

# Fact Sheet for State Waste Discharge Permit ST0005562

## Dryden POTW March 26, 2019

### Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed State Waste Discharge permit for Dryden POTW that will allow discharge of wastewater to its drainfields.

State law requires any domestic wastewater facility to obtain a permit before discharging waste or chemicals to waters of the state, which includes groundwater.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before it issues the final permit to the facility operator. Copies of the fact sheet and draft permit for Dryden POTW, State Waste Discharge permit ST0005562, are available for public review and comment from April 3, 2019 until the close of business May 3, 2019. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

Dryden POTW 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 our responses to them. Ecology will include our summary and responses to comments to this fact sheet as **Appendix E - Response to Comments**, and publish it when we issue the final State Waste Discharge 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

Public Utility District No.1 of Chelan County (Chelan PUD) is seeking reissuance of its State Wastewater Discharge Permit for the Community of Dryden Publicly-Owned Treatment Works (POTW). Chelan PUD has operated the Dryden POTW since its construction in 1981. The Dryden POTW is located in Chelan County, 12 miles west of Wenatchee. Chelan PUD operates two other treatment plants in Chelan County. The Dryden POTW provides wastewater treatment for approximately 50 residential units. The Dryden POTW consists of collection pipes, a dual chamber septic tank, and drainfield. The POTW's drainfield is in close proximity to the Wenatchee River. The facility's record of compliance with its existing permit is good.

Ecology published the *Wenatchee River Watershed Dissolved Oxygen and pH Total Maximum Daily Load Water Quality Improvement Report* in August 2009 and the study was subsequently approved by the U.S. Environmental Protection Agency (EPA). The

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Total Maximum Daily Load (TMDL) study identified phosphorus as the limiting nutrient in the Wenatchee River downstream from the City of Leavenworth. The TMDL study concluded that reducing the amount of phosphorus discharged to the Wenatchee River would limit periphyton growth. The TMDL study identified domestic wastewater as one of the major sources of phosphorus discharged to the Wenatchee River and that reducing phosphorus loading will improve water quality by limiting growth of periphyton.

A facility plan for the Peshastin/Dryden POTWs was submitted to and approved by Ecology in October 2015. In November 2016, Chelan PUD notified Ecology that due to financial constraints, the recommended proposal of constructing a pipeline from the Dryden POTW to the Peshastin POTW and pumping the wastewater to the Peshastin POTW for treatment had been put on hold. As of 2019, Chelan PUD has determined constructing a pipeline from Dryden POTW to Peshastin POTW and pumping wastewater to Peshastin is not currently an option.

The proposed permit requires a Schedule of Compliance be completed. The purpose of the Schedule of Compliance is to assure the discharge of effluent from the treatment plant does not degrade groundwater and surface water quality. The Wenatchee River TMDL requires a 65% reduction in total phosphorus loading, in the river's reach near Dryden by 2019. At this point in time, Chelan PUD may not be able to meet the reduction by 2019, but the proposed permit includes a compliance schedule for Chelan PUD to meet the reduction within the five year permit timeframe.

The proposed permit requires Chelan PUD to complete either an engineering report or facility plan and plan and specifications for selected improvements to the Dryden POTW. The permit requires construction/mitigation to occur within four and half years from the effective date of the permit and the final permit limits take effect the day before the permit expires at the end of the five year permit cycle. If met as expected, these permit requirements will allow the Dryden POTW to meet the Wenatchee River TMDL requirements for 65% total phosphorus reduction.

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## I. Introduction

The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in the Water Pollution Control law, chapter 90.48 RCW (Revised Code of Washington).

Ecology adopted rules describing how it exercises its authority:

- State waste discharge program (chapter 173-216 WAC)
- Water quality standards for ground waters of the state of Washington (chapter 173-200 WAC)
- Discharge standards and effluent limits for domestic wastewater facilities (chapter 173-221 WAC)
- Submission of plans and reports for construction of wastewater facilities (chapter 173-240 WAC)

These rules require any domestic wastewater to obtain a State Waste Discharge 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 State Waste Discharge permit program and in response to a complete and accepted permit application, Ecology generally prepares a draft permit and accompanying fact sheet, and makes it available for public review before final issuance. If the volume of the discharge has not changed or if the characteristics of the discharge have not changed Ecology may choose not to issue a public notice. When Ecology publishes an announcement (public notice); it tells people where they can read the draft permit, and where to send their comments, during a period of thirty days. (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 State Waste Discharge permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in **Appendix E**.

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## II. Background Information

**Table 1 General Facility Information**

Facility Information	
Applicant:	Public Utility District (PUD) #1 of Chelan County
Facility Name and Address:	Dryden Wastewater Treatment Plant
Contact at Facility	Name: Dale Pipkin Telephone #: (509) 548-6390
Responsible Official	Name: Ron Slabaugh Title: Water/Wastewater Manager Address: P.O. Box 1231, Wenatchee, WA 98807-1231 Telephone #: (509) 661-4131
Type of Treatment:	Class 1 primary treatment (septic tank) and drainfields
Facility Location (NAD83/WGS84 reference datum)	Latitude: 47.543611 Longitude: -120.560833
Legal Description of Application Area	SE ¼ Section 27, Range 18 E, Township 24 N SW ¼ Section 26, Range 18 E, Township 24 N Latitude: 47.543611 Longitude: -120.560833

Permit Status	
Renewal Date of Previous Permit	March 1, 2011
Application for Permit Renewal Submittal Date	March 2, 2015
Date of Ecology Acceptance of Application	April 18, 2017

Inspection Status	
Date of Last Non-sampling Inspection Date	December 4, 2018



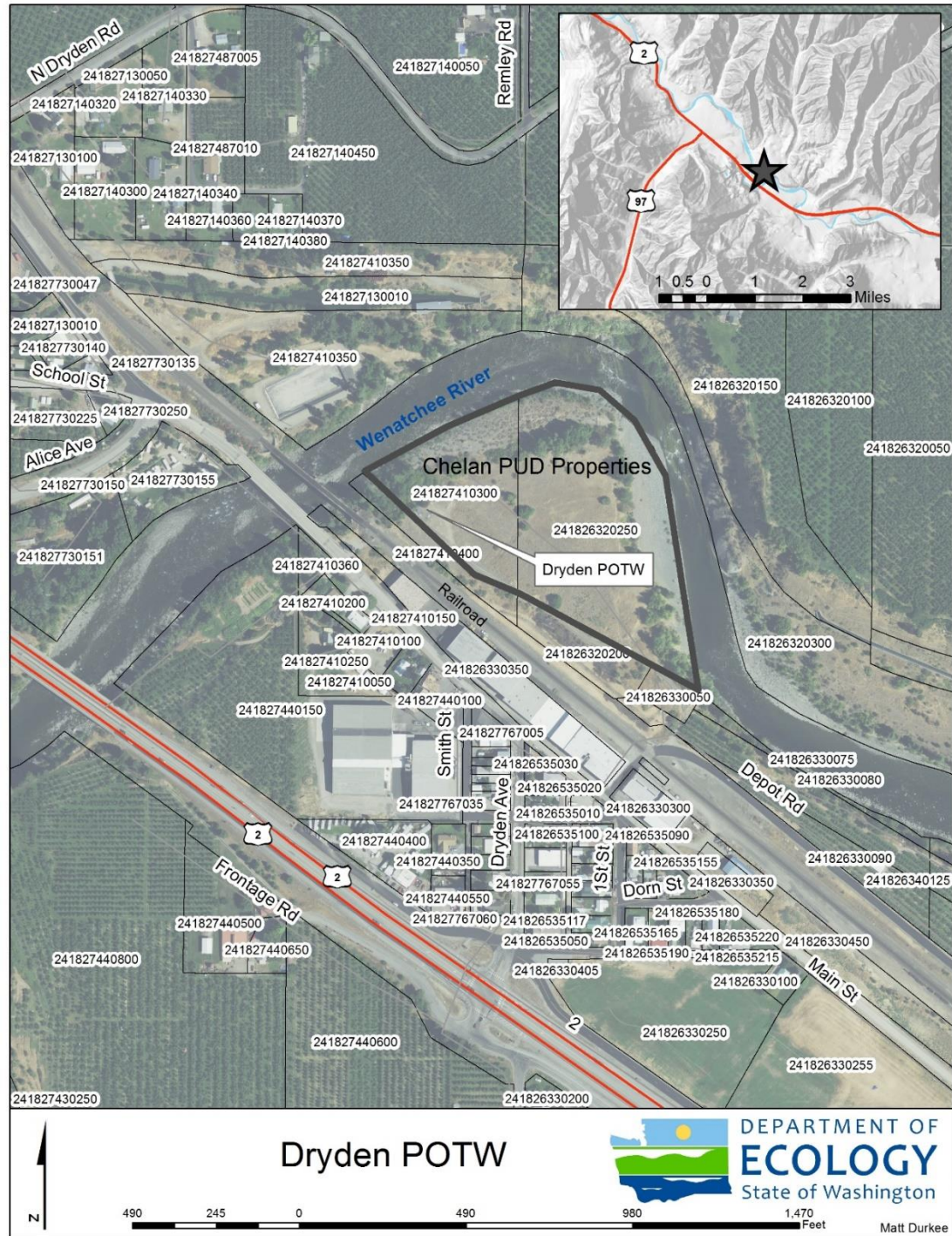
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Figure 1 Facility Location Map





## A. Facility description

### *History*

The Public Utility District No. 1 of Chelan County (Chelan PUD) constructed the current Community of Dryden Wastewater Treatment Facility in 1981.

