

# Fact Sheet for State Reclaimed Water Permit ST0007373

## Holmes Harbor Sewer District Water Reclamation Facility

Effective Date: January 1, 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 Reclaimed Water permit for the Holmes Harbor Water Reclamation Facility (WRF). It complies with Section 173-219-280 of the Washington Administrative Code (WAC), which requires Ecology to prepare a fact sheet to support each reclaimed water permit.

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 the Holmes Harbor WRF, State Reclaimed Water permit no. ST0007373, were available for public review and comment from October 24, 2018, until November 26, 2018. For more details on preparing and filing comments about these documents, please see **Appendix A--Public Involvement Information**.

The Holmes Harbor Sewer District (the District) has reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, type and rate of reclaimed water production, or distribution and use area details prior to publishing this draft fact sheet for public notice.

After the public comment period closes, Ecology summarizes substantive comments and provides responses to them. Ecology will include the summary and responses to comments to this fact sheet as **Appendix E--Response to Comments**, and publish it when issuing the final State Reclaimed Water 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

The Holmes Harbor Sewer District WRF:

- Produces Class A reclaimed water from domestic wastewater.
- Distributes the water for beneficial use (irrigation) at the Holmes Harbor Golf Course.

The Holmes Harbor Golf Course, which is located adjacent to the WRF, is owned by the Holmes Harbor Sewer District.

Ecology based requirements in the previous permit on its interim Water Reclamation and Reuse Standards, developed in collaboration with the Department of Health (DOH) in 1997. The proposed permit imposes requirements contained in the recently adopted Reclaimed Water Rule, 173-219 WAC, including

- Different BOD<sub>5</sub> and TSS effluent limits, than those outlined in the permit issued on September 20, 2013.
- An annual reclaimed water summary report.
- Cross-connection control program development.

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## I. Introduction

In enacting the Reclaimed Water Use law, chapter 90.46 RCW, the Washington State Legislature found that it was in the best interest of present and future generations to encourage the use of reclaimed water in ways that protect the environment as well as the health and safety of all Washington citizens. The Legislature declared that the people of the state of Washington have a primary interest in the development of facilities to provide reclaimed water to replace potable water in non-potable applications, to supplement existing surface and groundwater supplies, and to assist in meeting the future water requirements of the state. The law directed Ecology, in coordination with DOH, to adopt rules for reclaimed water use. Ecology adopted the Reclaimed Water Rule, chapter 173-219 WAC, in January 2018.

RCW 90.46.220 and WAC 173-219-070 require any person proposing to generate any type of reclaimed water for a use regulated under the Reclaimed Water Use law to obtain a permit from either Ecology or DOH. The Reclaimed Water Rule designates the lead agency responsible for overseeing the engineering reviews and permitting of reclaimed water facilities based on the type of facility. Ecology is the lead agency when the source water for reclaimed water production is an effluent from a domestic wastewater treatment or water pollution control facility that would typically require a permit from Ecology for effluent disposal to surface water under WAC 173-220 or to groundwater under WAC 173-216. Reclaimed water facility owners must obtain a permit before they may distribute or use any reclaimed water.

All reclaimed water permits issued by Ecology must specify conditions requiring the facility to adequately and reliably treat its wastewater to a level appropriate for the approved beneficial uses of the water. In addition to meeting the water quality limits, the standards require specific treatment and disinfection requirements beyond those of most conventional wastewater treatment facilities. The standards also require automated alarms, redundancy of treatment units, emergency storage, stringent operator training requirements and public notification of reclaimed water use.

Under the State Reclaimed Water permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make it available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days. (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 Reclaimed Water permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in **Appendix E**.

## II. Background Information

**Table 1. General Facility Information**

<b>Facility Information</b>	
Applicant	Holmes Harbor Sewer District P.O. Box 1330 Freeland, WA 98249
Facility Name and Address	Holmes Harbor Sewer District Water Reclamation Facility 1200 E. Antelope Dr. Freeland, WA 98249
Contact at Facility	Name: Mark Dumke Title: Lead Operator/Manager Telephone #: (360) 331-4636
Responsible Official	Name: Jens Rivera Title: President of the Board of Commissioners Address: P.O. Box 1330 Freeland, WA 98249 Telephone #: (360) 331-4636
Facility Location (NAD83/WGS84 reference datum)	Latitude: 48.02942 Longitude: -122.55117
Type of Treatment	Enhanced secondary treatment – Sequencing batch reactor with sand filtration
Highest class of water produced	Class A
Approved beneficial uses	Irrigation
<b>Permit Status</b>	
Issuance Date of Previous Permit	September 20, 2013
Application for Permit Renewal Submittal Date	March 30, 2018
Date of Ecology Acceptance of Application	April 9, 2018
<b>Inspection Status</b>	
Date of Last Inspection	March 6, 2018



## **A. Reclaimed water project description**

### *History*

Holmes Harbor Golf and Yacht Club is a planned development containing approximately 700 single-family building lots. The development is adjacent to and surrounds the Holmes Harbor Golf Course fairways. The building sites have inadequate percolation for on-site septic tank and drainfield systems. In 1982, Ecology approved a comprehensive sewer plan that proposed the disposal of treated residential wastewater through a marine outfall in Mutiny Bay. The Holmes Harbor Sewer District (the District) did not implement this plan due to local opposition of a marine outfall. Ecology approved a revised comprehensive sewer plan in 1984 which proposed the use of reclaimed water to irrigate the golf course. The District was forced to delay construction of the treatment facility due to lack of financial support. The District updated the comprehensive sewer plan in September 1990, which Ecology and DOH approved. The District constructed the existing wastewater treatment plant, the Holmes Harbor WRF, in 1995.

### *Collection system status*

The District's sewer service extends to approximately 700 lots in the development; about 390 of these lots have homes and are connected. The collection system consists of individual septic tank effluent pump (STEP) systems that the District installed. The STEP systems pump partially treated wastewater from the individual septic tanks to the plant through pressurized pipes. The individual septic systems contain check valves to maintain positive pressure in the entire system. The District is also responsible for the O&M of the septic tanks and grinder pumps. The septic tanks are periodically inspected to determine when pumping is required. Due to the range of population (age, lifestyle) in this community, septic tank pumping is not needed as often as compared to other residential communities.

### *Source water*

The source water to the facility is only residential, domestic waste from the planned development surrounding the Holmes Harbor Golf Course. The community has no commercial or industrial users. As described below, all wastewater from the community is treated through a conventional secondary treatment process prior to filtration and disinfection steps needed for reclaimed water production.

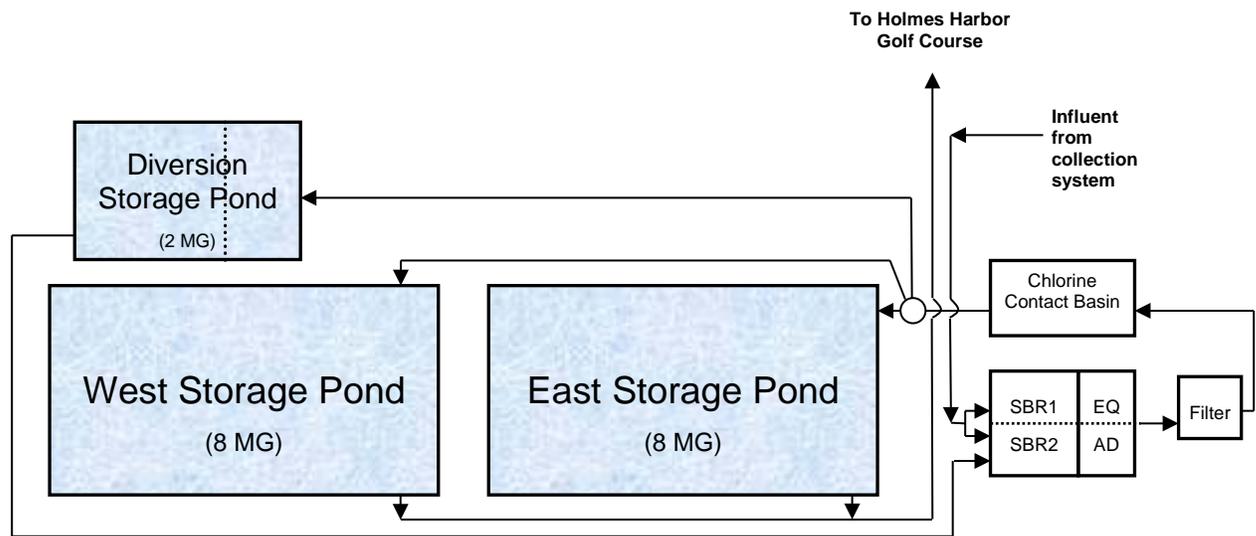
### *Reclaimed water treatment process*

The influent to the treatment plant is residential septic tank effluent from an estimated population of 1,000. Since sewage is only from residential septic tanks, influent flow to the facility is not continuous and is dependent on use at each residence. The District's treatment process includes an activated sludge sequencing batch reactor (SBR), coagulation, sand filtration, and chlorination. Wastewater influent flows to one-of-two SBR basins, 53,770 gallons each. Both SBR basins are in service throughout the year; influent alternates between the two basins. The SBR processes the wastewater with about 5 cycles per day. Each cycle includes a fill, react fill, react, settle, decant, and idle stage. SBRs function similarly to any activated sludge system, although in a batch instead of continuous flow, by oxidizing the organic matter. One SBR is always in the fill or react fill stage. Decanted water then flows to an equalization basin prior to inline polymer blending, coagulation, and filtration through a traveling bridge sand filter. The sand filter is backwashed on a regular

basis and backwash is routed to the SBRs. Flow is then disinfected with a 12.5% sodium hypochlorite solution and passes through one-of-two 3,140-gallon contact chambers. A treatment process schematic is shown in Figure 2.

