

Fact Sheet for NPDES Permit WA0002437

Tree Top Inc. — Selah

December 9, 2022

Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Tree Top, Inc. Selah (Tree Top Selah).

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

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for Tree Top Selah, NPDES permit WA0002437, are available for public review and comment from January 19, 2024 until February 20, 2024. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

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

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

Summary

This fact sheet and the permit it supports have been prepared to regulate certain discharges from Tree Top Selah facilities. This permit will regulate discharges of non-contact cooling water to navigable waters of the United States and treated fruit process wastewaters to the waters of the State of Washington.

Four closely located facilities at this site will discharge wastewater under this permit:

- Selah Plant
- Ross Plant
- Sort Facility

- Fresh Slice Facility

The facility has three outfalls that discharge non-contact, cooling water, stormwater, and process wastewater from the Facility:

- Selah Ditch (Outfall 001) – Non-contact and cooling water during the winter months.
- Sprayfield (Outfall 002) – All process wastewater and stormwater during March through November. Discharged via a treatment and storage lagoon system. Also contains compliance points for soil and groundwater.
- City of Selah POTW (Outfall 003) – Utilized as needed and contingent on the POTW's capacity, typically October through March, most common during the winter months when the sprayfield isn't available.

The non-contact cooling process wastewater is not treated before discharge, but must meet specified flow, pH, total organic carbon (TOC), and temperature limits, prior to discharge to Selah Ditch (Outfall 001).

Process wastewaters are aerated extensively in one or more of three aerobic lagoons. The treated wastewater has relatively low soluble 5-day biochemical oxygen demand (BOD5) content and a relatively low nitrogen compound content.

A number of years has passed since the permit was last issued in 2007, so the proposed permit contains a number of new requirements and updates to existing plans. A number of these new requirements were not in previous permit boilerplates. One of the more important submittal requirements is an engineering report documenting the existing facility and its loading and design criteria. An engineering report was submitted by Tree Top Selah and approved by Ecology in 1990 but has not been currently located by either party. The proposed permit also included requirements for an Operation and Maintenance Manual update as it has been over 10 years since the last update submittal, a solid waste control plan update, spill plan update, slug control discharge plan, groundwater quality evaluation study, and an annual irrigation and crop management plan. Some of the higher priority and one-time requirements/submittals are included in a compliance schedule.

The proposed permit includes a new total organic carbon (TOC) limit for non-contact and cooling water discharged to Selah Ditch (Outfall 001), updates to the sprayfield hydraulic loading, soluble BOD, and total nitrogen limits, and a new soil nitrate limit. A number of new monitoring requirements, not included in the boilerplate language of previous permits, is also included in the proposed permit. During the last permit cycle, campus stormwater was routed to the wastewater collection system, so there is a requirement for installation of a campus stormwater monitoring point as an alternative to a requirement for a Stormwater Pollution Prevention Plan (SWPPP). The proposed permit also requires installation of lagoon cell depth

to water measurement equipment and monitoring to ensure at least two feet of freeboard at all times.

Groundwater nitrate concentrations have been elevated in the southern portion of the sprayfield (primary MW-2R, MW-3, and WW-3). The previous permits included a groundwater nitrate enforcement limit which has been updated in the proposed permit with the 2015-2019 background data.

Groundwater data has demonstrated that land application of the highly aerated wastewater results in some elevation of the total dissolved solids (TDS) of the groundwater in the areas under portions of the Tree Top Selah sprayfield where it is land treated (primarily MW-4, WW-3, and WW-4R). TDS data for lagoon effluent to the sprayfield has not been collected in the past, so a new monitoring requirement has been added and a new performance based groundwater TDS enforcement limit has also been added to the proposed permit based on the 95th percentile of the monitoring well with the highest concentrations of TDS. All other measured parameters affecting the groundwater under the sprayfield have been shown to be controlled by limiting the loadings to the sprayfield, including the hydraulic loading.

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Introduction

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

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits ([chapter 173-220 WAC](#))
- Water quality criteria for surface waters ([chapter 173-201A WAC](#))
- Water quality criteria for ground waters ([chapter 173-200 WAC](#))
- Whole effluent toxicity testing and limits ([chapter 173-205 WAC](#))
- Sediment management standards ([chapter 173-204 WAC](#))
- Submission of plans and reports for construction of wastewater facilities ([chapter 173-240 WAC](#))

These rules require any industrial facility owner/operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

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

Background Information

Table 1 — Facility Information

Applicant:	Tree Top, Inc.
Facility Name and Address	Tree Top, Inc. Selah Facilities 220 East Second Avenue, Selah, WA 98942
Contact at Facility	Name: Vasiliy Kravtsov Telephone #: (509) 698-1613
Responsible Official	Name: Gary Price Title: Vice President of Operations Address: 220 East Second Avenue, Selah, WA 98942
Industry Type	Fruit juicing and bottling operations, applesauce canning, fresh slice and production of various dehydrated apple products
Type of Treatment	Aeration lagoon and land treatment
SIC Codes	2033, 2034, 2037, 2086
Facility Location (NAD83/WGS84 reference datum)	Latitude: 46.652218 Longitude: -120.525582
Discharge Waterbody Name and Location (Outfall 001, NAD83/WGS84 reference datum)	Selah Ditch ID Number: WA-39-1110 Latitude: 46.650684 Longitude: -120.526134
Legal Description and Location of Land Treatment Area (Outfall 002)	Section, Township, Range: Diagonally across the center (Northeast to Southwest) of Section 30, Township 14 N., and Range 19 EWM. Latitude: 46.66944 Longitude: -120.50000
Treatment Plant Receiving Discharge (Outfall 003)	<i>City of Selah POTW</i> <i>Discharge Point to Collection System</i> Latitude: 46.651757 Longitude: -120.52405

Table 2 — Groundwater Monitoring Well Information

Monitoring Well #	Ecology Tag #	Location (NAD83)	Top of Casing Elevation (NAVD88)
MW-1	No Well Tag	Lat: 46.678999 Long: -120.497145	1135.3
MW-2R	BHT974	Lat: 46.668216 Long: -120.496265	1119.6
MW-3	No Well Tag	Lat: 46.664934 Long: -120.504821	1111.9
MW-4	No Well Tag	Lat: 46.665011 Long: -120.511105	1112.1
WW-1	No Well Tag	Lat: 46.675915 Long: -120.497046	1124.9
WW-2	No Well Tag	Lat: 46.672627 Long: -120.491702	1124.7
WW-3	No Well Tag	Lat: 46.668342 Long: -120.50341	1118.4
WW-4R	BHT973	Lat: 46.666629 Long: -120.507608	1114.4

Table 3 — Permit Status

Issuance Date of Previous Permit	October 29, 2007
Application for Permit Renewal Submittal Date	January 26, 2012
Date of Ecology Acceptance of Application	January 26, 2012

Table 4 — Inspection Status

Date of Last Non-sampling Inspection Date	March 28, 2018
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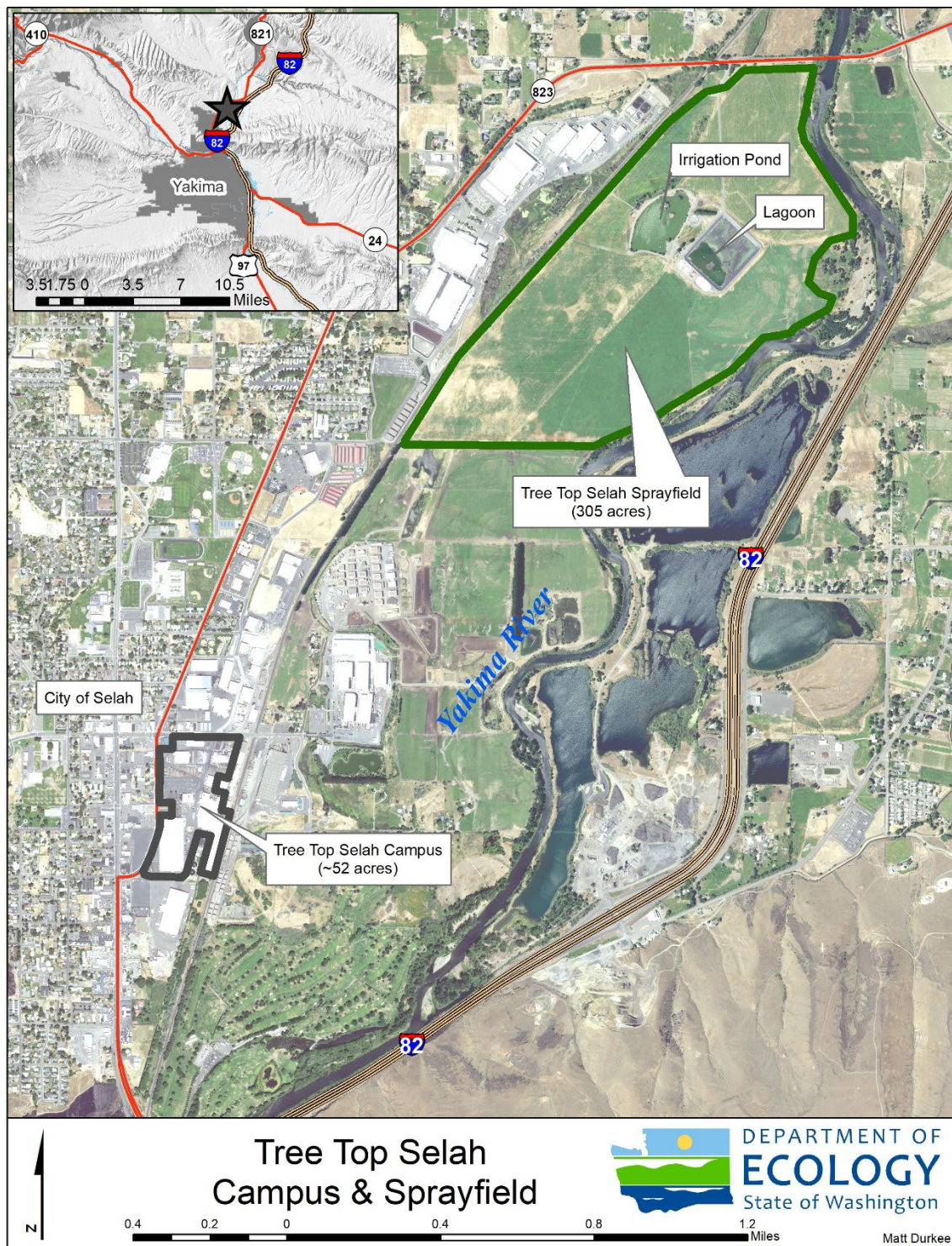


Figure 1 — Facility Location Map

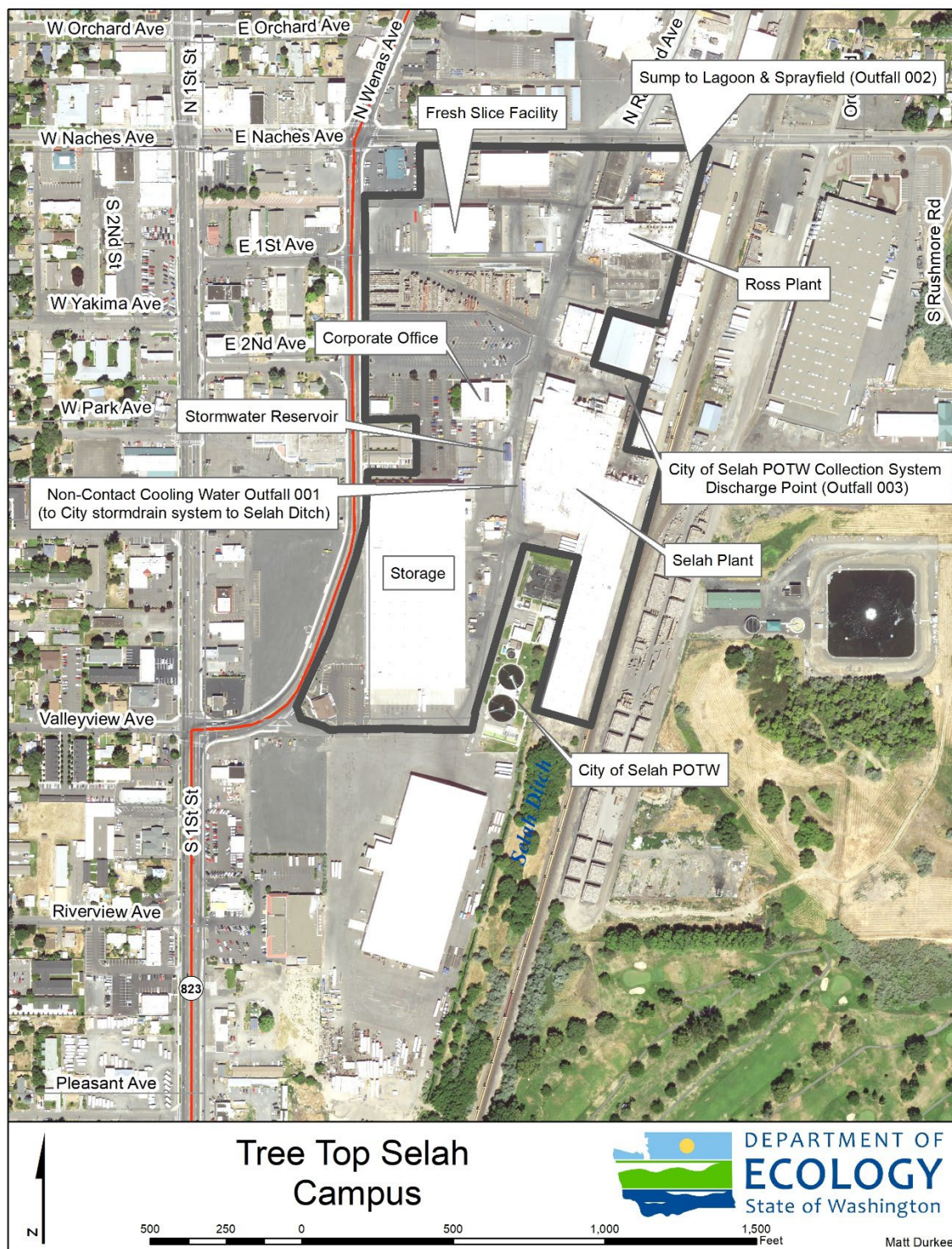


Figure 2 — Tree Top Selah Campus Map



Figure 3 — Tree Top Selah Lagoon and Sprayfield Map

A. Facility description

History

The Tree Top, Inc. (Tree Top Selah) juice plant in Selah originally discharged its process wastewater to the City of Selah sewage treatment plant. In the spring of 1986, the City of Selah constructed a pretreatment lagoon sized to treat wastewater from fruit processing by Hi Country Foods and Ross Packing. Addition of the wastewater from Tree Top Selah overloaded the pretreatment lagoon and impacted the domestic waste treatment facilities. Attempts were made to increase the treatment capacity of the pretreatment lagoon without additional permanent construction.

The attempts to increase treatment capacity of the pretreatment lagoon were not completely successful so Tree Top Selah elected to construct its own treatment facilities. An initial attempt was made in early 1989 to locate these wastewater facilities on the L.T. Murray Game Lands northwest of Selah, but this was opposed by local residents. Tree Top Selah then obtained approval for constructing the current facilities on the Congdon pasture north of Selah, in the Yakima River floodplain.

The Tree Top Selah fruit processing operations now consist of four facilities following the purchase of the Ross Juice Plant in 1991 and the construction of the Fresh Slice Facility in 2004, and the addition of the Sort Facility. The Fresh Slice Facility is owned by Tree Top, Inc. and operated by Fresh Slice, LLC (subsidiary of Crunch Pak). Together these three facilities are referred to herein and in the permit as Tree Top Selah.

Industrial Processes

The original plant has capacity to process about 800 tons of apples per day and the Ross Plant has capacity to process about 550 tons. Production varies annually from very low levels in mid-summer to near capacity production in late fall. The principal raw material for all three plants is apples. These are delivered by bulk truck or in bins from storage facilities around central Washington. The three facilities employ over 900 people.

The plants produce a variety of waste streams that require treatment and several that do not. All wastewater from the Ross Plant prior to discharge is piped to the aerated lagoon. Stormwater from adjacent plants that has contacted product or that is otherwise unsuitable for direct discharge to surface water or groundwater is also piped to the lagoons as is boiler blowdown.

All of the water used in the Ross Plant is purchased from the City of Selah. The Tree Top Plant uses water purchased from the City of Selah in addition to water removed from fruit juice during the process of concentration (referred to as "water of evaporation"). The water of evaporation is used for boiler feed, cleaning, and in various process applications. When the quantity of the water of evaporation exceeds that needed for available uses, it is sent to the lagoons rather than to surface water, because it contains juice components, especially organic acids.

Non-contact cooling waters are generated by a variety of cooling or occasionally heating processes within the Tree Top Plant. In addition, all three plants generate other non-contact waters from activities such as ion exchange softening of potable water and treatment of potable water by reverse osmosis to satisfy quality requirements for specific juice and beverage products. These water-treatment-related flows have a higher concentration of dissolved solids than potable water or non-contact cooling water, but nothing has been added by a fruit processing step. Water carrying this level of total dissolved solids (TDS) would create an additional dissolved solids problem on the sprayfield where much of the applied wastewater is evapotranspired to the atmosphere.

These combined non-contact flows have a slightly elevated TDS concentration, but the pollutant that requires regulation is waste heat. These non-contact wastewaters must be regulated as thermal discharges under federal and state law because the discharge is to surface water.

Some disinfection chemicals and cleaning agents are stored on site such as sodium hypochlorite (NaClO), sodium hydroxide (NaOH), phosphoric acid (H_3PO_4), sulfuric acid, and the refrigerant ammonia (Liquid NH_3).

Wastewater Treatment Processes

A Tree Top Selah process wastewater treatment schematic is available in Figure 4.

Wastewater treatment for the three plants begins with the collection of flows from cleaning activities and unit processes. These flows are carried to screens by gutter and pump systems, and after screening are discharged to the main lift station near the Ross Plant for transportation approximately 1.5 miles to the lagoon site. The lift station's discharge into the lagoons occurs with an air gap above the water surface so that the lagoon contents cannot flow back through the pipe in the event of a break.

Stormwater is also collected from the Tree Top Selah Campus, passes through a vault, and then is discharged to the process wastewater collection system. About 90% of the Campus stormwater is collected and discharged to this system.

The screened wastewater is delivered to the first of three cells for extensive aerobic treatment. The soluble organic materials are largely converted to microbial biomass in the first cell, and the treated wastewater with the remaining solids flows into the second cell for further aeration. The second cell contains fewer aerators, and can be operated to either completely mix the contents or allow the solids to settle and accumulate, if needed (for example, during winter storage when Cell 2 discharges into Cell 3, the storage lagoon).

Two Basic operational modes are used:

Irrigation Season: Wastewater → Cell 1 → Cell 2 → Sprayfield, or

Storage Season: Wastewater → Cell 1 → Cell 2 → Cell 3

The water that is stored during the cold weather is later discharged from Cell 3 to the sprayfield during irrigation operations. Only Cells 2 and 3 can discharge to the sprayfield; Cell 1 can discharge into Cell 2 or into Cell 3. Irrigation water is used to dilute lagoon discharges, typically from 50:50 to 70:30 mixtures (with irrigation water predominating). This dilution with irrigation water allows for proper water balance on the sprayfield and improved uniformity of application.

Cell 1 contains six aerators with a total of 450 horsepower (HP), and is completely mixed at all times.

Cell 2 contains seven aerators for a total of 275 HP. Cell 2 can be completely mixed, if needed.

Cell 3 contains four 40 HP floating surface aerators with a total of 160 HP, and six more aerators at 25 HP each for a total of 270 HP aeration potential. Cell 3 cannot be mixed to suspend biological solids. The solids are discharged into Cell 3 where they settle to the bottom and must be removed. A boat-mounted dredge was utilized historically starting in 1995, although more recently a vacuum system has been utilized to remove solids dry at the end of each summer when the solids are dry. The vacuum system provides better solids management options including sprayfield application, send off site for disposal, or beneficial use/recycling.

Flows can be diverted to Cell 3 at any time of the year in the event of upset conditions in either of the first two cells to avoid discharging inadequately treated wastewater to the sprayfield.

The double liner for Cell 3 was replaced in Fall 2016. The lagoon liner has a life expectancy of approximately 20 years.