In 2004, an upgrade occurred that included the addition of a 24-hour influent flow monitoring meter and automated flow splitting valves. The flow splitting valves ensure that equal volumes of influent are routed to each septic tank.

The 1981 wastewater treatment facility (WWTF) was designed to accommodate sewage from 50 equivalent residential units (ERU's) with the ability to expand to 60 ERU's by 2000. However, the number of connections to the WWTF has stayed nearly constant since 1981, with 44 connections as of 2018.

### *Collection system status*

All influent in the collection system flows by gravity.

The system is constructed of non-reinforced concrete pipe with diameters ranging from 8 to 12 inches. These pipes route wastewater to an interceptor line constructed of PVC pipe which conveys the influent to the septic tanks. The collection system includes a bridge crossing into North Dryden. However, the collection system terminates at the north end of the bridge and none of North Dryden is currently served. The pipe is insulated and has heat tape incorporated to prevent freezing during the winter time. According to the 1998 Operation & Maintenance (O&M) manual for the Dryden Wastewater Facility, this pipe should be inspected annually to make sure that the pipe hangers are secure and the insulation has not been damaged.

The 2011 *Infiltration and Inflow* report revealed the following information. The collection system area is located within well-drained soils that preclude the presence of shallow groundwater. The entire collection system is situated well above the 100 year flood elevation of the Wenatchee River. Thus, infiltration into the collection system has not historically been a problem.

The purpose of the inflow evaluation performed in 2011 was to identify any sources of inflow into the collection system. The average daily flow for 2007-2010 was 0.015 MGD. Dividing 0.015 MGD by 137 people results in 109 gallons per capita per day, which is less than the EPA criteria of 120 gallons per capita per day. Based on this analysis, the collection system does not appear to experience significant inflow.

### *Wastewater Treatment Process*

The system has continuous influent flow metering and automated influent flow splitting valves that insure flow is split evenly between the two 23,000 gallon septic tanks. Each tank has been constructed with two compartments to increase the solids removal efficiency.

Partially treated wastewater from each septic tank fills the tank's respective dosing siphons, which automatically discharge to a drainfield distribution system when filled.

The septic tanks provide a quiescent environment where grit, screenings, and small fractions of organic materials are removed by gravity sedimentation. Anaerobic bacteria within the septic tank reduce the concentration of BOD<sub>5</sub> in the wastewater. Based on average daily historical flows, these septic tanks provide an average wastewater residence time of nearly three days.

The following paragraph was excerpted from the USEPA document, *The Class V*

*Underground Injection Control Study; Volume 5, Large-Capacity Septic Systems*, (September 1999):

*The primary purpose of a septic tank is to reduce both the solids and organic carbon content of sanitary waste (through facultative and anaerobic decomposition in the bottom of the septic tank). It does this before releasing the effluent to the drainage field. If the system has been properly operated and maintained (and receiving only sanitary waste), then the effluent is likely to contain low levels of organic constituents.*

The extent of disinfection of total coliforms in the soil profile below the drainfield is undetermined. Anaerobic conditions in the septic tank followed by aerobic conditions drainfield soils may effectively disinfect wastewater before reaching groundwater if the retention time in the soil profile below the drainfield trenches and above the groundwater table is adequate.

### *Drainfield Distribution System*

The drainfield system consists of three similarly sized drainfield zones, situated in close proximity to each other. The outer perimeter of the drainfield system occupies a total area of approximately 1.6 acres. The entire point bar terrace where the drainfield is situated is approximately eight acres in extent. Each drainfield zone has approximately 3,400 feet of four-inch diameter perforated plastic piping enveloped in filter gravel within a trench three feet wide.

Valving to the drainfield zones is provided to allow effluent from either dosing siphon to be discharged (gravity flow) into the distribution box of any of the three drainfields. Under normal operation two of the three drainfields are in service, while the third drainfield is inactive. This allows each drainfield to rest every third year.

According to the 2003 Plan to Maintain Adequate Capacity (PMAC), during November 2002 seven of the piping inspection ports in the active drainfields were randomly selected, then inspected. The interior of all piping appeared to be in excellent condition with no evident solids accumulation, breakage or damage. A shallow layer of water was present in the bottom of one of the ports. The remaining six ports were dry to slightly damp, indicating the surrounding soil is adequately accommodating effluent at the applied rates.

The following was excerpted from Attachment E5 of the permit application:

*The geology of the Dryden area consists of shallow alluvial deposits underlain by rock formations. Groundwater resources of the area are closely related to the surface water resources in that groundwater depends on the flow of surface streams. Groundwater is predominantly restricted to the river valleys that contain deposits of alluvial materials.*

The following soil survey is from the PMAC and was adapted from the Natural Resource Conservation Service's soil survey:

*The major soil association in the Dryden area is the Burch-Cashmont, described as dominantly medium-textured and moderately coarse textured, nearly level to strongly sloping soils on terraces, alluvial fans, and foot slopes. The soils underlying the existing wastewater treatment facility site include Beverly gravelly fine sandy loam and Peshastin loam.*

#### *Solid wastes/Residual Solids*

The treatment facility has no headworks influent screening prior to entry into the septic tank, and the effluent is discharged directly to drainfields. Therefore, septage is the only type of residual solid produced. Septage is the biodegradable waste from septic tanks and similar treatment works. Septage includes the sediments, water, grease and scum pumped from a septic tank.

The depth of settled solids and surface scum is measured annually through access ports in the top of each septic tank. Before the accumulation of these materials reaches a level in the tank that it is likely to be discharged with the tank's effluent, a local septage hauler is contracted to pump out the tanks. Historically, the septic

tanks have been pumped at intervals of five years or greater, according the PMAC. However, the protocol in the facility's O&M Manual calls for septage to be removed from the septic tank at a minimum of once every three years.

## B. Wastewater influent characterization

Dryden POTW reported the concentration of influent pollutants in discharge monitoring reports. The influent wastewater (2013-2017) is characterized as follows and a summary of monthly data is available in Appendix D:

**Table 2 Wastewater Influent Characterization (2013-2017)**

Parameter	Units	Average Value	Maximum Value
Flow	MGD	0.010	0.026
Biochemical Oxygen Demand (BOD <sub>5</sub> )	mg/L	187	590
Total Suspended Solids (TSS)	mg/L	175	426

## C. Wastewater effluent characterization

Dryden POTW reported the concentration of pollutants in the discharge in the permit application and in discharge monitoring reports (DMRs). The tabulated data represents the quality of the effluent discharged from 2013-2017. Appendix D contains a full data set summarizing monthly data submitted with the DMRs. The effluent prior to infiltration is characterized as follows:

**Table 3 Wastewater Effluent Characterization (2013-2017)**

Parameter	Units	Average Value	Maximum Value
Flow (no monitoring point – see influent)	MGD	N/A	N/A
BOD <sub>5</sub>	mg/L	108	194
BOD <sub>5</sub>	lbs/day	10.24	58.8
TSS	mg/L	58	135
TSS	lbs/day	5.15	13.51
Total Dissolved Solids (TDS)	mg/L	313	542
TDS	lbs/day	28	56
Chloride	mg/L	52	250

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Parameter	Units	Average Value	Maximum Value
Chloride	lbs/day	4.57	25
Total Nitrogen	mg/L	39	65.12
Total Nitrogen	lbs/day	3.41	8.46
Phosphorus	mg/L	5.68	11.2
Phosphorus	lbs/day	0.56	3.7

Parameter	Units	Minimum Value	Maximum Value
pH	standard units	6.36	8.11

### D. Summary of compliance with previous permit(s) issued

The previous permit placed effluent limits on BOD<sub>5</sub>, TSS, and pH.

Dryden POTW has complied with the effluent limits and permit conditions throughout the duration of the permit issued on January 13, 2011. Ecology assessed compliance based on its review of the facility's information in the Ecology Permitting and Reporting Information System (PARIS), DMRs and on inspections conducted by Ecology.