The system also includes two storage ponds, each with an 8-million-gallon capacity. At design flow, each storage pond can hold up to 80 days of reclaimed water. The beneficial use of the reclaimed water, irrigation, is limited to use in the dry weather (summer) months. The ground at the golf course becomes too saturated in the wet weather (winter) months to use the reclaimed water. The facility stores all generated reclaimed water in the winter in the two storage ponds. Since operation of the facility and use of storage ponds, there has not been an issue with capacity of the storage ponds over the winter or spring.

A third pond, an off-spec pond, was constructed in 2008 as a diversion pond to hold treated water that does not meet reclaimed water standards. The off-spec pond has a capacity of 2 million gallons and is divided into two basins. At design flow, the off-spec pond can hold up to 20 days of improperly treated reclaimed water. Feedback to the PLC, programmable logic control, from residual chlorine and turbidity monitors activate the pump to discharge water to the off-spec pond when preset levels are exceeded. The preset levels are more stringent than the permit limits. Water in the off-spec ponds is rerouted to the SBRs or equalization basin (pre coagulation and filtration) depending on the additional treatment required.



### Pond Locations

(not to scale)

**Figure 2. Treatment Process Schematic**

### *Operator certification*

Chapter 173-219-250 requires an operator certified by Ecology under Chapter 173-230 to operate reclaimed water treatment facilities. Guidance in Ecology's *Permit Writer's Manual* and WAC 173-230 classify the treatment system at the Holmes Harbor WRF as a Class III facility. As such, the operator in responsible charge of the day-to-day operations at the facility must, at a minimum, be rated as a Group III operator. An operator certified for at least a Group II facility must be in charge of each scheduled shift at the facility.

The District operates a small distribution system with only one user. Reclaimed water is piped from the treatment facility to irrigation source ponds at the Holmes Harbor Golf Course, about 1000 feet from the treatment facility. Therefore, Ecology will not require the facility to have an operator certified under the DOH's waterworks operator certification program.

In addition, the District has a compliance schedule to develop a cross-connection control program, pending review of the cross-connection control report (R4.C.a of the proposed permit). The report is required to be reviewed by a certified cross-connection control specialist (CCS) prior to submittal to Ecology. Therefore, Ecology will not require an on-site certified CCS.

All certification requirements will be reevaluated during the next permit renewal.

### *Solid wastes*

The treatment process removes waste activated sludge from the SBRs and, occasionally, the equalization basin to an aerobic digester for partial digestion. The facility manages biosolids generated during the treatment process in accordance with the General Biosolids Permit, Permit No. BT0007373. The District periodically transports the digested sludge, via truck, to the Island County Septage Treatment Facility for further treatment and land application. The Island County Septage Treatment Facility has 3/8-inch screening to comply with solid waste screening requirements in WAC 173-308-205.

In addition, the solids from the residential septic tanks are periodically pumped by a third-party septage company and hauled to Island County Septage for further treatment.

### *Distribution system and authorized beneficial uses*

Reclaimed water generated at the Holmes Harbor facility is used exclusively to irrigate the Holmes Harbor Golf Course, which is owned by the District. Due to high precipitation and saturated ground during winter months, the District limits irrigation to the dry months, typically between May and October. Storage ponds at the facility hold treated reclaimed water during the winter months when irrigation is not needed. During the irrigation season, the District transfers water from the storage ponds to smaller ponds on the golf course. The irrigation system then withdraws water from the smaller ponds during the night to irrigate the course while the public is not present. Irrigation lines are installed in 56 of the course's 70 acres. The District owns the Holmes Harbor Golf Course and leases the golfing operations to a third party.

The District developed an irrigation management plan (N3 Consulting, 2013) to ensure proper beneficial use of the reclaimed water. It calculated the amount of water the golf course grasses could use before the water infiltrates into the ground or flows over land. The

report stated that the crop irrigation requirement, after subtracting the typical dry season precipitation amount of 8.4 inches, is 17.77 inches, which converts into 35.4 million gallons. Table 3 shows that the District uses an annual average volume of 16.6 million gallons of reclaimed water used to irrigate the golf course, well under the irrigation requirement. The District takes great care (regular mowing and maintenance of the fairways) to ensure that the reclaimed water use is consistent with the beneficial use.

*Water rights protection*

Chapter 90.46.120 RCW states that the owner of a wastewater treatment facility producing reclaimed water under a reclaimed water permit has the exclusive rights to that water. That right is tempered, however, by chapter 90.46.130 RCW, which states that the use of reclaimed water must not impair any existing water rights downstream of any freshwater discharge points of the facilities unless compensation or mitigation is agreed upon by the holder of the affected water right. Ecology cannot issue a reclaimed water permit unless the permit applicant demonstrates compliance with water rights protection.

Ecology’s Water Resources Program determined that the Holmes Harbor WRF’s use of reclaimed water does not impair existing water rights. The facility has been in operation since 1995 with no calls of impairment. In addition, Whidbey Island currently has no streams with instream flow regulations. Water rights impairments will be evaluated at each permit renewal.

**B. Source water characterization**

The District reported in discharge monitoring reports the concentration of pollutants detected in the source water to the water reclamation facility. As described above, the source water to the facility is residential, domestic sewage from septic tank effluent. Table 2 below summarizes the characteristics of the source water.

**Table 2. Wastewater Influent Characterization**

Parameter	Units	# of Samples	Average Value	Maximum Value
Flow	million gallons/day (mgd)	1/day	0.04	0.10
Biochemical Oxygen Demand (BOD <sub>5</sub> )	mg/L	2/week	169	278
BOD <sub>5</sub>	lbs/day	2/week	55.2	112
Total Suspended Solids (TSS)	mg/L	2/week	125	256
TSS	lbs/day	2/week	40.4	88.0

**C. Reclaimed water characterization**

The District reported the concentration of pollutants in the final reclaimed water in the permit application and in discharge monitoring reports. Table 3 below summarizes the characteristics of the reclaimed water prior to distribution to the use area.

**Table 3. Reclaimed Water Characterization**

Parameter	Units	# of Samples	Average Value	Maximum Value
Flow (to storage ponds)	mgd	1/day	0.055	0.52
Flow (to golf course ponds)	mgd	1/day <i>*only when discharging to golf course ponds</i>	0.046	0.32

Parameter	Units	# of Samples	Average Annual Value (2013-2017)	Maximum Annual Value (2017)
Total reclaimed water volume to golf course	million gallons	--	16.6	17.2

Parameter	Units	# of Samples	Average Value (of monthly averages)	Maximum Value (of weekly averages)
BOD <sub>5</sub>	mg/L	2/week	4.20	9.40
BOD <sub>5</sub>	lbs/day	2/week	1.93	4.50
TSS	mg/L	2/week	1.67	6.60
TSS	lbs/day	2/week	0.780	4.20

Parameter	Units	# of Samples	Average Value	Maximum Value
Turbidity	NTU	1/day	0.818	3.70

Parameter	Units	# of Samples	Maximum 7-day Median	Maximum Value
Total Coliforms	#/100 mL	1/day	11.5	13.0

Parameter	Units	# of Samples	Minimum Value	Maximum Value
Total residual chlorine	mg/L	1/day	1.0	8.8
Dissolved oxygen (DO)	mg/L	5/week	3.0	9.1
pH	standard units	5/week	7.0	7.5
Coagulant added	lbs/day	1/day	2.6	36

Parameter	Units	# of Samples	Average Value	Maximum Value
Ammonia	mg/L as N	4/year	19.1	48.9
Nitrate + Nitrite	mg/L as N	4/year	5.89	40.6
Total Kjeldahl Nitrogen	mg/L as N	4/year	19.2	39.6
Total Phosphorus	mg/L as P	4/year	3.81	29.4

**D. Summary of compliance with previous permit issued September 20, 2013**

The previous permit placed reclaimed water limits on BOD<sub>5</sub>, TSS, turbidity, total coliform, pH, total residual chlorine, and dissolved oxygen.

The District has consistently complied with the reclaimed water limits and permit conditions for the permit issued on September 20, 2013. Ecology assessed compliance based on its review of the facility's discharge monitoring reports (DMRs) and on inspections conducted by Ecology.

In October 2013, the District reported a 7-day median total coliform level of 11.5/100 mL (max limit = 2.2/100 mL). The District conducted extensive troubleshooting to determine the reason for high total coliform counts when total residual chlorine and turbidity were at

appropriate levels. The testing that resulted in the numeric limit violation above was determined to be a false positive. The facility sent samples to an independent lab, Edge Analytical, for a test positive confirmation. The Edge Analytical lab results confirmed a false positive colony. The District reviewed and updated the testing protocol for total coliform to ensure false positives did not happen again.

The District had only one late submittal during the previous permit term. The Reclaimed Water Use Summary Plan was due on March 31, 2018, but was received by Ecology on April 12, 2018.