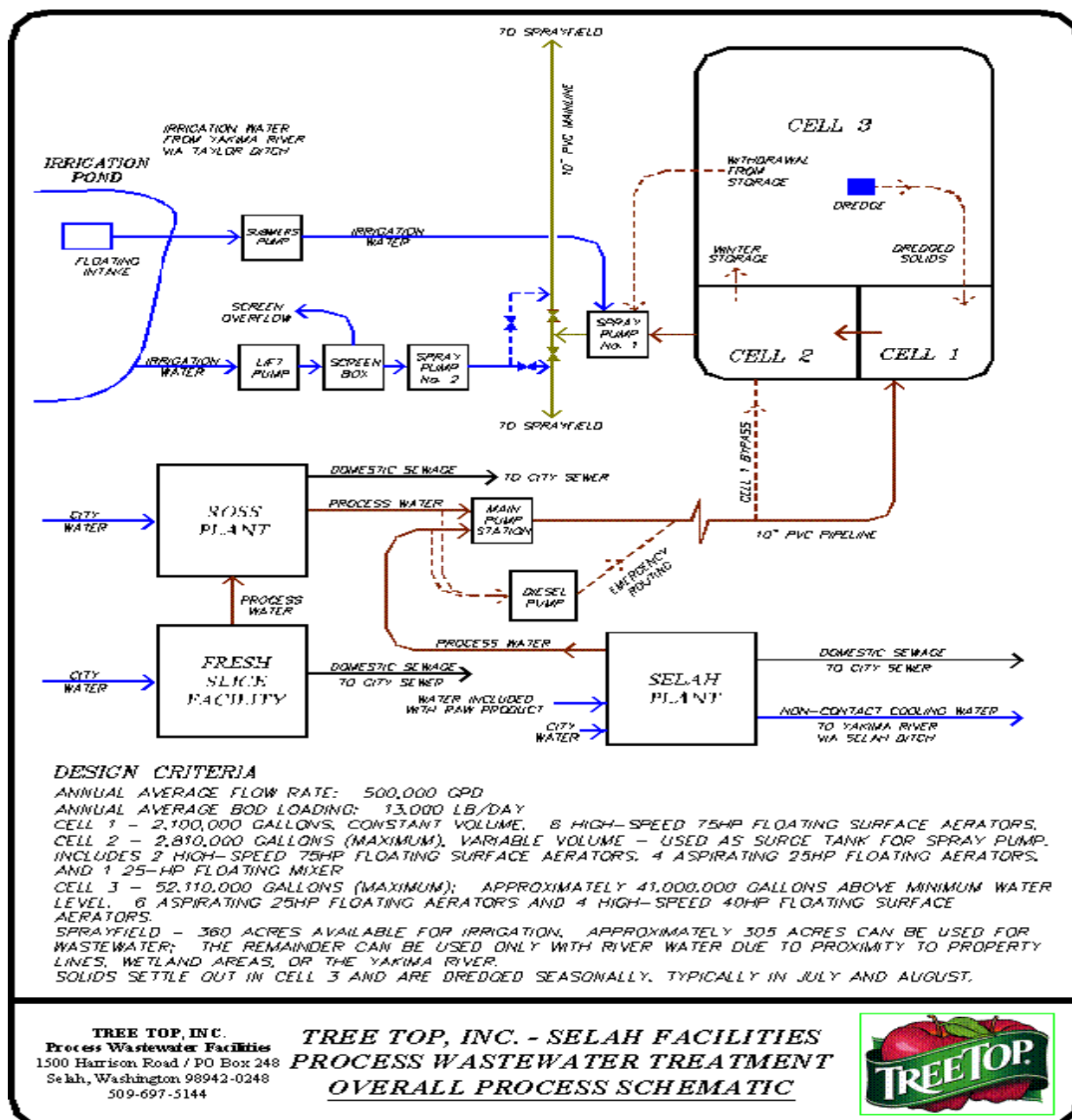


Figure 4 — Facility Process Wastewater Treatment Schematic

Wastewater treatment in the sprayfield consists of: soil processes, starting with simple physical filtration, followed by aerobic decay, nitrogen mineralization to ammonia, nitrification, plant uptake of nitrate, and denitrification all remove pollutants from the wastewater as it passes through the soil. By careful regulation of irrigation application and avoidance of hydraulic overloading of the soil (especially in the winter and early spring), the bacteria that accomplish treatment of these wastewaters can be controlled to acceptable levels even a few feet below the point of application.

Three full-time operators perform all the sampling, testing and process operations of the wastewater facilities. Several additional staff are available from the Ross Plant when extra tasks exceed the capability of these operators.

The wastewater facilities and laboratory are operated from 6:30 a.m. until 3:30 p.m. on weekdays. The facilities are checked each Saturday and Sunday to ensure proper weekend operation; limited testing is also conducted on weekends.

While there are no current plans to expand the Tree Top Selah operations, the company is always looking for new contracts and opportunities to bottle a new product, or market more of the apple products produced in the Yakima Valley. Currently nitrate and TDS in the groundwater and the storage lagoon volumes are the most limiting aspects of the wastewater system.

An engineering report entitled “*Land Application of Process Wastewaters, Tree Top Inc. Selah Operations*” was received by Ecology on June 4, 1990 and approved August 6, 1990. Both Ecology and Tree Top Selah have been unable to locate a copy of this document. The proposed permit includes a requirement to prepare and submit an engineering report for approval.

Discharge Outfall (Selah Ditch)

The non-contact cooling water effluent (Outfall 001) flows into Selah Ditch through the City of Selah Storm sewer system. Discharge from Tree Top Selah is limited to the months of November through March because of seasonal water temperatures. A Total Maximum Daily Load (TMDL) for fecal coliform bacteria and temperature exists for Selah Ditch (Ecology, 2006).

Land Treatment and Distribution System (Sprayfield)

Tree Top Selah bought the 420-acre sprayfield site (Outfall 002) from Congdon Orchards in 1998. Only 305 acres are available for the sprayfield as the other 115 acres contains the treatment cells, irrigation pond, and buildings.

Hay is grown as a crop. Tree Top Selah is not currently using cattle to remove some of the crop during periods when it is difficult to dry the cut grass because of frequent precipitation. There is currently an option in a contract with the Monson Fruit company for a cattle management plan for the sprayfield. Cattle were used initially on the sprayfield, but this approach was abandoned in 2000 for the more efficient means of removing the nutrients as a hay crop. The benefit of using cattle for nutrient removal, when conditions are not conducive to mowing, was demonstrated during late-season grazing in 2006.

Irrigation System

The irrigation system includes two spray pumps feeding a 10-inch polyvinyl chloride (PVC) mainline running north and south through the center of the sprayfield. The mainline provides water to valved risers for “big gun” type sprinklers and to three center pivots. Approximately one-half of the sprayfield is irrigated with the center pivots.

Three-inch PVC lateral lines run east and west from the 10-inch mainline on 150-foot spacing and provide water to the “big gun” sprinkler risers. Risers are spaced at approximately 150 feet on the laterals and are equipped with quick-connect fittings. The risers are positioned with a slight offset from the adjacent laterals so that there is 15.5-foot east-west displacement between risers. This increases the overall uniformity of application.

The center pivots cannot operate when the ambient temperature is below 32° F. Night mode prevents the lines from freezing and allows for pivots to be utilized in colder temperatures (guns on pivots, not drop down sprinkler heads) allowing for a more uniform application of process wastewater. Therefore, the fixed sprinkler system is the sole source of irrigation water in early spring and late fall.

The uniformity of irrigation on a field is characterized by the Christiansen Uniformity Coefficient (CUC), where a value of 100 represents perfect uniform irrigation and values below 100 represent increases in non-uniformity. The CUC of the solid set sprinkler system has been measured to be approximately 72% under low pressure conditions. The consultant that made the measurements claims that under ordinary operating pressure the uniformity of wastewater application should be over 80%. The uniformity of the sprinkler system was last measured on May 21, 1991. By setting the sprinklers individually, it is possible to improve the crop efficiency above that predicted by the CUC, which assumes all sprinklers are on at the same time.

Winter application of treated wastewaters has been practiced at times since the facility went into operation in 1991, but only during periods of warm weather and only when the ground is not frozen. The practice of winter irrigation will be eliminated in this permit and

will only be allowed from March to November unless approval is received by Ecology. Process wastewater will also only be applied to the sprayfield when soil temperatures are at or above 2 °C as measured at the nearby Pomona Weather Station.

Sprayfield Soil Characteristics

The soils are primarily a gravelly fine sandy loam with some areas containing silt and gleyed clay. The Yakima River has worked this sprayfield site in recent geological times. During flood events, gravel and cobbles have been mixed with the soils present on the sprayfield. In some of the low areas, bacterial action has resulted in the reduction of the soils to gleyed clay, grey-blue clay indicative of wetland soils. In one area, a 2, 2'dipyridyl test for iron did not indicate the presence of any ferrous iron (II). Most of these wetland soil inclusions show obvious gleying, but the process is still in progress as the bacteria in these soil inclusions continue to reduce the ferric iron (III) minerals in the coarser soil particles. All interpretations of ferrous iron (II) data must be pursued with the knowledge that all stages of wetland gleying are present on the sprayfield site.

Access Control and Irrigation Management

The sprayfield is fenced with barbed wire on all sides. Gates are locked and the area is adequately watched, during daylight hours. Soils and grasses are watched for signs of drying and low water stress. These areas are then irrigated. If testing shows anaerobic conditions in the area of influence of a sprinkler, then sprinkling is discontinued or shifted to clear irrigation water. Each of the big gun sprinklers are operated independently. The center pivots are not as flexible as the sprinklers, but they can be programmed to avoid portions of the application area. This makes real, or near-real time sprinkler planning not only possible but in general superior to monthly irrigation scheduling.

The sprayfield has 100-foot setbacks along all boundaries, including the boundary set by the Yakima River, to prevent the drift of wastewater onto adjacent properties. Signs have been placed along the fence at regular intervals to warn the public about the sprayfield operations and to help control public access.

Tree Top Selah receives water from the City of Selah and as such the facilities have no water rights of their own. Tree Top Selah's water use is part of the municipal water rights claim of the City of Selah.

Discharge to City of Selah POTW

Tree Top Selah has the ability to discharge wastewater to the City of Selah POTW (Outfall 003). Tree Top Selah has a contract with the City of Selah for discharge of wastewater to the City of Selah POTW. Ecology utilizes limits set forth in the Schedule A within the contract as permit limits and the Schedule A is included as an appendix in the permit. In recent years, Tree Top Selah has not been discharging a significant portion of their wastewater to the City of Selah POTW because of a lack capacity at the POTW. Pre-treatment prior to discharge to the City of Selah POTW consists of screening solids. The wastewater pH is monitored continuously.

Solid Wastes

Tree Top Selah has a solid waste control plan that was last updated in 2011. This covers the Selah Plant, Ross Plant, Sort Facility and Fresh Slice Plant.

Major sources of solid waste from the facility identified include:

- Screenings - leaves, stems, fruit debris from the receiving and washing of fruit
- Screenings - from the scalping screens prior to delivery of water to the lagoon system
- Garbage - general solid waste produced by plant and office operations
- Used Oil - primarily from gear boxes on process equipment
- Diatomaceous earth – spent filter and material from the filtration of juice (Selah Plant only)
- Pomace- semi-solid material remaining after juice has been extracted from fruit (Selah Plant only)
- Packaging materials – plastic and cardboard

The solids wastes from the facility are transported and disposed in a number of ways:

- Screenings are disposed of at the regional landfill.
- Garbage is transported and disposed at the regional landfill.
- Used oil is recycled by Emerald Petroleum Services (Selah Plant) and Safety Kleen of Pasco, WA (Ross/Fresh Slice Plants).
- Diatomaceous earth is disposed of the regional landfill.
- Pomace, waste sauce, and reject product are transported to nearby Monson Cattle Co. and fed to cattle.
- Packaging materials are recycled by Central Washington Recycling.

There is no long-term solid waste storage at this facility. Solid wastes are stored in containers that are located on paved areas. Runoff from these paved areas are directed into Tree Top's process wastewater collection system for treatment.

Lagoon Sludge Organic Solids

In 2020, Tree Top Selah determined the sludge in Cell 3 of the lagoon needed to be dredged. This was the first time it has been dredged or had the sludge removed since the new liner installation in Fall 2016. The lagoon was drained and the dried organic solids were collected and removed from the lagoon.

Following consultation with the Yakima County Health District, the Ecology Solid Waste Program, and the Ecology Water Quality Program, Tree Top Selah is currently pursuing a beneficial use determination with Ecology's Solid Waste Program for the organic solids for future years.

Currently two options exist for disposal. One option is off-site disposal at Natural Selection Farms or the County Landfill (if the material dries enough and meets specifications). The other existing option previously approved in the 2005 O&M Manual includes mixing the organic solids back into Cells 1 and 2 and then out to the sprayfield through the irrigation system as previously described in the Wastewater Treatment Processes section above.

If the beneficial use determination is approved by the Solid Waste Program or the NPDES permit is determined to be equivalent under a solid waste permit deferral, Tree Top may elect to dispose of some or all of the dried organic solids onto the sprayfield by mechanical means. The S2 section of the proposed permit includes associated monitoring to be able to determine this portion of the nutrient budget for the sprayfield.

In addition to options afforded to Tree Top Selah for disposal of the organic solids through the beneficial use determination, two options exist for disposing of the organic solids including mixing back into Cell 1 and 2 before spraying out onto the sprayfield as described in the

B. Description of the receiving water

Selah Ditch discharges to the Yakima River. Other nearby point source outfalls include the City of Selah POTW and the City of Selah storm sewer system. Significant nearby non-point sources of pollutants include runoff from agricultural fields and municipal and industrial stormwater runoff. There are no nearby drinking water intakes from the Yakima River. Section III E of this fact sheet describes any receiving waterbody impairments.

The ambient background data used for this permit includes the following from (Ecology 2005 Selah Ditch Multiparameter Total Maximum Daily Load Technical Assessment):

Table 5 — Ambient Background Data

Parameter	Value Used
Temperature (highest annual 1-DMax)	21.3 °C
pH (Maximum / Minimum)	7 / 6.8 standard units
Dissolved Oxygen	6.5 mg/L
Fecal Coliform OR <i>E.coli</i> OR Enterococci	Too Numerous to Count (TNTC)/100 mL dry weather

C. Description of the groundwater

A Hydrogeologic Study report was prepared in 1990 and was included in the Final Environmental Impact Statement (EIS) titled *Tree Top Process Wastewater Disposal* (May 1990). Ecology does not currently have on file either the Hydrogeologic Study report or the EIS, although these are discussed in previous permit fact sheets. The Hydrogeologic Report consisted of the following three EIS Appendices:

- Appendix A Hydrogeologic Assessment of the Congdon Orchard Site in Selah
- Appendix B Edaphological (Soils) Assessment of the Congdon Site in Selah
- Appendix C Wetlands Report for the Elks Golf course and Congdon Orchard Sites in Selah

This floodplain has formed in the Selah valley as the valley has been filled with alluvial deposits over roughly the last ten thousand years. The groundwater in the floodplain along the Yakima River flows in a sweeping pattern parallel to the flow of the river itself. Groundwater off site, to the west and north, flows down from the higher alluvial sediments and joins the flow pattern in the floodplain. The chemistry of the groundwater reflects its recent origin from the Yakima River. Occasional fine grained soil inclusions become saturated and generate ferrous iron, but anaerobic conditions do not extend far from their place of origin in the floodplain conditions where high rates of oxygen are supplied by rapid water flows through coarse gravel and cobble subsoils.

Nitrate is the only groundwater quality parameter currently with a permit limit. An enforcement limit of 4.39 mg/L was included in the previous permit based on the background (up gradient) monitoring well (MW-1). This permit limit has been exceeded in ~87 samples since 2008 in six different monitoring wells including MW-1.

TDS concentrations in groundwater are affected by sprayfield activities. This existing permit did not place a limit on TDS. The drinking water standard for TDS is 500 mg/L. The background concentration based on the 95th percentile of the 2015-2019 data from MW-1 is 429 mg/L. There were 71 exceedances during 2015-2019 of either the drinking water standard of 500 mg/L (29 exceedances) or the 95th percentile of the background

water quality of 429 mg/L at MW-1 (42 exceedances above background, but below 500 mg/L).

During 2015-2019, two monitoring wells (MW-4 and WW-4R) produced most of the samples with TDS concentrations in the range of 500 to 600 mg/L. Samples from other wells have remained below 500 mg/L with the exception of one sample. TDS levels in the upgradient monitoring exceeded 400 mg/L on eight occasions.

Tree Top Selah has not been sampling process wastewater applied to the sprayfield for TDS. The proposed permit requires monitoring of TDS in process wastewater applied for the sprayfield and on the lagoon influent.

D. Discharge location to the City of Selah POTW

The point of discharge to the municipal treatment plant is located in a manhole near the northwest corner of the main Selah Plant. Tree Top Selah currently does not have the ability to open or close this connection. If a discharge is approved by the City of Selah POTW, then the City of Selah opens and closes the connection.

E. Wastewater characterization

Tree Top Selah reported the concentration of pollutants in the discharge in the permit application and in discharge monitoring reports. The tabulated data represents the quality of the wastewater effluent discharged from Outfalls 001, 002, and 003 during 2015-2019.

In discussions between Ecology and Tree Top in May 2022, it was decided to stick with the 2015-2019 data set for determining new permit limits. Process wastewater flows were not normal during 2020 and especially 2021, due to Covid-19 and supply chain issues. Updating the data sets and associated limits is also time consuming and would have held up permit reissuance even longer. Ecology and Tree Top decided to stick with the original draft fact sheet data sets and not update with the more current data sets.

The wastewater effluent prior to discharge to Selah Ditch (Outfall 001) is characterized as follows:

Table 6 — Non-Contact Cooling Effluent Wastewater Characterization (2015-2019)

Parameter	Units	Average Value	Maximum Value
Flow	MG/Day	0.0405	0.1833

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD5)	mg/L	12.4	68 (3 outliers 188-875 omitted from avg.)
Chemical Oxygen Demand (COD)	mg/L	21.75	255 (2 outliers 1086-2655 omitted from avg.)
Total Organic Carbon (TOC)	mg/L	5.8	19.97
Temperature	°C	23.6	29

Table 7 — Non-Contact Cooling Effluent Wastewater Characterization (2015-2019)

Parameter	Units	Minimum Value	Maximum Value
pH	standard units	6.09	8.92

The treatment lagoon influent wastewater (campus stormwater, Ross/Fresh Slice, and Selah Juice Plants) is characterized as follows:

Table 8 — Lagoon Influent Wastewater Characterization (2015-2019)

Parameter	Units	Selah Juice Plant		Ross Plant/ Fresh Slice	
		Average Value	Maximum Value	Average Value	Maximum Value
Flow	MG/Month	11.67	20.38	2.10	3.21
Biochemical Oxygen Demand (BOD5)	mg/L	1,493	8,291	4,646	40,194
BOD5	lbs/day	5,865	36,148	3,229	10,974
Total Kjeldahl Nitrogen (TKN)	mg/L	6.2	23.5	17.17	44.5
TKN	lbs/day	23.3	68.1 (109.9 outlier)	13.06	45.1

Table 9 — Lagoon Influent Wastewater Characterization (2015-2019)

Parameter	Units	Minimum Value	Maximum Value	Minimum Value	Maximum Value
pH	standard units	1.88	12.74	3.31	11.14

Table 10 — Lagoon Influent Wastewater Characterization (2015-2019)

Parameter	Units	Campus Stormwater	
		Average Value	Maximum Value
Flow	MG/Day	0.14	0.62

The wastewater prior to land treatment (Outfall 002) is characterized as follows:

Table 11 — Lagoon Effluent Wastewater to Sprayfield Characterization (2015-2019)

Parameter	Units	Average Value	Maximum Value
Flow	MG/Month	33.2	60.3
Biochemical Oxygen Demand (BOD5)	mg/L	126.5	588
BOD5	lbs/day	1461.1	8,853
Soluble BOD5	mg/L	16.2	88
Soluble BOD5	lbs/day	188.2	1,366
Chloride	mg/L	24.6	58.5 (outlier of 227)
Chloride	lbs/day	312	1,596.9
Total Nitrogen	mg/L	14.6	49.6
Total Nitrogen	lbs/day	176.7	641
Temperature	°C	15.3	25.6

Table 12 — Lagoon Effluent Wastewater to Sprayfield Characterization (2015-2019)

Parameter	Units	Minimum Value	Maximum Value
pH	standard units	5.77	8.75

The wastewater effluent prior discharge to the City of Selah POTW (Outfall 003) is characterized as follows (only discharge submitted in DMRs was portion of winter months of 2016, 2017, and 2019):

Table 13 — Effluent to City of Selah POTW Wastewater Characterization (2015-2019)

Parameter	Units	Average Value	Maximum Value
Flow	MG/Month	0.7711	2.1981
BOD5	mg/L	1,602	3,510
BOD5	lbs/day	1,062	4,152
Total Suspended Solids (TSS)	mg/L	302.1	912
TSS	lbs/day	165.0	673

Table 14 — Effluent to City of Selah POTW Wastewater Characterization (2015-2019)

Parameter	Units	Minimum Value	Maximum Value
pH	standard units	4.1	12.01

E. Groundwater characterization

Tree Top Selah reported the concentration of pollutants in the groundwater under the sprayfield in the permit application and in discharge monitoring reports. The data summary below focuses on nitrate and TDS as these two parameters have limits in the proposed permit. This data summary represents the quality of the groundwater under the sprayfield during 2015-2019.

The groundwater monitoring data for nitrate and TDS is characterized as follows:

Table 15 — Groundwater Characterization for Nitrate (2015-2019)

Parameter	Units	Nitrate	Nitrate	Nitrate
		Average Value	95 th Percentile	Maximum Value
MW-1	mg/L	4.3	5.22	5.3
MW-2R	mg/L	4.68	8.41	11.9
MW-3	mg/L	3.51	9.88	10.4
MW-4	mg/L	0.55	1.42	1.88
VW-1	mg/L	0.31	<1 (non-detect)	<1 (non-detect)

Parameter	Units	Nitrate	Nitrate	Nitrate
		Average Value	95 th Percentile	Maximum Value
			0.5 (actual detection)	0.5 (actual detection)
WW-2	mg/L	0.72	2.09	3.35
WW-3	mg/L	3.94	8.25	11.3
WW-4R	mg/L	0.81	2.33	2.91

Table 16 — Groundwater Characterization for TDS (2015-2019)

Parameter	Units	TDS	TDS	TDS
		Average Value	95 th Percentile	Maximum Value
MW-1	mg/L	358	428.6	440
MW-2R	mg/L	275	359.8	374
MW-3	mg/L	298	379.0	452
MW-4	mg/L	483	591.8	614
WW-1	mg/L	373	439.0	466
WW-2	mg/L	87	137.0	148
WW-3	mg/L	335	447.2	552
WW-4R	mg/L	447	551.6	562

F. Summary of compliance with previous permit Issued

The previous permit placed effluent limits discharge to Selah Ditch, the sprayfield, groundwater, and the City of Selah POTW:

- Surface water (Selah Ditch) limits include flow, pH, and temperature.
- Sprayfield limits include flow, pH, soluble BOD₅, and total nitrogen.
- Groundwater limits include nitrate.
- City of Selah POTW are those limits set forth in the User Contract with the Selah of Selah.