**Table 4 Violations**

EventCategory	Violation	ViolationDate	Parameter	Units	DMRValue	LimitMax
Effluent Violations	Numeric effluent violation	1/1/2012	BOD5	Milligrams/L (mg/L)	234	230
Reporting Violations	Improper/ Incorrect Reporting	5/1/2017	Total Nitrogen (TKN + NO3 + NO2)	Milligrams/L (mg/L)		
Reporting Violations	Improper/ Incorrect Reporting	5/1/2017	Total Nitrogen (TKN + NO3 + NO2)	Lbs/Day		
Reporting Violations	Improper/ Incorrect Reporting	5/15/2017	Total Nitrogen (TKN + NO3 + NO2)	Lbs/Day		
Reporting Violations	Improper/ Incorrect Reporting	5/15/2017	Total Nitrogen (TKN + NO3 + NO2)	Milligrams/L (mg/L)		

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

**Table 5 Permit Submittals**

SubmittalName	Status	DueDate	ReceivedDate	Approved	ApprovedDate
Application For Permit Renewal	Accepted	2/28/2015	2/27/2015	Y	3/3/2015
Facility Plan	Approved		10/12/2015	Y	10/15/2015
Application For Permit Renewal	Received	2/28/2015	4/13/2017	Y	4/18/2017
Progress Report TMDL Compliance	Received	12/31/2012	4/11/2013	N	
Signatory Requirements - G1	Received		4/26/2010	N	
Signatory Requirements - G1	Received		3/23/2015	N	
Infiltration And Inflow Evaluation	Received	1/2/2012	1/6/2012	N	
Wasteload Assessment	Received	1/2/2012	1/6/2012	N	
Collection System Exfiltration Prevention Plan & Testing	Received	1/2/2012	1/6/2012	N	
Facility Plan	Reviewed		2/5/2015	N	

The permits from the past two permit cycles (2006-2010 and 2011-2016) included compliance schedules regarding the Dryden POTW complying with the Wenatchee River pH and Dissolved Oxygen TMDL.

The 2006 permit required the Permittee to be in compliance with any stated allocations or goals of the TMDL and all applicable ground and surface water quality standards no later than January 1, 2016. The 2011 permit required the Permittee to be in compliance with the TMDL no later than August 25, 2019. The Permittee was not in compliance with the TMDL by 2016 and it is not anticipated that the Permittee will be in compliance with the TMDL by August 25, 2019.

### **E. State environmental policy act (SEPA) compliance**

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

### **III. Proposed Permit Limits**

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

- Technology and treatment methods available to treat specific pollutants (technology-based). Dischargers must treat wastewater using all known, available, reasonable methods of prevention, control, and treatment (AKART). Ecology and the state



Department of Health have adopted technology-based (AKART) criteria for municipal systems that discharge to ground; (WA. Dept. of Health, 1994).

- Operations and best management practices necessary to meet applicable water quality standards to preserve or protect beneficial uses for groundwaters.
- Ground water quality standards (Ecology, 1996).
- Applicable requirements of other local, state and federal laws.

Ecology applies the most stringent of technology and water quality-based limits to each parameter of concern and further describes the proposed limits below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, monitoring, and irrigation/crop management). 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, and are not listed in regulation.

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

#### **A. Design criteria**

Under WAC 173-216-110 (4), flows and waste loadings must not exceed approved design criteria. The hydraulic loading rate in Table 6 is conservative, based on the drainfield trench acreage available and the guidance given in the Washington State Department of Health's (DOH) *Design Standards for Large On-Site Sewage Systems With Design Flows of Greater Than 3,500 Gallons Per Day*. This document is currently being updated and the DOH recommends contacting their Wastewater Management Section for questions and current design standards:

<https://www.doh.wa.gov/CommunityandEnvironment/WastewaterManagement/LOSSProgram/LOSSGuidance#rules>

The Facility Plan approved by Ecology in 2015 contained future (2034) design criteria, although design criteria for the existing treatment plant and drainfields was not included in this report.

**Table 6 Design Criteria for Wastewater Treatment Facility**

Parameter	Design Quantity
Maximum Daily Design Flow	0.023 MGD

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

Waste discharge permits issued by Ecology specify conditions requiring the facility to use all known available and reasonable methods of prevention, control, and treatment of discharges AKART before discharging to waters of the state (RCW 90.48). Ecology defines AKART for domestic wastewater facilities in chapter 173-221 WAC, Discharge Standards and Effluent Limits for Domestic Wastewater Facilities and in the Department of Health's design criteria (1994).

Ecology approved the facility plan report titled Chelan Co. PUD No. 1 Peshastin/Dryden Wastewater Facility Plan, dated October 12, 2015, and prepared by Gray & Osborne, Inc.

Ecology evaluated the report for technology-based requirements using the:

- Discharge standards and effluent limits for domestic wastewater facilities
- *Criteria for Sewage Works Design*, Ecology, 2008).

Ecology determined that the facility meets the minimum requirements demonstrating compliance with the AKART standard if the Dryden POTW operates the treatment and disposal system as described in the approved engineering report and any subsequent Ecology approved reports.

Ecology also evaluated the report for water quality-based requirements which is described in the next section of the fact sheet.

The purpose of the *Criteria for Sewage Works Design* is intended to ensure construction of new sewage treatment works meet state standards. Since this publication post-dates the construction of the Dryden POTW, it is the best professional judgment of this permit writer that the publication's criteria do not apply to the Dryden facility.

Chapter 173-240 WAC is intended to regulate the construction of new wastewater treatment facilities and WAC 173-240-035 is the specific section of this regulation that addresses subsurface wastewater disposal systems. The Dryden POTW drainfield was constructed in 1981, before the effective date (August 11, 2000) of WAC 173-240-035. Because this facility pre-dates this regulation, it is the best

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professional judgment of this permit writer that the regulation does not apply to the facility.

The large on-site sewage systems (LOSS) design standards given in the Department of Health's regulation Chapter 246-272B apply to wastewater treatment facilities with design flows between 3,500 and 100,000 gpd. The Dryden POTW design flow is 23,000 gpd which falls within this range so the regulation applies to the facility.

The proposed permit includes technology based limitations on the quantity and quality of the wastewater applied to the drainfield that are retained from the existing permit, although changed from a daily maximum to average monthly to align with the using average monthly for total phosphorus as requested by Chelan PUD. The draft permit adopts the existing permit's effluent limits for BOD<sub>5</sub> and TSS, which are based on the following technology-based effluent guidance given in the Department of Health's *Design Standards for Large On-Site Sewage Systems With Design Flows of Greater Than 3,500 Gallons Per Day (1994)*:

**Table 7 Technology-based Limits**

Parameter	Average Monthly	
BOD <sub>5</sub>	230 mg/L	
TSS	150 mg/L	

Parameter	Daily minimum	Daily Maximum
pH	6.0 standard units	10.0 standard units

The hydraulic loading limitation in the existing permit is drawn from guidance in the 2004 Dept. of Health document. Because Ecology has not promulgated a regulation for existing On-Site facilities, nor has it issued specific guidance for such facilities, it is the best professional judgment of this permit writer that the tech-based effluent limitations in the existing permit, based on the Department of Health guidance, are applicable in the proposed permit. It should be noted that Health's guidance document specifies that all drainfield piping be pressurized. The Dryden POTW drainfield piping is not pressurized. Instead, the effluent flows through the piping by gravity.

The proposed permit contains the following new interim for phosphorus (see more information below).

**Table 8 Performance-based interim effluent limits**

Parameter	Average Monthly
Total Phosphorus	<i>Interim Limits</i>
	<b>Effective Date to 5 Years (minus one day) from Permit Effective Date:</b>
	6.85 mg/L
	0.83 lb/day

**C. Water quality based effluent limits for Phosphorus**

The proposed permit contains the following final limits for phosphorus.

**Table 9 Water-quality-based effluent limits**

Parameter	Average Monthly
Total Phosphorus	<i>Final Limits</i>
	<b>Effective 5 Years after Permit Effective Date:</b>
	2.40 mg/L
	0.29 lb/day

The proposed permit contains new interim and final limits on phosphorus to allow the Dryden POTW to meet Wenatchee River TMDL requirements. The interim limits is the 95<sup>th</sup> percentile of the 2013-2017 data, and is therefore a performance-based limit. The final limit is a 65% reduction from the interim limit as required by the Wenatchee River TMDL, as is therefore a water-quality-based limit. Appendix D contains a full data set of the data used to calculate the 95<sup>th</sup> percentile. This was derived from single sample data collected from 2013-2017. The final limits including the 65% reduction were calculated from this interim limits based on the 95<sup>th</sup> percentile. These calculations are available in Appendix D.

**D. Groundwater quality based effluent limits**

In order to protect existing water quality and preserve the designated beneficial uses of Washington's groundwaters including the protection of human health, WAC 173-200-100 requires Ecology to condition discharge permits in such a manner as to authorize only activities that will not cause violations of the groundwater quality standards. The goal of the groundwater quality standards is to maintain the highest quality of the State's groundwaters and to protect existing and future beneficial uses of the groundwater through the reduction or elimination of the discharge of contaminants to groundwater [WAC 173-200-010(4)].

Ecology achieves this goal by:

- Applying all known available and reasonable methods of prevention, control and treatment (AKART) to any discharge.
- Applying the antidegradation policy of the groundwater standards.
- Establishing numeric and narrative criteria for the protection of human health and the environment in the groundwater quality standards.

Ecology approved the engineering report as noted above in the technology based limits section. In addition, Ecology evaluated the report to ensure compliance with groundwater standards using the:

- *Guidelines for the Preparation of Engineering Reports for Industrial Wastewater Land Application Systems*, Ecology, May 1993.
- *Guidance on Land Treatment of Nutrients in Wastewater, with Emphasis on Nitrogen*, Ecology, November 2004  
(<https://fortress.wa.gov/ecy/publications/documents/0410081.pdf>).

