent in all of the areas including adjacent to the natural drainage area at the wetlands. Stormwater runoff from the upstream hillside and baseball fields runs through a culvert under the railroad grade and comingles in the natural drainage ditch with the effluent discharge.

There are no drinking water intakes near the facility or the discharge area.

Figure 2: Downstream Nonpoint Source Impacts

C. Wastewater influent characterization

Freeman School reported the concentration of influent pollutants in discharge monitoring reports. The influent wastewater is characterized as follows:

Table 4: Wastewater Influent Characterization

Parameter	Units	Average Monthly Value	Daily Maximum Value
Biochemical Oxygen Demand (BOD_5)	mg/L	226	460
Biochemical Oxygen Demand (BOD_5)	lbs/day	9	19
Total Suspended Solids (TSS)	mg/L	184	432
Total Suspended Solids (TSS)	lbs/day	7	18

D. Wastewater effluent characterization

Freeman School reported the concentration of pollutants in the discharge in the permit application and in discharge monitoring reports. The tabulated data represents the quality of the wastewater effluent discharged from January 1, 2017 through December 31, 2019. The wastewater effluent is characterized as follows:

Table 5: Wastewater Effluent Characterization

Parameter	Units	Average Monthly Value	Average Weekly Value
Biochemical Oxygen Demand (BOD_5)	mg/L	3	12
Biochemical Oxygen Demand (BOD_5)	lbs/day	0.21	0.5
Total Suspended Solids (TSS)	mg/L	60	182
Total Suspended Solids (TSS)	lbs/day	4	32

Parameter	Units	Average Monthly Value	Maximum Monthly Value
Total Kjeldahl Nitrogen (TKN)	mg/L	2.5	5
$NO_2 + NO_3$	mg/L	2.9	28
Ammonia ($NH_{3)}$	mg/L	0.26	1.6
Phosphorous, Total (P)	mg/L	3.06	4.4
Phosphorous, Soluble Reactive)	mg/L	2.6	3.9
Temperature (ºF)	mg/L	38	45

Parameter	Units	Maximum Monthly Geometric Mean	Maximum Weekly Geometric Mean
Fecal Coliforms	#100 mL	72	82

Parameter	Units	Minimum Value	Average Value
Dissolved Oxygen	mg/L	4.2	7.9

Parameter	Units	Minimum Value	Maximum Value
pH	standard units	6.5	7.3

E. Summary of compliance with previous permit issued

The previous permit placed effluent limits on BOD, TSS, pH, temperature and fecal coliform.

Freeman School has not consistently complied with the effluent limits and permit conditions throughout the duration of the permit issued on December 3, 2012. Ecology assessed compliance based on its review of the facility's discharge monitoring reports (DMRs) and on inspections.

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

Table 6: Violations/Permit Triggers

Parameter	Number of Violations
TSS (5 day) mg/L	6
TSS (5 day) lbs/day	6
TSS (5 day) % removal	3

Freeman School did not have any design exceedances noted in the data analysis. They did have two months (November 2017 and October 2019) where influent BOD and TSS were not reported due to errors at the reporting lab.

Freeman School did not report effluent sampling for November 2017 due to the lab not receiving the samples and not notifying Freeman School in time to resample the month. TSS violations in the effluent occurred during the months of January, February and March of 2018. Freeman School had no reporting violations in 2020 other than a non-reporting due to the lab not receiving samples and not notifying Freeman School in time to resample for the month.

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

Table 7: Permit Submittals

Permit Section	Schedule Name	Permit Frequency	Due Date	Date Received
S4.F	Wasteload Assessment	1/permit cycle	5/1/2017	7/1/2017
S8	Application for Permit Renewal	1/permit cycle	5/1/2017	2/27/2015
S9.1	Report Consultant Hired	1/permit cycle	7/1/2013	9/9/2013
S9.2	Recommendation to Eliminate Discharge	1/permit cycle	7/1/2014	8/1/2014
S9.3	Report Status of Removing Discharge from Little Cottonwood Creek	1/permit cycle	7/1/2015	4/30/2015

F. State environmental policy act (SEPA) compliance

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

III. Proposed Permit Limits

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

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).

- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC), or the Federal Water Quality Criteria Applicable to Washington (40 CFR 131.45).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

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

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

A. Design criteria

Under WAC 173-220-150 (1)(g), flows and waste loadings must not exceed approved design criteria. Ecology approved design criteria for this facility's treatment plant in the engineering report dated January 11, 1994, an updated Process Design Summary dated April 4, 1994, and plans and specifications prepared by Hydrometrics, Inc. The table below includes design criteria from the referenced report.

Table 8: Design Criteria for Freeman School

Parameter	Design Quantity
Maximum Month Design Flow (MMDF)	43,200 gpd
Peak Instantaneous Design Flow (PIDF)	115,200 gpd
BOD_5 Loading for Maximum Month	72 lbs/day
TSS Loading for Maximum Month	72 lbs/day
Total Kjeldahl Nitrogen	40 mg/L
Phosphorous	3 - 5 mg/L
Design Population	1,500

B. Technology-based effluent limits for the constructed wetlands

Federal and state regulations define technology-based effluent limits for domestic wastewater treatment plants. These effluent limits are given in 40 CFR Part 133 (federal) and in chapter 173-221 WAC (state). These regulations are performance standards that constitute all known, available, and reasonable methods of prevention, control, and treatment (AKART) for domestic wastewater.

The table below identifies technology-based limits for pH, fecal coliform, BOD_5, and TSS, as listed in chapter 173-221 WAC. Section III.F of this fact sheet describes the potential for water quality-based limits.

The wetlands were designed to provide polishing of the treated lagoon effluent. The design of the wetlands was based on estimated treatment efficiencies of the lagoons; 90% removal of BOD and 70% removal of TSS. These values were assumed to be the end-of-pipe treatment limits for the constructed wetlands.

Table 9: Technology-based Limits

Parameter	Average Monthly Limit	Average Weekly Limit [a]
BOD_5 (concentration)	8.1 mg/L	12.2 mg/L

[a] Ecology determined the average weekly limit values by 1.5 times the average monthly value.

The removal efficiency of the system is dependent upon lagoon and wetland performance during different seasons of the year. Based on an influent value of 200 mg/L and a wetland effluent of 8.1 mg/L, Ecology determined the treatment efficiency is 96% removal.

Parameter	Average Monthly Limit	Average Weekly Limit [a]
TSS (concentration)	20 mg/L	30 mg/L

[a] Ecology determined the average weekly limit values by 1.5 times the average monthly value.

The removal efficiency of the system is dependent upon lagoon and wetland performance during different seasons of the year. Based on an influent value of 200 mg/L and a wetland effluent of 20 mg/L, Ecology determined the treatment efficiency is 90% removal.

Parameter	Monthly Geometric Mean Limit	Weekly Geometric Mean Limit
Fecal Coliform Bacteria	200 organisms/100 mL	400 organisms/100 mL

In the absence of design fecal coliform values, the limits for fecal coliforms are based on technology-based limits for domestic wastewater facilities: WAC 172-221-040.

The engineering report amendment (Hydrometrics, 1994) estimated a chlorine dosage of 1.4 lbs/day for a chlorine concentration of 4 mg/L. However, it was estimated the lagoons would provide a 95-98% removal of fecal coliforms and that it was not expected there would be a need to actively reduce fecal densities with the proposed design and that the fecal coliforms could be added to the wetlands via water flow, birds and mammals. Freeman School has operated the treatment system in a manner that does not include chlorination of the effluent from lagoons to the wetlands, or from the wetlands.

Table 10: Technology-based Limits for pH

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

The process design for the system does not contain expected wetland effluent pH values. In the absence of design pH values, the limits for pH are based on technology-based limits for domestic wastewater facilities: WAC 173-221-040.

Technology-based mass limits are based on WAC 173-220-130(3)(b) and WAC 173-221-030(11)(b). Ecology calculated the monthly and weekly average mass limits for BOD_5 and Total Suspended Solids as follows:

Mass Limit = CL x DF x CF

Where :

CL = Technology-based concentration limits listed in the above table

DF = Maximum Monthly Average Design flow (MGD)

CF = Conversion factor of 8.34

Table 11: Technology-based Mass Limits

Parameter	Concentration Limit (mg/L)	Mass Limit (lbs/day)
BOD_5 Monthly Average	8.1	2.9
BOD_5 Weekly Average	12.2	4.4
TSS Monthly Average	20	7.2
TSS Weekly Average	30	10.8