Tree Top Selah has mostly complied with the effluent limits and permit conditions throughout the duration of the permit issued on October 29, 2007. Ecology assessed compliance based on its review of the facility's information in the Ecology Permitting and Reporting Information System (PARIS), discharge monitoring reports (DMRs), and on inspections.

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The following table summarizes the violations and permit triggers that occurred during the permit term through November 2019. Permit triggers are not violations but rather when triggered require the permit holder to take an action defined in the permit.

Table 17 — Violations/Permit Triggers

1	ViolationCategory	Violation	ViolationDate	Parameter	Unit Type	Monitoring PointCode	DMRValue	LimitMax
2	Permit Violation	Reporting Violations	11/1/2019					
3	Permit Violation	Effluent Violations	6/10/2019	Nitrate	mg/L	MW2R	5.89	4.39
4	Permit Violation	Effluent Violations	6/3/2019	Nitrate	mg/L	MW2R	5.96	4.39
5	Permit Violation	Effluent Violations	4/10/2019	Nitrate	mg/L	MW2R	7.1	4.39
6	Permit Violation	Effluent Violations	4/1/2019	Nitrate	mg/L	MW2R	5.13	4.39
7	Permit Violation	Effluent Violations	11/14/2018	Nitrate	mg/L	MW3	5.73	4.39
8	Permit Violation	Effluent Violations	11/14/2018	Nitrate	mg/L	WW3	7.05	4.39
9	Permit Violation	Effluent Violations	11/6/2018	Nitrate	mg/L	MW3	5.36	4.39
10	Permit Violation	Effluent Violations	11/6/2018	Nitrate	mg/L	WW3	8.28	4.39
11	Permit Violation	Effluent Violations	10/9/2018	Nitrate	mg/L	MW2R	4.64	4.39
12	Permit Violation	Effluent Violations	10/9/2018	Nitrate	mg/L	MW3	6.36	4.39
13	Permit Violation	Effluent Violations	10/9/2018	Nitrate	mg/L	WW3	4.9	4.39
14	Permit Violation	Effluent Violations	10/2/2018	Nitrate	mg/L	MW3	9.8	4.39
15	Permit Violation	Effluent Violations	10/2/2018	Nitrate	mg/L	WW3	5.8	4.39
16	Permit Violation	Effluent Violations	10/1/2018	Nitrate	mg/L	MW2R	5	4.39
17	Permit Violation	Effluent Violations	9/17/2018	Nitrate	mg/L	MW2R	4.92	4.39
18	Permit Violation	Effluent Violations	9/17/2018	Nitrate	mg/L	MW3	9.92	4.39
19	Permit Violation	Effluent Violations	9/17/2018	Nitrate	mg/L	WW3	9.04	4.39
20	Permit Violation	Effluent Violations	9/11/2018	Nitrate	mg/L	MW3	10.2	4.39
21	Permit Violation	Effluent Violations	9/11/2018	Nitrate	mg/L	WW3	11.3	4.39
22	Permit Violation	Effluent Violations	9/10/2018	Nitrate	mg/L	MW2R	4.94	4.39
23	Permit Violation	Effluent Violations	8/13/2018	Nitrate	mg/L	MW2R	5.22	4.39
24	Permit Violation	Effluent Violations	8/9/2018	Nitrate	mg/L	MW3	8.4	4.39
25	Permit Violation	Effluent Violations	8/7/2018	Nitrate	mg/L	MW3	10.4	4.39
26	Permit Violation	Effluent Violations	8/6/2018	Nitrate	mg/L	MW2R	5.36	4.39
27	Permit Violation	Effluent Violations	7/11/2018	Nitrate	mg/L	MW2R	5.6	4.39
28	Permit Violation	Effluent Violations	7/9/2018	Nitrate	mg/L	MW3	7.48	4.39
29	Permit Violation	Effluent Violations	7/2/2018	Nitrate	mg/L	MW2R	11.9	4.39
30	Permit Violation	Effluent Violations	6/12/2018	Nitrate	mg/L	MW2R	7.2	4.39
31	Permit Violation	Effluent Violations	6/4/2018	Nitrate	mg/L	MW2R	7.14	4.39
32	Permit Violation	Effluent Violations	5/15/2018	Nitrate	mg/L	MW2R	5.14	4.39
33	Permit Violation	Effluent Violations	5/7/2018	Nitrate	mg/L	MW2R	5.44	4.39
34	Permit Violation	Effluent Violations	4/23/2018	Nitrate	mg/L	MW2R	4.95	4.39
35	Permit Violation	Effluent Violations	4/10/2018	Nitrate	mg/L	WW3	4.97	4.39
36	Permit Violation	Effluent Violations	4/9/2018	Nitrate	mg/L	MW2R	4.45	4.39
37	Permit Violation	Effluent Violations	3/19/2018	Nitrate	mg/L	MW2R	4.83	4.39
38	Permit Violation	Effluent Violations	3/12/2018	Nitrate	mg/L	MW2R	5.03	4.39
39	Permit Violation	Effluent Violations	11/16/2017	Nitrate	mg/L	WW3	7.84	4.39
40	Permit Violation	Effluent Violations	11/14/2017	Nitrate	mg/L	WW3	7	4.39

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1	ViolationCategory	Violation	ViolationDate	Parameter	Unit Type	Monitoring PointCode	DMRValue	LimitMax
41	Permit Violation	Monitoring Violations	10/1/2017	Conductivity	Micromhos/cm	MW2R		
42	Permit Violation	Monitoring Violations	10/1/2017	Measured depth to GW	Feet	MW2R		
43	Permit Violation	Effluent Violations	6/14/2017	Nitrate	mg/L	MW1	4.9	
44	Permit Violation	Effluent Violations	6/5/2017	Nitrate	mg/L	MW1	4.5	
45	Permit Violation	Effluent Violations	4/13/2017	Nitrate	mg/L	MW1	4.87	
46	Permit Violation	Effluent Violations	4/4/2017	Nitrate	mg/L	MW1	4.93	
47	Permit Violation	Monitoring Violations	3/1/2017	BOD5	Lbs/Day	SLag		
48	Permit Violation	Monitoring Violations	3/1/2017	BOD5	mg/L	SLag		
49	Permit Violation	Monitoring Violations	3/1/2017	Solids (Residue)	Lbs/Day	SLag		
50	Permit Violation	Monitoring Violations	3/1/2017	Solids (Residue)	mg/L	SLag		
51	Permit Violation	Effluent Violations	8/8/2016	Nitrate	mg/L	MW2R	4.78	4.39
52	Permit Violation	Effluent Violations	7/11/2016	Nitrate	mg/L	MW2R	5.8	4.39
53	Permit Violation	Effluent Violations	6/7/2016	Nitrate	mg/L	WW3	5.1	4.39
54	Permit Violation	Effluent Violations	6/6/2016	Nitrate	mg/L	MW2R	8.5	4.39
55	Permit Violation	Effluent Violations	5/18/2016	Nitrate	mg/L	WW3	6.38	4.39
56	Permit Violation	Effluent Violations	5/17/2016	Nitrate	mg/L	MW2R	7.76	4.39
57	Permit Violation	Effluent Violations	4/18/2016	Nitrate	mg/L	MW1	4.5	
58	Permit Violation	Effluent Violations	4/18/2016	Nitrate	mg/L	MW2R	8.38	4.39
59	Permit Violation	Effluent Violations	4/18/2016	Nitrate	mg/L	WW3	8.22	4.39
60	Permit Violation	Effluent Violations	4/12/2016	Nitrate	mg/L	WW3	8	4.39
61	Permit Violation	Effluent Violations	4/11/2016	Nitrate	mg/L	MW1	4.56	
62	Permit Violation	Effluent Violations	4/11/2016	Nitrate	mg/L	MW2R	9.06	4.39
63	Permit Violation	Effluent Violations	3/24/2016	Nitrate	mg/L	MW1	4.66	
64	Permit Violation	Effluent Violations	3/24/2016	Nitrate	mg/L	MW2R	6.1	4.39
65	Permit Violation	Effluent Violations	3/24/2016	Nitrate	mg/L	WW3	8.08	4.39
66	Permit Violation	Effluent Violations	3/8/2016	Nitrate	mg/L	WW3	5.4	4.39
67	Permit Violation	Effluent Violations	3/7/2016	Nitrate	mg/L	MW1	4.4	
68	Permit Violation	Effluent Violations	3/7/2016	Nitrate	mg/L	MW2R	5.68	4.39
69	Permit Violation	Effluent Violations	2/1/2016	BOD5	Lbs/Day	SLag	1918.9	1600
70	Permit Violation	Monitoring Violations	11/1/2015	BOD5	mg/L	NCW4		
71	Permit Violation	Monitoring Violations	11/1/2015	COD	mg/L	NCW4		
72	Permit Violation	Reporting Violations	1/24/2014	BOD5	mg/L	NCW4		
73	Permit Violation	Reporting Violations	1/24/2014	COD	mg/L	NCW4		
74	Permit Trigger	Warning Limit Exceedance	10/7/2013	Nitrate	mg/L	WW4	4.4	4.39
75	Permit Trigger	Warning Limit Exceedance	9/4/2013	Nitrate	mg/L	WW4	7	4.39
76	Permit Trigger	Warning Limit Exceedance	7/8/2013	Nitrate	mg/L	WW4	7.48	4.39
77	Permit Trigger	Warning Limit Exceedance	7/1/2013	Nitrate	mg/L	WW4	6.2	4.39
78	Permit Trigger	Warning Limit Exceedance	6/17/2013	Nitrate	mg/L	WW4	9.56	4.39
79	Permit Trigger	Warning Limit Exceedance	6/3/2013	Nitrate	mg/L	WW4	5.86	4.39
80	Permit Violation	Reporting Violations	10/1/2012					

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1	ViolationCategory	Violation	ViolationDate	Parameter	Unit Type	Monitoring PointCode	DMRValue	LimitMax
81	Permit Violation	Effluent Violations	9/10/2012	Nitrate	mg/L	WW4	4.78	4.39
82	Permit Violation	Effluent Violations	8/22/2012	Nitrate	mg/L	WW4	6.7	4.39
83	Permit Violation	Effluent Violations	8/16/2012	Nitrate	mg/L	WW4	9.11	4.39
84	Permit Violation	Effluent Violations	8/6/2012	Nitrate	mg/L	WW4	6.08	4.39
85	Permit Violation	Reporting Violations	12/9/2011					
86	Permit Violation	Reporting Violations	12/9/2011					
87	Permit Violation	Effluent Violations	10/17/2011	Nitrate	mg/L	WW4	8.14	4.39
88	Permit Violation	Effluent Violations	10/3/2011	Nitrate	mg/L	WW4	6.2	4.39
89	Permit Violation	Effluent Violations	9/19/2011	Nitrate	mg/L	WW4	12.6	4.39
90	Permit Violation	Effluent Violations	9/1/2011	Nitrate	mg/L	WW4	8.58	4.39
91	Permit Violation	Effluent Violations	8/15/2011	Nitrate	mg/L	WW4	9.28	4.39
92	Permit Violation	Effluent Violations	8/1/2011	Nitrate	mg/L	WW4	16	4.39
93	Permit Violation	Monitoring Violations	5/21/2011	pH (Hydrogen Ion)	Standard Units	ROSS		
94	Permit Violation	Monitoring Violations	5/7/2011	pH (Hydrogen Ion)	Standard Units	ROSS		
95	Permit Violation	Monitoring Violations	5/6/2011	pH (Hydrogen Ion)	Standard Units	ROSS		
96	Permit Violation	Monitoring Violations	5/1/2011	pH (Hydrogen Ion)	Standard Units	ROSS		
97	Permit Violation	Monitoring Violations	4/24/2011	pH (Hydrogen Ion)	Standard Units	ROSS		
98	Permit Violation	Monitoring Violations	4/23/2011	pH (Hydrogen Ion)	Standard Units	ROSS		
99	Permit Violation	Monitoring Violations	4/22/2011	pH (Hydrogen Ion)	Standard Units	ROSS		
100	Permit Violation	Monitoring Violations	4/18/2011	pH (Hydrogen Ion)	Standard Units	ROSS		
101	Permit Violation	Monitoring Violations	4/17/2011	pH (Hydrogen Ion)	Standard Units	ROSS		
102	Permit Violation	Monitoring Violations	4/16/2011	pH (Hydrogen Ion)	Standard Units	ROSS		
103	Permit Violation	Effluent Violations	10/1/2010	Nitrate	mg/L	WW4I	4.84	4.39
104	Permit Violation	Effluent Violations	9/1/2010	BOD5	mg/L	SFLD	149	100
105	Permit Violation	Effluent Violations	9/1/2010	Flow	MGD	SFLD	5.9	89.3
106	Permit Violation	Effluent Violations	9/1/2010	Nitrate	mg/L	WW4I	5.66	4.39
107	Permit Violation	Effluent Violations	8/1/2010	Nitrate	mg/L	WW4I	5.62	4.39
108	Permit Violation	Effluent Violations	7/1/2010	Nitrate	mg/L	WW4I	8.72	4.39
109	Permit Violation	WW Storm Water Construction	7/1/2010	Nitrate	mg/L	WW4I	8.72	4.39
110	Permit Violation	Effluent Violations	6/1/2010	Temperature	Degrees C	NCW4	67.2	29.5
111	Permit Violation	Effluent Violations	4/6/2010	Nitrate	mg/L	WW4I	5.7	4.39
112	Permit Violation	Effluent Violations	12/1/2009	Temperature	Degrees C	NCW4	62.8	29.5
113	Permit Violation	Effluent Violations	12/1/2009	BOD5	mg/L	SFLD	122	100
114	Permit Violation	Effluent Violations	11/1/2009	BOD5	mg/L	SFLD	238	100
115	Permit Violation	Effluent Violations	10/1/2009	BOD5	mg/L	SFLD	174.2	100
116	Permit Violation	Effluent Violations	10/1/2009	Nitrate	mg/L	WW4I	7.69	4.39
117	Permit Violation	Effluent Violations	9/1/2009	BOD5	mg/L	SFLD	230.6	100
118	Permit Violation	Effluent Violations	9/1/2009	pH (Hydrogen Ion) Daily Min	Standard Units	SFLD	4.9	
119	Permit Violation	Effluent Violations	8/1/2009	BOD5	mg/L	SFLD	172.4	100
120	Permit Violation	Effluent Violations	8/1/2009	Nitrate	mg/L	WW4I	8.89	4.39
121	Permit Violation	Effluent Violations	7/1/2009	BOD5	mg/L	SFLD	398	100
122	Permit Violation	Effluent Violations	7/1/2009	Nitrogen (calculation)	Lbs/Day	SFLD	18835	15250
123	Permit Violation	Effluent Violations	7/1/2009	pH (Hydrogen Ion) Daily Min	Standard Units	SFLD	4.49	
124	Permit Violation	Effluent Violations	7/1/2009	Nitrate	mg/L	WW4I	5.3	4.39
125	Permit Violation	Effluent Violations	3/1/2009	BOD5	mg/L	SFLD	178.1	100
126	Permit Violation	Effluent Violations	11/1/2008	BOD5	mg/L	SFLD	490.7	100
127	Permit Violation	Effluent Violations	10/1/2008	BOD5	mg/L	SFLD	538.8	100
128	Permit Violation	Effluent Violations	9/1/2008	Nitrate	mg/L	WW4I	5.82	4.39
129	Permit Violation	Effluent Violations	6/1/2008	Nitrate	mg/L	WW2	5.7	4.39
130	Permit Violation	Effluent Violations	4/1/2008	Temperature	Degrees C	NCW4	63.1	29.5

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

Table 18 — Permit Submittals

1	SubmittalName	Status	ReportBeginDate	DueDate	ReceivedDate	Approved
2	Engineering - Plans & Specifications	Received			8/19/2016	N
3	Schedule Of Compliance	Received	1/1/2007	1/15/2008	2/22/2008	Y
4	Solid Waste Control Plan	Received		11/30/2011	12/9/2011	N
5	Spill Prevention Plan	Received		11/30/2011	12/9/2011	N
6	Signatory Requirements - G1	Received			3/3/2011	N
7	Application For Permit Renewal	Received		11/30/2011	11/29/2011	N
8	Sprayfield Management Investigative Summary Report	Received		N/A	2/22/2008	N
9	2008 Crop Management Plan	Received		N/A	6/2/2008	N

G. 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.

Proposed Permit Limits

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

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis ([40 CFR 125.3](#), and [chapter 173-220 WAC](#)).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards ([chapter 173-201A WAC](#)), Ground Water Standards ([chapter 173-200 WAC](#)), Sediment Quality Standards ([chapter 173-204 WAC](#)), or the Federal Water Quality Criteria Applicable to Washington ([40 CFR 131.45](#)).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and

determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

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

A. Design criteria

According to [WAC 173-220-150 \(1\)\(g\)](#), neither flows nor waste loadings may exceed approved design criteria, however, Ecology does not have an engineering report that specifies the design criteria for the wastewater treatment plant at this facility. The proposed permit requires the facility to prepare an engineering report to establish design criteria.

B. Technology and performance based effluent limits

Ecology must ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) when it issues a permit for discharging to water of the state (RCW.90.48).

Tree Top Selah does not currently have an engineering report on file with Ecology documenting suitable loading limits for the sprayfield. The proposed permit requires Tree Top Selah to complete an engineering report. Some of the proposed permit limits are based on the previous permit while the sprayfield limits are agronomically and performance based.

Non-Contact and Cooling Water Effluent Limits to Selah Ditch (Outfall 001)

Table 11 contains the permit limits for the non-contact and cooling water discharged to Selah Ditch (Outfall 001). The flow and temperature limits remain the same. Total organic carbon (TOC) has been added in the proposed permit. Tree Top requested a permit limit of 20 mg/L as the recent past maximum TOC discharge concentrations have been just below this. Ecology and Tree Top had previously considered a conductivity limit, although conductivity data is not available for Outfall 001, so a limit for this

parameter is not included in the proposed permit, although a monitoring requirement has been added.

The previous permit authorized discharge of non-contact and cooling water during the non-critical season, November 1 to March 31. Discharge is not allowed outside of these months due to temperature concerns in Selah Ditch documented in the TMDL reports (Ecology, 2005 and Ecology, 2006).

Table 19 — Technology-based Limits for Outfall to Selah Ditch (Outfall 001)

Parameter	Average Monthly Limit	Maximum Daily Limit
Flow	0.45 MGD	0.5 MGD
Temperature	N/A	29.5° C
Total Organic Carbon (TOC)	N/A	20 mg/L

Table 20 — Technology-based Limits

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

Land Treatment Effluent Limits (Outfall 002)

The previous permit did not have a limit on which months wastewater could be applied to the sprayfield (Outfall 002), although by practice process wastewater was only applied from March through November. The proposed permit allows discharge to the sprayfield from March through November. There is a best management practice in the permit that allows for discharge to the sprayfield when the soil the soil temperature is at or above 2° C and the discharge is to meet growing crop needs.

The previous permit included a flow limit of 89.3 million gallons per month. The 2007 fact sheet stated that this limit originated from the 1990 engineering report that currently hasn't been able to be located by Ecology or Tree Top Selah. The engineering report required in the proposed permit may evaluate the hydraulic capacity and agronomic rates for the sprayfield.

As the new engineering report will be under development during the next permit cycle, the proposed permit utilizes a combination of an agronomic and performance based flow limits. The flow limit for the months of May through September is based on the State of Washington Irrigation Guide (1985) monthly net irrigation requirement of 9.42 inches for pasture/turf grass for the month of July for Yakima. This is equivalent to 78.0 million gallons per month when converted from inches over the entire 305 acres of the

sprayfield. The values from the State of Washington Irrigation Guide for the months of May through September range from 4.80 inches (Sept.) to 9.42 inches (July), so these months were lumped together and the highest monthly value of 9.42 inches for July was utilized. The highest discharge flow to the sprayfield for the last five years (2015-2019) was 60.28 MG per month (7.28 inches) in June 2016.

The proposed flow limits for the shoulder season months are performance based as the loadings during 2015-2019 exceeded the agronomic rates from the State of Washington Irrigation Guide for those months for Yakima. The State of Washington Irrigation Guide does not contain monthly net irrigation requirements for March and November. The irrigation requirement for April is 0.75 inches vs. the Tree Top Selah maximum loading of 5.54 inches in April 2016. The irrigation requirement for October is 1.67 inches vs. the Tree Top Selah maximum loading of 4.38 inches in October 2015.

For both sets of months of March-April and October-November, the proposed flow limits utilize the 99th percentile of the 2015-2019 loading data combined for each set of months (Appendix D). The proposed limit for March-April is 45.6 million gallons / 5.51 inches and for October-November is 36.2 million gallons / 4.37 inches.