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

Ecology must ensure that its decision to reissue the proposed reclaimed water permit is consistent with the State Environmental Policy Act, Chapter 43.21C RCW. The SEPA Rules, WAC 197-11-600, allow Ecology to use existing environmental documents to satisfy this requirement. Holmes Harbor Sewer District completed an environmental review and SEPA checklist for upgrades to the Holmes Harbor WRF on October 5, 2006. The Holmes Harbor Sewer District issued a determination of non-significance for the project on October 11, 2006. Ecology has reviewed the documents and determination and has adopted the findings for the reissuance of the proposed permit.

## **III. Proposed Permit Limits**

The Reclaimed Water Use law, Chapter 90.46 RCW requires reclaimed water generators to adequately and reliably treat reclaimed water prior to distribution and beneficial use. Chapter 173-219-270 WAC requires Ecology to include enforceable limits on water quality in the reclaimed water permits it issues. The enforceable limits are based on:

- General performance standards listed in chapter 173-219-330 WAC.
- Specific use-based requirements listed in chapter 173-219-390 WAC.
- Water quality standards for groundwater of the state of Washington in chapter 173-200 WAC when the reclaimed water authorizes groundwater recharge as a beneficial use.
- Water quality standards for surface waters of the state of Washington in chapter 173-201A WAC when the reclaimed water permit authorizes surface water augmentation or wetland enhancements as a beneficial use.
- Drinking water maximum contaminant levels in chapter 246-290-310 WAC when the permit authorizes certain groundwater recharge and surface water augmentation beneficial uses.
- Ecology applies the most stringent of the standards listed above in developing limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, monitoring, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules and standards adopted by the state of Washington. Ecology does not develop reclaimed water 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 reclaimed water. The permit does not authorize the discharge of the non-reported pollutants. During the five-year permit term, the facility may change the conditions of use of its reclaimed water 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 pollutants, a permitted facility could be violating its permit.

### A. Design criteria

Under WAC 173-219-240, flows and waste loadings must not exceed approved design criteria. Ecology approved design criteria for this facility's treatment plant in the engineering report *Reliability Assessment & Storage Pond Addition* dated March 2007 and prepared by CHS Engineers, LLC. Table 4 below summarizes the approved design criteria.

**Table 4. Design criteria for Holmes Harbor WWTP**

Parameter	Design Quantity
Maximum Month Design Flow (MMDF)	0.1 MGD
BOD <sub>5</sub> Loading for Maximum Month	150 lbs/day
TSS Loading for Maximum Month	125 lbs/day

### B. Limits based on reclaimed water performance standards

Reclaimed water produced and distributed in accordance with the proposed permit must meet minimum standards for biological oxidation, water clarity, and disinfection. The biological oxidation standard generally requires compliance with the secondary treatment requirements in chapter 173-221-040 WAC. Chapter 173-219-330 establishes the applicable performance standards for all Class A and Class B reclaimed water shown in Table 5.

**Table 5. Minimum Biological Oxidation Standards**

Parameter	Average Monthly Limit	Average Weekly Limit
Dissolved Oxygen	Must be measurably present (minimum of 0.2 mg/L)	
BOD <sub>5</sub>	30 mg/L	45 mg/L
TSS	30 mg/L	45 mg/L
	<b>Minimum</b>	<b>Maximum</b>
pH	6.0 standard units	9.0 standard units

The biological oxidation standard listed above primarily defines the minimum quality of the source water to the reclaimed treatment facility, with the compliance point typically after the last secondary treatment unit and prior to the reclaimed water filtration and disinfection systems. Since not all water reclamation facilities use separate side-stream treatment systems to produce reclaimed water, Ecology may specify alternate compliance points based on the design of each permitted facility. The compliance point for the Holmes Harbor WRF is filtration and before disinfection.

The previous permit included an effluent BOD<sub>5</sub> and TSS limit of 7.0 mg/L (monthly average) and 10.0 mg/L (weekly average). These better than secondary treatment limits for BOD<sub>5</sub> and TSS in the previous permit came from an engineering report which outlined those concentrations as the level of treatment the system could attain and have been the permitted limits since the first state waste discharge permit issued to the District in 1996. The original BOD<sub>5</sub> and TSS limits were not based off of water quality or technology requirements. The BOD<sub>5</sub> and TSS effluent limits required by the new rule, 173-219 WAC, have been implemented in the proposed permit.

The performance standards require that dissolved oxygen be “measurably present” at the compliance point. Ecology includes a minimum limit of 0.2 mg/L in the permit for dissolved oxygen based on the quantitation level for dissolved oxygen testing using Standard Method 4500-OC/OG, as listed in Appendix A of the proposed permit.

In addition to the biological oxidation standards above for all Class A and B reclaimed water, each class of water must comply with separate standards for turbidity, a measure of water clarity, and disinfection. The District must ensure Class A reclaimed water from the permitted facility complies with following standards prior to distribution.

**Table 6. Class A Turbidity and Disinfection Standards**

Parameter	Average Monthly Limit	Sample Maximum Limit
Turbidity	2 NTU	5 NTU
	7-day Median Limit	Sample Maximum Limit
Total Coliform	2.2 CFU/100 mL	23 CFU/100 mL
Virus Removal	Minimum 4-log virus removal or inactivation see WAC 173-219-340	

Ecology based the turbidity standard on the levels typically achievable from a properly operated and maintained coagulation and filtration system, with the compliance point at the end of the chlorine contact chamber and prior to conveyance to the storage ponds. Since continuous turbidity meters often record momentary fluctuations over the course of a day, the standards specify that a treatment system only violates the standard when the maximum turbidity remains over the sample maximum limit for more than five minutes.

Although chapter 173-219-330 WAC include virus removal as a performance standard for Class A reclaimed water, Ecology does not place a numeric limit for this parameter in permits. As stated in WAC 173-219-340, the combination of biological treatment, filtration and disinfection must achieve a minimum of 4-log virus removal or inactivation. In addition, the system must be capable of consistently complying with the water quality standard through the proper design, operation, and maintenance of each unit process in the treatment system. Ecology assesses whether proposed facility designs will comply with the virus removal standard during initial facility engineering reviews and approves the system designs before construction. The proposed permit requires the District to properly operate and maintain all reclaimed water treatment processes according to the approved operations and maintenance manual to maintain compliance with the performance standards.

The previous permit included the following limit on total residual chlorine for disinfection purposes: “A minimum of at least 1 mg/L after an effective contact time of at least 30 minutes is required.” Monitoring to assess compliance with these limits occurred at the end of the chlorine contact chamber prior to the onsite storage ponds. The Reclaimed Water Rule states that all Class A reclaimed water facilities using chlorine for disinfection must be designed to meet this standard at the peak day flow condition for the facility (WAC 173-219-340). Since the rule treats the requirement as a design standard, Ecology and DOH agreed that it is not appropriate to include the requirement as a permit limit. Therefore, the proposed permit does not retain this limit. Setting permit limits on total coliform is sufficient for demonstrating the reclaimed water is adequately disinfected. In addition, facilities using chlorine for disinfection must still use continuous monitoring of chlorine residual for disinfection process control purposes and have automated diversions that prevent the distribution of reclaimed water if the chlorine residual after disinfection falls below a specific set point identified in the facility’s O&M manual.

### **C. Distribution system limits**

Chapter 173-219-370 requires that the producer and distributor of reclaimed water maintain a chlorine residual in the distribution system to prevent biological growth, prevent deterioration of the reclaimed water quality, and to protect public health. The residual requirement applies only to the distribution system conveying reclaimed water from the production facility to the point of use. It does not apply to water held in storage (in impoundments, storage tanks or storage ponds) or to water conveyed to a point of use through surface waters or groundwater. Ecology may also waive the requirement on a case-by-case basis.

As discussed in section II.A of this fact sheet (Distribution System Description), the District initially sends final reclaimed water to ponds at the Holmes Harbor WRF and at the golf course for storage prior to irrigation on land controlled by the District. In consultation with the DOH, Ecology determined that maintenance of a chlorine residual in the distribution system is not necessary due to the management of mixing newly reclaimed water with stored reclaimed water prior to distribution and the relatively short distance to the use area. Therefore, the proposed permit does not include a chlorine residual requirement for the distribution system. The District must continue to operate in the current manner of adding newly generated reclaimed water to the storage ponds prior to distribution. If the District decides to add additional users or beneficial uses, within District property or outside, Ecology and DOH will reassess the distribution system residual chlorine limit waiver.

### D. Comparison of reclaimed water limits with the previous permit issued on September 20, 2013

Table 7. Comparison of Previous and Proposed Limits

Parameter	Monitoring Point	Previous Limits		Proposed Limits	
		Average Monthly	Average Weekly	Average Monthly	Average Weekly
BOD <sub>5</sub>	After filtration and before disinfection	7.0 mg/L 5.84 lbs/day	10 mg/L 8.34 lbs/day	30 mg/L	45 mg/L
TSS	After filtration and before disinfection	7.0 mg/L 5.84 lbs/day	10 mg/L 8.34 lbs/day	30 mg/L	45 mg/L
		<b>Minimum</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Maximum</b>
Dissolved Oxygen	After disinfection and prior to distribution to storage pond	Measurably present	N/A	0.2 mg/L	N/A
pH	After disinfection and prior to distribution to storage pond	6.0	9.0	6.0	9.0
Total Chlorine Residual	After disinfection and prior to distribution to storage pond	1 mg/L	N/A	No limit, monitoring required	
		<b>Average Monthly</b>	<b>Instantaneous Maximum</b>	<b>Average Monthly</b>	<b>Instantaneous Maximum</b>
Turbidity	After disinfection and prior to distribution to storage pond	2 NTU	5 NTU	2 NTU	5 NTU
		<b>7-Day Median</b>	<b>Sample Maximum</b>	<b>7-Day Median</b>	<b>Sample Maximum</b>
Total Coliform	After disinfection and prior to distribution to storage pond	2.2 CFU/100 mL	23 CFU/100 mL	2.2 CFU/100 mL	23 CFU/100 mL

## IV. Monitoring Requirements

Chapter 173-219-260 WAC authorizes Ecology to require monitoring, recording, and reporting in reclaimed water permits as reasonably necessary to verify that the production, distribution or storage of reclaimed water complies with the terms and conditions of the permit. All sampling and analytical methods used for compliance monitoring must conform to the following:

- Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136.
- Monitoring and Analytical Requirements in the National Primary Drinking Water Regulations, 40 CFR Part 141.
- Standard Methods for the Examination of Water and Wastewater (APHA).

