Fact Sheet

The U.S. Environmental Protection Agency (EPA)

Proposes to Reissue a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA) to:

City of Toppenish

City of Toppenish Wastewater Treatment Plant

Public Comment Start Date:

Public Comment Expiration Date:

Technical Contact: Cody Piscitelli
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800-424-4372, ext. 1169 (within Alaska, Idaho, Oregon and Washington)
piscitelli.cody@epa.gov

THE EPA PROPOSES TO REISSUE THE NPDES PERMIT

The EPA proposes to reissue the NPDES permit for the facility referenced above. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet (FS) includes:

- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- a map and description of the discharge location
- technical material supporting the conditions in the permit
- a listing of substantial changes relative to the prior permit (see Page 14).

CWA § 401 Certification

Since this facility discharges to Tribal waters and the Tribe does not have Treatment as a State (TAS), the EPA is the certifying authority for the permit. See FS Section VI.C. Comments regarding the intent to certify should be directed to the EPA technical contact listed above.

Clean Water Act §401(A)(2) Review

CWA Section 401(a)(2) requires that, upon receipt of an application and 401 certification, the EPA must notify a neighboring State or Tribe with TAS (i.e., neighboring jurisdiction) when the EPA determines that the discharge may affect the quality of the neighboring jurisdiction's waters.

As stated above, the EPA is the certifying authority and is accepting comment regarding the intent to certify this permit. Once the EPA reviews any comments received regarding the intent to certify and has signed a final certification, the EPA will determine whether the discharge may affect a neighboring jurisdiction's waters (33 U.S.C. § 1341(a)(2)).

Public Comment

Persons wishing to comment on, or request a Public Hearing for, the draft permit may do so in writing by the expiration date of the Public Comment period. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to the EPA as described below.

By the expiration date of the public comment period, all written comments and requests must be submitted to piscitelli.cody@epa.gov.

After the Public Notice expires, and all comments have been considered, the EPA will make a final decision regarding permit issuance. If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If substantive comments are received, the EPA will address the comments and issue the permit. The permit will become effective no less than 30 days after the issuance date, unless an appeal is submitted to the Environmental Appeals Board within 30 days pursuant to 40 CFR § 124.19.

Documents are Available for Review

The draft NPDES permit, fact sheet and other information can be downloaded from the internet at https://www.epa.gov/npdes-permits/about-region-10s-npdes-permit-program.

The draft Administrative Record for this action contains any documents listed in the References section. The Administrative Record or documents from it are available electronically upon request by contacting Cody Piscitelli.

For technical questions regarding the Fact Sheet, contact Cody Piscitelli at (206) 553-1169 or piscitelli.cody@epa.gov. Services can be made available to persons with disabilities by contacting Audrey Washington at (206) 553-0523.

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ACRONYMS

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
BE	Biological Evaluation
BOD_5	Biochemical oxygen demand, five-day
°C	Degrees Celsius
CFR	Code of Federal Regulations
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
HUC	Hydrologic Unit Code
ICIS	Integrated Compliance Information System
lbs/day	Pounds per day
mg/L	Milligrams per liter
mL	Milliliters
µg/L	Micrograms per liter
mgd	Million gallons per day
N	Nitrogen
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and maintenance
POTW	Publicly owned treatment works
QAP	Quality assurance plan
RP	Reasonable Potential
SS	Suspended Solids
s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service

USGS	United States Geological Survey
UV	Ultraviolet
WD	Water Division
WET	Whole Effluent Toxicity
WQBEL	Water quality-based effluent limit
WQS	Water Quality Standards
WWTP	Wastewater treatment plant

I. BACKGROUND INFORMATION

A. GENERAL INFORMATION

This fact sheet provides information on the draft NPDES permit for the following entity:

Table 1. General Facility Information

NPDES Permit #:	WA0026123
Applicant:	City of Toppenish Wastewater Treatment Plant
Type of Ownership	Municipal
Physical Address:	501 Annahat Road Toppenish, WA 98948
Mailing Address:	21 West 1st Avenue Toppenish, WA 98948
Facility Contact:	Shaun Burgess Interim Public Works Director shaun.burgess@cityoftoppenish.us 509-865-4500
Facility Location:	46.369407°N 120.28451°W
Receiving Water	Toppenish Drain
Facility Outfall	46.368611°N 120.283056°W

B. PERMIT HISTORY

The most recent NPDES permit for the City of Toppenish Wastewater Treatment Plant (WWTP) was issued on May 23, 2013, became effective on July 1, 2013, and expired on June 30, 2018. An NPDES application for permit issuance was submitted by the permittee on January 4, 2018. The EPA determined that the application was timely and complete. Therefore, pursuant to Title 40 Code of Federal Regulations (CFR) 122.6, the permit has been administratively continued and remains fully effective and enforceable.

C. TRIBAL CONSULTATION

The EPA offers coordination and consultation with the Yakama Nation throughout the entire permit development process.

II. FACILITY INFORMATION

A. TREATMENT PLANT DESCRIPTION

1. Service Area

The City of Toppenish owns and operates the City of Toppenish WWTP located in Toppenish, WA. The collection system has no combined sewers. The facility serves a

resident population of 8,949. There are no major industries discharging to the facility.

2. Treatment Process

The design flow of the facility is 1.67 mgd. The reported actual flows from the facility range from 0.592 mgd to 1.24 mgd (average monthly flow). The treatment process consists of a primary clarifier, two plug-flow aeration basins, a secondary clarifier, and UV disinfection. A schematic of the wastewater treatment process and a map showing the location of the treatment facility and discharge are included in Appendix A**.** Because the design flow is greater than 1 mgd, the facility is considered a major facility.