The previous permits contained a soluble BOD limit of 100 mg/L and how this limit was determined is not included in the 2007 or prior fact sheets. The proposed permit includes a permit limit that uses this concentration, although converts it to a maximum pounds/month and equivalent average monthly loading in pounds/acre/day, both based on the highest maximum monthly flow limit. See Appendix D for this conversion calculation. The highest soluble BOD loading during 2015-2019 was ~21,889 pounds/month in April 2019.

The previous permit contained a total nitrogen limit of 15,250 pounds per month. The total nitrogen loading was based on Appendix B of the O&M Manual and has remained unchanged for at least the last couple of permit cycles. According to a previous fact sheet, the O&M Manual contained a limit allowed by the permit that was 150% of the highest monthly loading occurring in any single month. The proposed total nitrogen limit of 13,320 pounds per month (equivalent to the average monthly loading of 1.43 lbs/acre/day) is based on the previous limit, but reduced as it is flow weighted with the new maximum flow limit of 78 MG per month. See Appendix D for the calculations. The highest total nitrogen loading during 2015-2019 was ~12,747 pounds/month in April 2019.

Table 21 — Technology and Performance Based Limits for Sprayfield (Outfall 002)

Parameter	Average Monthly Limit	Maximum Monthly Limit
Flow – March through April	N/A	45.6 million gallons / 5.51 inches
Flow – May through September (Maximum Month)	N/A	78.0 million gallons / 9.42 inches
Flow – October through November	N/A	36.2 million gallons / 4.37 inches
Soluble BOD5	7 lbs/acre/day	65,000 pounds
Total Nitrogen	1.43 lbs/acre/day	13,320 pounds

Table 22 — Technology and Performance Based Limits for Sprayfield (Outfall 002)

Parameter	Daily Minimum	Daily Maximum
pH	5.0 standard units	10.0 standard units

Process Wastewater Treatment Lagoon Limits

Within six months of the effective date of the permit, Tree Top Selah is required to determine the maximum depth in each of the lagoon three cells and report this to Ecology. The maximum depth is required to provide for a minimum of two feet of freeboard.

Table 23 — Technology and Performance Based Limits for Sprayfield (Outfall 002)

Parameter	Maximum Depth
Depth of Water – Cell 1	Minimum of two feet of freeboard – Depth to be determined within 1 year of permit effective date
Depth of Water – Cell 2	Minimum of two feet of freeboard – Depth to be determined within 1 year of permit effective date
Depth of Water – Cell 3	Minimum of two feet of freeboard – Depth to be determined within 1 year of permit effective date

C. Effluent limits based on local limits

To protect the City of Selah POTW from pass-through, interference, concentrations of toxic chemicals that would impair beneficial or designated uses of sludge, or potentially hazardous exposure levels, Ecology believes it necessary to impose limits for certain parameters. Ecology based these limits on local limits established by name POTW and codified in ordinance. Ecology's pretreatment program delegation agreement with EPA includes language in which Ecology agreed to enforce limits adopted by non-delegated programs (local limits).

Applicable effluent limits for this discharge include the following:

Table 24 — Limits Based on Local Limits (Outfall 003)

Parameter	Effluent Limits	
	Average Daily	Average Daily
	(October to March)	(April to September)
Flow	80,000	0 GPD
BOD5	1,600 lbs/day	0 lbs/day
TSS	500 lbs/day	0 lbs/day

Table 25 — Limits Based on Local Limits (Outfall 003)

Parameter	Daily Minimum	Daily Maximum
pH	5.0 standard units	11.0 standard units

The City of Selah Schedule also includes footnotes that limit the maximum flow rate to 200 GPM. The Schedule A footnotes also mention BOD being the limiting parameter that that the average daily flow may be increased up to a maximum of 150,000 GPD provided the average daily BOD loading does not exceed 1,600 pounds per day.

D. Surface water quality-based effluent limits

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

Numerical criteria for the protection of aquatic life and recreation

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

Numerical criteria for the protection of human health

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

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

Narrative criteria

Narrative water quality criteria (e.g., [WAC 173-201A-240\(1\); 2006](#)) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

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

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

Antidegradation

Description – The purpose of Washington's Antidegradation Policy ([WAC 173-201A-300-330; 2016](#)) is to:

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

Tier I: ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions.

Tier II: ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities.

Tier III: prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

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

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

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

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter [173-201A WAC](#).
- For waters that do not meet assigned criteria, or protect existing or designated uses, Ecology will take appropriate and definitive steps to bring the water quality back into compliance with the water quality standards.
- Whenever the natural conditions of a water body are of a lower quality than the assigned criteria, the natural conditions constitute the water quality criteria. Where water quality criteria are not met because of natural conditions, human actions are not allowed to further lower the water quality, except where explicitly allowed in chapter [173-201A WAC](#).

Ecology's analysis described in this section of the fact sheet demonstrates that the proposed permit conditions will protect existing and designated uses of the receiving water.

Mixing zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric standards, so long as the discharge doesn't interfere with designated uses of the receiving water body (for example, recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric standards.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control, and treatment (AKART). Mixing zones typically require compliance with water quality criteria within a specified distance from the point of discharge and must not use more than 25% of the available width of the water body for dilution [[WAC 173-201A-400 \(7\)\(a\)\(ii-iii\)](#)].

Ecology uses modeling to estimate the amount of mixing within the mixing zone. Through modeling Ecology determines the potential for violating the water quality standards at the edge of the mixing zone and derives any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables

that correspond to the time period when the most critical condition is likely to occur (see Ecology's [Permit Writer's Manual](#)). Each critical condition parameter, by itself, has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

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

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

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

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

This permit does not authorize a mixing zone. The Permittee may submit a Mixing Zone Study, for Ecology's consideration, to evaluate whether or not a mixing zone is warranted for the discharge. If considering conducting and submitting a study the Permittee should discuss the applicable requirements with Ecology.

E. Designated uses and surface water quality criteria

Applicable designated uses and surface water quality criteria are defined in [chapter 173-201A WAC](#). In addition, the U.S. EPA set human health criteria for toxic pollutants

(EPA 1992). The table included below summarizes the criteria applicable to this facility's discharge.

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

Freshwater Aquatic Life Uses and Associated Criteria

Table 26 — Salmonid Spawning, Rearing, and Migration

Criteria	Value
Temperature Criteria – Highest 7-DAD MAX	17.5°C (63.5°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	8.0 mg/L
Turbidity Criteria	<ul style="list-style-type: none"> • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

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

Table 27 — Recreational Uses and Associated Criteria

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

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

F. Water quality impairments

Selah Ditch is listed on the current 303(d) and is impaired for bacteria, temperature, dissolved oxygen, and ammonia. Ecology has completed a Total Maximum Daily Load (TMDL) Analysis documented in the [Selah Ditch Multiparameter Total Maximum Daily Load Technical Assessment](#) (Ecology, 2005) and the [Selah Ditch Multiparameter Total Maximum Daily Load Water Quality Improvement Report](#) (Ecology, 2006).

The TMDL does not include waste load allocations (WLA) for Tree Top Selah.

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

Ecology must consider the narrative criteria described in WAC 173-201A-260 when it determines permit limits and conditions. Narrative water quality criteria limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health.

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

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

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

Ecology has not authorized a mixing zone in the permit.

I. Human health

Washington's water quality standards include numeric human health-based criteria for 97 priority pollutants that Ecology must consider when writing NPDES permits.

Ecology determined the applicant's discharge is unlikely to contain chemicals regulated to protect human health.

J. Sediment quality

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

Through a review of the discharger characteristics and of the effluent characteristics, Ecology determined that this discharge has no reasonable potential to violate the sediment management standards.

K. Soil nitrate limits

The proposed permit contains a soil nitrate limit of 25 mg/kg at greater than 24 inches depth. Sampling is required to occur at the beginning and end of the growing season and two consecutive exceedances of the limit in the same crop circle will be needed for a violation to occur. Ecology has found that a limit of 25 mg/kg is protective of groundwater. This limit is also comparable to other soil nitrate limits for other NPDES and state waste discharge land treatment permits issued within Ecology's Central Region.

L. 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:

Guidance on Land Treatment of Nutrients in Wastewater, with Emphasis on Nitrogen, Ecology, November 2004

(<https://apps.ecology.wa.gov/publications/SummaryPages/0410081.html>)

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 is not the same as non-degradation (see below).

Antidegradation

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. To meet the antidegradation policy, the facility must prepare an AKART engineering analysis that demonstrates that discharges to groundwater will not result in increasing background concentrations. Ecology must review and approve the AKART engineering analysis.

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://apps.ecology.wa.gov/publications/SummaryPages/9602.html>).

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 28 — Groundwater Quality Criteria

Parameter	Units	Groundwater Criteria	Background Value
Fecal Coliform	colonies/ 100 mL	1	<1 (below detection limit)
Total Dissolved Solids	mg/L	500	429
Chloride	mg/L	250	Unknown
Sulfate	mg/L	250	Unknown

Parameter	Units	Groundwater Criteria	Background Value
Nitrate (as nitrogen)	mg/L	10	5.22
pH (Maximum / Minimum)	standard units	6.5 to 8.5	7.20 to 7.96
Manganese	mg/L	0.05	Unknown
Total Iron	mg/L	0.3	Unknown

Ecology has reviewed existing records for the facility's land treatment site and determined sufficient data exists to update the background groundwater quality as defined in chapter 173-200 WAC and described in the Implementation Guidance for the Ground Water Quality Standards; Ecology, Revised October 2005. **Appendix D** includes a summary of data and Ecology's calculations of a background value for TDS and Ecology's calculations to update the background groundwater quality value for Nitrate.

The proposed limit for nitrate (as N) in groundwater is based on the 95th percentile of the 2015-2019 groundwater monitoring data collected from Tree Top Selah's background (up gradient) groundwater monitoring well MW-1. See Appendix D for the data set and 95th percentile calculation. The EPA ProUCL statistical software package was used to evaluate the data set. The statistical analysis concluded that the data set was normal or log-normal, so it is appropriate to use the parametric tolerance interval of the 95th percentile upper tolerance interval.

The new permit limit for nitrate (5.22 mg/L) is higher than the permit limit in the previous permit (4.39 mg/L) based on the 2015-2019 background data from MW-1. For 2015-2019, there have been 60 exceedances of the previous nitrate groundwater enforcement limit of 4.39 mg/L and 18 exceedances of the proposed nitrate groundwater enforcement limit of 5.22 mg/L. Since 2009, there have been four (4) exceedances of the drinking water standard for nitrate of 10 mg/L.

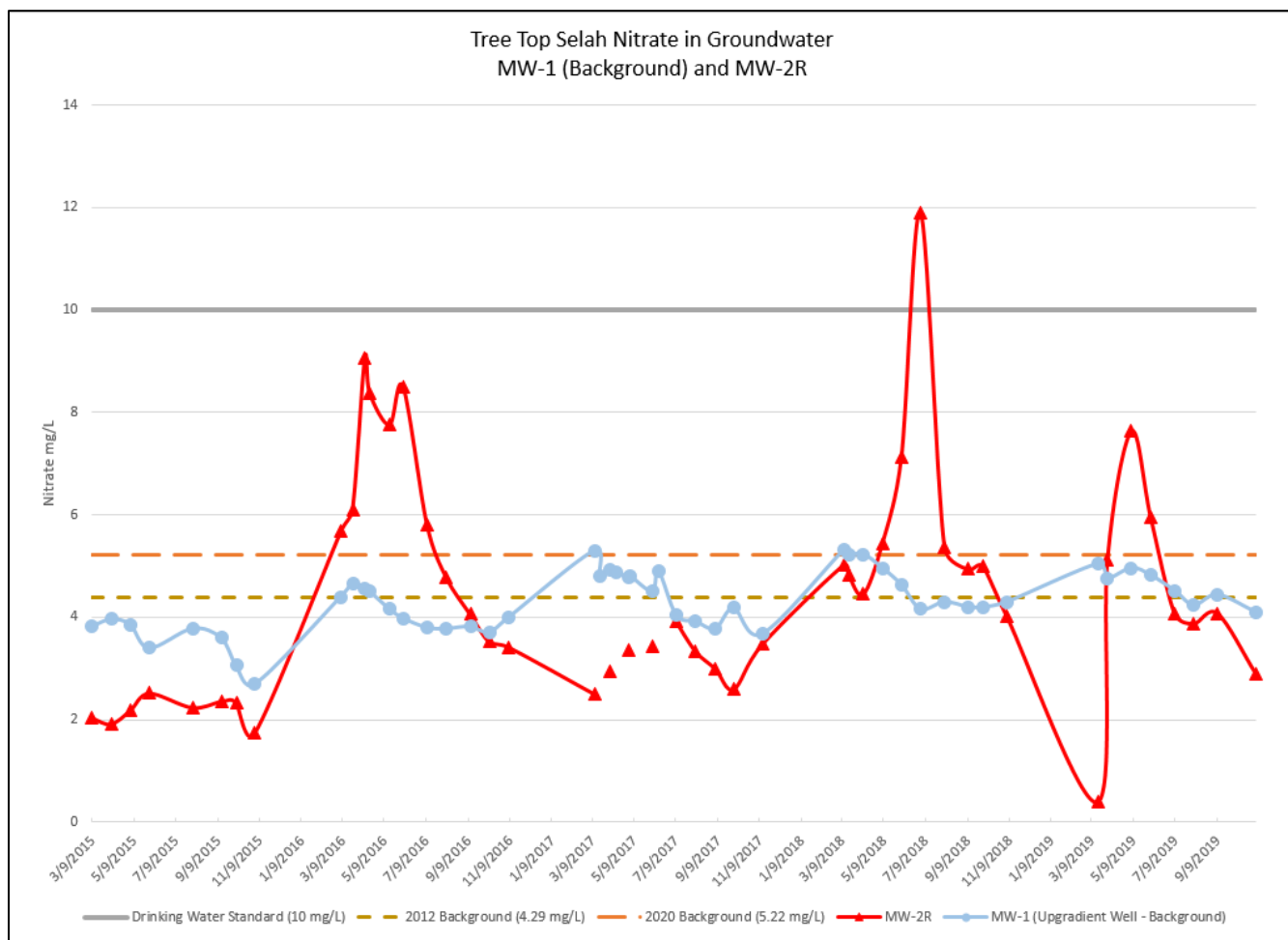


Figure 5 — Nitrate in groundwater (MW-1 background and MW-2R)

TDS in groundwater did not previously have a permit limit. A groundwater enforcement limit is being added to the proposed permit for TDS. The proposed groundwater enforcement limit of 614 mg/L for TDS was the maximum concentration collected during 2015-2019 from MW-4. Of the eight monitoring wells, MW-4 had the highest average (483 mg/L), 95th percentile (591.8 mg/L), and maximum value (614 mg/L) for TDS during 2015-2019 (Table 16).

A performance based limit using the maximum concentration during 2015-2019 of the MW-4 data was selected as an alternative to using the MW-1 background data because of the large number of TDS concentrations over the past five years from MW-4, WW-3, and WW-4R that have consistently exceeded the background concentration (429 mg/L) and/or the drinking water standard of 500 mg/L.

The EPA ProUCL statistical software package was used to evaluate both the MW-1 and MW-4 TDS data sets. For the MW-1 data set, the statistical analysis concluded that the data set was normal or log-normal, so it is appropriate to use the parametric tolerance interval of the 95th percentile upper tolerance interval to determine the background level of TDS. For the MW-4 data set, the statistical analysis concluded that the data set has an unknown distribution (not normal or log-normal), so a nonparametric tolerance interval of the highest value in the data set should be used if this is utilized as the groundwater enforcement limit. This is why a value of 614 mg/L TDS is proposed for the groundwater enforcement limit as opposed to the 95th percentile for MW-4 of 592 mg/L.

During 2015-2019, there were 42 exceedances of the background water quality of 429 mg/L and of these, there were 29 exceedances of the drinking water standard of 500 mg/L. Figure 6 shows the 2015-2019 data for both MW-1 (background well) and MW-4 compared to the 95th percentile of each well, along with the drinking water standard of 500 mg/L). The graph shows that most of the data points for MW-4 consistently exceeded the 95th percentile of MW-1 (background).

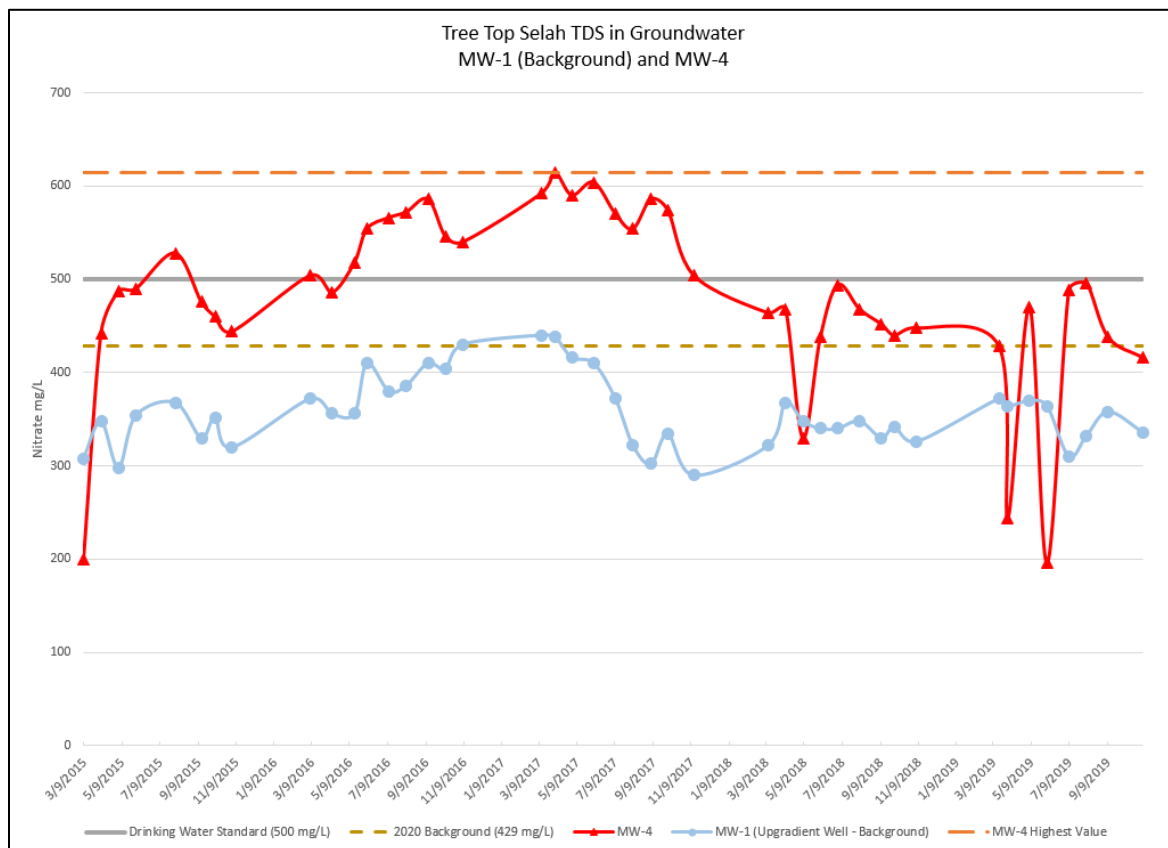


Figure 6 — TDS in groundwater (MW-1 background and MW-4)

The table below includes the groundwater enforcement limits for the discharge. Two consecutive exceedances of an enforcement limit for the same parameter at the same well constitutes a violation.

Table 29 — Groundwater Quality-Based Effluent Limits

Parameter	Background Water Quality	Groundwater Enforcement Limits ^a
Nitrate (as nitrogen)	5.22 mg/L	5.22 mg/L
Total Dissolved Solids	429 mg/L	614 mg/L
a	Two consecutive exceedances of an enforcement limit for the same parameter at the same well constitutes a violation.	

M. Whole effluent toxicity

The water quality standards for surface waters forbid discharge of effluent that has the potential to cause toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Using the screening criteria in [chapter 173-205-040 WAC](#), Ecology determined that toxic effects caused by unidentified pollutants in the effluent are unlikely. Therefore, this permit does not require WET testing. Ecology may require WET testing in the future if it receives information indicating that toxicity may be present in this effluent.