#### *Antidegradation Policy*

The state of Washington's ground water quality standards (GWQS) require preservation of existing and future beneficial uses of groundwater through the antidegradation policy, which includes the two concepts of antidegradation and non-degradation.

#### *Antidegradation*

Antidegradation is not the same as non-degradation (see below). Antidegradation applies to calculation of permit limits in groundwater when background (see below) contaminant concentrations are less than criteria in the GWQS. Ecology has discretion to allow the concentrations of contaminants at the point of compliance to exceed background concentrations but not exceed criteria in the GWQS. Ecology grants discretion through an approved AKART engineering analysis of treatment alternatives. If the preferred treatment alternative predicts that discharges to groundwater will result in contaminant concentrations that fall between background concentrations and the criteria, then the preferred treatment alternative should protect beneficial uses and meet the antidegradation policy. In this case, the predicted concentrations become the permit limits. If the preferred alternative will meet background contaminant concentrations, background concentrations become the permit limits. Permit limits must protect groundwater quality by preventing degradation beyond the GWQS criteria. If discharges will result in exceedance of the

criteria, facilities must apply additional treatment before Ecology can permit the discharge.

### *Non-degradation*

Non-degradation applies to permit limits in groundwater when background contaminant concentrations exceed criteria in the GWQS. Non-degradation means that discharges to groundwater must not further degrade existing water quality. In this case, Ecology considers the background concentrations as the water quality criteria and imposes the criteria as permit limits.

You can obtain more information on antidegradation and non-degradation by referring to the *Implementation Guidance for the Ground Water Quality Standards (Implementation Guidance)*, Ecology Publication #96-02 (available at <https://fortress.wa.gov/ecy/publications/documents/9602.pdf>).

### *Background Water Quality*

Background water quality is determined by a statistical calculation of contaminant concentrations without the impacts of the proposed activity. The calculation requires an adequate amount of groundwater quality data and determining the mean and standard deviation of the data, as described in the *Implementation Guidance*. Following the procedure in the *Implementation Guidance*, Ecology then defines background water quality for most contaminants as the 95 percent upper tolerance limit. This means that Ecology is 95 percent confident that 95 percent of future measurements will be less than the upper tolerance limit.

There are a few exceptions to the use of the upper tolerance limit. For pH, Ecology will calculate both an upper and a lower tolerance limit resulting in an upper and lower bound to the background water quality. If dissolved oxygen is of interest, Ecology will calculate a lower tolerance limit without an upper tolerance limit.

Applicable groundwater criteria as defined in chapter 173-200 WAC and in RCW 90.48.520 for this discharge include those in the following table:

**Table 10 Groundwater Quality Criteria**

Parameter	Units	Groundwater Criteria	Background Value
Total Coliform	colonies/ 100 mL	1	Unknown
TDS	mg/L	500	Unknown



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Parameter	Units	Groundwater Criteria	Background Value
Chloride	mg/L	250	Unknown
Sulfate	mg/L	250	Unknown
Nitrate (as nitrogen)	mg/L	10	Unknown
pH (Maximum / Minimum)	standard units	6.5 to 8.5	Unknown
Manganese	mg/L	0.05	Unknown
Total Iron	mg/L	0.3	Unknown
Toxics		No toxics in toxic amounts	Unknown

Ecology has reviewed existing records for the facility's land treatment site and is unable to determine background groundwater quality. Until Ecology establishes background water quality, the facility must operate within the approved design parameters and comply with all conditions in the permit.

The point of compliance for determining compliance with Groundwater Quality Criteria in this instance would be properly located monitoring well(s). Groundwater monitoring wells should be located down-gradient from the drainfields. Together with properly located upgradient monitoring wells, samples obtained from the ground water will reveal the extent to which the Dryden POTW is contributing to any degradation of ground water pollution. The proposed permit will not impose any ground water quality-based effluent limitations.

The Permittee submitted a Facility Plan in 2015 that sets forth an alternative wastewater treatment method that protects ground and surface water quality. The proposed permit requires an engineering report or Facility Plan as the Chelan County PUD notified Ecology on November 23, 2016 that the recommendation in the 2015 Facility Plan to pipe wastewater from Dryden to Chelan PUD's Peshastin POTW is on hold indefinitely due to funding constraints.

The permit and fact sheet prior to 2006 mistakenly gave a pH limitation based on the 1994 Washington Dept. of Health guidance document for On-Site sewage systems. This document has no guidance for pH tech-based limits, and in fact makes no mention of pH. Furthermore, Ecology's guidance document, *Implementation Guidance for the Ground Water Quality Standards* does not list pH as a parameter of

concern for effluent discharged to ground from domestic septic systems or On-Site treatment systems. The proposed permit retains the existing pH limit and monitoring requirement for pH contained in previous permits. The inclusion of this limit was based on the permit writer's best professional judgment, because there is a State Ground Water Quality criterion for pH.

Ecology has a regulation for underground injection wells in Chapter 173-218 WAC - Underground Injection Control Program, which was promulgated to protect Underground Sources of Drinking Water. The drainfield disposal of wastewater is classified as a Class V injection well, under this regulation. WAC 173-218-090 states that the operators of existing (at the date of enactment) municipal Class V wells must apply to the Department for approval to operate, effectively regulating the discharge under the provisions of Chapter 173-216 WAC State Waste Discharge Permit Program. Dryden POTW has essentially complied with this regulation when it submitted an Application for a State Wastewater Discharge Permit.

#### E. Comparison of proposed effluent limits with the previous permit issued on January 13, 2011

Table 11 Comparison of Previous and Proposed Limits

		Previous Effluent Limits: Outfall # 001	Proposed Effluent Limits: Outfall # 001
Parameter	Basis of Limit	Daily Maximum	Average Monthly
BOD <sub>5</sub>	Technology	230 mg/L	230 mg/L
TSS	Technology	150 mg/L	150 mg/L
Total Phosphorus	Performance (Interim) & Water Quality (Final)	N/A	<i>Interim Limits:</i> 6.85 mg/L 0.83 lb/day  <i>Final Limits:</i> 2.4 mg/L 0.29 lb/day

Parameter	Basis of Limit	Previous and Proposed Effluent Limits	
		Daily Minimum	Daily Maximum
pH	Technology	6.0 standard units	10.0 standard units

## IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-216-110) to verify that the treatment process functions correctly, the discharge meets groundwater criteria and that the discharge complies with the permit's effluent limits.

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

### A. 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).

Ecology accredited the laboratory at this facility (Peshastin Wastewater Treatment Plant Laboratory) for:

**Table 12 Accredited Parameters**

Parameter Name	Category	Method Name	Matrix Description
TSS	General Chemistry	SM-2540 D-97	Non-Potable Water
pH	General Chemistry	SM 4500-H+ B-00	Non-Potable Water
BOD	General Chemistry	SM 5210 B-01	Non-Potable Water
Ammonia	General Chemistry	USGS I-3520-85	Non-Potable Water
Fecal coliform-count	Micobiology	SM 9222 D (m-FC)-97	Non-Potable Water

Laboratory analyses of all other parameters are contracted to a commercial laboratory off-site.

## **B. Wastewater monitoring**

Ecology details the proposed monitoring schedule under Special Condition S2. Monitoring requirements are similar to the previous permit. Total phosphorus was added as a parameter for the wastewater (septic tank) influent monitoring point. Total Nitrogen monitoring for the septic tank effluent was required under the previous permit, although the Kjeldahl Nitrogen (TKN) and Nitrate plus Nitrite Nitrogen parameters that make up the fractions of total nitrogen calculation had been omitted. These are both included in the proposed permit.

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 92-09) for an On-Site septic system and drainfields (Class 1) type system and consistent with agency guidance given in the current version of Ecology's *Implementation Guidance for the Ground Water Quality Standards* for municipal wastewater land treatment systems.

## **V. Other Permit Conditions**

### **A. Reporting and recordkeeping**

Ecology based Special Condition S3 on its authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-216-110).

### **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 173-216-110 require Dryden POTW to:

- Take the actions detailed in proposed permit Special Condition S.4.
- 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 S.4 restricts the amount of flow.

If a municipality intends to apply for Ecology-administered funding for the design or construction of a facility project, the plan must meet the standard of a "Facility Plan",

as defined in WAC 173-98-030. A complete “Facility Plan” includes all elements of an “Engineering Report” along with State Environmental Review Process (SERP) documentation to demonstrate compliance with 40 CFR 35.3140 and 40 CFR 35.3145, and a cost effectiveness analysis as required by WAC 173-98-730. The municipality should contact Ecology’s regional office as early as practical before planning a project that may include Ecology-administered funding.

### **C. Operations and maintenance**

Ecology requires dischargers to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state regulations (WAC 173-240-080 and WAC 173-216-110). The facility has prepared and must submit an update of an O&M manual for the wastewater facility.

Implementation of the procedures in the operation and maintenance manual ensures the facility’s compliance with the terms and limits in the permit and ensures the facility provides AKART to the waste stream.