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 (#W795) for:

**Table 8. Accredited Parameters**

Parameter Name	Method Name	Matrix Description
<b>General Chemistry</b>		
Turbidity	SM 2130 B-2011	Non-Potable Water
Solids, Total Suspended	SM 2540 D-2011	Non-Potable Water
Chlorine (Residual), Total	SM 4500-CI G-2011	Non-Potable Water
pH	SM 4500-H+ B-2011	Non-Potable Water
Dissolved Oxygen	SM 4500-O G-2011	Non-Potable Water
Biochemical Oxygen Demand	SM 5210 B-2011	Non-Potable Water
<b>Microbiology</b>		
Total coliforms-count	SM 9222 B (mEndo)	Non-Potable Water

## B. Reclaimed water monitoring

Reclaimed Water Condition R2.A in the proposed permit lists the detailed monitoring requirements for the Holmes Harbor WRF. Specified monitoring frequencies take into account the quantity and variability of the reclaimed water, quantity of each of the approved uses, 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).

Ecology allows this facility to do 8-hour manual composite influent sampling for BOD<sub>5</sub> and TSS. The wastewater is pumped from individual, residential septic tanks to the facility. This causes the influent flow to be sporadic and influent to be held in the sampler piping. Past efforts to use a standard composite sampler led to sample preservation issues and a non-representative samples.

## V. Other Permit Conditions

### A. Reporting and record keeping

Ecology based Reclaimed Water Condition R3 on its authority to specify appropriate reporting and record keeping requirements to verify that the production, distribution, and storage of reclaimed water complies the terms and conditions WAC 173-219 and the reclaimed water permit.

## **B. Reclaimed water distribution and use**

Reclaimed Water Condition R4 includes requirements governing the distribution and use of reclaimed water from the permitted facility. Ecology based this permit requirement on the following sections of the Reclaimed Water Rule:

- WAC 173-219-270 – Reclaimed water permit terms and conditions.
- WAC 173-219-290 – Use agreements.
- WAC 173-219-310 – Cross-connection control.
- WAC 173-219-360 – Storage and distribution system requirements.

This condition specifies the beneficial uses authorized by the permit and the areas in which reclaimed water from the permitted facility may be used.

The condition also specifies that the District may not allow the distribution or use of reclaimed water from the permitted facility unless it has signed enforceable use or distribution agreements with each user or distributor. The agreements must include specific conditions on the use and distribution of the water that are included in the proposed permit. The District owns the Holmes Harbor Golf Course property, currently the only beneficial use site of reclaimed water. The District is not required to maintain a use agreement since they own the use area property and operated the irrigation system. However, the District must adhere to the use area requirements in the permit. They must include necessary instructions in the facility's Operations and Maintenance manual to ensure irrigation is done according to the use area requirements. The District must submit a permit application if they intend to distribute reclaimed water for a different use or at a different location than outlined in the permit.

Reclaimed Water Condition R4.C requires the District to develop and implement a cross-connection control program designed to protect the reclaimed water produced at the permitted facility from contamination with lower quality water. The condition also requires coordination with local water purveyors to ensure properties supplied with both reclaimed water and potable water have appropriate cross-connection controls in place to protect the potable water supply. While the drinking water purveyor is responsible for evaluating and approving the cross-connection controls installed to protect potable water, the District must ensure such approval has been granted before it may provide water to the use location.

The District submitted an extension request to Ecology on February 21, 2018. The District requested a nine-month extension to study the recently adopted rule and the impact it has on the District, in particular the rule requirement for the cross-connection control program. Ecology accepted and expanded upon the District's request. The proposed permit includes a compliance schedule for the facility to submit a Cross-Connection Control Evaluation report, annual updates on the development of the program, and a final cross-connection control program implementation date (R4.C).

## **C. Prevention of facility overloading**

Chapter 173-219-240 states that "where design criteria have been established, the generator must not allow flows or waste loadings to exceed approved design criteria." Ecology includes design criteria as enforceable conditions in the reclaimed water permit to ensure the

District operates the permitted facility within the approved design capacity. Reclaimed Water Condition R5 requires the District to:

- Take the actions detailed in proposed permit if flows or waste loadings reach 85% of the rated capacity for three consecutive months, or exceed rated capacity in any month.
- Design and construct expansions or modifications before the treatment plant reaches existing capacity.
- Report and correct conditions that could result in new or increased pollutant loadings.

Reclaimed Water Condition R5 restricts the amount of flow.

#### **D. Operations and maintenance**

Ecology requires the owner and operator of reclaimed water facilities to take all reasonable steps to properly operate and maintain their reclaimed water system in accordance with state regulations (WAC 173-219-240). They must ensure that facility operators use operation and maintenance (O&M) manuals that include detailed instructions for operating and maintaining all components of the reclaimed water production, distribution and use area systems under its control.

The District submitted O&M manual updates to Ecology on December 20, 2017. However, at this time, Ecology determined that the manual is not up to date with the O&M requirements established in WAC 173-219-240. The proposed permit requires submission of a revised manual including the specific reclaimed water O&M manual components.

#### **E. Pretreatment and source control**

Chapter 173-219-300 requires the District to implement source water controls that prevent the presence of substances that may affect the reclaimed water quality or the ability to generate reclaimed water. Reclaimed Water Condition R7 includes requirements the District must follow to control the quality of source water to the reclaimed water production facility.

##### *Duty to enforce discharge prohibitions*

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

- The first section of the pretreatment requirements prohibits the POTW from accepting pollutants which causes “pass-through” or “interference”. This general prohibition is from 40 CFR §403.5(a). Appendix C of this fact sheet defines these terms.
- The second section reinforces a number of specific state and federal pretreatment prohibitions found in WAC 173-216-060 and 40 CFR §403.5(b). These reinforce that the POTW may not accept certain wastes, which:
  - a. Are prohibited due to 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 addendum to the “Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10” (1986) and 40 CFR, Part 403. Under this delegation of authority, Ecology issues wastewater discharge permits for significant industrial users (SIUs) discharging to POTWs which have not been delegated authority to issue wastewater discharge permits. Ecology must approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i) and(iii)].

Industrial dischargers must obtain a permit from Ecology before discharging waste to the Holmes Harbor WRF [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.

## **F. Solid wastes**

To prevent water quality problems, the facility is required in Reclaimed Water Condition R8 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and state water quality standards.

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

## **G. General conditions**

Ecology bases the standardized general conditions on state law and regulations. They are included in all reclaimed water 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 reclaimed water performance standards or water quality standards for groundwaters, based on new information from sources such as inspections, reclaimed water quality monitoring, or groundwater 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 beneficial use of reclaimed water. The permit includes limits and conditions necessary to protect public health and the environment and to implement applicable state laws and regulations governing the production, distribution, and use of reclaimed water. Ecology proposes to issue this permit for a term of 5 years.

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

Washington State Department of Ecology.

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>)

Reclaimed Water Related Information (<https://ecology.wa.gov/Water-Shorelines/Water-quality/Reclaimed-water>)

Revised October 2005. *Implementation Guidance for the Ground Water Quality Standards*, Ecology Publication Number 96-02.  
(<https://fortress.wa.gov/ecy/publications/SummaryPages/9602.html>)

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

December 2011. *Permit Writer's Manual*. Publication Number 92-109  
(<https://fortress.wa.gov/ecy/publications/summarypages/92109.html>)

Washington State Department of Health.

February 1994. *Design Criteria for Municipal Wastewater Land Treatment Systems for Public Health Protection*. (Green Book, in process of being updated)

## Appendix A--Public Involvement Information

Ecology proposes to issue a permit to the Holmes Harbor Sewer District Water Reclamation Facility. The permit includes reclaimed water limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Draft on October 24, 2018, in the *Whidbey News Times/South Whidbey Record* to inform the public and to invite comment on the proposed draft State Reclaimed Water permit and fact sheet.

The notice:

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

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting*, which is available on our website at

<https://fortress.wa.gov/ecy/publications/documents/0307023.pdf>.

You may obtain further information from Ecology by telephone, (425) 649-7000, or by writing to the address listed below.

Water Quality Permit Coordinator  
Washington State Department of Ecology  
Northwest Regional Office  
3190 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

The primary author of this permit and fact sheet is Maia Hoffman.