N. Comparison of effluent limits with the previous permit issued on October 29, 2007

Table 30 — Comparison of Previous and Proposed Effluent Limits (Selah Ditch Outfall 001)

Parameter	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
		Average Monthly	Average Weekly	Average Monthly	Average Weekly
Flow	Technology	0.45 MG	0.5 MG	0.45 MG	0.5 MG
Temperature	Technology	N/A	29.5 °C	N/A	29.5 °C

		Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
Parameter	Basis of Limit	Average Monthly	Average Weekly	Average Monthly	Average Weekly
Total Organic Carbon (TOC)	Technology	N/A	N/A	N/A	20 mg/L
Parameter	Basis of Limit	Minimum Limit	Maximum Limit	Minimum Limit	Maximum Limit
pH	Technology	6.0	9.0	6.0	9.0

Table 31 — Comparison of Previous and Proposed Effluent Limits (Sprayfield Outfall 002)

		Previous Effluent Limits: Outfall # 002		Proposed Effluent Limits: Outfall # 002	
Parameter	Basis of Limit	Maximum Monthly	Maximum Single Measurement	Maximum Monthly	Maximum Single Measurement
Flow	Technology	89.3 MG	N/A	N/A	N/A
Flow – March through April	Performance	N/A	N/A	45.6 MG / 5.51 inches	N/A
Flow – May through September	Technology	N/A	N/A	78.0 MG / 9.42 inches	N/A
Flow – October through November	Performance	N/A	N/A	36.2 MG / 4.37 inches	N/A
Soluble BOD5	Technology	N/A	100 mg/L	65,000 lbs	N/A
Soluble BOD5	Technology	N/A	100 mg/L	7 lbs/acre/day (average monthly)	N/A
Total Nitrogran (as N)	Technology	15,250 lbs	N/A	13,320 lbs	N/A
Total Nitrogran (as N)	Technology	15,250 lbs	N/A	1.43 lbs/acre/day (average monthly)	N/A
Parameter	Basis of Limit	Minimum Limit	Maximum Limit	Minimum Limit	Maximum Limit
pH	Technology	5.0	10.0	5.0	10.0

Table 32 — Comparison of Previous and Proposed Effluent Limits (City of Selah Outfall 003)

		Previous Effluent Limits: Outfall # 003		Proposed Effluent Limits: Outfall # 003	
Parameter	Basis of Limit	Average Daily		Average Daily	
Flow (April to September)	Local Limit	0 gal		0 gal	
Flow (October to March)	Local Limit	80,000 gal		80,000 gal	
BOD5 (April to September)	Local Limit	0 lbs		0 lbs	
BOD5 (October to March)	Local Limit	1,600 lbs		1,600 lbs	
TSS (April to September)	Local Limit	0 lbs		0 lbs	
TSS (October to March)	Local Limit	500 lbs		500 lbs	
Parameter	Basis of Limit	Minimum Limit	Maximum Limit	Minimum Limit	Maximum Limit
pH	Local Limit	5.0	11.0	5.0	11.0

Table 33 — Comparison of Previous and Proposed Soil Nitrate Limits

	Previous Effluent Limits:	Proposed Effluent Limits:
Parameter	Concentration Not to be Exceeded in Two Consecutive Sampling Events	
Nitrate (as N)	N/A	25 mg/kg at greater than 24 inches depth

Table 34 — Comparison of Previous and Proposed Groundwater Enforcement Limits

	Previous Effluent Limits:	Proposed Effluent Limits:
Parameter	Concentration Not to be Exceeded in Two Consecutive Sampling Events	
Nitrate (NO ₃ as N) in Groundwater	4.39 mg/L	5.22 mg/L
TDS	N/A	614 mg/L

Monitoring Requirements

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

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

The existing permit was issued in 2007 and over the years a number of changes have occurred with Ecology's ND PES and state waste discharge permit boilerplates. Also, additional monitoring points and parameters have been added to the Tree Top Selah permit DMR and Tree Top Selah has been reporting this data even though these weren't included in the 2007 permit.

The following proposed changes to the monitoring schedule attempt to reconcile a number of items so that the DMR and permit both match and monitoring is in line with the current permit boilerplates and other Ecology permits in the Central Region.

A. Wastewater monitoring

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

Non-contact process and cooling water monitoring (to **Selah Ditch**)

Conductivity, BOD5, total organic carbon, and total chemical oxygen demand were added as monitoring parameters. Conductivity, BOD5, total organic carbon, and chemical oxygen demand were not included in the 2007 permit, although are in the current DMR and Tree Top Selah has been reporting this data.

Stormwater monitoring

The proposed permit requires grab sampling of the Campus Stormwater monitoring point including pH, total zinc, and total copper. While not in the 2007 permit, there is a

Selah Campus Runoff field for stormwater flow in the current DMR and Tree Top Selah has been reporting this data collected using an existing flow meter that captures ~90% of all the campus stormwater.

Total zinc and copper are parameters that are included under industrial stormwater permits, although Tree Top Selah does not currently have coverage under one of these permits. The monitoring of total zinc and copper is an alternative to including a requirement in the proposed permit for a stormwater pollution prevention plan. If future monitoring data shows minimal concentrations of total zinc and copper, these could be removed as monitoring parameters for this and other monitoring points.

Lagoon influent

The proposed permit contains a new combined lagoon influent monitoring point. The data to be entered for this monitoring points is calculated from data from the related Selah Juice Plant, Ross Plant/Fresh Slice Plant, and Campus Stormwater monitoring points. Monitoring parameters include flow, BOD5, TKN, nitrate plus nitrite nitrogen, NH3 (ammonia) nitrogen, total nitrogen, zinc, and copper.

The current DMR contains fields for flow for the north force main flow meter and the south force main flow meter and Tree Top Selah has been submitting this data, although these were not included in the 2007 permit. These have been added to the proposed permit.

Lagoon freeboard

The proposed permit requires installation of a lagoon cell depth of water measurement equipment, if not already in place, within one year of the permit effective date. The proposed permit contains at least monthly monitoring of depth of water in the lagoon cells.

B. Irrigated Wastewater Monitoring

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

Lagoon effluent to sprayfield

Total zinc and total copper were added as monitoring parameters because of the campus stormwater collection system contribution. TDS, TSS, FDS, sodium, calcium,

magnesium, potassium, sulfate, and total alkalinity were added as parameters to the lagoon effluent monitoring point. These are included in the current Ecology land treatment state waste discharge permit boilerplate. TDS is an important parameter that hadn't been previously monitored in the effluent and there have been exceedances of both the groundwater background concentration in MW-1 and groundwater criteria. Temperature was removed as a lagoon effluent parameter. This has been previously measured as a grab sample from the lagoon according to Tree Top Selah, although the 2007 permit mentions sampling from a sump.

Supplemental irrigation water monitoring

A monitoring point for supplemental irrigation water was not included in the 2007 permit, although is standard both in the Ecology land treatment permit boilerplate and other land treatment permits in the Central Region. While data was not submitted with DMRs during the previous permit cycle, Tree Top Selah has an existing flow meter for supplemental irrigation water and a sampling point is available at a building near the lagoon.

Flow, pH, conductivity, nitrate plus nitrite nitrogen, total alkalinity, chloride, sulfate, TDS, and FDS are included as monitoring parameters on a semi-annual basis with the exception of flow which is metered and reported monthly.

C. Lagoon Sludge Organic Solids Monitoring

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

This monitoring section of the permit is applicable if Tree Top Selah obtains a beneficial use permit from Ecology's Solid Waste Program or this NPDES permit is approved under a permit deferral under from the Yakima County Health District and Ecology Solid Waste Program.

If dried organic solids derived from lagoon sludge dredging are disposed of by spreading onto the sprayfield by mechanical methods, monitoring of the organic solids is required in advance. The monitoring methodology and parameters included in the proposed permit were developed in consultation with the Ecology Solid Waste Program and modified their biosolids sampling guidance. Total copper and total zinc were added to be consistent with other monitoring related to loadings to the sprayfield.

D. Groundwater Monitoring

The monitoring schedule is detailed in the proposed permit under Special Condition S.2. Ecology requires groundwater monitoring at the site in accordance with the Ground Water Quality Standards, chapter 173-200 WAC. Ecology has determined that this discharge has a potential to pollute the groundwater. Therefore, the Facility must evaluate the impacts on groundwater quality. Ecology considers monitoring of the groundwater at the site boundaries and within the site an integral component of such an evaluation.

Groundwater monitoring has been reduced from monthly to quarterly. Based on evaluation of the data on file, Ecology believes the groundwater will still be adequately characterized with quarterly monitoring.

The option to reduce monitoring frequency is discussed in Ecology's Implementation Guidance for Ground Water Quality Standards. The general topic groundwater monitoring frequency of monthly monitoring vs. quarterly monitoring or other frequencies was also discussed with the author of the Implementation Guidance, Melanie Redding, LHG, in August 2020 and there was agreement that quarterly monitoring is sufficient for land treatment and other facilities, unless the data variability necessitates more frequent monitoring.

Quarterly groundwater monitoring is standard in cleanup site work regulated by Ecology's Toxics Cleanup Program and is useful to observing changes in groundwater due to seasonality. This changes could include groundwater elevation and direction which could result in changes of concentrations of other monitoring parameters.

Another concern discussed with the monthly monitoring is the possibility that that data points may not be independent of each other because of how relatively slow groundwater moves. This could result in facilities receiving duplicate violations in adjacent months for essentially the same groundwater.

Total iron (changed from ferrous iron), manganese, arsenic, copper, zinc, and chloride were added as groundwater monitoring parameters. Total iron, manganese, and arsenic are important parameters for the sprayfield because of the potential for reducing conditions from application of soluble BOD5. Chloride is a component of TDS that is also a constituent of concern for the sprayfield. All of these parameters are also recommended by Ecology's Implementation Guidance for Ground Water Quality Standards for groundwater monitoring at food processing facilities.

Total zinc and copper were added because of the stormwater contribution to the process wastewater.

If future monitoring of total iron, manganese, arsenic, zinc, copper, and chloride shows that concentrations are at or below expected background concentrations, these could be removed as monitoring parameters.

E. Municipal Sewer System Discharges to City of Selah POTW

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

The 2007 permit mentions that the City of Selah conducts the monitoring of the discharge to the City of Selah POTW per the contract between Tree Top Selah and the City of Selah. In reality, when discharge does occur, which is infrequent, Tree Top Selah has been conducting the monitoring. The 2007 permit did not include a monitoring schedule even though data has been included with the DMRs. The proposed permit includes a monitoring schedule consistent with the current DMR. Monitoring parameters include flow, BOD5, TSS, and pH. Monitoring of total kjeldahl nitrogen (TKN), nitrate plus nitrite nitrogen, NH₃ (ammonia) nitrogen, and total nitrogen were also added as parameters as these are a component of the wastewater and important to monitor for potential impacts to POTW function.

F. Soil Monitoring

Ecology details the proposed monitoring schedule under Special Condition S2. The facility and Ecology use the soil monitoring data to monitor and evaluate wastewater application rates and to determine if salts and nutrients are flushing through the root zone and leaching to the groundwater. The presence and concentration of certain wastewater related parameters in the soils (e.g., nitrogen and salts) can indicate over application of wastewater. The facility must follow the analytical methods provided in Soil, Plant And Water Reference Methods For the Western Region (2013).

The 2007 permit included a section on semi-annual soil monitoring, although referenced Appendix C of the O&M manual for specifics. The proposed permit includes a monitoring schedule based on the current Ecology land treatment permit boilerplate. Soil samples are required to be collected semi-annually in the early spring and late fall. The samples are collected as composite samples in one foot increments down to six feet (or auger refusal). Monitoring parameters include exchangeable sodium percentage, cation exchange capacity, organic matter, moisture content, TKN, nitrate plus nitrite nitrogen, NH₃ (ammonia) nitrogen, total phosphorus, conductivity, ferrous iron (presence/absence), total sodium, total calcium, total magnesium, total potassium, sulfate, and pH.

G. Crop Monitoring

Ecology details the proposed monitoring schedule under Special Condition S2. The facility and Ecology use the crop monitoring data to develop the nutrient and salt balances that are necessary to demonstrate compliance with the agronomic rate limit in Special Condition S1.

The 2007 permit did not include a section for crop monitoring. The proposed permit includes the current Ecology land treatment boilerplate language for crop monitoring. Crop monitoring is to occur on each field once per harvest and is comprised of composite samples of at least ten random samples. Crop monitoring includes the following parameters: crop production, moisture content, crude protein, TKN, nitrate plus nitrite nitrogen, phosphorus, solids (total fixed/ash weight), sodium, magnesium, potassium, and calcium.

H. 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 for:

Table 35 — Accredited Parameters

Parameter Name	Category	Method Name	Matrix Description
Dissolved Oxygen	General Chemistry	Hach 10360 rev 1.2	Non-Potable Water
Specific Conductance	General Chemistry	SM 2510 B-2011	Non-Potable Water
Total Dissolved Solids	General Chemistry	SM 2540 C-2011	Non-Potable Water
Total Suspended Solids	General Chemistry	SM 2540 D-2011	Non-Potable Water
pH	General Chemistry	SM 4500-H+ B-2011	Non-Potable Water
Biological Oxygen Demand (BOD)	General Chemistry	SM 5210 B-2011	Non-Potable Water

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

Other Permit Conditions

A. Reporting and record keeping

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

B. Operation and maintenance manual

Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state and federal regulations [[40 CFR 122.41\(e\)](#) and [WAC 173-220-150 \(1\)\(g\)](#)]. The facility has prepared and submitted an operation and maintenance manual as required by state regulation for the construction of wastewater treatment facilities ([WAC 173-240-150](#)). Implementation of the procedures in the operation and maintenance manual ensures the facility's compliance with the terms and limits in the permit. The proposed permit requires the facility to update this plan and submit it to Ecology.

C. Best Management Practices – Land Treatment Site

Best management practices (BMPs) are the actions identified to manage, prevent contamination of groundwater. BMPs include 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. The list below describes best management practices applicable for land treatment sites.

The Permittee must:

1. Not allow spray irrigation practices to result in runoff of wastewater to any surface waters of the state or to any land not owned by or under its control.
2. Use recognized good practices, and all available and reasonable procedures to control odors from the land application system.
3. Implement measures to reduce odors to a reasonable minimum when notified by Ecology.
4. Not apply wastewater to the irrigation lands in quantities that would:
 - a. Significantly reduce or destroy the long-term infiltration rate of the soil.
 - b. Cause long-term anaerobic conditions in the soil.
 - c. Cause ponding of wastewater and produce objectionable odors or support insects or vectors.

- d. Cause leaching losses of constituents of concern beyond the treatment zone or in excess of the approved design. Constituents of concern are constituents in the wastewater, partial decomposition products, or soil constituents that would alter groundwater quality in amounts that would affect current and future beneficial uses.
5. Maintain all irrigation agreements for lands not owned for the duration of the permit cycle. Any reduction in irrigation lands by termination of any irrigation agreements may result in permit modification or revocation.
6. Immediately inform Ecology in writing of any proposed changes to existing irrigation agreements.
7. Meet the leaching requirement using precipitation and/or fresh water whenever leaching is required to control soil salinity.
8. Not load BOD₅ to the fields in excess of 100 lbs/acre/day.
9. Not apply wastewater during the months of December to February. Wastewater can be agronomically land applied during the months of March to November, and when soil temperatures at inches depth are at or above 2°C and when the crop requires nutrients for growth. Soil temperature monitoring data is available at <http://weather.wsu.edu> for the AgWeatherNet Pomona weather station located at latitude 46.69028 and longitude -120.47194.

D. Prohibited discharges

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

E. Dilution prohibited

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

F. Solid waste control plan

Tree Top Selah could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

This proposed permit requires this facility to update the approved solid waste control plan designed to prevent solid waste from causing pollution of waters of the state. The facility must submit the updated plan to Ecology for approval ([RCW 90.48.080](#)). You can obtain an Ecology guidance document, which describes how to develop a [Solid Waste Control Plan](#), at: <https://fortress.wa.gov/ecy/publications/documents/0710024.pdf>

G. Engineering documents

The proposed permit requires Tree Top Selah to prepare and submit an approvable engineering report in accordance with WAC 173-240 to Ecology within two years from the permit effective date.

An engineering report entitled “*Land Application of Process Wastewaters, Tree Top Inc. Selah Operations*” was received by Ecology on June 4, 1990 and approved August 6, 1990. Both Ecology and Tree Top Selah have been unable to locate a copy of this document. The proposed permit includes a requirement to prepare and submit an engineering report for approval.

The report must contain any appropriate requirements as described in “[Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems](#)” (Washington State Department of Ecology, 1993).

The proposed permit also requires Tree Top Selah to prepare and submit approvable plans and specifications to Ecology for review and approval in accordance with chapter 173-240 WAC within three years after the effective date. In the case of Tree Top Selah, these will be as-builts as the facility has already been constructed unless there is new construction proposed for the future.

H. Groundwater quality evaluation (hydrogeologic study)

In accordance with WAC 173-200-080, the proposed permit requires the facility to prepare and submit a hydrogeologic study of the land treatment site for Ecology review and approval. The facility must base the hydrogeologic study on soil and hydrogeologic characteristics and assess impacts on the groundwater. The study must determine whether the discharge is in hydraulic continuity with surface waters. To prepare the study, the facility must use “[Guidelines for Preparation of Engineering Reports for](#)

[Industrial Wastewater Land Application Systems](#)," (Ecology, 1993) and "[Implementation Guidance for the Ground Water Quality Standards](#)" (Ecology, 2005).

I. Non routine and unanticipated wastewater

Occasionally, this facility may generate wastewater which was not characterized in the permit application because it is not a routine discharge and was not anticipated at the time of application. These wastes typically consist of waters used to pressure-test storage tanks or fire water systems or of leaks from drinking water systems.

The permit authorizes the discharge of non-routine and unanticipated wastewater under certain conditions. The facility must characterize these waste waters for pollutants and examine the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and on any opportunities for reuse, Ecology may:

- Authorize the facility to discharge the wastewater.
- Require the facility to treat the wastewater.
- Require the facility to reuse the wastewater.

J. Spill plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [[Section 402\(a\)\(1\) of the Federal Water Pollution Control Act \(FWPCA\)](#) and [RCW 90.48.080](#)].

Tree Top Selah developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the facility to update this plan and submit it to Ecology.

K. Slug Discharge Control Plan

Ecology determined that Tree Top Selah has the potential for a batch discharge or a spill that could adversely affect the treatment plant, therefore the proposed permit requires a slug discharge control plan [(40 CFR 403.8 (f)(I) (iii)(B)(6) and (f) (2)(vi)].

L. Irrigation and crop management plans

Ecology requires the irrigation and crop management plan to support the engineering report(s) and operations and maintenance manual. This plan must include a

consideration of wastewater application at agronomic rates as required by Special Condition S1 and should describe and evaluate various irrigation controls.

Plans must comply with the requirements for an irrigation and crop management plan given in Ecology's guidance, "[Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems](#)" (Ecology, 1993).

M. Stormwater System Mapping and UIC Well Registration

Ecology requires a map be prepared and submitted to Ecology that includes all stormwater infrastructure within the Tree Top Selah Campus.

Ecology also requires inspection and registration of all underground injection control (UIC) wells. A status summary report about the UIC inspections and registration status is required to be submitted to Ecology. The UIC wells are to be included on the stormwater system map.

More information on Ecology's UIC Program, including on-line registration forms, may be found at <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Underground-injection-control-program>.

N. Compliance schedule

The proposed permit includes a compliance schedule for installation of lagoon cell depth water measurement gauges/equipment, engineering documents (not currently on file with Ecology), a groundwater quality study (hydrogeologic report), a stormwater system map, and UIC well inspection and UIC registration status summary report.

O. General conditions

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

Permit Issuance Procedures

A. Permit modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with

water quality standards for groundwaters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

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

B. Proposed permit Issuance

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

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

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

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

Appendix A — Public Involvement Information

Ecology proposes to reissue a permit to Tree Top Selah. 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 January 19, 2024 in the Yakima Herald Republic to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- 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 NPDES permit.
- Explains the next step(s) in the permitting process.

NOTICE: ANNOUNCEMENT OF AVAILABILITY OF DRAFT PERMIT

PERMIT NO.: WA0002437

APPLICANT: Tree Top Inc.

220 East Second Avenue

Selah, WA 98942

FACILITY: Tree Top Inc. Selah Plant

220 East Second Avenue

Selah, WA 98942

Tree Top Inc. has applied for a National Pollutant Discharge Elimination System (NPDES) permit in accordance with the provisions of Chapter 90.48 Revised Code of Washington (RCW) and Chapter 173-220 Washington Administrative Code (WAC), and the Federal Clean Water Act.

Fact Sheet for NPDES Permit WA0002437

July 1, 2024

Tree Top, Inc. – Selah Facilities

Page 70 of 120

Following evaluation of the application and other available information, a draft permit has been developed which would allow the discharge of treated industrial process wastewater from Tree Top Selah to Selah Ditch and also to land application. 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.

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/DocumentSearch.aspx?PermitNumber=0002437&FacilityName=&City=&County=&Region=0&PermitType=0&DocumentType=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 e-mail publicrecordsofficer@ecy.wa.gov or write to Public Records Officer, Department of Ecology, PO Box 47600, Olympia, WA 98504.

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.

Submit comments online at: <https://wq.ecology.commentinput.com?id=8WgUkFjhY>. Written comments should be sent to: Water Quality Permit Coordinator, Department of Ecology, Central Regional Office, 1250 West Alder Street, Union Gap, WA 98903-0009.

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.

Fact Sheet for NPDES Permit WA0002437
July 1, 2024
Tree Top, Inc. – Selah Facilities
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Ecology has published a document entitled [Frequently Asked Questions about Effective Public Commenting](https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html) which is available on our website at
<https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html>

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](#).

Table 36 — Address and Location Information

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

Appendix C — Glossary

1-DMax or 1-day maximum temperature – The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or 7-day average of the daily maximum temperatures – The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute toxicity – The lethal effect of a compound on an organism that occurs in a short time period, usually 48 to 96 hours.

AKART – The acronym for “all known, available, and reasonable methods of prevention, control and treatment.” AKART is a technology-based approach to limiting pollutants from wastewater discharges, which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with [RCW 90.48.010](#) and [RCW 90.48.520](#), [WAC 173-200-030\(2\)\(c\)\(ii\)](#), and [WAC 173-216-110\(1\)\(a\)](#).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 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 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 BOD₅ – 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 BOD₅ 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 BOD₅ 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.