Ecology expects leaks are present in the collection system due to its age, materials used, and, construction methods for its installation. Therefore, the proposed permit requires the Dryden POTW to characterize the collection system for the presence of leaks by providing the following information:

- Volume of the annual average and peak daily flow under worst conditions (inflow or infiltration) attributed to leaks.
- Location of each individual leak.
- Size of each leak and/or volume of excess flow contributed by a run of sewer.
- Whether exfiltration occurs in the system’s force mains and/or inverted siphons.

Three good references to aid in these tasks include:

- American Society of Civil Engineers and Water Environment Federation Manual of Practice FD-6, *Existing Sewer Evaluation and Rehabilitation* (Third Edition, 2009).
- U.S. Environmental Protection Agency, *Handbook for Sewer System Infrastructure Analysis and Rehabilitation*, EPA/625/6-91/030, (1991).
- Washington State Department of Transportation, *Standard Specifications for Road, Bridge, and Municipal Construction*, 2014.

Following characterization of the leaks, Ecology may require corrective actions by issuing an administrative order following review of the assessment.

### **D. Pretreatment**

*Duty to enforce discharge prohibitions*

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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 dangerous waste rules.
  - 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 plan 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) and(iii)].



Industrial dischargers must obtain a permit from Ecology before discharging waste to the Dryden POTW [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 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 “Standards for Use of Disposal of Sewage Sludge”, and by Ecology under chapter 70.95J RCW “Municipal Sewage Sludge – Biosolids”, 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 Chelan-Douglas 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. Engineering / Facility Plan Documents**

A facility plan report for the Peshastin/Dryden POTWs was submitted to Ecology on October 12, 2015 and approved on October 15, 2015. The recommendation in this plan was to construct a pipeline and pump wastewater from the Dryden POTW to

the Peshastin POTW for treatment to enable the Chelan County PUD to meet the Wenatchee River TMDL requirements.

Ecology received notification from Chelan County PUD on November 23, 2016 that following additional pre-design analysis, this alternative was financially unaffordable for Chelan County PUD's customers and the construction of the pipeline is temporarily on hold. As of 2019, Chelan PUD has determined constructing a pipeline from Dryden POTW to Peshastin POTW and pumping wastewater to Peshastin is not currently an option.

The proposed permit requires Chelan County PUD to submit an engineering report or a facility plan that describes a preferred alternative that meets the Wenatchee River TMDL requirement of 65% phosphorus reduction in the river reach encompassing the treatment plant drainfield by [INSERT DATE, 15 months AFTER EFFECTIVE DATE]. Plan and specifications for selected improvements to the Dryden POTW are also required.

The facility plan or engineering report may consider moving the treatment plant drainfield out of, and away from the hyporheic zone next to the Wenatchee River, as a preferred alternative. If this preferred alternative is chosen and implemented, Ecology may cancel this permit, if provided assurances of no phosphorus contribution to the Wenatchee River from the treated wastewater. The facility would then be managed by the Washington Department of Health under *Chapter 246-272B WAC Large On-Site Sewage System Regulations*. Any consideration of a new site for the drainfield must address provisions given in *WAC 246-272B-02000 Site review—Predesign report, soil characterization, and site inspection*.

The following discussion attempts to explain the differences between an “engineering report” and a “facility plan”:

To demonstrate that a particular technical solution will solve a water quality problem and be a cost effective solution requires detailed technical and engineering analysis. For wastewater treatment facilities this technical analysis is in an “*engineering report*” required to meet Ecology rules (Chapter 173-240 WAC).

A “*facility plan*” has additional requirements and entails the complete package of planning documents required to be eligible for WA State Revolving Fund (SRF) funding. The Federal Clean Water Act of 1987 allows states to administer SRF programs to finance clean water projects. The Act requires states to review the potential environmental impacts of construction projects financed through the SRF program. This review is referred to as the State Environmental Review Process (SERP). The specific federal requirements for SERP are found in 40 CFR 35.3140. A facility plan therefore must include the technical review, the cost effectiveness analysis, and the SERP review.

## **G. Compliance schedule for phosphorus reduction**

The proposed permit includes a compliance schedule requiring documentation of the status of permit submittals and an explanation of any missed due dates.

Items related to the meeting Wenatchee River TMDL requirement of 65% total phosphorus reduction by 2019 are the primary focus within the compliance schedule. Ecology realizes it is not feasible for the Permittee to receive engineering approvals from Ecology and complete construction/mitigation for wastewater treatment by 2019, so the compliance schedule provides for a timeline to meet the TMDL total phosphorus reduction requirement by **5 years** (end of the permit cycle) from the effective date of the proposed permit.

## **H. General conditions**

Ecology bases the standardized general conditions on state law and regulations. They are included in all state waste discharge 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 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 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 5 years.

# **VII. References for Text and Appendices**

Gavlak, R., D. Horneck, R.O. Miller, and J. Kotuby-Amacher.

3rd edition 2005. *Soil, Plant And Water Reference Methods For The Western Region*

Gray & Osborne, Inc.

2015. Chelan Co. PUD No. 1 Peshastin/Dryden Wastewater Facility Plan.

Washington State Department of Ecology.

1993. *Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems*, Ecology Publication Number 93-36. 20 pp.

<https://fortress.wa.gov/ecy/publications/summarypages/9336.html>

2019. *Reclaimed Water Facilities Manual: The Purple Book*; (Washington State Department of Ecology and Department of Health Publication 15-10-024)

<https://fortress.wa.gov/ecy/publications/SummaryPages/1510024.html>

Laws and Regulations (<https://ecology.wa.gov/About-us/How-we-operate/Laws-rules-rulemaking>)

Permit and Wastewater Related Information (<https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-permits/Water-Quality-individual-permits>)

Revised October 2005. *Implementation Guidance for the Ground Water Quality Standards*, Ecology Publication Number 96-02.

<https://fortress.wa.gov/ecy/publications/documents/9602.pdf>

Revised August 2008. *Criteria for Sewage Works Design*. Publication Number 98-37. <https://fortress.wa.gov/ecy/publications/documents/9837.pdf>

December 2011. *Permit Writer's Manual*. Publication Number 92-109

(<https://fortress.wa.gov/ecy/publications/summarypages/92109.html>)

November 2004. *Guidance on Land Treatment of Nutrients in Wastewater, with Emphasis on Nitrogen*, Ecology Publication Number 04-10-081;

<https://fortress.wa.gov/ecy/publications/documents/0410081.pdf>

Washington State Department of Health.

February 1994. *Design Criteria for Municipal Wastewater Land Treatment Systems for Public Health Protection*.

[http://www.ecy.wa.gov/programs/wq/wastewater/municipal\\_land\\_treatment\\_design\\_criteria.pdf](http://www.ecy.wa.gov/programs/wq/wastewater/municipal_land_treatment_design_criteria.pdf)

## **Appendix A—Public Involvement Information**

Ecology proposes to reissue a permit to Dryden POTW. 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 3, 109 in the Cashmere Valley Record and the Leavenworth Echo to inform the public and to invite comment on the proposed draft State Waste Discharge permit and fact sheet.

The notice:

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

NOTICE: ANNOUNCEMENT OF AVAILABILITY OF DRAFT PERMIT

PERMIT NO.: ST0005562

APPLICANT: Public Utility District No. 1 of Chelan County

FACILITY: Community of Dryden POTW

Public Utility District No. 1 of Chelan County is seeking reissuance of its State Wastewater Discharge Permit for the Community of Dryden Publicly-Owned Treatment Works (POTW), in accordance with the provisions of Chapter 90.48 Revised Code of Washington (RCW) and Chapter 173-216 Washington Administrative Code (WAC).

Public Utility District No. 1 of Chelan County 1 presently operates the Community of Dryden POTW which is designed to handle a maximum daily flow of 23,000 gallons per day. The wastewater, following treatment, must meet the requirements of the Washington State Water Pollution Control Act and applicable regulations for a permit to be issued.

Following evaluation of the application and other available information, a draft permit has been developed which would allow the discharge of treated domestic wastewater to drainfields located ¼ mile north of the Community of Dryden, WA. All discharges to be in compliance with the Department of Ecology's Water Quality Standards for a permit to be issued.

A tentative determination has been made on the effluent limitations and special permit conditions that will prevent and control pollution. A final determination will not be made until all timely comments received in response to this notice have been evaluated.

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### PUBLIC COMMENT AND INFORMATION

The draft permit and fact sheet may be viewed at the Department of Ecology (Department) website:

<https://apps.ecology.wa.gov/paris/PermitDocumentSearch.aspx?PermitNumber=ST0005562&FacilityName=&City=&County=&Region=0&PermitType=0> . The application, fact sheet, proposed permit, and other related documents are also available at the Department's Central Regional Office for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m., weekdays. To obtain a copy or to arrange to view copies at the Central Regional Office, please call Jackie Cameron at (509) 575-2027, e-mail [jackie.cameron@ecy.wa.gov](mailto:jackie.cameron@ecy.wa.gov) , or write to the address below.

Interested persons are invited to submit written comments regarding the proposed permit. All comments must be submitted within 30 days after publication of this notice to be considered for the final determination. Comments should be sent to: Cynthia Huwe, WQ Permit Coordinator, Department of Ecology, Central Regional Office, 1250 West Alder Street, Union Gap, WA 98903-0009.