## 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
<p><b>Department of Ecology</b>            Attn: Appeals Processing Desk            300 Desmond Drive SE            Lacey, WA 98503</p>	<p><b>Department of Ecology</b>            Attn: Appeals Processing Desk            PO Box 47608            Olympia, WA 98504-7608</p>
<p><b>Pollution Control Hearings Board</b>            1111 Israel RD SW            STE 301            Tumwater, WA 98501</p>	<p><b>Pollution Control Hearings Board</b>            PO Box 40903            Olympia, WA 98504-0903</p>

## Appendix C--Glossary

**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).

**Aquifer** -- The geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs.

**Augmentation** -- The intentional addition of water to rivers and streams of the state or other surface water bodies through the zone of saturation or to the surface water.

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

**Average monthly 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.

**Beneficial use** -- The uses of reclaimed water for domestic, stock watering, industrial, commercial, agricultural, irrigation, hydroelectric power production, mining, fish and wildlife maintenance and enhancement, recreational, and thermal power production purposes, and for preservation of environmental and aesthetic values, and for all other uses compatible with the enjoyment of the waters of the state. Beneficial use of reclaimed water includes all uses authorized under chapter 90.46 RCW, and contained within WAC 173-219-390

**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.

**Chlorine, free** -- The amount of chlorine available in a water sample as dissolved gas ( $\text{Cl}_2$ ), hypochlorous acid ( $\text{HOCl}$ ), or hypochlorite ion ( $\text{ClO}^-$ ).

**Chlorine, total** -- The sum of free chlorine and combined chloramines (compounds of organic or inorganic nitrogen and chlorine).

**Class A reclaimed water** -- A high-quality water resource derived from treated domestic wastewater that is suitable for use in areas with unlimited public access. The water must meet or exceed the minimum Class A performance standards in WAC 173-219-330 including, at a minimum, oxidation, coagulation, filtration, and disinfection.

**Class B reclaimed water** -- A high-quality water resource derived from treated domestic wastewater that is suitable for regulated use in areas with restricted public access. The water must meet or exceed the minimum Class B performance standards in WAC 173-219-330 including, at a minimum, oxidation, and disinfection.

**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).

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

**Cross-connection control** -- The practice of using approved devices and management strategies designed to eliminate or prevent the potential for contaminating high-quality waters with lower quality waters.

**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 45 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.

**Distributor** -- The person authorized through a use agreement with a reclaimed water generator to distribute or supply reclaimed water to users. A distributor may also be a generator or a user. Users that distribute reclaimed water to use areas through a gravity conveyance system for agricultural water uses are not distributors.

**Domestic wastewater** -- Wastewater predominantly from residential sources that includes greywater, toilet, or urinal sources. Also includes wastewater generated by commercial, institutional and light industrial entities including restaurants, office complexes, schools, and hospitals. It may include process wastewaters from industrial sources when allowed under federal pretreatment regulations.

**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 173-219-210 and 173-240-060.

**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.

**Generator** -- Any person that generates any type of reclaimed water for a use regulated under RCW 90.46 and WAC 173-219. A generator may also be a distributor or a user.

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

**Greywater** -- Domestic type wastewater flows from bathtubs, showers, bathroom sinks, washing machines, dishwashers, and kitchen or utility sinks. It does not include wastewater from a toilet or urinal.

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

**Groundwater recharge** -- Introduction of reclaimed water to groundwater aquifers for beneficial purposes. Groundwater recharge may be through indirect means where reclaimed water is introduced to groundwater through surface or subsurface infiltration or percolation through an unsaturated vadose zone before it enters groundwater aquifer. Recharge may also be through direct release into a groundwater aquifer through injection wells or other means.

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

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

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

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

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

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

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

**Maximum month design flow (MMDF)** -- The largest volume of flow anticipated to occur during a continuous 30-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.

**Non-potable** -- Water that is not approved by state or local health authorities as being safe for human consumption.

**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.

**Potable water or drinking water** -- Water that is approved under WAC 246-290 or WAC 246-291 as being safe for human consumption.

**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 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.

**Reclaimed water** -- Water derived in any part from a wastewater with a domestic wastewater component that has been adequately and reliably treated to meet the requirements of WAC 173-219, so that it can be used for beneficial purposes. Reclaimed water is not considered a wastewater.

**Quantitation level (QL)** -- Also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard or a multiple of the method detection limit. The Permittee must ensure that the analytical lab derives QLs for each analyte according to the procedures documented in the specific analytical method used by the lab.

**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).

**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.

**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.

**Source water** -- Water entering the reclaimed water treatment facility or unit processes from which Class A or Class B reclaimed water is generated. Source water generally refers to the effluent from a domestic wastewater treatment facility that meets or exceeds secondary treatment standards defined in WAC 173-221.

**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 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.

**Use** -- Application of reclaimed water in a manner and for a purpose, as designated in a permit or use agreement, and in compliance with all applicable requirements of the permit and WAC 173-219.

**Use agreement** -- An agreement or contract between the generator and the distributor or user, or between the distributor and user, that identifies terms and conditions for reclaimed water distribution and use to ensure compliance with the reclaimed water permit conditions.

**Use area** -- Any facility, building, or land area, surface water, or groundwater identified in the use agreement as the location where reclaimed water is beneficially used.

**User** -- Any person who uses reclaimed water under an agreement with a reclaimed water generator or distributor.

**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.

## Appendix D--Holmes Harbor Monitoring Data

### Effluent Data, October 2013 through July 2018

Monitoring Point Code : -1						
Monitoring Point (EFFLUENT)						
Monitoring Point Id : -68647						
Parameter	Dissolved Oxygen	Dissolved Oxygen	Ammonia	Ammonia	Coagulant	Coagulant
Units	Milligrams/L (mg/L)	Milligrams/L (mg/L)	Milligrams/L	Milligrams/L	Lbs/Day	Lbs/Day
Statistical Base	Maximum	Minimum	Average	Maximum	Maximum	Minimum
Date	Value	Value	Value	Value	Value	Value
10/1/2013	6	3.7	6.8	6.8	19.6	11.0
11/1/2013	5.9	3.7			17.2	9.2
12/1/2013	7.3	5			18.0	9.6
1/1/2014	7.5	6.4	30.1	30.1	18.2	13.0
2/1/2014	7.5	5.2			25.0	11.4
3/1/2014	7.5	6.3			24.0	8.6
4/1/2014	6.7	4.5	18.9	18.9	21.4	13.0
5/1/2014	6.2	4			19.0	11.4
6/1/2014	7	5.2			16.0	10.6
7/1/2014	6.6	4.9	2.7	2.7	20.4	10.6
8/1/2014	6.5	4.5			18.6	10.2
9/1/2014	5.5	4.1			18.2	11.0
10/1/2014	6.7	4.7	1.4	1.4	19.4	11.4
11/1/2014	7.5	5.7			21.8	10.8
12/1/2014	8.4	6.3			34.2	13.6
1/1/2015	8.8	5	23.7	23.7	26.8	11.6
2/1/2015	9.1	6.3			31.0	14.8
3/1/2015	8.6	5.8			24.6	14.0
4/1/2015	7.9	5.8	2.0	2.0	30.8	15.0
5/1/2015	6.7	5.2			18.8	11.6
6/1/2015	6.7	3			25.2	12.6
7/1/2015	5.5	3	8.0	8.0	23.2	12.6
8/1/2015	5.1	3.5			20.3	9.2
9/1/2015	5.4	3.5			14.4	8.6
10/1/2015	5.8	3.3	5.9	5.9	16.0	8.4
11/1/2015	6.8	4.8			26.8	9.4
12/1/2015	7.8	5.2			23.2	10.8
1/1/2016	8.4	6.5	38.2	38.2	21.6	3.4
2/1/2016	8.1	6.1			21.4	11.2
3/1/2016	7.6	4.6			32.2	13.6
4/1/2016	6.9	4.1	35.6	35.6	25.6	13.8
5/1/2016	5.7	3.8			19.8	13.4
6/1/2016	5.7	3.6			21.6	12.6
7/1/2016	5.3	3.5	6.4	6.4	24.2	15.4
8/1/2016	6.1	3.6			19.7	15.3
9/1/2016	5.5	3.6			18.7	12.0
10/1/2016	6.2	4.3	3.4	3.4	21.6	16.0
11/1/2016	7	5.6			36.0	15.8
12/1/2016	8.5	6.8			32.2	13.8
1/1/2017	8.8	7.5	46.6	46.6	27.6	14.8
2/1/2017	9	7.3			22.2	10.2
3/1/2017	8.6	7			23.4	10.6
4/1/2017	8.4	7	48.9	48.9	16.5	8.6
5/1/2017	7.8	5.4			19.3	12.4
6/1/2017	6.4	4.1			19.7	11.0
7/1/2017	5.8	4	7.2	7.2	20.7	10.0
8/1/2017	5.5	4.3			21.3	13.7
9/1/2017	4.9	3.5			21.3	13.5
10/1/2017	6.2	3.7	10.3	10.3	19.8	12.6
11/1/2017	6.6	4.5			23.4	10.8
12/1/2017	7.3	6.1			29.9	14.3
1/1/2018	7.6	6.4	36.6	36.6	27.7	14.0
2/1/2018	7.7	6.5			30.9	15.2
3/1/2018	7.7	6.2			22.4	13.6
4/1/2018	7.1	4.2	41.6	41.6	25.6	13.6
5/1/2018	6.8	4.3			21.6	2.6
6/1/2018	5.4	3.6			19.8	12.2
7/1/2018	4.8	3.3	7.6	7.6	21.4	13.6