Work Plan (Hydrogeologic Study) – A document prepared in preparation of a groundwater monitoring study that includes installation of new monitoring wells and/or groundwater monitoring. The document contains background information including existing wells and data, a plan for installation of new monitoring wells (if applicable), a sampling and analysis plan, and a health and safety plan.

Appendix D — Technical Calculations

Maximum month (May through September) Flow Limit Conversion from acre inches to million gallons

$78.017 \text{ MG} = 9.42 \text{ acre inches} \times 27154.285990761 \text{ (conversion factor)} \times 305 \text{ acres}$

78.017 MG rounded to 78 MG

Sprayfield Shoulder Season Flow Data Sets and 99th Percentile Values (2015-2019 Data)

Sprayfield Discharge Flow March/April 2015-2019

Date	Flow (MG/month)
3/1/2015	35.87
4/1/2015	42.97
3/1/2016	29.37
4/1/2016	45.87
3/1/2017	24.77
4/1/2017	32.89
3/1/2018	26.51
4/1/2018	35.32
3/1/2019	7.59
4/1/2019	38.60
99th Percentile	45.61

45.61 MG converted to acre inches:

$5.51 \text{ acre inches} = (45.61 \text{ MG}/78 \text{ MG}) \times 9.42 \text{ acre inches}$

Sprayfield Discharge Flow October/November 2015-2019

Date	Flow (MG/month)
10/1/2015	36.27
11/1/2015	7.49
10/1/2016	31.58
11/1/2016	19.99
10/1/2017	27.50
11/1/2017	35.72
10/1/2018	31.42
11/1/2018	19.97
10/1/2019	21.59
11/1/2019	17.46
99th Percentile	36.22

36.22 MG converted to acre inches:

4.37 acre inches = (36.22 MG/78 MG) x 9.42 acre inches

Sprayfield Soluble BOD Loading Limit Calculation

Maximum Monthly Loading Limit (pounds/month)

65,052 pounds/month = 78 MG/month x 100 mg/L (previous limit) x 8.34

65,052 pounds/month rounded to 65,000 pounds/month

Average Monthly Loading Limit (pounds/acre/day)

6.98 pounds/acre/day = 65,000 pounds/month / 305 acres / 30.5 days

6.98 pounds/acre/day rounded to 7 pounds/acre/day

Sprayfield Total Nitrogen Loading Limit Calculation

Maximum Monthly Loading Limit (pounds/month)

$$13,320 \text{ pounds/month} = (78 \text{ MG/month} / 89.3 \text{ MG/month}) \times 15,250 \text{ pounds/month (previous limit)}$$

Average Monthly Loading Limit (pounds/acre/day)

$$1.43 \text{ pounds/acre/day} = 13,320 \text{ pounds/month} / 305 \text{ acres} / 30.5 \text{ days}$$

Nitrate - MW-1 Background Well Data Set

and 95th Percentile Value (2015-2019 Data)

MW-1	
Date	Nitrate (mg/L)
6/1/2015	3.4
8/3/2015	3.78
9/14/2015	3.6
10/6/2015	3.06
11/2/2015	2.7
3/7/2016	4.4
3/24/2016	4.66
4/11/2016	4.56
4/18/2016	4.5
5/17/2016	4.16
6/6/2016	3.98
7/11/2016	3.8
8/8/2016	3.78
9/12/2016	3.82
10/10/2016	3.7
11/7/2016	4
3/13/2017	5.3
3/20/2017	4.8
4/4/2017	4.93
4/13/2017	4.87
5/1/2017	4.78
5/4/2017	4.8
6/5/2017	4.5
6/14/2017	4.9
7/10/2017	4.04
8/7/2017	3.92
9/5/2017	3.78
10/2/2017	4.18
11/13/2017	3.68

MW-1	
Date	Nitrate (mg/L)
3/12/2018	5.31
3/19/2018	5.21
4/9/2018	5.23
5/7/2018	4.96
6/4/2018	4.63
7/2/2018	4.16
8/6/2018	4.3
9/10/2018	4.2
10/1/2018	4.2
11/5/2018	4.3
3/18/2019	5.04
4/1/2019	4.76
5/6/2019	4.96
6/3/2019	4.82
7/8/2019	4.52
8/5/2019	4.24
9/9/2019	4.44
11/4/2019	4.1
95th Percentile	5.22

TDS - MW-1 Background Well Data Set
and 95th Percentile Value (2015-2019 Data)

MW-1	
Date	TDS (mg/L)
3/9/2015	308
4/6/2015	348
5/4/2015	298
6/1/2015	354
8/3/2015	368
9/14/2015	330
10/6/2015	352
11/2/2015	320
3/7/2016	372
4/11/2016	356
5/17/2016	356
6/6/2016	410
7/11/2016	380
8/8/2016	386
9/12/2016	410
10/10/2016	404
11/7/2016	430
3/13/2017	440
4/4/2017	438
5/1/2017	416
6/5/2017	410
7/10/2017	372
8/7/2017	322
9/5/2017	302
10/2/2017	334
11/13/2017	290

MW-1	
Date	TDS (mg/L)
3/12/2018	322
4/9/2018	368
5/7/2018	348
6/4/2018	340
7/2/2018	340
8/6/2018	348
9/10/2018	330
10/1/2018	342
11/5/2018	326
3/18/2019	372
4/1/2019	364
5/6/2019	370
6/3/2019	364
7/8/2019	310
8/5/2019	332
9/9/2019	358
11/4/2019	336
95th Percentile	429

TDS - MW-4 Data Set
and 95th Percentile Value (2015-2019 Data)

MW-4	
Date	TDS (mg/L)
3/10/2015	200
4/7/2015	442
5/5/2015	487
6/2/2015	490
8/4/2015	528
9/15/2015	476
10/7/2015	460
11/3/2015	444
3/8/2016	504
4/12/2016	486
5/18/2016	518
6/7/2016	554
7/12/2016	566
8/9/2016	572
9/13/2016	586
10/11/2016	546
11/8/2016	540
3/14/2017	592
4/5/2017	614
5/2/2017	590
6/6/2017	604
7/11/2017	570
8/8/2017	554
9/6/2017	586
10/3/2017	574
11/14/2017	504

3/13/2018	464
4/10/2018	468
5/8/2018	330
6/5/2018	438
7/9/2018	494
8/7/2018	468
9/11/2018	452
10/2/2018	440
11/6/2018	448
3/19/2019	428
4/3/2019	244
5/7/2019	470
6/4/2019	196
7/9/2019	488
8/6/2019	496
9/10/2019	438
11/5/2019	416
95th Percentile	591.8

The EPA ProUCL statistical evaluation showed that the MW-4 TDS data set has an unknown distribution (not normal or log-normal), so instead of using the 95th percentile as a groundwater enforcement limit, it is appropriate to use a nonparametric tolerance interval being the highest value of the data set.

The highest value in the data set is 614 mg/L TDS on 4/5/2017.

EPA ProUCL MW-1 Nitrate Statistical Evaluation

Background Statistics for Uncensored Full Data Sets			
User Selected Options			
Date/Time of Computation	2/21/2020 1:11:06 PM		
From File	WorkSheet.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Coverage	95%		
New or Future K Observations	1		
Number of Bootstrap Operations	2000		
MW-1 Nitrate (mg/L)			
General Statistics			
Total Number of Observations	50	Number of Distinct Observations	41
Minimum	2.7	First Quartile	3.875
Second Largest	5.3	Median	4.27
Maximum	5.31	Third Quartile	4.795
Mean	4.308	SD	0.578
Coefficient of Variation	0.134	Skewness	-0.332
Mean of logged Data	1.451	SD of logged Data	0.141
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.058	d2max (for USL)	2.957
Normal GOF Test			
Shapiro Wilk Test Statistic	0.969	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0828	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.125	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	5.498	90% Percentile (z)	5.049
95% UPL (t)	5.287	95% Percentile (z)	5.259
95% USL	6.018	99% Percentile (z)	5.653
Gamma GOF Test			
A-D Test Statistic	0.401	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.748	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0847	Kolmogrov-Smirnoff Gamma GOF Test	
5% K-S Critical Value	0.125	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			

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Gamma Statistics				
k hat (MLE)	53.63	k star (bias corrected MLE)	50.43	
Theta hat (MLE)	0.0803	Theta star (bias corrected MLE)	0.0854	
nu hat (MLE)	5363	nu star (bias corrected)	5043	
MLE Mean (bias corrected)	4.308	MLE Sd (bias corrected)	0.607	
Background Statistics Assuming Gamma Distribution				
95% Wilson Hilferty (WH) Approx. Gamma UPL	5.364	90% Percentile	5.101	
95% Hawkins Wixley (HW) Approx. Gamma UPL	5.375	95% Percentile	5.352	
95% WH Approx. Gamma UTL with 95% Coverage	5.619	99% Percentile	5.843	
95% HW Approx. Gamma UTL with 95% Coverage	5.637			
95% WH USL	6.28	95% HW USL	6.323	
Lognormal GOF Test				
Shapiro Wilk Test Statistic	0.95	Shapiro Wilk Lognormal GOF Test		
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level		
Lilliefors Test Statistic	0.0813	Lilliefors Lognormal GOF Test		
5% Lilliefors Critical Value	0.125	Data appear Lognormal at 5% Significance Level		
Data appear Lognormal at 5% Significance Level				
Background Statistics assuming Lognormal Distribution				
95% UTL with 95% Coverage	5.7	90% Percentile (z)	5.11	
95% UPL (t)	5.415	95% Percentile (z)	5.378	
95% USL	6.467	99% Percentile (z)	5.918	
Nonparametric Distribution Free Background Statistics				
Data appear Normal at 5% Significance Level				
Nonparametric Upper Limits for Background Threshold Values				
Order of Statistic, r	49	95% UTL with 95% Coverage	5.3	
Approximate f	1.289	Confidence Coefficient (CC) achieved by UTL	0.721	
95% Percentile Bootstrap UTL with 95% Coverage	5.306	95% BCA Bootstrap UTL with 95% Coverage	5.306	
95% UPL	5.262	90% Percentile	4.968	
90% Chebyshev UPL	6.06	95% Percentile	5.221	
95% Chebyshev UPL	6.853	99% Percentile	5.305	
95% USL	5.31			
Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.				
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.				

EPA ProUCL MW-1 TDS Statistical Evaluation

Background Statistics for Uncensored Full Data Sets				
User Selected Options				
Date/Time of Computation	2/21/2020 2:19:09 PM			
From File	WorkSheet.xls			
Full Precision	OFF			
Confidence Coefficient	95%			
Coverage	95%			
New or Future K Observations	1			
Number of Bootstrap Operations	2000			
MW-1 TDS (mg/L)				
General Statistics				
Total Number of Observations	43	Number of Distinct Observations	31	
Minimum	290	First Quartile	331	
Second Largest	438	Median	354	
Maximum	440	Third Quartile	372	
Mean	357.6	SD	37.78	
Coefficient of Variation	0.106	Skewness	0.483	
Mean of logged Data	5.874	SD of logged Data	0.104	
Critical Values for Background Threshold Values (BTVs)				
Tolerance Factor K (For UTL)	2.097	d2max (for USL)	2.897	
Normal GOF Test				
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk GOF Test		
5% Shapiro Wilk Critical Value	0.943	Data appear Normal at 5% Significance Level		
Lilliefors Test Statistic	0.119	Lilliefors GOF Test		
5% Lilliefors Critical Value	0.135	Data appear Normal at 5% Significance Level		
Data appear Normal at 5% Significance Level				
Background Statistics Assuming Normal Distribution				
95% UTL with 95% Coverage	436.8	90% Percentile (z)	406	
95% UPL (t)	421.9	95% Percentile (z)	419.7	
95% USL	467	99% Percentile (z)	445.5	
Gamma GOF Test				
A-D Test Statistic	0.374	Anderson-Darling Gamma GOF Test		
5% A-D Critical Value	0.747	Detected data appear Gamma Distributed at 5% Significance Level		
K-S Test Statistic	0.105	Kolmogrov-Smirnoff Gamma GOF Test		
5% K-S Critical Value	0.134	Detected data appear Gamma Distributed at 5% Significance Level		
Detected data appear Gamma Distributed at 5% Significance Level				

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Gamma Statistics				
k hat (MLE)	93.65	k star (bias corrected MLE)	87.13	
Theta hat (MLE)	3.818	Theta star (bias corrected MLE)	4.104	
nu hat (MLE)	8054	nu star (bias corrected)	7493	
MLE Mean (bias corrected)	357.6	MLE Sd (bias corrected)	38.31	
Background Statistics Assuming Gamma Distribution				
95% Wilson Hilferty (WH) Approx. Gamma UPL	423.6	90% Percentile	407.5	
95% Hawkins Wixley (HW) Approx. Gamma UPL	423.9	95% Percentile	422.8	
95% WH Approx. Gamma UTL with 95% Coverage	440.4	99% Percentile	452.7	
95% HW Approx. Gamma UTL with 95% Coverage	440.9			
95% WH USL	475.7	95% HW USL	476.9	
Lognormal GOF Test				
Shapiro Wilk Test Statistic	0.971	Shapiro Wilk Lognormal GOF Test		
5% Shapiro Wilk Critical Value	0.943	Data appear Lognormal at 5% Significance Level		
Lilliefors Test Statistic	0.101	Lilliefors Lognormal GOF Test		
5% Lilliefors Critical Value	0.135	Data appear Lognormal at 5% Significance Level		
Data appear Lognormal at 5% Significance Level				
Background Statistics assuming Lognormal Distribution				
95% UTL with 95% Coverage	442.6	90% Percentile (z)	406.5	
95% UPL (t)	424.7	95% Percentile (z)	422.2	
95% USL	481.1	99% Percentile (z)	453.3	
Nonparametric Distribution Free Background Statistics				
Data appear Normal at 5% Significance Level				
Nonparametric Upper Limits for Background Threshold Values				
Order of Statistic, r	43	95% UTL with 95% Coverage	440	
Approximate f	2.263	Confidence Coefficient (CC) achieved by UTL	0.89	
95% Percentile Bootstrap UTL with 95% Coverage	439.8	95% BCA Bootstrap UTL with 95% Coverage	438	
95% UPL	436.4	90% Percentile	410	
90% Chebyshev UPL	472.2	95% Percentile	428.6	
95% Chebyshev UPL	524.2	99% Percentile	439.2	
95% USL	440			
Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.				
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.				

EPA ProUCL MW-4 TDS Statistical Evaluation

Background Statistics for Uncensored Full Data Sets			
User Selected Options			
Date/Time of Computation	2/21/2020 2:24:12 PM		
From File	WorkSheet.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Coverage	95%		
New or Future K Observations	1		
Number of Bootstrap Operations	2000		
MW-4 TDS (mg/L)			
General Statistics			
Total Number of Observations	43	Number of Distinct Observations	38
Minimum	196	First Quartile	446
Second Largest	604	Median	488
Maximum	614	Third Quartile	554
Mean	482.9	SD	96.63
Coefficient of Variation	0.2	Skewness	-1.43
Mean of logged Data	6.153	SD of logged Data	0.255
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.097	d2max (for USL)	2.897
Normal GOF Test			
Shapiro Wilk Test Statistic	0.86	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.943	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.182	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.135	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	685.6	90% Percentile (z)	606.7
95% UPL (t)	647.3	95% Percentile (z)	641.9
95% USL	762.8	99% Percentile (z)	707.7
Gamma GOF Test			
A-D Test Statistic	2.709	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.227	Kolmogrov-Smirnoff Gamma GOF Test	
5% K-S Critical Value	0.135	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

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Gamma Statistics			
k hat (MLE)	18.93	k star (bias corrected MLE)	17.62
Theta hat (MLE)	25.52	Theta star (bias corrected MLE)	27.41
nu hat (MLE)	1628	nu star (bias corrected)	1515
MLE Mean (bias corrected)	482.9	MLE Sd (bias corrected)	115
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	689.4	90% Percentile	635
95% Hawkins Wixley (HW) Approx. Gamma UPL	697.1	95% Percentile	686.4
95% WH Approx. Gamma UTL with 95% Coverage	747.2	99% Percentile	790
95% HW Approx. Gamma UTL with 95% Coverage	758.7		
95% WH USL	873.5	95% HW USL	895.7
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.738	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.943	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.251	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.135	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	802.3	90% Percentile (z)	651.7
95% UPL (t)	725.3	95% Percentile (z)	714.9
95% USL	983.6	99% Percentile (z)	850.5
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	43	95% UTL with 95% Coverage	614
Approximate f	2.263	Confidence Coefficient (CC) achieved by UTL	0.89
95% Percentile Bootstrap UTL with 95% Coverage	613	95% BCA Bootstrap UTL with 95% Coverage	611.8
95% UPL	601.6	90% Percentile	586
90% Chebyshev UPL	776.2	95% Percentile	591.8
95% Chebyshev UPL	909	99% Percentile	609.8
95% USL	614		
Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.			
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.			

Appendix E — 2015-2019 Discharge Monitoring Report (DMR) Data Summary

Department Of Ecology : DMR Data Analysis Report

Facility Name : Tree Top Inc Selah

Permit Number : WA0002437

Begin Date : 1/1/2015

End Date : 12/31/2019

Parameters : All Parameters

Printed : 1/30/2020 14:57

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Feature Type : Surface Water Body				
Feature Name (INF)				
Feature Description (influent Ross and Selah)				
Monitoring Point Code : (ROSS)				
Monitoring Point (Ross Plant)				
Monitoring Point Id : -4				
Parameter	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5)	Biochemical Oxygen Demand	Biochemical Oxygen Demand (BOD5)
Units	Lbs/Day	Lbs/Day	Milligrams/L	Milligrams/L (mg/L)
Statistical Base	Average	Maximum	Average	Maximum
Limits	- / -	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -	- / -
Design Limit				
Date	Value	Value	Value	Value
1/1/2015	4522.75	10974	6928.38	14070
2/1/2015	5026.5	6242	7271	8514
3/1/2015	2881.14	4855	4601.14	7161
4/1/2015	2760	4583	4764.43	8904
5/1/2015	1603.43	2769	3047.43	6413
6/1/2015	5113.5	8424	7223.5	11571
7/1/2015	4328.86	8796	7681.14	14994
8/1/2015	2253.29	8029	3268.71	12000
9/1/2015	3254	7545	3032.29	4675
10/1/2015	4324.83	8041	5840	10101
11/1/2015	3977.75	6623	5641.75	10479
12/1/2015	1968.2	4835	2082.6	4045
1/1/2016	3604	10090	4559.75	9597
2/1/2016	1448.5	4786	3413.25	8676
3/1/2016	3257.6	7463	6266.4	15309
4/1/2016	2251	3522	3791.5	5820
5/1/2016	2163	6522	3276	7704
6/1/2016	3729.14	8631	5877.86	12495
7/1/2016	3782.4	5498	5349.8	7905
8/1/2016	1762.5	6540	1611.5	5292
9/1/2016	3627.5	5053	6069.75	9108
10/1/2016	3300.25	6453	4250.5	8790
11/1/2016	3920.5	7216	4346.5	9891
12/1/2016	2960.2	5438	5471.8	10500
1/1/2017	2733	4329	3781.5	5456
2/1/2017	3873	5411	6542.88	9471
3/1/2017	2276.57	6773	4024.29	7560
4/1/2017	3220.33	4444	4303.5	6255
5/1/2017	3646.86	6301	4843	8358
6/1/2017	1783.33	3121	3608.5	7602
7/1/2017	607.4	692	1602	1908
8/1/2017	1091.2	3811	2187.2	6270
9/1/2017	1759	6191	2940.25	9723
10/1/2017	2795	5837	4029.25	7198
11/1/2017	7371.67	10672	7623	8673
12/1/2017	3775.2	4662	4955.4	6012

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Parameter	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5)	Biochemical Oxygen Demand	Biochemical Oxygen Demand (BOD5)
Units	Lbs/Day	Lbs/Day	Milligrams/L	Milligrams/L (mg/L)
Statistical Base	Average	Maximum	Average	Maximum
Limits	- / -	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -	- / -
Design Limit				
Date	Value	Value	Value	Value
1/1/2018	3088.14	5759	5130.29	9036
2/1/2018	3550.75	4626	5646	7959
3/1/2018	3446.33	7701	4205.89	9450
4/1/2018	2842.43	3828	3548.86	5235
5/1/2018	3359.8	5577	3630.8	6138
6/1/2018	2263	2666	3639.75	4500
7/1/2018	2992.6	5721	10775.4	40194
8/1/2018	3585.8	10239	5772	15309
9/1/2018	5152.75	9212	6971	12579
10/1/2018	5134	10292	5796.5	10710
11/1/2018	1718.43	3607	2914.57	6426
12/1/2018	2450	6233	3213.6	5685
1/1/2019	2102.43	3902	2509.29	5160
2/1/2019	5001.75	8333	4827	8610
3/1/2019	3253.8	6049	4548	6531
4/1/2019	3859.17	5207	5264.5	7266
5/1/2019	4107	5822	4824.43	8862
6/1/2019	5425.5	9452	7568	14385
7/1/2019	3543	10311	4638.63	8358
8/1/2019	650	3581	990	3956
9/1/2019	4050.75	5515	4277.75	5418
11/1/2019	2325.25	4969	3657.25	9240
12/1/2019	4251.6	6897	5643	7350
Min	607.4	692	990	1908
Max	7371.67	10974	10775.4	40194
Average	3235.72339	6214.762712	4679.665424	8929.779661
Median	3257.6	5837	4559.75	8358
95th Percentile	5135.875	10293.9	7573.5	15025.5