B. OUTFALL DESCRIPTION

The outfall discharges approximately 5 feet from shore and 1.5 feet below the water surface. After treatment and UV disinfection, the effluent passes from a storage tank that is used for the purpose of flow control into Toppenish Drain just east of the end of Germantown Road, approximately 120 feet from the boundary of the facility. See Appendix A.

C. EFFLUENT CHARACTERIZATION

To characterize the effluent, the EPA evaluated the facility's application form, discharge monitoring report (DMR) data, and additional data provided by the City of Toppenish WWTP. The effluent quality is summarized in Table 2. Data are provided in Appendix B.

Table 2. Effluent Characterization

Parameter	Average Monthly		Average Weekly		Max. Daily	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Flow (mgd)	0.592	1.240	--	--	0.656	1.472
BOD_5 (mg/L)	0.6	29.8	1.0	29.8	--	--
BOD_5 (lb/day)	3.0	187.0	5.0	197.0	--	--
BOD_5 % Removal	86.3%	99.9%	--	--	--	--
TSS (mg/L)	1.0	29.6	1.0	29.6	--	--
TSS (lb/day)	7.0	191.7	11.0	191.7	--	--
TSS % Removal	66.8%	99.8%	--	--	--	--
pH (S.U.)	--	--	--	--	6.5	7.8
Fecal Coliform Bacteria (CFU/100ml)	0.0 (monthly geomean)	182.0 (monthly geomean)	--	--	0.0	243.3
Total Ammonia (as	0.0	1.5	--	--	0.0	1.5

Parameter	Average Monthly		Average Weekly		Max. Daily	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
N) (mg/L)						
Nitrate + Nitrite (as N) (mg/L)	0.39	5.09	--	--	.39	5.09
Total Phosphorus (as P) (mg/L)	0.2	3.2	3.4	0.2	--	--
Copper, Total Recoverable (µg/L)	0.001	36.000	--	--	36.000	0.001
Lead, Total Recoverable (µg/L)	0.00	2.00	--	--	0.00	2.00
Selenium, Total Recoverable (µg/L)	0.00	6.00	--	--	0.00	8.00
Zinc, Total Recoverable (µg/L)	0.00	126.00	--	--	0.00	172.00
Temperature (°C)	7.1	24.0	--	--	7.6	26.0
Dissolved Oxygen (mg/L)	4.6	8.9	--	--	4.6 Inst. Min.	8.9 Inst. Min.
Hardness (as $CaCO_3$) (mg/L)	39.2	109.0	--	--	39.2	109.0
Alkalinity (as $CaCO_3$) (mg/L)	8.0	308.0	--	--	8.0	308.0
Arsenic, Total Recoverable (µg/L)	0.00	1.40	--	--	0.00	1.40
Silver, Total Recoverable (µg/L)	0.00	4.70	--	--	0.00	4.70
Oil and Grease (mg/L)	0.00	93.00	--	--	0.00	93.00
TSS (mg/L)	11.0	191.7	1.0	29.6	--	--

Parameter	Average Monthly		Average Weekly		Max. Daily	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Total Kjeldahl Nitrogen	0.3	3.0	--	--	0.3	3.0
Source: DMR data						

D. COMPLIANCE HISTORY

A summary of effluent violations is provided in Table 3.

Additional compliance information for this facility, including compliance with other environmental statutes, is available on Enforcement and Compliance History Online (ECHO). The ECHO web address for this facility is: https://echo.epa.gov/detailed-facility-report?fid=110008217508.

Table 3. Summary of Effluent Violations

Parameter	Limit Type	Units	Number of Instances	Number of Violations
Zinc, total recoverable	Daily Maximum	µg/L	3	3
Zinc, total recoverable	Average Monthly	µg/L	21	638
Fecal Coliform Bacteria	Daily Maximum	#/100ml	2	2
Fecal Coliform Bacteria	Geometric Mean	#/100ml	3	92
Copper, total recoverable	Daily Maximum	µg/L	1	1
Copper, total recoverable	Average Monthly	µg/L	1	31
Copper, total recoverable	Average Monthly	lb/day	1	31
Total suspended solids percent removal	Average Monthly	%	1	31
Ammonia (as N)	Average Monthly	mg/L	1	31
Information accessed in ECHO on November 28, 2024.				

The EPA conducted an inspection of the facility on August 24, 2022. The inspection encompassed the wastewater treatment process, records review, the testing laboratory, operation and maintenance, and the collection system. Overall, the results of the inspection found several issues including an incorrect Quality Assurance Plan (QAP), Operation and Management (O&M) Plan, and QA/QC and chain-of-custody errors related to monitoring procedures. On September 17, 2024, the EPA issued a Notice of Violation to the facility for these issues.

III. RECEIVING WATER

In drafting permit conditions, the EPA must analyze the effect of the facility's discharge on the receiving water. The details of that analysis are provided in the Water Quality-Based Effluent Limits (WQBEL) section in Part IV.A.4, below. This section summarizes characteristics of the receiving water that impact that analysis.

This facility discharges to the Toppenish Drain near the eastern terminus of Germantown Road near Toppenish, Washington. The Toppenish Drain is a tributary to the East Toppenish Drain, which, in turn, is a tributary to the Yakima River.