**Effluent Data, continued**

Parameter	Flow	Flow	Nitrate + Nitrite	Nitrate + Nitrite	pH	pH	Solids	Solids
Units	Million Gallons/Day	Million Gallons/Day	Milligrams/L	Milligrams/L	Standard	Standard	Lbs/Day	Lbs/Day
Statistical Base	Average	Maximum	Average	Maximum	Maximum	Minimum	Average	Weekly
Date	Value	Value	Value	Value	Value	Value	Value	Value
10/1/2013	0.0458	0.0605	40.60	40.60	7.2	7.1	0.4	1.4
11/1/2013	0.0507	0.0665			7.2	7.1	0.6	0.6
12/1/2013	0.0472	0.0627			7.4	7.1	0.3	0.4
1/1/2014	0.0472	0.0627	0.95	0.95	7.5	7.3	0.5	1.3
2/1/2014	0.0522	0.0789			7.5	7.4	0.7	1.3
3/1/2014	0.0508	0.0843			7.5	7.3	0.2	0.4
4/1/2014	0.0643	0.0755	1.07	1.07	7.4	7.3	0.2	0.5
5/1/2014	0.0498	0.0673			7.3	7.1	0.5	0.9
6/1/2014	0.0448	0.0539			7.2	7	0.5	0.8
7/1/2014	0.0462	0.0603	11.70	11.70	7.2	7.1	0.4	0.7
8/1/2014	0.0440	0.0533			7.2	7.1	0.5	0.8
9/1/2014	0.0452	0.0551			7.2	7.1	0.4	0.6
10/1/2014	0.0480	0.0600	9.47	9.47	7.2	7.1	0.8	0.5
11/1/2014	0.0480	0.0586			7.2	7	1.9	2.3
12/1/2014	0.0538	0.0892			7.3	7.1	2.7	4.2
1/1/2015	0.0489	0.0663	1.40	1.40	7.3	7.2	2.1	3.0
2/1/2015	0.0669	0.0835			7.3	7.3	2.1	2.9
3/1/2015	0.0666	0.0879			7.3	7.2	1.0	2.0
4/1/2015	0.0562	0.0753	11.50	11.50	7.2	7.1	1.4	1.6
5/1/2015	0.0473	0.0690			7.3	7.2	1.7	2.0
6/1/2015	0.0677	0.0816			7.3	7.2	0.8	0.8
7/1/2015	0.0573	0.0885	1.20	1.20	7.3	7.2	0.5	0.6
8/1/2015	0.0509	0.0680			7.3	7.2	0.3	0.4
9/1/2015	0.0465	0.0574			7.3	7.2	0.2	0.3
10/1/2015	0.0476	0.0576	2.16	2.16	7.3	7.2	0.2	0.3
11/1/2015	0.0490	0.0973			7.3	7.2	0.8	1.5
12/1/2015	0.0573	0.0799			7.3	7.2	1.4	1.9
1/1/2016	0.0663	0.1000	0.40	0.40	7.3	7.2	0.7	1.8
2/1/2016	0.0686	0.0857			7.5	7.3	1.0	1.8
3/1/2016	0.0680	0.1064			7.5	7.3	1.8	2.8
4/1/2016	0.0573	0.0704	1.59	1.59	7.5	7.4	0.8	2.8
5/1/2016	0.0537	0.0586			7.4	7.2	0.6	0.9
6/1/2016	0.0557	0.0621			7.3	7.2	0.7	1.3
7/1/2016	0.0526	0.0692	9.80	9.80	7.3	7.2	0.4	0.6
8/1/2016	0.0468	0.0539			7.3	7.1	0.6	1.4
9/1/2016	0.0490	0.0711			7.3	7.1	0.3	0.5
10/1/2016	0.0475	0.0593	9.70	9.70	7.2	7.1	0.5	0.7
11/1/2016	0.0510	0.0919			7.3	7.1	1.4	2.2
12/1/2016	0.0603	0.0787			7.3	7.1	2.2	2.6
1/1/2017	0.0671	0.0829	0.38	0.38	7.3	7.2	1.5	2.1
2/1/2017	0.0531	0.0658			7.4	7.2	0.8	1.0
3/1/2017	0.0530	0.0803			7.5	7.4	0.5	0.9
4/1/2017	0.0495	0.0595	0.29	0.29	7.5	7.3	0.8	0.9
5/1/2017	0.0558	0.0654			7.5	7.4	0.9	1.4
6/1/2017	0.0555	0.0669			7.4	7.2	0.6	0.9
7/1/2017	0.0482	0.0613	8.87	8.87	7.2	7	0.5	0.6
8/1/2017	0.0626	0.5210			7.2	7.1	0.6	0.9
9/1/2017	0.0515	0.0613			7.2	7	0.3	0.3
10/1/2017	0.0478	0.0603	3.01	3.01	7.2	7	0.2	0.4
11/1/2017	0.0491	0.0772			7.2	7.1	0.6	1.1
12/1/2017	0.0541	0.0850			7.3	7.1	0.4	0.6
1/1/2018	0.0682	0.0847	0.48	0.48	7.3	7.1	0.5	0.8
2/1/2018	0.0663	0.0937			7.2	7.1	0.4	0.5
3/1/2018	0.0632	0.0732			7.5	7.3	0.5	1.1
4/1/2018	0.0733	0.0999	0.63	0.63	7.5	7.4	0.4	0.7
5/1/2018	0.0624	0.0717			7.5	7.4	0.5	0.8
6/1/2018	0.0625	0.0725			7.5	7.3	0.7	1.0
7/1/2018	0.0592	0.0778	2.50	2.50	7.4	7.3	0.5	0.8

**Effluent Data, continued**

Parameter	Solids (Residue)	Solids (Residue)	TKN	TKN	Total BOD5	Total BOD5	Total BOD5	Total BOD5
Units	Milligrams/L	Milligrams/L	Milligrams/L	Milligrams/L	Lbs/Day	Lbs/Day	Milligrams/L	Milligrams/L
Statistical Base	Average	Weekly Average	Average	Maximum	Average	Weekly	Average	Weekly Average
Date	Value	Value	Value	Value	Value	Value	Value	Value
10/1/2013	1.0	2.7	8.3	8.3	15	2.0	3.6	4.4
11/1/2013	0.7	1.3			2.1	2.1	4.1	4.3
12/1/2013	0.6	0.8			1.7	2.0	4.1	4.5
1/1/2014	1.1	3.1	33.2	33.2	1.7	1.9	3.8	4.6
2/1/2014	1.7	3.3			10	1.2	2.4	2.8
3/1/2014	0.6	1.1			12	1.3	2.9	3.7
4/1/2014	0.5	0.6	19	19	1.8	2.0	3.4	4.1
5/1/2014	1.2	1.6			14	1.9	3.3	3.9
6/1/2014	1.4	1.9			16	1.9	4.3	4.7
7/1/2014	0.8	1.1	4.85	4.85	1.7	2.3	4.6	5.5
8/1/2014	1.2	2.1			13	2.3	3.6	6.4
9/1/2014	1.2	1.7			18	1.9	5.1	5.6
10/1/2014	1.9	1.9	3.64	3.64	1.9	2.5	4.9	6.5
11/1/2014	4.8	6.2			16	2.1	4.0	5.2
12/1/2014	5.3	5.6			2.2	3.3	4.4	6.6
1/1/2015	5.2	5.8	24.4	24.4	1.5	3.0	3.7	5.8
2/1/2015	3.4	4.7			2.7	2.9	4.4	4.6
3/1/2015	1.7	3.4			2.4	2.7	4.1	4.6
4/1/2015	2.7	3.5	3.97	3.97	2.1	2.5	4.0	4.7
5/1/2015	3.3	4.2			2.3	3.0	4.3	5.2
6/1/2015	1.3	1.6			2.8	3.1	4.7	5.2
7/1/2015	1.0	5.6	8.8	8.8	2.0	2.4	4.2	4.7
8/1/2015	0.8	1.0			1.8	1.9	4.4	4.7
9/1/2015	0.5	0.7			1.5	1.6	4.0	4.3
10/1/2015	0.5	0.8	6.99	6.99	1.6	1.7	4.1	4.4
11/1/2015	2.1	4.0			1.6	1.8	4.2	4.7
12/1/2015	3.2	4.1			2.1	2.1	4.5	5.3
1/1/2016	1.4	3.3	39.6	39.6	1.8	2.2	3.4	4.4
2/1/2016	1.7	2.0			3.0	3.2	4.7	5.5
3/1/2016	2.9	4.4			3.2	4.1	4.8	5.6
4/1/2016	1.8	6.6	38.7	38.7	2.6	4.5	5.7	3.4
5/1/2016	1.4	2.0			1.1	1.8	2.4	3.9
6/1/2016	1.6	3.1			1.5	2.4	3.2	4.6
7/1/2016	0.9	1.2	8.9	8.9	1.7	2.4	4.0	4.8
8/1/2016	1.6	3.6			1.7	2.6	4.3	6.6
9/1/2016	0.8	1.3			1.7	3.1	4.2	5.8
10/1/2016	0.9	1.7	5.1	5.1	1.3	1.5	3.4	3.5
11/1/2016	4.0	5.1			1.4	2.6	4.5	5.9
12/1/2016	4.1	5.2			3.0	3.6	5.5	6.5
1/1/2017	2.6	3.6	36.8	36.8	2.6	3.2	4.5	4.8
2/1/2017	1.7	2.1			2.1	2.1	4.6	4.8
3/1/2017	1.3	2.3			1.9	2.3	4.5	5.7
4/1/2017	2.0	2.2	38.4	38.4	1.6	1.7	3.8	4.4
5/1/2017	1.9	3.0			1.9	2.4	4.0	5.3
6/1/2017	1.4	2.0			2.3	2.4	5.1	5.5
7/1/2017	1.3	1.6	9.25	9.25	2.3	2.9	5.7	7.7
8/1/2017	1.6	2.3			2.1	2.3	5.2	5.8
9/1/2017	0.6	0.9			2.1	2.6	5.3	6.0
10/1/2017	0.6	1.0	9.76	9.76	1.9	2.0	4.9	5.6
11/1/2017	1.6	2.5			1.7	2.2	4.2	5.9
12/1/2017	1.0	1.5			1.9	2.3	4.2	5.5
1/1/2018	1.0	1.4	34.7	34.7	2.1	2.7	3.7	4.7
2/1/2018	0.7	0.9			2.3	3.0	4.4	5.0
3/1/2018	0.7	0.9			2.0	2.6	3.9	4.7
4/1/2018	0.7	1.2	39	39	2.1	2.3	3.7	4.2
5/1/2018	1.2	1.6			2.1	2.5	4.1	4.7
6/1/2018	1.4	1.8			2.1	2.4	4.2	5.1
7/1/2018	0.9	1.3	10.5	10.5	2.3	3.2	5.0	5.8