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Parameter	Flow (Not Applicable)	Flow (Not Applicable)	Flow (Not Applicable)
Units	MGD	MGD	MGD
Statistical Base	Average	Maximum	Monthly Total
Limits	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -
Design Limit			
Date	Value	Value	Value
1/1/2015	0.0637903	0.122004	1.9775
2/1/2015	0.0648646	0.104641	1.81621
3/1/2015	0.0671569	0.131087	2.08186
4/1/2015	0.0679439	0.124694	2.03832
5/1/2015	0.0554251	0.112115	1.71818
6/1/2015	0.0685367	0.13987	2.0561
7/1/2015	0.04304	0.114585	1.33424
8/1/2015	0.051	0.153386	1.5755
9/1/2015	0.0708422	0.15344	2.12527
10/1/2015	0.0797117	0.155446	2.47106
11/1/2015	0.0730427	0.16631	2.19128
12/1/2015	0.078	0.169842	2.39727
1/1/2016	0.059	0.14433	1.83521
2/1/2016	0.034	0.111614	0.991852
3/1/2016	0.052	0.129266	1.60998
4/1/2016	0.063	0.137772	1.89146
5/1/2016	0.052	0.140152	1.6245
6/1/2016	0.0638084	0.160772	1.91425
7/1/2016	0.056	0.12882	1.72056
8/1/2016	0.0379293	0.0841	1.17581
9/1/2016	0.0669649	0.152868	2.00895
10/1/2016	0.0808143	0.136112	2.50524
11/1/2016	0.0587289	0.168116	1.76187
12/1/2016	0.056	0.12164	1.72913
1/1/2017	0.0832012	0.14948	2.57924
2/1/2017	0.0824467	0.174524	2.30851
3/1/2017	0.0700374	0.156028	2.17116
4/1/2017	0.0744945	0.173476	2.23484
5/1/2017	0.0722263	0.158008	2.23901
6/1/2017	0.0689124	0.145724	2.06737
7/1/2017	0.0461383	0.182236	1.43029
8/1/2017	0.0373884	0.091988	1.15904
9/1/2017	0.0462016	0.132024	1.38605
10/1/2017	0.0777478	0.147224	2.41018
11/1/2017	0.0927645	0.17596	2.78294
12/1/2017	0.0819392	0.170242	2.54012

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Parameter	Flow (Not Applicable)	Flow (Not Applicable)	Flow (Not Applicable)
Units	MGD	MGD	MGD
Statistical Base	Average	Maximum	Monthly Total
Limits	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -
Design Limit			
Date	Value	Value	Value
1/1/2018	0.0825306	0.179528	2.55845
2/1/2018	0.0926469	0.183272	2.59411
3/1/2018	0.0894653	0.196792	2.77342
4/1/2018	0.103996	0.243184	3.11987
5/1/2018	0.103504	0.183064	3.20862
6/1/2018	0.0948504	0.176096	2.84551
7/1/2018	0.0850892	0.184616	2.63777
8/1/2018	0.0573076	0.15423	1.77654
9/1/2018	0.0784701	0.15788	2.3541
10/1/2018	0.0731228	0.161816	2.26681
11/1/2018	0.0577701	0.138144	1.7331
12/1/2018	0.0728382	0.1794	2.25798
1/1/2019	0.066	0.207168	2.0603
2/1/2019	0.0847974	0.204768	2.37433
3/1/2019	0.0767463	0.251672	2.37914
4/1/2019	0.0724608	0.205152	2.17382
5/1/2019	0.0740578	0.195592	2.29579
6/1/2019	0.0898176	0.217952	2.69453
7/1/2019	0.0739022	0.192304	2.29097
8/1/2019	0.037	0.174016	1.13683
9/1/2019	0.0845564	0.207768	2.53669
11/1/2019	0.0580523	0.210896	1.74157
12/1/2019	0.0782981	0.189504	2.42724
Min	0.034	0.0841	0.991852
Max	0.103996	0.251672	3.20862
Average	0.069226751	0.161266271	2.103353254
Median	0.0708422	0.158008	2.17116
95th Percentile	0.09297309	0.2116016	2.789197

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Parameter	Kjeldahl Nitrogen (TKN) (Total)	Kjeldahl Nitrogen (TKN) (Total)	pH (Hydrogen Ion) (Not Applicable)	pH (Hydrogen Ion) (Not Applicable)
Units	Lbs/Day	Milligrams/L (mg/L)	Standard Units	Standard Units
Statistical Base	Average	Average	Maximum	Minimum
Limits	- / -	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -	- / -
Design Limit				
Date	Value	Value	Value	Value
1/1/2015	14.3	14.1	11.14	4.58
2/1/2015	31.6	41.7	6.74	4.32
3/1/2015	6.6	10.3	7.2	3.92
4/1/2015	2.5	5.4	7.52	4.32
5/1/2015	3.5	4.6	6.87	4.3
6/1/2015	21	36.5	6.41	3.86
7/1/2015	2.2	5.7	8.43	3.95
8/1/2015	1.8	4.7	9.85	3.62
9/1/2015	3.3	3.6	8.7	3.94
10/1/2015	35.4	44.5	6.44	4.06
11/1/2015	15.1	22.1	9.04	4.09
12/1/2015	11	13.8	7.15	5.15
1/1/2016	4.2	3.5	9.81	4.39
2/1/2016	10.7	19.6	8.47	5.04
3/1/2016	3.8	6.9	7.18	4.38
4/1/2016	10.4	23.4	6.05	3.8
5/1/2016	21.3	38	9.38	4.22
6/1/2016	6.6	16.6	10.84	3.92
7/1/2016	12.4	22	5.54	3.67
8/1/2016	1.7	5	6.55	4.46
9/1/2016	12.8	28.8	10.4	3.87
10/1/2016	18.4	20.7	6.18	3.85
11/1/2016	10.2	25.8	10.84	4.07
12/1/2016	7.2	12.7	9.72	3.92
1/1/2017	24	37.2	10.1	4.71
2/1/2017	24	20.3	8.06	4.34
3/1/2017	2.3	4.9	7.54	4.5
4/1/2017	26	18	10.14	4.09
5/1/2017	27.8	23.5	7.65	3.94
6/1/2017	25.1	21.7	7.27	4.03
7/1/2017	2.8	7.8	7.29	3.78
8/1/2017	2.2	7.3	10.43	3.48
9/1/2017	0.07	1.7	9.69	4.03
10/1/2017	8.3	10.6	8.54	4.4
11/1/2017	27.8	21.7	6.36	3.31
12/1/2017	30	21.1	5.87	3.86

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Parameter	Kjeldahl Nitrogen (TKN) (Total)	Kjeldahl Nitrogen (TKN) (Total)	pH (Hydrogen Ion) (Not Applicable)	pH (Hydrogen Ion) (Not Applicable)
Units	Lbs/Day	Milligrams/L (mg/L)	Standard Units	Standard Units
Statistical Base	Average	Average	Maximum	Minimum
Limits	- / -	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -	- / -
Design Limit				
Date	Value	Value	Value	Value
1/1/2018	30.2	30.8	6.07	3.84
2/1/2018	15.5	20.8	6.51	4.07
3/1/2018	12.1	8.8	6.42	3.91
4/1/2018	25.6	23.2	6.62	3.82
5/1/2018	1.8	1.2	6.13	3.68
6/1/2018	9.4	7.1	5.05	3.55
7/1/2018	14.3	19.2	5.75	3.74
8/1/2018	9.7	34	7.19	3.57
9/1/2018	17.8	26	5.46	3.62
10/1/2018	7.7	8.5	6.12	3.92
11/1/2018	5	7.4	7.18	3.81
12/1/2018	14.6	13.7	6.92	4.21
1/1/2019	3.1	8.7	7.28	4.34
2/1/2019	2.5	6.3	9.62	4.59
3/1/2019	2.4	5.9	7.16	4.04
4/1/2019	5	8.5	7.49	4.01
5/1/2019	45.1	39	6.74	4.11
6/1/2019	7.8	10.6	7.22	3.9
7/1/2019	32	42.1	6.42	3.72
8/1/2019	3.4	5.5	9.72	4.42
9/1/2019	5.3	6.4	8.04	5.25
11/1/2019	7.6	13.6	9.03	4.75
12/1/2019	14.3	28.3	9.45	4.29
Min	0.07	1.2	5.05	3.31
Max	45.1	44.5	11.14	5.25
Average	12.89101695	16.97288136	7.779322034	4.090338983
Median	10.2	13.8	7.27	4.03
95th Percentile	31.64	39.27	10.471	4.779

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Monitoring Point Code : (SJP2)				
Monitoring Point (Selah Juice Plant)				
Monitoring Point Id : -40				
Parameter	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5) (Total)
Units	Lbs/Day	Lbs/Day	Milligrams/L	Milligrams/L (mg/L)
Statistical Base	Average	Maximum	Average	Maximum
Limits	- / -	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -	- / -
Design Limit				
Date	Value	Value	Value	Value
1/1/2015	9530.63	36148	2813	8291
2/1/2015	7850.5	18247	2066	3258
3/1/2015	9353.14	23389	2624.71	5594
4/1/2015	4679.86	9401	1113.71	2136
5/1/2015	7498.71	14142	1362.86	2424
6/1/2015	3675	7267	959.167	2040
7/1/2015	8368.86	14877	2118.57	2979
8/1/2015	5508.57	9633	1843.86	2817
9/1/2015	2591.29	4349	3447.57	4675
10/1/2015	9478	20254	1468.17	2987
11/1/2015	13488	31158	2686.75	6111
12/1/2015	7150.4	8228	1535.6	1668
1/1/2016	5782	7860	1405.75	2016
2/1/2016	3910	11235	1680	2637
3/1/2016	6439.4	12489	2085.6	3375
4/1/2016	8909.17	11707	1862.17	2130
5/1/2016	9169.86	15063	1954.86	2808
6/1/2016	3639.71	6287	1259	1642
7/1/2016	10072.2	14529	2048.2	2959
8/1/2016	4862.83	10864	1186	2200
9/1/2016	5861.5	11270	1199.5	1770
10/1/2016	7339	12858	1359	2166
11/1/2016	8414.33	16915	1667.83	2454
12/1/2016	4038.2	7529	997.6	1483
1/1/2017	10096	22705	2195.75	4408
2/1/2017	3533.5	10623	1112.25	1908
3/1/2017	4334.43	13455	1345.14	2611
4/1/2017	7544.83	10573	1424.17	1950
5/1/2017	10724.1	14399	1644.29	2045
6/1/2017	9158.33	24790	1581.17	3519
7/1/2017	2849.2	4127	858	1088
8/1/2017	46.6	208	122	399
9/1/2017	1232.75	2594	544.5	989
10/1/2017	3326.75	8931	860.25	1589
11/1/2017	7860.5	23466	1341.83	3618
12/1/2017	7452.6	12098	1725.6	2362

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Parameter	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5) (Total)
Units	Lbs/Day	Lbs/Day	Milligrams/L	Milligrams/L (mg/L)
Statistical Base	Average	Maximum	Average	Maximum
Limits	- / -	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -	- / -
Design Limit				
Date	Value	Value	Value	Value
1/1/2018	6375.14	9203	1487.57	1854
2/1/2018	7277	9534	1726.25	2190
3/1/2018	6202.22	11434	1624.56	2058
4/1/2018	6741.29	13175	1231.29	2046
5/1/2018	3953.6	10085	1381.8	1747
6/1/2018	1001.5	2287	882.75	1243
7/1/2018	304.8	893	598.2	1534
8/1/2018	187.4	678	332.2	580
9/1/2018	864	1304	743	1126
10/1/2018	6064.75	10114	1650	2160
11/1/2018	6498.57	12524	1474.71	2556
12/1/2018	3435.6	10995	1340.4	2184
1/1/2019	5880.29	10442	1438.57	1860
2/1/2019	8101	11623	2201.75	2691
3/1/2019	6437.4	8530	1548.4	1872
4/1/2019	9286.67	11742	1741.67	1998
5/1/2019	7584	20714	1543.57	3360
6/1/2019	5306.83	15397	2065.83	6826
7/1/2019	596	1811	471.25	864
8/1/2019	614.333	2299	512.667	1462
9/1/2019	355	1108	807	2000
11/1/2019	7114	9718	1659.5	2102
12/1/2019	5809.2	10182	1409.8	2310
Min	46.6	208	122	399
Max	13488	36148	3447.57	8291
Average	5792.565136	11516.27119	1480.901085	2503.881356
Median	6202.22	10864	1468.17	2136
95th Percentile	10074.58	23598.4	2630.914	5645.7

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Parameter	Flow (Not Applicable)	Flow (Not Applicable)	Flow (Not Applicable)
Units	MGD	MGD	MGD
Statistical Base	Average	Maximum	Monthly Total
Limits	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -
Design Limit			
Date	Value	Value	Value
1/1/2015	0.388386	0.637344	12.04
2/1/2015	0.394185	0.671544	11.0372
3/1/2015	0.445519	0.623918	13.8111
4/1/2015	0.52429	0.772576	15.7287
5/1/2015	0.566722	0.806656	17.5684
6/1/2015	0.511528	0.89643	15.3458
7/1/2015	0.374323	0.702344	11.604
8/1/2015	0.199497	0.643152	6.1844
9/1/2015	0.372915	0.817274	11.1875
10/1/2015	0.635047	0.843056	19.6864
11/1/2015	0.397303	0.67632	11.9191
12/1/2015	0.498251	0.756896	15.4458
1/1/2016	0.418948	0.762224	12.9874
2/1/2016	0.279177	0.647984	8.09614
3/1/2016	0.47927	4.36	14.8574
4/1/2016	0.488027	0.69836	14.6408
5/1/2016	0.497516	0.85264	15.423
6/1/2016	0.423511	0.813762	12.7053
7/1/2016	0.483432	0.765783	14.9864
8/1/2016	0.269	0.791645	8.3401
9/1/2016	0.347705	0.779808	10.4312
10/1/2016	0.512382	0.727328	15.8838
11/1/2016	0.473216	0.826496	14.1965
12/1/2016	0.420422	0.852544	13.0331
1/1/2017	0.559011	0.778144	17.3293
2/1/2017	0.26316	0.667552	7.36848
3/1/2017	0.358423	0.83785	11.1111
4/1/2017	0.596007	0.812974	17.8802
5/1/2017	0.653145	0.908958	20.2475
6/1/2017	0.679269	0.844663	20.3781
7/1/2017	0.427584	0.972704	13.2551
8/1/2017	0.0534814	0.211483	1.65792
9/1/2017	0.138469	0.638522	4.15407
10/1/2017	0.342998	0.673889	10.6329
11/1/2017	0.49129	0.798768	14.7387
12/1/2017	0.465741	0.716568	14.438

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Parameter	Flow (Not Applicable)	Flow (Not Applicable)	Flow (Not Applicable)
Units	MGD	MGD	MGD
Statistical Base	Average	Maximum	Monthly Total
Limits	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -
Design Limit			
Date	Value	Value	Value
1/1/2018	0.487011	0.839942	15.0973
2/1/2018	0.445252	0.713188	12.4671
3/1/2018	0.40394	0.705216	12.5222
4/1/2018	0.514277	0.79342	15.4283
5/1/2018	0.291847	0.711736	9.04727
6/1/2018	0.115023	0.255325	3.45069
7/1/2018	0.0558968	0.223936	1.7328
8/1/2018	0.060117	0.208704	1.86363
9/1/2018	0.0873237	0.245376	2.61971
10/1/2018	0.388612	0.728448	12.047
11/1/2018	0.312309	0.829888	9.36928
12/1/2018	0.278037	0.704128	8.61914
1/1/2019	0.357064	0.695808	11.069
2/1/2019	0.394679	0.707904	11.051
3/1/2019	0.496287	0.690368	15.3849
4/1/2019	0.567415	0.796992	17.0225
5/1/2019	0.519234	0.748544	16.0962
6/1/2019	4941.13	148224	148234
7/1/2019	0.0700397	0.251392	2.17123
8/1/2019	0.039	0.21728	1.21766
9/1/2019	0.03008	0.10464	0.9024
11/1/2019	0.4513	0.693248	13.539
12/1/2019	0.346626	0.682624	10.7454
Min	0.03008	0.10464	0.9024
Max	4941.13	148224	148234
Average	84.12322916	2513.00231	2523.860926
Median	0.418948	0.727328	12.5222
95th Percentile	0.6368568	0.9153326	19.74251

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Parameter	Kjeldahl Nitrogen (TKN) (Total)	Kjeldahl Nitrogen (TKN) (Total)	pH (Hydrogen Ion) (Not Applicable)	pH (Hydrogen Ion) (Not Applicable)
Units	Lbs/Day	Milligrams/L (mg/L)	Standard Units	Standard Units
Statistical Base	Average	Average	Maximum	Minimum
Limits	- / -	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -	- / -
Design Limit				
Date	Value	Value	Value	Value
1/1/2015	15.3	3.5	8.3	4.58
2/1/2015	1	0.4	7.85	4.61
3/1/2015	19.1	4.8	9.89	5.28
4/1/2015	9.8	3.1	10.01	5.33
5/1/2015	21.5	4.9	9.49	4.48
6/1/2015	20	3.6	10.22	4.55
7/1/2015	62.2	19.6	9.72	4.36
8/1/2015	12.5	4.9	10.16	4.35
9/1/2015	19.4	3.6	10.14	6.08
10/1/2015	38.9	5.9	7.83	4.74
11/1/2015	16.8	4.4	9.86	4.47
12/1/2015	22.6	5.5	7.74	5.42
1/1/2016	23.9	5.5	11.23	5.86
2/1/2016	21.3	5.3	12.01	6.79
3/1/2016	8.5	5	10.28	5.69
4/1/2016	19.4	4.6	10.28	5.94
5/1/2016	35.9	7.8	10.32	5.67
6/1/2016	5.2	4	11.49	6.04
7/1/2016	4	1.1	10.37	6.1
8/1/2016	109.8	23.5	10.67	2.89
9/1/2016	10	4.6	11.34	5.8
10/1/2016	55.2	9.3	9.46	5.92
11/1/2016	58.8	14.4	9.96	4.82
12/1/2016	14	5.1	10.21	6.01
1/1/2017	24.8	8.9	10.83	5.65
2/1/2017	5.9	4.8	7.09	5.5
3/1/2017	9	6.4	8.71	5.14
4/1/2017	21	7.2	11.8	6.47
5/1/2017	44.5	7.5	10.24	5.43
6/1/2017	46.5	10.9	11.04	5.23
7/1/2017	42.7	6.7	8.43	5.4
8/1/2017	0.3	1	12.46	4.81
9/1/2017	0.9	0.8	11.89	3.69
10/1/2017	8.8	4.5	12.59	6.91
11/1/2017	4.8	1.2	12.62	4.03
12/1/2017	68.1	13.1	12.74	1.88

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Parameter	Kjeldahl Nitrogen (TKN) (Total)	Kjeldahl Nitrogen (TKN) (Total)	pH (Hydrogen Ion) (Not Applicable)	pH (Hydrogen Ion) (Not Applicable)
Units	Lbs/Day	Milligrams/L (mg/L)	Standard Units	Standard Units
Statistical Base	Average	Average	Maximum	Minimum
Limits	- / -	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -	- / -
Design Limit				
Date	Value	Value	Value	Value
1/1/2018	12.7	5.2	11.34	5.72
2/1/2018	39.5	8.1	10.19	5.34
3/1/2018	29.2	6.4	10.64	4.56
4/1/2018	28	10.5	10.75	6.39
5/1/2018	10.6	5.2	11.24	6.52
6/1/2018	3.4	6.7	10.16	6.21
7/1/2018	0.8	2.1	10	6.84
8/1/2018	6.1	3.8	11.02	4.41
9/1/2018	0.6	2.2	11.96	6.07
10/1/2018	31.9	6.8	11.89	6.51
11/1/2018	18.9	7.1	11.74	5.02
12/1/2018	34.3	7.2	11.11	6.27
1/1/2019	17.9	8.2	10.78	4.92
2/1/2019	52.2	10.9	11.1	5.15
3/1/2019	41.5	9.4	10.77	6.7
4/1/2019	66.7	11.6	10.77	6.38
5/1/2019	42.1	8.3	11.99	5.86
6/1/2019	5.1	2.14	9.51	4.11
7/1/2019	0.3	0.7	12.06	6.97
8/1/2019	3	1.9	10.74	4.74
9/1/2019	0.3	1.2	11.82	4.5
11/1/2019	25.2	5.4	10.46	3.71
12/1/2019	39.5	21.4	12.08	5.37
Min	0.3	0.4	7.09	1.88
Max	109.8	23.5	12.74	6.97
Average	23.93559322	6.437966102	10.5659322	5.325254237
Median	19.4	5.3	10.67	5.4
95th Percentile	62.65	14.92	12.473	6.795