Technology-based mass limits are based on WAC 173-220-130(3)(b), WAC 173-221-030(11)(b), WAC 173-220-130(1)(a) and (g), and WAC 173-221-040(1). Ecology calculated the monthly and weekly average mass limits for BOD_5 and Total Suspended Solids as follows:

Average Monthly Mass Effluent Limit = Influent Mass Design Loading Criteria (lbs/day) x 0.15

Average Weekly Mass Effluent Limit = 1.5 x Average Monthly Mass Effluent TSS Limit

Table 12: Technology-based Mass Limits

Parameter	Influent Loading (lbs/day)	Mass Limit (lbs/day)
BOD_5 Monthly Average	72	10.8
BOD_5 Weekly Average	108	16.2
TSS Monthly Average	72	10.8
TSS Weekly Average	108	16.2

C. Surface water quality-based effluent limits

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

Numerical criteria for the protection of aquatic life and recreation

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

Numerical criteria for the protection of human health

In 1992, U.S. EPA published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State in its National Toxics Rule 40 CFR 131.36 (EPA, 1992). Ecology submitted a standards revision for 192 new human health criteria for 97 pollutants to EPA on August 1, 2016. In accordance with requirements of CWA section 303(c)(2)(B), EPA finalized 144 new and revised Washington specific human health criteria for priority pollutants, to apply to waters under Washington’s jurisdiction. EPA approved 45 human health criteria as submitted by Washington. The EPA took no action on Ecology submitted criteria for arsenic, dioxin, and thallium. The existing criteria for these three pollutants remain in effect and were included in 40 CFR 131.45, Revision of certain Federal Water quality criteria applicable to Washington.

These newly adopted criteria, located in WAC 173-201A-240, are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2016) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

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

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

Antidegradation

Description — the purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2016) is to:

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

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

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

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

Facility Specific Requirements — this facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

Mixing zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones, the pollutant concentrations may exceed water quality numeric standards, so long as the discharge does not 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) or WAC 173-201A-400(7)(b)(ii-iii)].

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

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

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

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

These assumptions include:

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

This permit does not authorize a mixing zone. All discharge limitations will be at the end-of-wetland discharge pipe.

Starting on January 1, 2021, the recreational water quality criteria for bacteria will change to *E.coli* for freshwater. In addition, all waterbodies will become designated for primary contact recreation. No change to the indicator will occur during this permit cycle as a site-specific correlation between fecal coliform and the *E.coli* needs developing. Ecology will reevaluate bacteria limits for this discharge during the next permit development period.

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 the receiving water's designated uses.

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

  The **Aquatic Life Uses** for this receiving water are identified below.

Freshwater Aquatic Life Uses and Associated Criteria

Table 13: Salmonid Spawning, Rearing, and Migration

Criteria	Limit
Temperature Criteria – Highest 7-DAD MAX	17.5°C (63.5°F)

Criteria	Limit
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	8.0 mg/L
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

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

Table 14: Recreational Uses and Associated Criteria

	Recreational Uses for Receiving Waters
Primary Contact Recreation (expires 12/31/2020)	Fecal coliform organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies /100 mL.
Primary Contact Recreation (effective 1/1/2021)	E.coli organism levels must not exceed a geometric mean value of 100 CFU or MPN per 100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained within the averaging period exceeding 320 CFU or MPN per 100 mL.

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

E. Water quality impairments

Hangman Creek (aka Latah Creek) is listed on Ecology's current 303(d) list and is impaired for fecal coliforms, pH, temperature, dissolved oxygen and turbidity. Freeman School is an indirect discharger to Hangman Creek via Little Cottonwood Creek and Rock Creek.

Ecology has completed and EPA has approved a Total Maximum Daily Load (TMDL); Ecology 2009. It addresses fecal coliform bacteria, temperature, and turbidity impairments only. The TMDL includes wasteload allocations for all NPDES dischargers including Freeman School's wastewater treatment facility.

Table 15: Wasteload Allocations for Freeman School District

Parameter	September-May	June	July	August
Temperature	As calculated by WAC 173-201A-200(1)(c) (i) – (vii)	No discharge	No discharge	No discharge

Parameter	September – May, June, July, August
Fecal Coliforms	Monthly geometric mean of 100 CFU/100 mL and a weekly maximum of 100 CFU/100 mL.