**Effluent Data, continued**

Parameter	Total Coliforms	Total Coliforms (7 Day Median)	Total Phosphorus	Total Phosphorus	Total Residual	Total Residual	Turbidity	Turbidity
Units	#/100ml	#/100ml	Milligrams/L (mg/L)	Milligrams/L (mg/L)	Milligrams/L (mg/L)	Milligrams/L (mg/L)	NTU	NTU
Statistical Base	Maximum	7 Day Median	Average	Maximum	Maximum	Minimum	Average	Maximum
Date	Value	Value	Value	Value	Value	Value	Value	Value
10/1/2013	13.0	11.5	3.8	3.8	8.8	1.7	0.4	1.2
11/1/2013	0.7	0.1			8.8	2.2	0.4	0.8
12/1/2013	0.1	0.1			4.7	2.8	0.5	1.5
1/1/2014	0.7	0.1	0.2	0.2	4.7	3.0	0.4	1.0
2/1/2014	0.1	0.1			4.3	1.8	0.8	2.5
3/1/2014	0.7	0.1			3.5	2.6	0.5	1.3
4/1/2014	0.7	0.1	0.9	0.9	3.5	2.7	0.5	0.8
5/1/2014	0.7	0.1			4.9	2.4	0.5	1.1
6/1/2014	5.3	0.1			8.8	1.1	1.0	2.4
7/1/2014	0.7	0.1	4.7	4.7	8.8	1.9	0.4	1.0
8/1/2014	0.7	0.1			8.8	1.0	1.2	2.6
9/1/2014	0.7	0.1			8.8	2.8	0.6	1.5
10/1/2014	0.8	0.0	3.6	3.6	8.8	1.6	1.5	3.2
11/1/2014	0.1	0.1			8.8	2.7	1.7	2.5
12/1/2014	0.9	0.1			4.8	3.4	1.9	3.5
1/1/2015	0.9	0.0	1.9	1.9	3.9	2.6	2.0	3.7
2/1/2015	0.8	0.1			3.8	2.9	1.3	2.5
3/1/2015	0.7	0.1			3.8	2.5	1.2	2.8
4/1/2015	0.1	0.1	3.4	3.4	4.6	2.0	1.7	2.3
5/1/2015	1.3	0.1			4.0	3.1	0.6	0.8
6/1/2015	2.0	0.1			8.8	1.4	1.0	2.1
7/1/2015	0.1	0.1	4.6	4.6	4.8	2.8	0.9	1.8
8/1/2015	0.1	0.1			4.6	2.9	0.7	1.9
9/1/2015	0.7	0.1			5.6	2.7	0.4	1.0
10/1/2015	2.0	0.1	1.8	1.8	5.0	2.8	0.5	1.0
11/1/2015	0.8	0.1			5.6	3.1	1.0	2.6
12/1/2015	0.9	0.1			5.4	2.9	1.4	3.5
1/1/2016	1.3	0.1	0.6	0.6	5.0	2.7	0.6	1.5
2/1/2016	0.7	0.1			3.8	2.5	0.9	2.1
3/1/2016	0.1	0.1			3.9	2.7	1.5	3.5
4/1/2016	0.7	0.1	0.8	0.8	3.8	2.4	0.5	1.2
5/1/2016	0.1	0.1			4.1	2.6	0.5	0.9
6/1/2016	0.7	0.1			4.6	2.4	0.8	1.5
7/1/2016	0.7	0.1	3.9	3.9	4.4	2.1	0.8	1.4
8/1/2016	1.3	0.1			8.8	1.7	0.6	1.2
9/1/2016	0.7	0.1			8.8	1.4	0.5	0.8
10/1/2016	0.7	0.1	3.5	3.5	5.3	2.0	0.5	0.8
11/1/2016	0.7	0.1			5.2	2.3	1.6	3.5
12/1/2016	1.6	0.1			6.3	2.9	1.8	2.6
1/1/2017	0.1	0.1	2.9	2.9	3.9	2.7	0.8	1.5
2/1/2017	1.3	0.1			3.9	2.3	0.6	0.9
3/1/2017	0.7	0.1			3.8	2.5	0.8	2.6
4/1/2017	1.3	0.1	0.7	0.7	3.9	2.6	0.7	1.0
5/1/2017	0.1	0.1			3.8	1.4	0.8	1.2
6/1/2017	0.1	0.1			8.8	2.4	0.5	0.8
7/1/2017	0.7	0.1	4.8	4.8	4.1	2.4	0.7	1.2
8/1/2017	0.1	0.1			8.8	2.9	0.8	1.9
9/1/2017	0.1	0.1			8.8	2.8	0.6	1.2
10/1/2017	0.1	0.1	3.9	3.9	4.6	3.1	0.5	1.0
11/1/2017	0.7	0.1			4.3	3.3	1.1	2.3
12/1/2017	0.8	0.1			4.4	2.0	0.5	0.9
1/1/2018	0.7	0.1	0.7	0.7	4.3	3.2	0.4	1.3
2/1/2018	1.3	0.1			4.0	2.7	0.5	1.4
3/1/2018	1.3	0.1			4.2	3.4	0.4	0.6
4/1/2018	1.3	0.1	0.1	0.1	4.3	3.1	0.5	2.1
5/1/2018	1.3	0.1			3.9	2.9	0.5	1.1
6/1/2018	0.1	0.1			6.4	2.9	0.6	0.9
7/1/2018	2.7	0.1	29.4	29.4	7.4	2.1	0.7	1.0