Submit comments online at <http://ws.ecology.commentinput.com/?id=Sb5DG>.

Any interested party may request a public hearing on the proposed permit within 30 days of the publication date of this notice. The request for a hearing shall state the interest of the party and the reasons why a hearing is necessary. The request should be sent to the above address. The Department will hold a hearing if it determines that there is significant public interest. If a hearing is to be held, public notice will be published at least 30 days in advance of the hearing date. Any party responding to this notice with comments will be mailed a copy of a hearing public notice.

Please bring this public notice to the attention of persons who you know would be interested in this matter. The Department is an equal opportunity agency. If you need this publication in an alternate format, please contact us at (509) 575-2490 or TTY (for the speech and hearing impaired) at 711 or 1-800-833-6388.

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting*, which is available on our website at <https://ecology.wa.gov/About-us/How-we-operate/Laws-rules-rulemaking/Rulemaking-FAQ>.

You may obtain further information from Ecology by telephone, (509) 457-7105, or by writing to the address listed below.

Water Quality Permit Coordinator  
Department of Ecology  
Central Regional Office  
1250 West Alder Street  
Union Gap, WA 98903

The primary author of this permit and fact sheet is Matthew Durkee, LHG.



## Appendix B—Your Right to Appeal

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

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

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

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

### ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
<b>Department of Ecology</b> Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	<b>Department of Ecology</b> Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
<b>Pollution Control Hearings Board</b> 1111 Israel RD SW STE 301 Tumwater, WA 98501	<b>Pollution Control Hearings Board</b> 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 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

**Alternate point of compliance** -- An alternative location in the groundwater from the point of compliance where compliance with the groundwater standards is measured. It may be established in the groundwater at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An “early warning value” must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with WAC 173-200-060(2).

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

**Ammonia** -- Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

**Annual average design flow (AADF** -- average of the daily flow volumes anticipated to occur over a calendar year.

**Average monthly (intermittent) discharge limit**-- The average of the measured values obtained over a calendar months' time taking into account zero discharge days.

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

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

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

**BOD<sub>5</sub>** -- Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> 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.

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

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

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

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

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

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

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

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

**Continuous monitoring** -- Uninterrupted, unless otherwise noted in the permit.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).  
Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

**Quantitation level (QL)** -- Also known as Minimum Level of Quantitation (ML) -- The lowest level at which the entire analytical system must give a recognizable signal

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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  $(1,2, \text{or } 5) \times 10^n$ , where  $n$  is an integer. (64 FR 30417).

### ALSO GIVEN AS:

The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

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

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

**Sample Maximum** -- No sample may exceed this value.

### **Significant industrial user (SIU) --**

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority\* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

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

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

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

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

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

**Soluble BOD<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 stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

**Technology-based effluent limit** -- A permit limit based on the ability of a treatment method to reduce the pollutant.

**Total coliform bacteria**--A microbiological test, which detects and enumerates the total coliform group of bacteria in water samples.

**Total dissolved solids**--That portion of total solids in water or wastewater that passes through a specific filter.

**Total maximum daily load (TMDL)** --A determination of the amount of pollutant that a water body can receive and still meet water quality standards.

**Total suspended solids (TSS)** -- Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**Upset** -- An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

**Water quality-based effluent limit** -- A limit imposed on the concentration of an effluent parameter to prevent the concentration of that parameter from exceeding its water quality criterion after discharge into receiving waters.

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## Appendix D—Technical Calculations

### Septic Tank Influent DMR Data Summary (2013-2017)

79	Monitoring Point Code : (IN1)						
80	Monitoring Point Id : -34314						
81	Parameter	BOD5	Flow	Flow	pH	pH	Solids (Residue)
82	Units	Milligrams/L (mg/L)	MGD	MGD	Standard Units	Standard Units	Milligrams/L (mg/L)
83	Statistical Base	Average	Average	Maximum	Maximum	Minimum	Average
84	Limits	-/-	-/-	-/-	-/-	-/-	-/-
85	Benchmarks	-/-	-/-	-/-	-/-	-/-	-/-
86	Design Limit						
87	Date	Value	Value	Value	Value	Value	Value
88	1/1/2013	159	0.014	0.018	8.39	7.82	150
89	2/1/2013	142	0.015	0.018	8.47	8.1	120
90	3/1/2013	294	0.016	0.019	9.01	7.51	162
91	4/1/2013	252	0.013	0.021	8.41	8.14	203
92	5/1/2013	117	0.01	0.014	8.58	7.72	161
93	6/1/2013	143	0.01	0.014	9.01	8.17	182
94	7/1/2013	161	0.008	0.011	7.91	7.63	60
95	8/1/2013	166	0.009	0.011	7.91	7.58	100
96	9/1/2013	174	0.011	0.016	7.95	7.74	109
97	10/1/2013	183	0.00996774	0.012	8.27	7.91	238
98	11/1/2013	213	0.0104	0.013	8.21	7.97	172
99	12/1/2013	182	0.01	0.011	8.24	8.1	142
100	1/1/2014	216	0.009	0.011	8.51	8.12	74
101	2/1/2014	154	0.01	0.014	8.36	7.75	229
102	3/1/2014	217	0.01	0.012	8.51	8.33	192
103	4/1/2014	132	0.009	0.011	8.36	8.12	248
104	5/1/2014	192	0.009	0.012	8.73	8.63	203
105	6/1/2014	164	0.009	0.012	8.41	7.59	124
106	7/1/2014	168	0.009	0.01	7.94	7.68	123
107	8/1/2014	175	0.01	0.013	8.23	7.98	152
108	9/1/2014	185	0.012	0.014	8.38	7.82	196
109	10/1/2014	224	0.01	0.016	8.31	7.89	164
110	11/1/2014	127	0.011	0.013	8.04	7.89	137
111	12/1/2014	139	0.011	0.014	8.23	7.74	200
112	1/1/2015	104	0.011	0.016	7.89	7.66	148
113	2/1/2015	267	0.01	0.016	8.4	7.52	84
114	3/1/2015	136	0.008	0.012	7.51	7.31	93
115	4/1/2015	215	0.01	0.013	7.96	7.68	200
116	5/1/2015	184	0.0093871	0.013	8.3	7.98	286
117	6/1/2015	290	0.00816667	0.009	8.01	7.94	196
118	7/1/2015	157	0.00912903	0.011	8.54	8.14	162
119	8/1/2015	141	0.00974194	0.011	8.47	7.97	198
120	9/1/2015	181	0.0118667	0.014	8.33	7.88	118
121	10/1/2015	240	0.0105161	0.014	7.94	7.1	244
122	11/1/2015	182	0.00963333	0.012	8.11	7.61	135
123	12/1/2015	182	0.010129	0.012	8.01	7.89	134
124	1/1/2016	187	0.00974194	0.012	8.21	8.07	160
125	2/1/2016	171	0.010931	0.015	8.09	7.55	138
126	3/1/2016	178	0.00970968	0.012	8.2	7.6	176
127	4/1/2016	154	0.00923333	0.011	8.11	7.79	138
128	5/1/2016	87	0.00916129	0.011	7.91	7.62	100
129	6/1/2016	126	0.0091	0.011	8.15	7.62	154
130	7/1/2016	161	0.0096129	0.012	8.01	7.69	143

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81	Parameter	BOD5	Flow	Flow	pH	pH	Solids (Residue)
82	Units	Milligrams/L (mg/L)	MGD	MGD	Standard Units	Standard Units	Milligrams/L (mg/L)
83	Statistical Base	Average	Average	Maximum	Maximum	Minimum	Average
84	Limits	-/-	-/-	-/-	-/-	-/-	-/-
85	Benchmarks	-/-	-/-	-/-	-/-	-/-	-/-
86	Design Limit						
87	Date	Value	Value	Value	Value	Value	Value
131	8/1/2016	128	0.00909677	0.01	7.88	7.37	177
132	9/1/2016	163	0.00983333	0.013	7.81	7.65	70
133	10/1/2016	105	0.00987097	0.012	8.62	8.35	229
134	11/1/2016	168	0.00913333	0.011	8.71	8.3	280
135	12/1/2016	225	0.00932258	0.012	8.8	7.97	359
136	1/1/2017	168	0.00906452	0.011	8.13	7.96	160
137	2/1/2017	168	0.00967857	0.012	8.11	7.87	131
138	3/1/2017	143	0.00954839	0.012	8.54	8.21	258
139	4/1/2017	161	0.0098	0.012	8.28	7.59	295
140	5/1/2017	55	0.00951613	0.01	8.12	7.4	127
141	6/1/2017	109	0.00973333	0.013	7.72	7.67	50
142	7/1/2017	205	0.00832258	0.01	7.84	7.48	92
143	8/1/2017	80	0.00909677	0.011	7.93	7.47	192
144	9/1/2017	408	0.0104	0.013	8.06	7.66	231
145	10/1/2017	452	0.0154194	0.026	8.03	7.81	331
146	11/1/2017	590	0.0109667	0.014	8.07	7.54	426
147	12/1/2017	269	0.0117742	0.016	7.86	7.54	307
148	Min	55	0.008	0.009	7.51	7.1	50
149	Max	590	0.016	0.026	9.01	8.63	426
150	Average	186.98	0.01	0.01	8.22	7.81	176.05
151	Median	168	0.009816665	0.012	8.205	7.77	161.5
152	95th Percentile	299.7	0.01405	0.01805	8.7335	8.3015	308.2