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

Ecology must consider the narrative criteria described in WAC 173-201A-160 when it determines permit limits and conditions. Narrative water quality criteria limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health.

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

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

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

Ecology has not authorized a mixing zone in the permit.

H. 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).

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

I. Comparison of effluent limits with the previous permit issued.

Table 16: Comparison of Previous and Proposed Effluent Limits

		Previous Effluent Limits	Outfall #001	Proposed Effluent Limits	Outfall #001
Parameter	**Basis of Limit**	**Average Monthly**	**Average Weekly**	**Average Monthly**	**Average Weekly**
Biochemical Oxygen Demand (5-day)	Technology	8.1 mg/L; 2.96 lbs/day	12.2 mg/L; 4.4 lbs/day	8.1 mg/L; 2.96 lbs/day	12.2 mg/L; 4.4 lbs/day
Total Suspended Solids	Technology	20 mg/L; 7.2 lbs/day	30 mg/L; 10.8 lbs/day	20 mg/L; 7.2 lbs/day	30 mg/L; 10.8 lbs/day

Parameter	Basis of Limit	Effluent Limits
Temperature	TMDL	June 1 to August 31: no discharge

Parameter	Basis of Limit	Monthly Geometric Mean Limit	Weekly Geometric Mean Limit	Monthly Geometric Mean Limit	Weekly Geometric Mean Limit
Fecal Coliform Bacteria	TMDL	100/100 mL	100/100 mL	100/100 mL	100/100 mL

Parameter	Basis of Limit	Limit	Limit
pH	Technology	6.0 – 9.0 s.u.	6.0 – 9.0 s.u.

IV. Monitoring Requirements

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

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

A. Wastewater monitoring

The monitoring schedule is detailed in the proposed permit under Special Condition S2. 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. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's Permit Writer's Manual (Publication Number 92-109) for domestic wastewater treatment facility.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Biosolids monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

Ecology updated the water contact recreation bacteria criteria in January 2019. This change will be effective January 1, 2021 and eliminated all recreational uses except for primary contact criteria in both fresh and marine waters. Primary contact criteria changed to *E.coli* for freshwater and to enterococci for marine water. Because Freeman School has an effluent limit based on recreation, this permit requires monitoring of both fecal coliform and *E.coli* during this permit cycle. Ecology will reevaluate the bacteria limit based on the new indicator during the next permit cycle.

B. Lab accreditation

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

V. Other Permit Conditions

A. Reporting and record keeping

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

B. Prevention of facility overloading

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require Freeman School to:

- Take the actions detailed in proposed permit Special Condition S4.
- Design and construct expansions or modifications before the treatment plant reaches existing capacity.
- Report and correct conditions that could result in new or increased discharges of pollutants.

Special Condition S4 restricts the amount of flow.

C. Operation and maintenance

The proposed permit contains Special Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, chapter 173-230 WAC, and WAC 173-240-080. Ecology included it to ensure proper operation and regular maintenance of equipment, and to ensure that Freeman School takes adequate safeguards so that it uses constructed facilities to their optimum potential in terms of pollutant capture and treatment.

D. Pretreatment

Duty to enforce discharge prohibitions

This provision prohibits the publicly owned treatment works (POTW) from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer.

- The first section of the pretreatment requirements prohibits the POTW from accepting pollutants which causes "pass-through" or "interference". This general prohibition is from 40 CFR §403.5(a). **Appendix C** of this fact sheet defines these terms.
- The second section reinforces a number of specific state and federal pretreatment prohibitions found in WAC 173-216-060 and 40 CFR §403.5(b). These reinforce that the POTW may not accept certain wastes, which:

a. Are prohibited due to danger

b. Are explosive or flammable.

c. Have too high or low of a pH (too corrosive, acidic or basic).

d. May cause a blockage such as grease, sand, rocks, or viscous materials.

e. Are hot enough to cause a problem.

f. Are of sufficient strength or volume to interfere with treatment.

g. Contain too much petroleum-based oils, mineral oil, or cutting fluid.

h. Create noxious or toxic gases at any point.

40 CFR Part 403 contains the regulatory basis for these prohibitions, with the exception of the pH provisions which are based on WAC 173-216-060.

- The third section of pretreatment conditions reflects state prohibitions on the POTW accepting certain types of discharges unless the discharge has received prior written authorization from Ecology.