A. WATER QUALITY STANDARDS

CWA § 301(b)(1)(C) requires the development of limitations in permits necessary to meet Water Quality Standards (WQS). 40 CFR 122.4(d) requires that the conditions in NPDES permits ensure compliance with the WQS of all affected States. A State's WQS are composed of use classifications, numeric and/or narrative water quality criteria and an anti-degradation policy. The use classification system designates the beneficial uses that each water body is expected to achieve, such as drinking water supply, contact recreation, and aquatic life. The numeric and narrative water quality criteria are the criteria deemed necessary to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

The facility discharges to Tribal waters on the Yakama Nation Reservation. The Yakama Nation applied for the status of Treatment as a State (TAS) in 1994 from the EPA for purposes of the CWA. However, to date, the EPA has not acted on the TAS submission nor does the Tribe have EPA-approved WQS. If the Yakama Nation is granted TAS, and when the Tribe has WQS approved by the EPA, those Tribal WQS will be used to determine effluent limitations in the permit.

In the meantime, the Washington WQS were used as reference for setting permit limits and to protect downstream uses in the Yakima River, which is part of the waters of the State of Washington. The Yakima River is approximately 3 stream miles downstream of the discharge via the Toppenish Drain.

1. Designated Beneficial Uses

Toppenish Drain does not have specific use designations in the Washington WQS (WAC 173-201A). The WQS state that such "undesignated waterways" are to be protected for the uses of primary contact recreation; salmonid spawning, rearing,

and migration; domestic, industrial, and agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values (WAC 173-201A-600).

B. RECEIVING WATER QUALITY

The water quality for the receiving water is summarized in Table 4.

Table 4. Receiving Water Quality Data

Parameter	Units	Percentile	Value	Source
Temperature	°C	95th	21.1	SWMR
pH	Standard units	5th – 95th	6.8 – 7.5	SWMR
Stream Flow	mgd	5th – 95th	2.4 – 44.7	SWMR
Total Nitrogen (as N)	mg/L	maximum	5.6	SWMR
Total Phosphorus (as P)	µg/L	maximum	285	SWMR
Source: Surface Water Monitoring Report collected upstream of facility by permittee 2019-2024.				

1. Water Quality Limited Waters

Toppenish Drain has not been assessed under a CWA § 303(d) or 303(b) assessment program. The Yakima River at the point of confluence with Toppenish Drain is listed as impaired for polychlorinated biphenyl congeners (PCBs), dioxin, and certain pesticides (4,4'-DDE, 4,4'-DDT, dieldrin). Further downstream, the Lower Yakima River is impaired for bacteria and dissolved oxygen (DO).

The only total maximum daily load (TMDL) applicable to the section of the Yakima River where the Toppenish Drain flows is to address the target parameter of total DDT using the surrogate parameter of total suspended solids (TSS). However, this TMDL specifies that drainages and tributaries within the Yakama Nation are excluded.

2. Low Flow Conditions

Receiving water data collected by the facility upstream of the outfall from 2019 through 2024 were used to calculate low flow conditions. Like all irrigation drains in the Wapato Irrigation Project, flows are higher during the irrigation season (roughly May – September) than they are during the rest of the year when irrigation is not occurring.

Between 2019 and 2024, the lowest measured flow rate was 2.1 mgd in Toppenish Drain. The calculated 1Q10 and 7Q10 values of 10.53 mgd and 13.69 mgd, respectively, are more representative of the Toppenish Drain low flow conditions than those calculated in the 2013 permit due to data availability. In the 2013 permit, downstream monitoring data were used and after subtracting the facility's design flow, an irrigation seasonal low flow of 7.07 mgd was calculated.

Critical low flows for the receiving water are summarized in Table 5. Low flows are defined in Appendix D.

Table 5. Critical Flows in Receiving Water

Flows	Seasonal Flows, Non-irrigation season (Oct. 1 – Apr. 30)	Seasonal Flows, Irrigation season (May 1 – Sep. 31)
1Q10	2.03 mgd	10.53 mgd
7Q10	2.64 mgd	13.69 mgd
30Q5	2.91 mgd	15.06 mgd
Harmonic Mean	6.33 mgd	25.67 mgd
Source: Monitoring data collected by the facility located upstream of Outfall 001.		

IV. Effluent Limitations and Monitoring

Table 6, below, presents the existing effluent limits and monitoring requirements in the current permit.

Table 7, below, presents the effluent limits and monitoring requirements proposed in the draft permit.

The draft permit includes several changes to the effluent limitations and monitoring requirements, which are as follows:

- The replacement of fecal coliform bacteria effluent limits and monitoring with *E. coli* bacteria effluent limits and monitoring.
- The addition of May-October seasonal temperature effluent limits.
- More stringent pH effluent limits and revision from seasonal to annual pH limits.
- Increased sampling frequency for application Form 2A data from 3 samples per 5 years to annual sampling.
- Less stringent effluent limits for total recoverable zinc in both the non-irrigation and irrigation seasons.
- Less stringent total recoverable copper in the non-irrigation season.
- The addition of per- and polyfluoroalkyl substances (PFAS) effluent monitoring.
- The addition of seasonal effluent limits for total recoverable silver and increased monitoring for silver to once per month.
- The addition of upstream receiving water monitoring for hardness and DO.
- The removal of monitoring for oil and grease.