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## Septic Tank Effluent DMR Data Summary (2013-2017)

1	Feature Type : Ground						
2	Feature Name -1						
3	Feature Description (ONE TIME SAMPLE GROUND WATER)						
4	Monitoring Point Code : -1						
5	Monitoring Point Id : -34313						
6	Parameter	BOD5	BOD5	Chloride	Chloride	Nitrogen (calculation)	Nitrogen (calculation)
7	Units	Lbs/Day	Milligrams/L (mg/L)	Lbs/Day	Milligrams/L (mg/L)	Lbs/Day	Milligrams/L (mg/L)
8	Statistical Base	Maximum	Daily Maximum	Maximum	Maximum	Maximum	Maximum
9	Limits	-/-	- / 230	-/-	-/-	-/-	-/-
10	Benchmarks	-/-	-/-	-/-	-/-	-/-	-/-
11	Design Limit						
12	Date	Value	Value	Value	Value	Value	Value
13	1/1/2013	12.1	91	6.3	47.5	6.3	47.5
14	2/1/2013	17.7	125	5.4	38.4	4	28.4
15	3/1/2013	16.3	122	8.7	65.2	4.6	34.8
16	4/1/2013	9.3	70	4.5	33.9	5.9	44.3
17	5/1/2013	8.3	110	11.4	152	4.1	55
18	6/1/2013	7.8	93	4.7	56.1	4.2	50.6
19	7/1/2013	8	137	3.4	58.1	3.4	57.9
20	8/1/2013	6.7	101	2.5	37.4	3.1	47
21	9/1/2013	9.5	114	3.54	38.6	0.09	1
22	10/1/2013	8.5	93	3.3	36.4	4.16	45.3
23	11/1/2013	9.8	117	3.1	37.6	1	42.1
24	12/1/2013	7.3	110	3.1	47.2	2.2	33.4
25	1/1/2014	12.9	194	3.4	45.4	3.8	51
26	2/1/2014	7.8	85	5.1	56	4.8	52.5
27	3/1/2014	7.1	85	25	250	2.71	27.1
28	4/1/2014	6.7	100	2.72	40.8	2.24	33.6
29	5/1/2014	58.8	69	3.2	38.6	3.2	35.4
30	6/1/2014	12	121	3.7	37.3	3.2	32.2
31	7/1/2014	7.6	101	0.01	36.3	3.3	43.5
32	8/1/2014	10	111	3.9	43.6	3.6	39.7
33	9/1/2014	18	158	5	43.2	3.9	34.1
34	10/1/2014	17.6	192	3.46	37.7	3.48	37.9
35	11/1/2014	7	93	10.7	117	3.8	41.2
36	12/1/2014	9.3	93	47.1	47.1	3.7	37.2
37	1/1/2015	7	93	17.7	193	3.77	41.2
38	2/1/2015	7.9	95	6.78	54.2	5.71	45.7
39	3/1/2015	9.8	123	4.1	41	2.4	23.7
40	4/1/2015	9.81	107	3.92	42.8	3.4	37.1
41	5/1/2015	10.9	146	2.8	37	3.9	51.6
42	6/1/2015	5	75	2.3	33.8	2.7	41.2
43	7/1/2015	6.2	93	2.61	34.8	3.16	42.1
44	8/1/2015	6.6	72	3.4	37	3.4	37.1
45	9/1/2015	5.6	67	3.5	41.4	2.8	33.7
46	10/1/2015	10.8	129	2.9	34.2	3.4	41.3
47	11/1/2015	7.1	94	2.6	35.2	3	40.2
48	12/1/2015	10.5	105	5.2	52.4	0.03	0.32
49	1/1/2016	8.9	134	6.7	100	2.54	38.1
50	2/1/2016	17.1	137	4.1	41.1	5.2	48.2

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6	Parameter	BOD5	BOD5	Chloride	Chloride	Nitrogen (calculation)	Nitrogen (calculation)
7	Units	Lbs/Day	Milligrams/L (mg/L)	Lbs/Day	Milligrams/L (mg/L)	Lbs/Day	Milligrams/L (mg/L)
8	Statistical Base	Maximum	Daily Maximum	Maximum	Maximum	Maximum	Maximum
9	Limits	-/-	-/230	-/-	-/-	-/-	-/-
10	Benchmarks	-/-	-/-	-/-	-/-	-/-	-/-
11	Design Limit						
12	Date	Value	Value	Value	Value	Value	Value
51	3/1/2016	4.2	46	3.6	39.7	3.8	41.1
52	4/1/2016	4.7	63	1.7	25	2	27.1
53	5/1/2016	4.1	55	1.76	23.5	0.04	0.48
54	6/1/2016	5.5	73	1.57	20.9	2.93	39.1
55	7/1/2016	6.53	87	2.35	31.3	3.24	43.2
56	8/1/2016	6.9	92	3.22	42.9	2.4	32.4
57	9/1/2016	5.6	84	3.01	36.1	3.6	43.6
58	10/1/2016	9.8	131	2.8	37.2	2.6	34.2
59	11/1/2016	5.3	64	3.11	37.3	3.64	43.5
60	12/1/2016	8.5	102	3.8	46	3.8	45.1
61	1/1/2017	6.31	84	6.3	94	3.2	42.3
62	2/1/2017	8.2	82	7.3	87.4	0.04	0.51
63	3/1/2017	6.87	103	3.23	48.4	2.64	39.6
64	4/1/2017	11.2	134	3.4	40.9	4	48.2
65	5/1/2017	7.8	94	3.6	43		
66	6/1/2017	5.4	85	0.39	5.91	3.83	51.03
67	7/1/2017	5	66.3	3.2	42.6	4.9	65.12
68	8/1/2017	14.01	168	3.42	41	4.62	55.43
69	9/1/2017	17.61	192	2.99	39.9	5.06	60.63
70	10/1/2017	21.8	158	6	45	8.46	63.41
71	11/1/2017	14.3	190	3	35.8	1.9	22.4
72	12/1/2017	15.4	154	5.3	45.5	4.3	37.2
73	Min	4.1	46	0.01	5.91	0.03	0.32
74	Max	58.8	194	47.1	250	8.46	65.12
75	Average	10.24	107.71	5.28	52.14	3.41	39.15
76	Median	8.25	100.5	3.44	41	3.4	41.2
77	95th Percentile	17.715	190.1	11.715	118.75	5.729	58.173

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6	Parameter	pH	pH	Phosphoru	Phosphorus	Solids (Residue)	Solids (Residue)	Solids (Residue)	Solids (Residue)
7	Units	Standard	Standard	Lbs/Day	Milligrams/L (mg/L)	Lbs/Day	Lbs/Day	Milligrams/L (mg/L)	Milligrams/L (mg/L)
8	Statistical Base	Maximum	Minimum	Maximum	Maximum	Maximum	Maximum	Daily Maximum	Maximum
9	Limits	- / 10	6 / -	- / -	- / -	- / -	- / -	- / 150	- / -
10	Benchmarks	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
11	Design Limit								
12	Date	Value	Value	Value	Value	Value	Value	Value	Value
13	1/1/2013	7.41	6.98	0.81	6.04	6.7	51.8	50	388
14	2/1/2013	7.12	6.96	0.74	5.23	5.9	51.3	44	362
15	3/1/2013	7.41	6.81	0.54	4.06	8.1	44.6	61	334
16	4/1/2013	7.17	7.02	0.72	5.41	7.1	56	53	422
17	5/1/2013	7.03	6.81	0.5	7.23	2.9	24.1	38	322
18	6/1/2013	7.21	6.99	3.7	6.68	7	27	84	324
19	7/1/2013	7.04	6.88	0.39	6.75	3	16.2	51	278
20	8/1/2013	7.13	6.86	0.42	6.23	2.7	16.4	41	246
21	9/1/2013	7.11	6.87	1.03	11.2	2.2	25	26	298
22	10/1/2013	7.16	6.89	0.55	6.03	12.4	26	135	312
23	11/1/2013	7.24	6.99	0.54	6.48	3.8	21.9	46	262
24	12/1/2013	7.02	6.91	0.51	6.17	6.8	16.9	81	254
25	1/1/2014	7.1	6.95	0.24	3.16	2.3	29.3	34	352
26	2/1/2014	6.98	6.86	0.5	5.48	3.4	22	37	264
27	3/1/2014	6.91	6.83	0.36	3.55	6.1	31.4	61	314
28	4/1/2014	6.9	6.81	0.45	6.81	3.3	25.9	50	388
29	5/1/2014	7.06	6.91	0.6	6.6	6.7	24	73	287
30	6/1/2014	7.29	6.75	0.6	6.44	5.5	29.4	55	294
31	7/1/2014	7.1	6.85	0.5	6.13	4.6	18.6	61	248
32	8/1/2014	7.23	7.08	0.49	5.38	7.4	27	81	290
33	9/1/2014	7.31	6.97	0.64	5.51	4.9	38	42	328
34	10/1/2014	7.11	6.91	0.59	6.36	5.8	25.7	63	281
35	11/1/2014	7.03	6.93	0.35	3.88	6.5	34.9	71	380
36	12/1/2014	6.91	6.83	0.58	5.89	12	38.2	120	382
37	1/1/2015	6.94	6.84	0.55	6.03	4.4	49.7	58	542
38	2/1/2015	6.89	6.84	0.83	6.65	8.4	45	67	360
39	3/1/2015	6.74	6.47	0.7	7.49	3.1	34	41	337
40	4/1/2015	6.91	6.36	0.61	6.65	5.32	27.8	58	303
41	5/1/2015	6.91	6.76	0.49	6.47	3.7	21.2	49	282
42	6/1/2015	6.81	6.76	0.38	5.64	4.5	21.2	68	318
43	7/1/2015	6.98	6.77	0.44	5.9	6.2	24.8	83	330
44	8/1/2015	6.95	6.85	0.6	6.54	5.6	30	61	328
45	9/1/2015	7.11	6.91	0.54	6.43	4.6	16.3	55	196
46	10/1/2015	7.01	6.84	0.47	5.65	3.9	27.2	47	326
47	11/1/2015	7.09	6.95	0.51	6.79	5.9	23	71	306
48	12/1/2015	7.06	6.96	0.63	6.25	5.5	32	55	312
49	1/1/2016	7.48	6.85	0.36	5.46	5.7	30	86	446
50	2/1/2016	7.08	6.96	0.65	6.03	7.5	26.6	69	266