These discharges include:

a. Cooling water in significant volumes.

b. Stormwater and other direct inflow sources.

c. Wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Federal and state pretreatment program requirements

Ecology administers the Pretreatment Program under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986) and 40 CFR Part 403. Under this delegation of authority, Ecology issues wastewater discharge permits for significant industrial users (SIUs) discharging to POTWs which have not been delegated authority to issue wastewater discharge permits. Ecology must approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i)(iii)].

Industrial dischargers must obtain a permit from Ecology before discharging waste to the Freeman School District [WAC 173-216-110(5)]. Industries discharging wastewater that is similar in character to domestic wastewater do not require a permit.

Routine identification and reporting of industrial users

The permit requires non-delegated POTWs to take "continuous, routine measures to identify all existing, new, and proposed significant industrial users (SIUs) and potential significant industrial users (PSIUs)" discharging to their sewer system. Examples of such routine measures include regular review of water and sewer billing records, business license and building permit applications, advertisements, and personal reconnaissance. System maintenance personnel should be trained on what to look for so they can identify and report new industrial dischargers in the course of performing their jobs. The POTW may not allow SIUs to discharge prior to receiving a permit, and must notify all industrial dischargers (significant or not) in writing of their responsibility to apply for a State Waste Discharge Permit. The POTW must send a copy of this notification to Ecology.

E. Solid wastes

To prevent water quality problems, the facility is required in permit Special Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and state water quality standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by Ecology under chapter 70.95J RCW, chapter 173-308 WAC "Biosolids Management," and Chapter 173-350 WAC "Solid Waste Handling Standards." The disposal of other solid waste is under the jurisdiction of the Spokane County Health Department.

Requirements for monitoring sewage sludge and record keeping are included in this permit. Ecology will use this information, required under 40 CFR 503, to develop or update local limits.

F. General conditions

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

VI. Permit Issuance Procedures

A. Permit modifications

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

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

B. Proposed permit issuance

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

VII. References for Text and Appendices

Environmental Protection Agency (EPA)

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

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

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

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

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Washington State Department of Ecology.

Publication #92-109, July 2018. Permit Writer's Manual online at https://fortress.wa.gov/ecy/publications/documents/92109.pdf

Laws and Regulations online at http://leg.wa.gov/LawsAndAgencyRules/Pages/default.aspx

Permit and Wastewater Related Information online at https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Hydrometrics, Inc.

1993. Final Pre-Design report, Freeman School District, Wastewater Facilities. December

1993. Surface Water Discharge Permit Preliminary Review, Freeman School District, Wastewater Facilities. September

1994. Freeman School District Wastewater Facilities, Pre-Design Report Amendment No 1. January

1995. Freeman School District #358 (District), Water and Wastewater Improvements Project, Preliminary O&M Manual. February

Appendix A — Public Involvement Information

Ecology proposes to reissue a permit to the Freeman School District No. 358. 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 April 22, 2021 in the Spokesman Review to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Tells where copies of the draft permit and fact sheet are available for public evaluation (a local public library, the closest regional or field office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the proposed permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on Ecology's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the comment period.
- Tells how to request a public hearing about the proposed NPDES permit.
- Explains the next step(s) in the permitting process.

Ecology has published a document, Publication #03-07-023, entitled **Frequently Asked Questions about Effective Public Commenting**, available online at https://fortress.wa.gov/ecy/publications/documents/0307023.pdf.

For more information, call the Department of Ecology Eastern Regional Office at (509) 329-3400 or visit Ecology's webpage at www.ecy.wa.gov.

Appendix B — Your Right to Appeal

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

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

- File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

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

Table 17: 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

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

BOD5 – Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD_5 is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

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

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

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

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

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

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

Compliance inspection-with sampling – A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition, it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- 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 501, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

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

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

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

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

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

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

Method detection level (MDL) – See Detection Limit.

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

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

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

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

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

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

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

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

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

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

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

Quantitation level (QL) – Also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1, 2, or 5) x 10^n, where n is an integer. (64 FR 30417).
ALSO GIVEN AS:
The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

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

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

Sample Maximum – No sample may exceed this value.

Significant industrial user (SIU) –

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

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

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

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

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

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

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

Soluble 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 are 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 did not receive comments on the draft permit following the 30-day public comment period.