Table 6. Existing Permit – Effluent Limits and Monitoring Requirements

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly Limit	Average Weekly Limit	Max Daily Limit	Sample Location	Sample Frequency	Sample Type
Biochemical Oxygen Demand (BOD_5)	mg/L	30	45	--	Influent and Effluent	1/2 weeks	24-Hour Composite
	lb/day	418	627	--			Calculation
	% removal	85% (minimum)	--	--		1/month	Calculation
Total Suspended Solids (TSS)	mg/L	30	45	--	Influent and Effluent	1/2 weeks	24-Hour Composite
	lb/day	418	627	--			Calculation
	% removal	85% (minimum)	--	--		1/month	Calculation
pH (Oct. – Apr.)	s.u.	6.5 – 8.8 at all times			Effluent	5/week	Grab
pH (May – Sep.)	s.u.	6.5 – 9.0 at all times			Effluent	5/week	Grab
Fecal Coliform[1]	#/100 ml	100 (geometric mean)	--	200	Effluent	1/week	Grab
Total Ammonia as N[1] (Oct. – Apr.)	mg/L	1.35	--	6.22	Effluent	1/2 weeks	24-Hour Composite
	lb/day	21.5	--	86.6			Calculation
Total Ammonia as N[1] (May – Sep.)	mg/L	1.35	--	5.23	Effluent	1/2 weeks	24-Hour Composite
	lb/day	21.5	--	72.8			Calculation
Nitrate + Nitrite as N	mg/L	10.5	17.3	--	Effluent	1/2 weeks	24-Hour Composite
	lb/day	146	241	--			Calculation
Total Phosphorus as P[4] (March – Oct.)	lb/day	48	82	--	Effluent	1/week	24-Hour Composite
Copper, Total Recoverable[1] (Oct – April)	µg/L	9.40	--	15.8	Effluent	1/month	24-Hour Composite
	lb/day	0.13	--	0.22			Calculation

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly Limit	Average Weekly Limit	Max Daily Limit	Sample Location	Sample Frequency	Sample Type
Copper, Total Recoverable[1] (May – Sep.)	µg/L	9.71	--	16.3	Effluent	1/month	24-Hour Composite
	lb/day	0.14	--	0.23			Calculation
Lead, Total Recoverable[1] (Oct – April)	µg/L	2.28	--	6.18	Effluent	1/month	24-Hour Composite
	lb/day	0.0317	--	0.0861			Calculation
Lead, Total Recoverable[1] (May – Sep.)	µg/L	3.81	--	10.3	Effluent	1/month	24-Hour Composite
	lb/day	0.0531	--	0.143			Calculation
Selenium[1] (Oct. – April)	µg/L	4.24	--	11.5	Effluent	1/month	24-Hour Composite
	lb/day	0.0591	--	0.160			Calculation
Selenium[1] (May – Sep.)	µg/L	7.08	--	19.2	Effluent	1/month	24-Hour Composite
	lb/day	0.0986	--	0.267			Calculation
Zinc, Total Recoverable[1] (Oct – April)	µg/L	50.49	--	106	Effluent	1/month	24-Hour Composite
	lb/day	0.803	--	1.48			Calculation
Zinc, Total Recoverable[1] (May – Sep.)	µg/L	57.4	--	112	Effluent	1/month	24-Hour Composite
	lb/day	0.803	--	1.56			Calculation
Report Parameters							
Flow	mgd	Report	--	Report	Effluent	Daily	Measure
Total Phosphorus as P (Nov. – Feb.)	mg/L	Report	--	Report	Effluent	1/week	24-Hour Composite
Temperature	°C	Report	--	Report	Effluent	2/week	Grab
Dissolved Oxygen	mg/L	Report minimum and monthly average effluent DO			Effluent	1/month	Grab
Hardness	mg/L as $CaCO_3$	Report	--	Report	Effluent	1/quarter[2]	24-Hour Composite
Alkalinity	mg/L as $CaCO_3$	Report	--	Report	Effluent	1/quarter[2]	24-Hour Composite

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly Limit	Average Weekly Limit	Max Daily Limit	Sample Location	Sample Frequency	Sample Type
Arsenic, Total Recoverable	µg/L	Report	--	Report	Effluent	Semi-annually[3]	24-Hour Composite
Silver, Total Recoverable	µg/L	Report	--	Report	Effluent	Semi-annually[3]	24-Hour Composite
Oil and Grease	mg/L	Report	--	Report	Effluent	1/quarter[2]	Grab
Total Dissolved Solids	mg/L	Report	--	Report	Effluent	1/quarter[2]	24-Hour Composite
Total Kjeldahl Nitrogen	mg/L	Report	--	Report	Effluent	1/quarter[2]	24-Hour Composite
NPDES Application Form 2A Expanded Effluent Testing	mg/L	Report	--	--	Effluent	3x/5years	--
Chronic Whole Effluent Toxicity	mg/L	Report	--	--	Effluent	See I.C.2.	24-Hour Composite

1. Reporting is required within 24 hours of a maximum daily limit violation. See Parts I.B.2 and III.G.
2. Quarters are defined as January – March, April through June, July – September, and October – December. Monitoring results for pollutants with a sample frequency of quarterly must be reported on the March, June, September and December DMRs.
3. Sampling to be performed semi-annually must be performed at least once from January – June and at least once from July – December. Monitoring results for pollutants with a sample frequency of semi-annually must be reported on the June and December DMRs.
4. Effluent limits for total phosphorus and the October – April limits for lead are subject to a compliance schedule. See II.D.