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Monitoring Point Code : (NCW4) Monitoring Point (Non Contact & Cooling Description : Water) Monitoring Point Id : -137				
Parameter	Biochemical Oxygen Demand (BOD5) (Total)	Chemical Oxygen Demand (COD) (Total)	Flow (Not Applicable)	Flow (Not Applicable)
Units	Milligrams/L (mg/L)	Milligrams/L (mg/L)	MGD	MGD
Statistical Base	Maximum	Maximum	Average	Maximum
Limits	- / -	- / -	- / 0.45	- / 0.5
Benchmarks	- / -	- / -	- / -	- / -
Design Limit				
Date	Value	Value	Value	Value
1/1/2015	8	17	0.0191	0.0683
2/1/2015	5	1	0.0076	0.0257
3/1/2015	9.5	22.7	0.0152	0.0507
11/1/2015	3	1	0.0199	0.0788
12/1/2015	21	34	0.045	0.1073
1/1/2016	38	78	0.0624	0.1211
2/1/2016	36	61	0.038	0.0872
3/1/2016	12	6	0.0549452	0.1186
11/1/2016	22	39	0.0644036	0.135277
12/1/2016	10	34	0.049266	0.12366
1/1/2017	19	10	0.081536	0.167279
2/1/2017	33	48	0.025715	0.08224
3/1/2017	6	13	0.011706	0.02272
11/1/2017	25	60	0.029672	0.135454
12/1/2017	48	120	0.026352	0.08597
1/1/2018	68	87	0.04962	0.120212
2/1/2018	23	47.2	0.056742	0.114336
3/1/2018	30	30	0.0634	0.123161
11/1/2018	27	41	0.041126	0.066615
12/1/2018	22	14	0.029316	0.084614
1/1/2019	188	255	0.059674	0.183265
2/1/2019	411	1086	0.084847	0.135128
3/1/2019	30	65	0.011666	0.094706
11/1/2019	875	2655	0.049292	0.105403
12/1/2019	19.6	27	0.033423	0.095654
Min	3	1	0.0076	0.02272
Max	875	2655	0.084847	0.183265
Average	79.564	194.076	0.041196072	0.10133576
Median	23	39	0.041126	0.105403
95th Percentile	366.4	919.8	0.07810952	0.160914

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Parameter	Organic Carbon (TOC) (Total)	pH (Hydrogen Ion) Daily Max (Not Applicable)	pH (Hydrogen Ion) Daily Min (Not Applicable)	Temperature (Measured)
Units	Milligrams/L	Standard Units	Standard Units	Degrees C
Statistical Base	Maximum	Maximum	Minimum	Maximum
Limits	- / -	- / 9	6 / -	- / 29.5
Benchmarks	- / -	- / -	- / -	- / -
Design Limit				
Date	Value	Value	Value	Value
1/1/2015	7.32	8.37	7.29	27.8
2/1/2015	9.39	8.5	6.74	27.8
3/1/2015	9.18	7.57	6.73	27.8
11/1/2015	7.86	7.74	6.74	28.9
12/1/2015	9.64	7.76	6.61	27.8
1/1/2016	9.86	8.02	6.85	28.3
2/1/2016	9.93	8.62	6.61	28.9
3/1/2016	9.78	8.5	6.5	28.9
11/1/2016	9.3	8.9	6.26	28.3
12/1/2016	9.65	8.9	6.1	28.3
1/1/2017	9.96	8.9	6.1	28.3
2/1/2017	9.07	8.72	6.1	28.8
3/1/2017	4.8	8.89	6.1	28.3
11/1/2017	9.6	8.9	6.1	28.3
12/1/2017	9.7	8.9	6.1	28.9
1/1/2018	7.09	8.9	6.8	28.9
2/1/2018	12.4	8.9	6.98	28.9
3/1/2018	3.32	8.9	6.81	28.3
11/1/2018	9.9	8.85	6.12	28.3
12/1/2018	19	8.9	6.1	29
1/1/2019	17.36	8.9	6.09	28.3
2/1/2019	16.56	8.92	6.1	28.3
3/1/2019	12.9	8.9	6.1	27.2
11/1/2019	19.97	8.9	6.23	28.89
12/1/2019	19.65	8.86	6.1	28.34
Min	3.32	7.57	6.09	27.2
Max	19.97	8.92	7.29	29
Average	10.9276	8.6448	6.4144	28.3932
Median	9.7	8.9	6.23	28.3
95th Percentile	19.52	8.9	6.954	28.9

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Monitoring Point Code : (NFM) Monitoring Point (North Force Main Flow Description : Meter) Monitoring Point Id : -58107			
Parameter	Flow (Not Applicable)	Flow (Not Applicable)	Flow (Not Applicable)
Units	Million Gallon/Month	Million Gallon/Month	Million Gallon/Month
Statistical Base	Average	Maximum	Monthly Total
Limits	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -
Design Limit			
Date	Value	Value	Value
1/1/2015	0.497774	0.78	15.431
2/1/2015	0.522964	0.841	14.643
3/1/2015	0.551742	0.801	17.104
4/1/2015	0.631367	0.918	18.941
5/1/2015	0.67571	0.98	20.947
6/1/2015	0.598367	0.992	17.951
7/1/2015	65968.1	715000	2.05E+06
8/1/2015	0.276871	0.713	8.583
9/1/2015	0.456867	0.878	13.706
10/1/2015	12.8502	376.919	398.357
11/1/2015	17033.8	511000	511014
12/1/2015	0.609129	1.04	18.883
1/1/2016	0.501226	0.78	15.538
2/1/2016	0.261172	0.629	7.574
3/1/2016	0.404935	0.6	12.553
4/1/2016	0.5446	0.758	16.338
5/1/2016	0.545032	0.907	16.896
6/1/2016	10300.5	309000	309014
7/1/2016	0.560129	0.839	17.364
8/1/2016	0.325258	0.825	10.083
9/1/2016	0.472067	0.943	14.162
10/1/2016	0.659258	0.998	20.437
11/1/2016	0.5723	0.927	17.169
12/1/2016	0.537	0.941	16.647
1/1/2017	0.707483	0.991	21.932
2/1/2017	0.417786	0.798	11.698
3/1/2017	31516.6	977000	977014
4/1/2017	0.734267	1.027	22.028
5/1/2017	24484.7	759000	759024
6/1/2017	0.747033	1.07	22.411
7/1/2017	0.494516	0.995	15.33
8/1/2017	0.116387	0.349	3.608
9/1/2017	0.2127	0.74	6.381
10/1/2017	0.45971	0.929	14.251
11/1/2017	0.622433	0.965	18.673
12/1/2017	0.588129	0.823	18.232

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Parameter	Flow (Not Applicable)	Flow (Not Applicable)	Flow (Not Applicable)
Units	Million Gallon/Month	Million Gallon/Month	Million Gallon/Month
Statistical Base	Average	Maximum	Monthly Total
Limits	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -
Design Limit			
Date	Value	Value	Value
1/1/2018	0.605548	0.966	18.772
2/1/2018	0.582143	0.922	16.3
3/1/2018	0.532452	0.818	16.506
4/1/2018	0.639767	0.933	19.193
5/1/2018	0.429968	0.862	13.329
6/1/2018	0.247467	0.435	7.424
7/1/2018	0.173	0.522	5.363
8/1/2018	0.154226	0.282	4.781
9/1/2018	0.204	0.384	6.12
10/1/2018	0.496548	0.897	15.393
11/1/2018	0.408539	0.928352	12.2562
12/1/2018	0.397501	0.902496	12.3225
1/1/2019	0.469017	0.927328	14.5395
2/1/2019	0.497072	0.82992	13.918
3/1/2019	0.613268	0.953088	19.0113
4/1/2019	0.673808	0.911616	20.2142
5/1/2019	0.631438	0.863328	19.5746
6/1/2019	0.427654	0.900736	12.8296
7/1/2019	0.151452	0.328224	4.69501
8/1/2019	0.098432	0.349408	3.05139
9/1/2019	0.12969	0.262336	3.89071
11/1/2019	0.514252	0.78432	15.4276
12/1/2019	0.433626	0.7752	13.4424
Min	0.098432	0.262336	3.05139
Max	65968.1	977000	2045010
Average	2531.209581	55447.78701	78003.86788
Median	0.522964	0.900736	15.538
95th Percentile	17778.89	531400	535815

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Monitoring Point Code : (SFM)			
Monitoring Point (South Force Main Flow			
Description : Meter)			
Monitoring Point Id : -58108			
Parameter	Flow (Not Applicable)	Flow (Not Applicable)	Flow (Not Applicable)
Units	Million Gallon/Month	Million Gallon/Month	Million Gallon/Month
Statistical Base	Average	Maximum	Monthly Total
Limits	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -
Design Limit			
Date	Value	Value	Value
1/1/2015	0.478612	0.758	14.837
2/1/2015	20286.2	568000	568014
3/1/2015	0.545387	0.793	16.907
4/1/2015	0.624533	0.897	18.736
5/1/2015	0.668968	0.995	20.738
6/1/2015	0.5984	0.993	17.952
7/1/2015	66193.9	716000	2.05E+06
8/1/2015	0.269839	0.72	8.365
9/1/2015	0.451167	0.875	13.535
10/1/2015	0.717645	0.961	22.247
11/1/2015	16900.5	507000	507014
12/1/2015	0.605032	1.034	18.756
1/1/2016	0.493548	0.76	15.3
2/1/2016	0.258793	0.636	7.505
3/1/2016	0.404129	0.595	12.528
4/1/2016	21667.2	650000	650015
5/1/2016	0.543516	0.893	16.849
6/1/2016	10100.5	303000	303014
7/1/2016	0.552742	0.821	17.135
8/1/2016	0.323194	0.826	10.019
9/1/2016	0.460867	0.943	13.826
10/1/2016	0.646581	0.995	20.044
11/1/2016	0.5606	0.9	16.818
12/1/2016	0.524613	0.937	16.263
1/1/2017	0.716645	0.966	22.216
2/1/2017	0.406607	0.786	11.385
3/1/2017	30742.4	953000	953014
4/1/2017	0.728867	1.02	21.866
5/1/2017	0.809387	1.235	25.091
6/1/2017	0.7557	1.089	22.671
7/1/2017	0.499966	0.998	15.4989
8/1/2017	0.121774	0.368	3.775
9/1/2017	0.2195	0.753	6.585
10/1/2017	0.489968	0.93	15.189
11/1/2017	0.6343	0.964	19.029
12/1/2017	0.603065	0.85	18.695

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Parameter	Flow (Not Applicable)	Flow (Not Applicable)	Flow (Not Applicable)
Units	Million Gallon/Month	Million Gallon/Month	Million Gallon/Month
Statistical Base	Average	Maximum	Monthly Total
Limits	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -
Design Limit			
Date	Value	Value	Value
1/1/2018	0.624	0.989	19.344
2/1/2018	0.594357	0.922	16.642
3/1/2018	0.560581	0.841	17.378
4/1/2018	0.652167	0.978	19.565
5/1/2018	0.422194	0.858	13.088
6/1/2018	0.2467	0.425	7.401
7/1/2018	0.170613	0.484	5.289
8/1/2018	0.158387	0.285	4.91
9/1/2018	0.209333	0.404	6.28
10/1/2018	0.495968	0.897	15.375
11/1/2018	0.418874	0.926016	12.5662
12/1/2018	0.423777	0.948992	13.1371
1/1/2019	0.502366	0.968832	15.5734
2/1/2019	0.529258	0.872	14.8192
3/1/2019	0.645194	1	20.001
4/1/2019	0.7082	0.954	21.246
5/1/2019	0.650742	0.881	20.173
6/1/2019	0.434	0.908	13.02
7/1/2019	0.153548	0.332	4.76
8/1/2019	0.0982258	0.351	3.045
9/1/2019	0.1337	0.28	4.011
11/1/2019	12233.8	367000	367015
12/1/2019	20710.1	642000	642013
Min	0.0982258	0.28	3.045
Max	66193.9	953000	2052010
Average	3370.494002	79763.42027	102421.3048
Median	0.545387	0.922	16.818
95th Percentile	20805.81	642800	642813.2

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Monitoring Point Code : (SCR)	
Monitoring Point (Selah Campus Runoff)	
Monitoring Point Id : -63417	
Parameter	Flow (Not Applicable)
Units	Gallons/Day (gpd)
Statistical Base	Monthly Total
Limits	- / -
Benchmarks	- / -
Design Limit	
Date	Value
1/1/2015	174800
2/1/2015	161300
3/1/2015	71700
4/1/2015	21100
5/1/2015	457500
6/1/2015	48700
7/1/2015	
9/1/2015	74600
10/1/2015	63600
11/1/2015	115200
12/1/2015	562700
1/1/2016	464300
2/1/2016	57400
3/1/2016	352796
4/1/2016	79300
5/1/2016	119600
6/1/2016	52000
7/1/2016	40500
8/1/2016	8200
9/1/2016	c
10/1/2016	411800
11/1/2016	162200
12/1/2016	109200
1/1/2017	307600
2/1/2017	619400
3/1/2017	93600
4/1/2017	79400
5/1/2017	102000
6/1/2017	29200
7/1/2017	5100
8/1/2017	80500
9/1/2017	53000
10/1/2017	134100
11/1/2017	55300
12/1/2017	29200

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Parameter	Flow (Not Applicable)
Units	Gallons/Day (gpd)
Statistical Base	Monthly Total
Limits	- / -
Benchmarks	- / -
Design Limit	
Date	Value
1/1/2018	137300
2/1/2018	5000
3/1/2018	20100
4/1/2018	120000
5/1/2018	79100
6/1/2018	63100
10/1/2018	120000
11/1/2018	14500
12/1/2018	105400
1/1/2019	325700
2/1/2019	1400
3/1/2019	4400
4/1/2019	116600
8/1/2019	312200
9/1/2019	96700
12/1/2019	36200
Min	1400
Max	619400
Average	137848.898
Median	80500
95th Percentile	461580

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Feature Type : Ground Feature Name (EFFL) Feature Description (sprayfield) Monitoring Point Code : (SFLD) Monitoring Point (Sprayfield) Monitoring Point Id : -47					
Parameter	Biochemical Oxygen Demand (BOD5) (Dissolved (soluble)) Milligrams/L (mg/L)	Flow (Not Applicable) MGD	Nitrogen (calculation) (Total) Lbs/Day	pH (Hydrogen Ion) (Not Applicable) Standard Units	pH (Hydrogen Ion) (Not Applicable) Standard Units
Units					
Statistical Base	Maximum	Total	Total	Maximum	Minimum
Limits	- / 100	- / 89.3	- / 15250	- / 10	5 / -
Benchmarks	- / -	- / -	- / -	- / -	- / -
Design Limit					
Date	Value	Value	Value	Value	Value
2/1/2015	14	6.427	220	7.74	7.32
3/1/2015	18	35.866	562	7.95	7.47
4/1/2015	14	42.97	530	7.96	7.3
5/1/2015	14	38.405	174	7.92	7.62
6/1/2015	18	52.41	566	8.22	7.75
7/1/2015	73	26.949	607	8.24	6.97
8/1/2015	15	29.509	47	8.55	7.52
9/1/2015	23	34.865	285	8.75	7.6
10/1/2015	42	36.273	208	7.92	7.28
11/1/2015	24	7.489	189	8.21	7.38
3/1/2016	22	29.373	96	7.96	7.52
4/1/2016	13	45.872	203	7.9	7.55
5/1/2016	14	48.533	183	7.99	7.74
6/1/2016	25	60.278	380	8.18	7.04
7/1/2016	37	37.559	236	7.92	6.66
8/1/2016	81	32.078	273	8.38	7.54
9/1/2016	11	29.509	358	8.59	7.7
10/1/2016	31	31.576	158	7.76	7.4
11/1/2016	24	19.985	252	7.89	7.54
3/1/2017	33	24.765	128	7.59	7.3
4/1/2017	25	32.893	365	7.7	7.32
5/1/2017	17	39.867	168	7.9	7.16
6/1/2017	19	57.99	1171	8.11	7.62
7/1/2017	18	48.649	815	8.33	7.45
8/1/2017	8	31.509	31	8.42	6.41
9/1/2017	10	26.151	716	7.79	6.11
10/1/2017	44	27.498	474	8.17	7.59
11/1/2017	44	35.715	348	7.93	7.63

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Parameter	Biochemical Oxygen Demand (BOD5) (Dissolved (soluble))	Flow (Not Applicable)	Nitrogen (calculation) (Total)	pH (Hydrogen Ion) (Not Applicable)	pH (Hydrogen Ion) (Not Applicable)
Units	Milligrams/L (mg/L)	MGD	Lbs/Day	Standard Units	Standard Units
Statistical Base	Maximum	Total	Total	Maximum	Minimum
Limits	- / 100	- / 89.3	- / 15250	- / 10	5 / -
Benchmarks	- / -	- / -	- / -	- / -	- / -
Design Limit					
Date	Value	Value	Value	Value	Value
3/1/2018	42	26.511	139	7.84	7.56
4/1/2018	10	35.319	165	7.87	7.48
5/1/2018	11	42.359	238	7.95	7.75
6/1/2018	16	27.357	570	8.46	7.92
7/1/2018	14	38.89	503	8.69	8.36
8/1/2018	10	35.513	595	8.56	5.77
9/1/2018	27	23.981	477	7.82	6.16
10/1/2018	16	31.418	288	8.02	7.59
11/1/2018	67	19.969	151	8.02	7.35
3/1/2019	16	7.593	558	7.41	6.8
4/1/2019	88	38.597	871	8.13	6.96
5/1/2019	38	33.052	145	7.96	7.79
6/1/2019	11	37.25	94	8.24	7.32
7/1/2019	14	39.634	549	8.5	7.74
8/1/2019	4	44.437	214	8.25	7.2
9/1/2019	9	18.333	318	7.8	7.39
11/1/2019	56	17.463	366	8.03	7.3
Min	4	6.427	31	7.41	5.77
Max	88	60.278	1171	8.75	8.36
Average	26.22222222	33.08086667	355.2	8.078222222	7.331777778
Median	18	33.052	285	7.99	7.45
95th Percentile	71.8	51.6578	795.2	8.584	7.782

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Monitoring Point Code : (SLag)					
Monitoring Point (Selah Pretreat. Lagoon)					
Monitoring Point Id : -111336					
Parameter	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5) (Total)	Biochemical Oxygen Demand (BOD5) (Total)
Units	Lbs/Day	Lbs/Day	Lbs/Day	Milligrams/L (mg/L)	Milligrams/L
Statistical Base	Average Monthly	Maximum	Total	Average Monthly	Maximum
Limits	- / 1600	- / -	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -	- / -	- / -
Design Limit					
Date	Value	Value	Value	Value	Value
1/1/2016	648	648	648	597	597
2/1/2016	1918.9	4152	19189	1961.6	3510
3/1/2016	918	2135	6429	1743	3294
2/1/2017	239.6	367	1198	929	1210
3/1/2017	354.333	587	1063	1080.33	1678
12/1/2019	835.75	1090	3343	1937.75	2580
Min	239.6	367	648	597	597
Max	1918.9	4152	19189	1961.6	3510
Average	819.0971667	1496.5	5311.666667	1374.78	2144.833333
Median	741.875	869	2270.5	1411.665	2129
95th Percentile	1668.675	3647.75	15999	1955.6375	3456

Parameter	Flow (Not Applicable)	Flow (Not Applicable)	Flow (Not Applicable)	pH (Hydrogen Ion) (Not Applicable)	pH (Hydrogen Ion) (Not Applicable)
Units	Gallons/Day (gpd)	Gallons/Day (gpd)	Gallons/Day (gpd)	Standard Units	Standard Units
Statistical Base	Average Monthly	Maximum	Total	Maximum	Minimum
Limits	- / 150000	- / -	- / -	- / -	- / -
Benchmarks	- / -	- / -	- / -	- / -	- / -
Design Limit					
Date	Value	Value	Value	Value	Value
1/1/2016	0.0998	0.130141	0.299401	10.14	7.31
2/1/2016	0.075795	0.144198	2.19806	12.01	6.79
3/1/2016	0.053415	0.090329	0.694396	10.02	6.56
2/1/2017	0.033318	0.107716	0.466443	7.09	5.5
3/1/2017	0.024613	0.04239	0.295354	6.62	5.51
12/1/2019	0.033423	66173	673123	9	4.1
Min	0.024613	0.04239	0.295354	6.62	4.1
Max	0.0998	66173	673123	12.01	7.31
Average	0.053394	11028.91913	112187.8256	9.146666667	5.961666667
Median	0.043419	0.1189285	0.5804195	9.51	6.035
95th Percentile	0.09379875	49629.78605	504842.7995	11.5425	7.18

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Parameter	Solids (Residue) (Total suspended (TSS))	Solids (Residue) (Total suspended (TSS))	Solids (Residue) (Total suspended (TSS))
Units	Lbs/Day	Lbs/Day	Lbs/Day
Statistical Base	Average Monthly	Maximum	Total
Limits	- / 500	- / -	- / -
Benchmarks	- / -	- / -	- / -
Design Limit			
Date	Value	Value	Value
1/1/2016	429	429	429
2/1/2016	186.333	673	1677
3/1/2016	139	453	970
2/1/2017	100.25	182	401
3/1/2017	146	199	292
12/1/2019	170	383	850
Min	100.25	182	292
Max	429	673	1677
Average	195.0971667	386.5	769.8333333
Median	158	406	639.5
95th Percentile	368.33325	618	1500.25

Parameter	Solids (Residue) (Total suspended (TSS))	Solids (Residue) (Total suspended (TSS))
Units	Milligrams/L (mg/L)	Milligrams/L (mg/L)
Statistical Base	Average Monthly	Maximum
Limits	- / -	- / -
Benchmarks	- / -	- / -
Design Limit		
Date	Value	Value
1/1/2016	395	395
2/1/2016	196.667	560
3/1/2016	237	604
2/1/2017	389.25	646
3/1/2017	483	690
12/1/2019	421.6	912
Min	196.667	395
Max	483	912
Average	353.7528333	634.5
Median	392.125	625
95th Percentile	467.65	856.5

Appendix F — Response to Comments

There were no comments generated during the public comment period.