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6	Parameter	pH	pH	Phosphoru	Phosphorus	Solids (Residue)	Solids (Residue)	Solids (Residue)	Solids (Residue)
7	Units	Standard	Standard	Lbs/Day	Milligrams/L (mg/L)	Lbs/Day	Lbs/Day	Milligrams/L (mg/L)	Milligrams/L (mg/L)
8	Statistical Base	Maximum	Minimum	Maximum	Maximum	Maximum	Maximum	Daily Maximum	Maximum
9	Limits	- / 10	6 / -	- / -	- / -	- / -	- / -	- / 150	- / -
10	Benchmarks	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
11	Design Limit								
12	Date	Value	Value	Value	Value	Value	Value	Value	Value
51	3/1/2016	8.11	6.92	0.52	5.62	3.3	29	36	316
52	4/1/2016	7.02	6.81	0.21	3.21	3.5	16.6	46	248
53	5/1/2016	7.11	6.99	0.24	3.25	3.8	18.6	50	248
54	6/1/2016	7.06	6.89	0.21	2.82	6.2	15.9	82	212
55	7/1/2016	7.07	6.97	0.29	3.82	5.54	19.7	83	262
56	8/1/2016	6.9	6.83	0.47	6.32	9.5	28	126	336
57	9/1/2016	7.11	6.99	0.51	6.17	3.8	28	46	330
58	10/1/2016	7.07	6.96	0.39	5.26	3	23	40	310
59	11/1/2016	7.06	6.93	0.54	6.44	4.34	28.4	52	340
60	12/1/2016	7.16	6.96	0.46	5.53	4.1	29	49	348
61	1/1/2017	7.15	6.99	0.3	4.43	3.6	27	48	400
62	2/1/2017	7.37	7.16	0.31	3.66	5.8	29	58	342
63	3/1/2017	7.16	6.96	0.28	4.16	2.87	19.8	43	296
64	4/1/2017	6.81	6.49	0.4	4.14	4.2	27	50	318
65	5/1/2017	7.01	6.74	0.4	5.28	3.8	28	46	336
66	6/1/2017	7.02	6.79	2.68	40.1	13.51	21.62	72	324
67	7/1/2017	7.12	6.85	0.48	6.4	3.8	26	50	348
68	8/1/2017	7.04	6.9	0.46	5.56	2.93	26.69	39	320
69	9/1/2017	6.98	6.86	0.53	6.31	2.67	22.67	32	302
70	10/1/2017	7.03	6.9	0.86	6.48	1.65	44.3	22	332
71	11/1/2017	6.88	6.77	0.31	3.72	2.1	23	28	276
72	12/1/2017	7.14	6.53	0.69	5.92	3.6	42	36	362
73	Min	6.74	6.36	0.21	2.82	1.65	15.9	22	196
74	Max	8.11	7.16	3.7	40.1	13.51	56	135	542
75	Average	7.09	6.87	0.59	6.25	5.15	28.39	57.67	319.47
76	Median	7.065	6.885	0.505	6.03	4.55	27	51.5	319
77	95th Percentile	7.41	6.9915	0.8685	7.243	9.625	49.78	87.7	401.1

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Total Phosphorus Interim Limits Data  
for 95<sup>th</sup> Percentile Calculation

1	Sample Date	Lb/Day		Sample Date	mg/L
2	1/24/2013	0.81		1/24/2013	6.04
3	2/14/2013	0.74		2/14/2013	5.23
4	3/21/2013	0.54		3/21/2013	4.06
5	4/11/2013	0.72		4/11/2013	5.41
6	5/16/2013	0.54		5/16/2013	7.23
7	6/13/2013	3.7		6/13/2013	6.68
8	7/18/2013	0.39		7/18/2013	6.75
9	8/15/2013	0.42		8/15/2013	6.23
10	9/26/2013	1.03		9/26/2013	11.2
11	10/17/2013	0.55		10/17/2013	6.03
12	11/21/2013	0.54		11/21/2013	6.48
13	12/30/2013	0.51		12/30/2013	6.17
14	1/15/2014	0.24		1/15/2014	3.16
15	2/6/2014	0.5		2/6/2014	5.48
16	3/6/2014	0.36		3/6/2014	3.55
17	4/24/2014	0.45		4/24/2014	6.81
18	5/21/2014	0.55		5/21/2014	6.6
19	6/19/2014	0.6		6/19/2014	6.44
20	7/24/2014	0.5		7/24/2014	6.13
21	8/20/2014	0.49		8/20/2014	5.38
22	9/11/2014	0.64		9/11/2014	5.51
23	10/16/2014	0.59		10/16/2014	6.36
24	11/26/2014	0.35		11/26/2014	3.88
25	12/4/2014	0.58		12/4/2014	5.89
26	1/8/2015	0.55		1/8/2015	6.03
27	2/5/2015	0.83		2/5/2015	6.65
28	3/5/2015	0.7		3/5/2015	7.49
29	4/2/2015	0.61		4/2/2015	6.65
30	5/7/2015	0.49		5/7/2015	6.47
31	6/18/2015	0.38		6/18/2015	5.64
32	7/30/2015	0.44		7/30/2015	5.9
33	8/20/2015	0.6		8/20/2015	6.54
34	9/17/2015	0.54		9/17/2015	6.43
35	10/8/2015	0.47		10/8/2015	5.65

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1	Sample Date	Lb/Day		Sample Date	mg/L
36	11/12/2015	0.51		11/12/2015	6.79
37	12/23/2015	0.63		12/23/2015	6.25
38	1/21/2016	0.36		1/21/2016	5.46
39	2/18/2016	0.65		2/18/2016	6.03
40	3/17/2016	0.52		3/17/2016	5.62
41	4/28/2016	0.21		4/28/2016	3.21
42	5/12/2016	0.24		5/12/2016	3.25
43	6/2/2016	0.21		6/2/2016	2.82
44	7/21/2016	0.29		7/21/2016	3.82
45	8/18/2016	0.47		8/18/2016	6.32
46	9/1/2016	0.51		9/1/2016	6.17
47	10/6/2016	0.39		10/6/2016	5.26
48	11/10/2016	0.54		11/10/2016	6.44
49	12/8/2016	0.46		12/8/2016	5.53
50	1/26/2017	0.3		1/26/2017	4.43
51	2/23/2017	0.31		2/23/2017	3.66
52	3/9/2017	0.28		3/9/2017	4.16
53	4/20/2017	0.4		4/20/2017	4.14
54	5/15/2017	0.4		5/15/2017	5.28
55	6/21/2017	Outlier		6/21/2017	Outlier
56	7/6/2017	0.48		7/6/2017	6.4
57	8/17/2017	0.46		8/17/2017	5.56
58	9/8/2017	0.53		9/8/2017	6.31
59	10/12/2017	0.86		10/12/2017	6.48
60	11/22/2017	0.31		11/22/2017	3.72
61	12/28/2017	0.69		12/28/2017	5.92
62	95th Percentile	0.83		95th Percentile	6.85

Notes: 6/21/2017 data point (2.68 lb/day and 40.1 mg/L) removed because it is an outlier.



Total Phosphorus Final Limits Calculation  
for 65% Reduction from Interim Limit

$$\mathbf{0.29\ lb/day} = 0.83\ lb/day - (0.83 \times 0.65)$$

$$\mathbf{2.40\ mg/L} = 6.85\ mg/L - (6.85\ mg/L \times 0.65)$$

## **Appendix E—Response to Comments**

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

DRAFT