Table 7. Draft Permit – Effluent Limits and Monitoring Requirements

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly Limit	Average Weekly Limit	Max Daily Limit	Sample Location	Sample Frequency	Sample Type
Biochemical Oxygen Demand (BOD_5)	mg/L	30	45	--	Influent and Effluent	1/2 weeks	24-Hour Composite
	lb/day	418	627	--			Calculation[1]
	%	85%	--	--		1/month	Calculation[2]

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly Limit	Average Weekly Limit	Max Daily Limit	Sample Location	Sample Frequency	Sample Type
	removal	(minimum)					
Total Suspended Solids (TSS)	mg/L	30	45	--	Influent and Effluent	1/2 weeks	24-Hour Composite
	lb/day	418	627	--			Calculation[1]
	% removal	85% (minimum)	--	--		1/month	Calculation[2]
pH	s.u.	6.5 – 8.5 at all times			Effluent	5/week	Grab
***E. coli* bacteria[3]**	#/100 ml	100 (geometric mean)	--	320	Effluent	1/week	Grab
Temperature (May 1 – Sep. 30)	℃	--	--	23.5	Effluent	2/week	Grab
Ammonia, Total as N[3] (Oct. 1 – Apr. 30)	mg/L	1.35	--	6.22	Effluent	2/month	24-Hour Composite
	lb/day	21.5	--	86.6			Calculation[1]
Ammonia, Total as N[3] (May 1 – Sep. 30)	mg/L	1.35	--	5.23	Effluent	2/month	24-Hour Composite
	lb/day	21.5	--	72.8			Calculation[1]
Nitrate + Nitrite, as N	mg/L	10.5	17.3	--	Effluent	2/month	24-Hour Composite
	lb/day	146	241	--			Calculation[1]
Phosphorus, Total as P (Mar. 1 – Oct. 30)	lb/day	48	82	--	Effluent	1/week	24-Hour Composite
Copper, Total Recoverable[3] (Oct 1 – April 30)	µg/L	10.34	--	17.38	Effluent	1/month	24-Hour Composite
	lb/day	0.143	--	0.242			Calculation[1]
Copper, Total Recoverable[3] (May 1 – Sep. 30)	µg/L	9.71	--	16.3	Effluent	1/month	24-Hour Composite
	lb/day	0.14	--	0.23			Calculation[1]
Lead, Total Recoverable[3] (Oct 1 – April 30)	µg/L	2.28	--	6.18	Effluent	1/month	24-Hour Composite
	lb/day	0.0317	--	0.0861			Calculation[1]

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly Limit	Average Weekly Limit	Max Daily Limit	Sample Location	Sample Frequency	Sample Type
Lead, Total Recoverable[3] (May 1 – Sep. 30)	µg/L	3.81	--	10.3	Effluent	1/month	24-Hour Composite
	lb/day	0.0531	--	0.143			Calculation[1]
Selenium[3] (Oct.1 – April 30)	µg/L	4.24	--	11.5	Effluent	1/month	24-Hour Composite
	lb/day	0.0591	--	0.160			Calculation[1]
Selenium[3] (May 1 – Sep. 30)	µg/L	7.08	--	19.2	Effluent	1/month	24-Hour Composite
	lb/day	0.0986	--	0.267			Calculation[1]
Silver, Total Recoverable[3] (Oct. 1 – April 30)	µg/L	3.38	--	4.93	Effluent	1/month	24-Hour Composite
	lb/day	0.047	--	0.069			Calculation[1]
Silver, Total Recoverable[3] (May 1 – Sep. 30)	µg/L	2.47	--	5.97	Effluent	1/month	24-Hour Composite
	lb/day	0.034	--	0.083			Calculation[1]
Zinc, Total Recoverable[3] (Oct 1 – April 30)	µg/L	55.54	--	116.6	Effluent	1/month	24-Hour Composite
	lb/day	0.883	--	1.628			Calculation[1]
Zinc, Total Recoverable[2] (May 1 – Sep. 30)	µg/L	63.14	--	123.2	Effluent	1/month	24-Hour Composite
	lb/day	0.883	--	1.716			Calculation[1]
Report Parameters							
Flow	mgd	Report	--	Report	Effluent	Daily	Measure
Total Phosphorus as P (Nov. 1 – Feb. 28)	mg/L	Report	--	Report	Effluent	1/week	24-Hour Composite
Temperature (Oct. 1 – April 30)	°C	Report	--	Report	Effluent	2/week	Grab
Dissolved Oxygen	mg/L	Report minimum and monthly average effluent DO			Effluent	1/month	Grab
Hardness	mg/L as $CaCO_3$	Report	--	Report	Effluent	1/quarter[4]	24-Hour Composite
Alkalinity	mg/L as	Report	--	Report	Effluent	1/quarter[4]	24-Hour

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly Limit	Average Weekly Limit	Max Daily Limit	Sample Location	Sample Frequency	Sample Type
	$CaCO_3$						Composite
Arsenic, Total Recoverable	µg/L	Report	--	Report	Effluent	Semi-annually[5]	24-Hour Composite
Total Dissolved Solids	mg/L	Report	--	Report	Effluent	1/quarter[4]	24-Hour Composite
Total Kjeldahl Nitrogen	mg/L	Report	--	Report	Effluent	1/quarter[4]	24-Hour Composite
NPDES Application Form 2A Effluent Testing[6]	--	--	--	--	Effluent	1/year	
NPDES Application Additional Effluent Testing[7]	--	--	--	--	Effluent	1/year	
Per- and Polyfluoroalkyl Substances (PFAS)[8]	ng/L	--	--	--	Influent and Effluent	2/year	24-Hour Composite
	mg/kg dry weight	--	--	--	Sludge		Grab
Chronic Whole Effluent Toxicity	mg/L	Report	--	--	Effluent	See I.C.2. of 2013 permit	24-Hour Composite