**Influent Data, October 2013 through July 2018**

Monitoring Point (Influent)						
Monitoring Point Id: -77030						
Parameter	Flow	Flow	Solids (Residue)	Solids (Residue)	Solids (Residue)	Solids (Residue)
Units	Million Gallons/Day (MGD)	Million Gallons/Day	Lbs/Day	Lbs/Day	Milligrams/L	Milligrams/L
Statistical Base	Average	Maximum	Average	Maximum	Average	Maximum
Limits	-/-	-/-	-/-	-/-	-/-	-/-
Benchmarks	-/-	-/-	-/-	-/-	-/-	-/-
Design Limit	0.1		125			
Date	Value	Value	Value	Value	Value	Value
10/1/2013	0.0383	0.0432	35.0	56.0	113.6	180.0
11/1/2013	0.0384	0.0456	35.1	51.6	113.6	162.0
12/1/2013	0.0385	0.0429	29.0	49.0	92.3	152.0
1/1/2014	0.0403	0.0542	38.4	67.4	118.0	184.0
2/1/2014	0.0422	0.0681	35.3	51.9	114.0	160.0
3/1/2014	0.0425	0.0730	40.8	57.0	118.5	166.0
4/1/2014	0.0377	0.0447	41.4	54.3	135.1	178.0
5/1/2014	0.0380	0.0461	32.8	43.0	107.8	136.0
6/1/2014	0.0375	0.0425	32.8	48.0	105.5	158.0
7/1/2014	0.0395	0.0504	36.9	57.0	116.7	186.0
8/1/2014	0.0390	0.0439	36.6	46.0	114.0	142.0
9/1/2014	0.0382	0.0475	38.1	55.0	128.8	190.0
10/1/2014	0.0393	0.0492	35.4	46.0	108.0	130.0
11/1/2014	0.0418	0.0558	36.8	52.0	108.5	130.0
12/1/2014	0.0468	0.0751	42.8	73.0	111.6	162.0
1/1/2015	0.0422	0.0604	41.2	53.0	126.7	170.0
2/1/2015	0.0437	0.0566	45.1	58.0	130.0	172.0
3/1/2015	0.0407	0.0721	41.8	60.0	134.1	184.0
4/1/2015	0.0392	0.0453	40.9	48.0	130.7	154.0
5/1/2015	0.0397	0.0474	37.3	62.0	116.9	190.0
6/1/2015	0.0386	0.0415	40.5	50.0	129.5	158.0
7/1/2015	0.0387	0.0443	48.0	74.0	151.4	222.0
8/1/2015	0.0384	0.0426	43.3	59.0	137.3	196.0
9/1/2015	0.0375	0.0448	52.4	66.0	174.0	192.0
10/1/2015	0.0368	0.0445	31.2	50.0	106.3	160.0
11/1/2015	0.0423	0.0884	45.1	58.0	131.8	158.0
12/1/2015	0.0491	0.0762	45.3	58.0	121.8	160.0
1/1/2016	0.0452	0.1000	42.7	55.0	121.6	156.0
2/1/2016	0.0423	0.0574	48.5	65.0	140.3	192.0
3/1/2016	0.0436	0.0752	51.7	88.0	137.3	194.0
4/1/2016	0.0382	0.0511	49.3	62.0	164.7	204.0
5/1/2016	0.0374	0.0457	40.1	45.0	129.5	158.0
6/1/2016	0.0394	0.0443	39.8	53.0	126.0	172.0
7/1/2016	0.0406	0.0485	44.0	58.0	133.8	176.0
8/1/2016	0.0391	0.0444	45.0	63.0	138.0	196.0
9/1/2016	0.0376	0.0523	38.2	56.0	127.1	174.0
10/1/2016	0.0386	0.0465	39.9	56.0	127.0	166.0
11/1/2016	0.0449	0.0769	43.0	63.0	127.8	212.0
12/1/2016	0.0406	0.0568	40.0	55.0	120.4	168.0
1/1/2017	0.0396	0.0570	41.0	53.0	129.8	176.0
2/1/2017	0.0411	0.0516	39.3	59.0	116.3	142.0
3/1/2017	0.0421	0.0623	41.0	85.0	121.6	256.0
4/1/2017	0.0385	0.0461	42.1	64.0	133.8	182.0
5/1/2017	0.0383	0.0490	45.9	63.0	149.6	204.0
6/1/2017	0.0383	0.0464	41.1	51.0	133.1	170.0
7/1/2017	0.0386	0.0435	43.9	58.0	139.8	180.0
8/1/2017	0.0385	0.0429	43.2	49.0	135.8	156.0
9/1/2017	0.0395	0.0481	33.3	39.0	107.6	136.0
10/1/2017	0.0388	0.0455	32.9	42.0	103.3	128.0
11/1/2017	0.0434	0.0670	36.4	53.0	107.8	134.0
12/1/2017	0.0432	0.0724	35.9	48.0	103.6	154.0
1/1/2018	0.0449	0.0566	37.8	69.0	107.6	210.0
2/1/2018	0.0450	0.0720	43.0	66.0	122.8	198.0
3/1/2018	0.0423	0.0479	43.2	55.0	128.0	172.0
4/1/2018	0.0481	0.0762	39.9	44.0	109.0	136.0
5/1/2018	0.0390	0.0458	43.2	59.0	138.9	184.0
6/1/2018	0.0412	0.0487	44.6	70.0	132.2	172.0
7/1/2018	0.0406	0.0533	33.5	47.0	98.3	114.0

**Influent Data, continued**

Parameter	Total BOD5	Total BOD5	Total BOD5	Total BOD5
Units	Lbs/Day	Lbs/Day	Milligrams/L	Milligrams/L
Statistical Base	Average	Maximum	Average	Maximum
Limits	-/-	-/-	-/-	-/-
Benchmarks	-/-	-/-	-/-	-/-
Design Limit	150			
Date	Value	Value	Value	Value
10/1/2013	46.0	66.0	148.6	204.0
11/1/2013	48.4	58.7	157.9	195.0
12/1/2013	45.0	66.0	141.5	204.0
1/1/2014	59.0	83.4	182.5	278.0
2/1/2014	49.9	58.7	161.4	193.0
3/1/2014	58.3	76.0	169.5	232.0
4/1/2014	57.9	70.3	188.7	222.0
5/1/2014	52.4	62.0	171.6	211.0
6/1/2014	49.0	66.0	159.8	219.0
7/1/2014	49.7	62.0	156.2	197.0
8/1/2014	49.4	73.0	152.9	206.0
9/1/2014	49.1	63.0	165.3	214.0
10/1/2014	50.4	69.0	155.1	209.0
11/1/2014	54.1	68.0	159.9	196.0
12/1/2014	63.6	96.0	163.4	205.0
1/1/2015	58.7	76.0	178.7	244.0
2/1/2015	60.6	87.0	174.8	256.0
3/1/2015	47.8	55.0	152.0	190.0
4/1/2015	59.4	70.0	189.8	224.0
5/1/2015	51.3	60.0	161.0	197.0
6/1/2015	51.6	66.0	164.3	202.0
7/1/2015	37.7	70.0	118.5	210.0
8/1/2015	44.1	49.0	139.1	162.0
9/1/2015	45.1	50.0	150.9	173.0
10/1/2015	39.3	48.0	134.9	158.0
11/1/2015	57.1	79.0	167.1	188.0
12/1/2015	59.2	74.0	159.2	218.0
1/1/2016	60.1	72.0	171.8	195.0
2/1/2016	60.5	76.0	174.6	229.0
3/1/2016	64.4	112.0	169.2	218.0
4/1/2016	57.9	66.0	193.1	212.0
5/1/2016	53.6	63.0	172.8	221.0
6/1/2016	54.4	71.0	172.6	231.0
7/1/2016	56.9	66.0	173.7	210.0
8/1/2016	52.4	68.0	159.8	200.0
9/1/2016	45.1	59.0	151.0	184.0
10/1/2016	49.6	63.0	158.5	187.0
11/1/2016	57.3	100.0	164.9	208.0
12/1/2016	62.3	87.0	185.4	210.0
1/1/2017	63.6	90.0	199.6	238.0
2/1/2017	67.4	93.0	199.0	244.0
3/1/2017	63.1	84.0	188.6	253.0
4/1/2017	60.5	75.0	192.4	224.0
5/1/2017	62.3	76.0	203.8	254.0
6/1/2017	59.8	71.0	193.7	228.0
7/1/2017	53.9	71.0	170.5	220.0
8/1/2017	54.1	72.0	169.9	214.0
9/1/2017	49.8	59.0	159.7	184.0
10/1/2017	51.3	67.0	160.8	189.0
11/1/2017	63.3	94.0	187.0	238.0
12/1/2017	65.4	90.0	188.4	262.0
1/1/2018	66.3	80.0	187.7	243.0
2/1/2018	64.8	95.0	182.3	225.0
3/1/2018	67.2	73.0	199.0	217.0
4/1/2018	57.9	71.0	160.5	228.0
5/1/2018	63.2	70.0	201.4	218.0
6/1/2018	63.6	74.0	188.6	224.0
7/1/2018	44.0	64.0	128.0	164.0

**Flow Data (to golf course), October 2013 through July 2018**

Monitoring Point (Pond Storage to Golf Course)		
Monitoring Point Id: -77032		
Parameter	Flow	Flow
Units	Million Gallons/Day (MGD)	Million Gallons/Day
Statistical Base	Average	Maximum
Limits	- / -	- / -
Benchmarks	- / -	- / -
Design Limit		
Date	Value	Value
10/1/2013	0.1530	0.2786
11/1/2013	0	0
12/1/2013	0	0
1/1/2014	0	0
2/1/2014	0	0
3/1/2014	0	0
4/1/2014	0	0
5/1/2014	0.0765	0.2592
6/1/2014	0.1237	0.2495
7/1/2014	0.1244	0.2382
8/1/2014	0.1104	0.2805
9/1/2014	0.0703	0.2829
10/1/2014	0.0171	0.2770
11/1/2014	0.0000	0.0000
12/1/2014	0.0000	0.0000
1/1/2015	0.0000	0.0000
2/1/2015	0.0000	0.0000
3/1/2015	0.0000	0.0000
4/1/2015	0.0202	0.2647
5/1/2015	0.0882	0.2814
6/1/2015	0.1279	0.2884
7/1/2015	0.1812	0.2667
8/1/2015	0.1194	0.2723
9/1/2015	0.0080	0.2398
10/1/2015	0	0
11/1/2015	0	0
12/1/2015	0	0
1/1/2016	0	0
2/1/2016	0	0
3/1/2016	0	0
4/1/2016	0.0083	0.2498
5/1/2016	0.0825	0.3159
6/1/2016	0.1083	0.3045
7/1/2016	0.1370	0.2946
8/1/2016	0.1463	0.2720
9/1/2016	0.0461	0.2635
10/1/2016	0.0059	0.1414
11/1/2016	0.0000	0.0000
12/1/2016	0.0000	0.0000
1/1/2017	0.0000	0.0000
2/1/2017	0.0000	0.0000
3/1/2017	0.0000	0.0000
4/1/2017	0.0000	0.0000
5/1/2017	0.0449	0.2974
6/1/2017	0.1418	0.2972
7/1/2017	0.1804	0.2896
8/1/2017	0.1194	0.2653
9/1/2017	0.0741	0.2587
10/1/2017	0	0
11/1/2017	0	0
12/1/2017	0	0
1/1/2018	0	0
2/1/2018	0	0
3/1/2018	0	0
4/1/2018	0	0
5/1/2018	0.0567	0.2873
6/1/2018	0.1557	0.2922
7/1/2018	0.1373	0.2710

## **Appendix E--Response to Comments**

No comments were received by Ecology during the public comment period.