1. Loading (in lbs/day) is calculated concurrently with the respective concentration of a sample using the following formula: concentration (in mg/L) X daily flow (in MGD) X conversion factor (8.34) = lb/day. For more information on calculating, averaging, and reporting loads and concentrations see the NPDES Self-Monitoring System User Guide (EPA 833-B-85-100, March 1985).
2. Percent Removal. The monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month using the following equation: (average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration x 100. Influent and effluent samples must be taken over approximately the same time period.
3. Reporting is required within 24 hours of a maximum daily limit violation. See Permit Parts I.B.2 and III.G.
4. Quarters are defined as: January 1 to March 31; April 1 to June 30; July 1 to September 30; and October 1 to December 31. Monitoring results for pollutants with a sample frequency of quarterly must be reported on the March, June, September and December DMRs.
5. Sampling to be performed semi-annually must be performed at least once from January – June and at least once from July – December. Monitoring results for pollutants with a sample frequency of semi-annually must be reported on the June and December DMRs.

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly Limit	Average Weekly Limit	Max Daily Limit	Sample Location	Sample Frequency	Sample Type
6. Effluent Testing Data - See NPDES Permit Application Form 2A, Table B for the list of pollutants to be included in this testing. The Permittee must use sufficiently sensitive analytical methods in accordance with Permit Part I.B.8.							
7. Additional Effluent Testing - See NPDES Permit Application Form 2A, Table C, Table E, and Permit Part I.B.10. for the list of pollutants to be included in this testing. Testing must be conducted annually during alternating quarters. The additional effluent testing must occur on the same day as a whole effluent toxicity testing. Quarters are defined as: January 1 to March 31; April 1 to June 30; July 1 to September 30; and, October 1 to December 31. The Permittee must use sufficiently sensitive analytical methods in accordance with Permit Part I.B.8.							
8. Monitoring for PFAS chemicals is required for 2 years (8 quarters), beginning at the start of the first complete quarter in the third year of the permit term.							

A. BASIS FOR EFFLUENT LIMITS AND MONITORING REQUIREMENTS

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based effluent limits (TBELs) or WQBELs. TBELs are set according to the level of treatment that is achievable using available technology. A WQBEL is designed to ensure that the WQS applicable to a waterbody are being met and may be more stringent than TBELs.

CWA § 308 and 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality.

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples must be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR Part 136) or as specified in the permit.

1. Pollutants of Concern

Pollutants of concern are those that either have TBELs or may need WQBELs. The EPA identifies pollutants of concern for the discharge based on those which:

- Have a TBEL
- Have an assigned wasteload allocation (WLA) from a TMDL
- Had an effluent limit in the previous permit
- Are present in the effluent monitoring. Monitoring data are reported in the application, DMRs, and any special studies

- Are expected to be in the discharge based on the nature of the discharge

The wastewater treatment process for this facility includes both primary and secondary treatment, as well as disinfection with chlorination. Pollutants expected in the discharge from a facility with this type of treatment, include but are not limited to: BOD_5, TSS, *E. coli* bacteria, total residual chlorine (TRC), pH, ammonia, temperature, phosphorus, and DO.

Based on this analysis, pollutants of concern are as follows:

- Ammonia
- Arsenic
- Bis (2-Ethylhexyl) Phthalate
- Butylbenzyl Phthalate
- Copper
- DO
- *E. coli* bacteria
- Lead
- Nitrate-Nitrite
- PFAS
- pH
- Phosphorus
- Selenium
- Silver
- Temperature
- Total Kjeldahl Nitrogen (TKN)
- Zinc
- Whole Effluent Toxicity (WET)

2. Technology-Based Effluent Limits (TBELs)

a. Federal Secondary Treatment Effluent Limits

The CWA requires POTWs to meet performance-based requirements based on available wastewater treatment technology. CWA § 301 established a required performance level, referred to as "secondary treatment," which POTWs were required to meet by July 1, 1977. The EPA has developed and promulgated "secondary treatment" effluent limitations, which are found in 40 CFR 133.102. These TBELs apply to certain municipal WWTPs and identify the minimum level

of effluent quality attainable by application of secondary treatment in terms of BOD_5, TSS, and pH. The federally promulgated secondary treatment effluent limits are listed in Table 8. For additional information and background refer to Part 5.1 *Technology Based Effluent Limits for POTWs* in the Permit Writers Manual.

Table 8. Secondary Treatment Effluent Limits

Parameter	30-day average	7-day average
BOD_5	30 mg/L	45 mg/L
TSS	30 mg/L	45 mg/L
Removal for BOD_5 and TSS (concentration)	85% (minimum)	--
pH	within the limits of 6.0 – 9.0 s.u.	
Source: 40 CFR 133.102		

b. Mass-Based Limits

40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, except under certain conditions. 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows:

Mass-based limit = concentration limit (mg/L) × design flow (mgd) × 8.34[1]

Since the design flow for this facility is 1.67 mgd, the technology-based mass limits for BOD_5 and TSS are calculated as follows:

Average Monthly Limit = 30 mg/L × 1.67 mgd × 8.34 = 418 lbs/day

Average Weekly Limit = 45 mg/L × 1.67 mgd × 8.34 = 627 lbs/day

3. Water Quality-Based Effluent Limits (WQBELs)

a. Statutory and Regulatory Basis

CWA § 301(b)(1)(C) requires the development of limitations in permits necessary to meet WQS. Discharges to State or Tribal waters must also comply with conditions imposed by the State or Tribe as part of its certification of NPDES permits under CWA § 401. 40 CFR 122.44(d)(1) implementing CWA § 301(b)(1)(C) requires that permits include limits for all pollutants or parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State or Tribal WQS, including narrative criteria for water quality. Effluent limits must also meet the applicable water quality requirements of affected States other than the State in which the

[1] 8.34 is a conversion factor with units (lb ×L)/(mg × gallon×10^6)

discharge originates, which may include downstream States (40 CFR 122.4(d), 122.44(d)(4), see also CWA § 401(a)(2)).

The regulations require the permitting authority to make this evaluation using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that WQS are met and must be consistent with any available wasteload allocation for the discharge in an approved TMDL. If there are no approved TMDLs that specify wasteload allocations for this discharge; all of the WQBELs are calculated directly from the applicable WQS.

The facility discharges to Tribal waters on the Yakama Nation Reservation. Since there are no Tribal WQS, the Washington WQS were used as reference to develop permit limits.

b. Reasonable Potential Analysis and Need for WQBELs

The EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (*TSD*) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, the EPA compares the maximum projected receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a WQBEL must be included in the permit.

In some cases, a dilution allowance or mixing zone is permitted. A mixing zone is a limited area or volume of water where initial dilution of a discharge takes place and within which certain water quality criteria may be exceeded (EPA, 2014). While the criteria may be exceeded within the mixing zone, the use and size of the mixing zone must be limited such that the waterbody as a whole will not be impaired, all designated uses are maintained and acutely toxic conditions are prevented.

The Washington WQS at WAC 173-201A-400 provides Washington's mixing zone policy for point source discharges. The EPA proposes to use a mixing zone of 25% during irrigation season (WAC 173-201A-400). During non-irrigation season when there is minimal flow in Toppenish Drain, there is no authorized mixing zone and the dilution factor is 1.0. The proposed mixing zones are summarized in Table 9. All dilution factors are calculated with the effluent flow rate set equal to the design flow of 1.67 mgd.

Table 9. Mixing Zones During Irrigation Season

Criteria Type	Critical Low Flow Irrigation Season (cfs)	Mixing Zone (% of Critical Low Flow)	Dilution Factor Irrigation Season
Acute Aquatic Life	21.18	25	1.2
Chronic Aquatic Life (except ammonia)	21.18	25	3.8
Chronic Aquatic Life (ammonia)	21.18	25	3.8
Human Health Noncarcinogen	23.3	25	4.0
Human Health Carcinogen	39.72	25	10.2

The reasonable potential analysis and WQBEL calculations were based on mixing zones shown in Table 9.

As discussed in Part IV.A.1, above, the pollutants of concern in the discharge are BOD_5, DO, TSS, pH, temperature, *E. coli* bacteria, ammonia, nitrate plus nitrite, TKN, phosphorous, PFAS, zinc, copper, selenium, silver, bis (2-ethylhexyl) phthalate, and butylbenzyl phthalate. Each parameter is summarized in Part IV.A.4.c and the equations used to conduct the reasonable potential analysis and calculate the WQBELs are provided in Appendix D. The relevant water quality standards are shown in Table 10, below.

Table 10. Applicable Water Quality Standards

Pollutant	Designated Use	Criteria
Dissolved Oxygen	Salmonid Spawning, Rearing, and Migration	10 mg/L or 90% saturation
pH	Salmonid Spawning, Rearing, and Migration	pH shall be within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

Pollutant	Designated Use	Criteria
E. coli Bacteria	Primary Contact Recreation	E. coli organism levels within an averaging period 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 10 sample points exist) obtained within the averaging period exceeding 320 CFU or MPN per 100 mL.
Temperature	Site-specific (Lower Yakima Watershed)	Temperature shall not exceed a 1-DMax of 21.0°C due to human activities. When natural conditions exceed a 1-DMax of 21.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed t = 34/(T + 9).
Applicable WQS are found in WAC 173-201A-200(1)(d) – WAC 173-201A-200(2)(c)		

c. Reasonable Potential and WQBELs

The reasonable potential and WQBELs for specific parameters are summarized below. The calculations are provided in Appendix D.

In the 2013 permit, there was a narrative WQBEL stating that the permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water. This was included in error and was based on the Idaho permit and fact sheet template. Therefore, this narrative WQBEL has been removed from the permit.

<u>Ammonia</u>

Ammonia criteria are based on a formula which relies on the pH and temperature of the receiving water because the fraction of ammonia present as the toxic, un-ionized form increases with increasing pH and temperature. Therefore, the criteria become more stringent as pH and temperature increase. Figure 1.a and 1.b, below, detail the equations used to determine water quality criteria for ammonia.

Figure 1.a. Non-Irrigation Season Ammonia Criteria

October 1 - April 30	
INPUT	
1. Receiving Water Temperature (deg C):	17.4
2. Receiving Water pH:	7.5
3. Is salmonid habitat an existing or designated use?	Yes
4. Are non-salmonid early life stages present or absent?	Present
OUTPUT	
Using mixed temp and pH at mixing zone boundaries?	no
Ratio	17.886
FT	1.400
FPH	1.435
pKa	9.486
Unionized Fraction	0.010
Unionized ammonia NH3 criteria (mg/L as NH_3)	
Acute:	0.165
Chronic:	0.022
RESULTS	
Total ammonia nitrogen criteria (mg/L as N):	
Acute:	13.283
Chronic:	1.790

Figure 1.b. Irrigation Season Ammonia Criteria

May 1 - September 30	Background	mixed @ Acute Boundary	mixed @ Chronic Boundary	mixed @ Whole River
INPUT				
1. Receiving Water Temperature (deg C):	21.1	24.9	22.3	21.5
2. Receiving Water pH:	7.4	6.5	6.7	7.0
3. Is salmonid habitat an existing or designated use?	Yes	Yes	Yes	Yes
4. Are non-salmonid early life stages present or absent?	Present	Present	Present	Present
OUTPUT				
Using mixed temp and pH at mixing zone boundaries?		yes		
Ratio	20.202	35.634	33.514	29.486
FT	1.400	1.400	1.400	1.400
FPH	1.600	6.776	4.691	2.961
pKa	9.368	9.249	9.328	9.355
Unionized Fraction	0.011	0.002	0.002	0.004
Unionized ammonia NH3 criteria (mg/L as NH_3)				
Acute:	0.199	0.074	0.000	0.123
Chronic:	0.018	0.002	0.004	0.007
RESULTS				
Total ammonia nitrogen criteria (mg/L as N):				
Acute:	15.341	**32.274**		24.762
Chronic:	1.364		**1.236**	1.318

Using the facility's monitoring data for ammonia, the EPA conducted separate reasonable potential analyses for the irrigation season, with a 25% mixing zone, and during the non-irrigation season, with no mixing zone. Reasonable potential calculations for each season showed that the City of Toppenish WWTP discharge would not have the reasonable potential to cause or contribute to a violation of the water quality criteria for either season. This is likely due to successful upgrades completed by the facility in 2010, prior to the issuance of the previous permit, which were designed to reduce ammonia so that the facility could meet the effluent limits in the previous permit. The EPA has determined that it is appropriate to retain the ammonia WQBELs from the previous permit for both the irrigation and non-irrigation seasons due to backsliding concerns as well as the known nutrient loading issues in the Yakima River which is located approximately 3 miles downstream of the discharge (Forney, 2022). The draft permit requires that the permittee monitor the receiving water for ammonia, pH and temperature in order to determine the applicable ammonia criteria for the next permit reissuance. See Appendix D for reasonable potential and effluent limit calculations for ammonia.

Arsenic

The Washington WQS at WAC 173-201A-240 establish chronic and acute arsenic aquatic life criteria of 190 µg/L and 360 µg/L, respectively. Because the City of Toppenish WWTP has detectable concentrations of arsenic, the 2013 permit included semi-annual effluent monitoring. This effluent monitoring, containing 10 samples, had an average of 0.720 µg/L, and a maximum of 1.4 µg/L. The EPA conducted a reasonable potential analysis, which determined the facility did not have reasonable potential to exceed the criteria. See Appendix D for these calculations. Therefore, the permit does not contain WQBELs for arsenic but continues the requirement to conduct semi-annual effluent monitoring.

Bis (2-ethylhexyl) Phthalate and Butylbenzyl Phthalate

The Washington WQS at WAC 173-201A-240 establish a human health criterion for water and organisms of 0.23 µg/L and for organisms only of 0.25 µg/L. Required by the expanded effluent toxics screen as part of the NPDES reapplication process, the two samples submitted by the WWTP for bis (2-ethylhexyl) phthalate are above the criteria, with a maximum concentration of 2.14 µg/L. The facility also included two samples of butylbenzl phthalate which were above the 0.03 µg/L criteria, with a maximum of 0.16 µg/L. Bis (2-ethylhexyl) phthalate is a plasticizer used in the production of polyvinyl chloride (PVC) and is known to leach from PVC pipes (Erythropel et al., 2014). The EPA believes it is likely that the measurements were biased due to contamination during sample collection and analysis through the mishandling and improper storage of samples. Therefore, the EPA has determined that there is insufficient information to demonstrate that the facility has the reasonable potential to

cause or contribute to excursions above water quality standards for this pollutant. Because these phthalate compounds are ubiquitous in laboratories and can easily leach from polyvinyl chloride piping, making sample contamination prevalent (Griffiths et al., 1985), effluent monitoring is not proposed beyond the expanded effluent sampling required in the application for reissuance. These compounds will be assessed during the next permit cycle as the expanded effluent sampling in NPDES Application Form 2A, Table C will include monitoring for both.

Copper

The Washington WQS at WAC 173-201A-240 establish acute and chronic copper criteria for the protection of aquatic life and human health criteria for consumption of water and fish. Using facility effluent monitoring data for copper and the mixing zones described in Table 9, above, a reasonable potential analysis was conducted for both the irrigation and non-irrigation seasons. During the non-irrigation season, it was determined there is no reasonable potential to exceed the aquatic life criteria for copper. However, during the irrigation season from May 1 to September 30, the EPA found there is reasonable potential to exceed the aquatic life criteria for copper.

The calculated effluent limits for both the irrigation and non-irrigation seasons are less stringent than the 2013 permit's effluent limits for copper. Since there is reasonable potential during the irrigation season, the EPA is retaining the 2013 permit limits for the irrigation season due to backsliding concerns.

With regard to the non-irrigation season where there is no reasonable potential, the EPA is proposing less stringent copper limits. In order to ensure compliance with Washington's Tier II antidegradation policy, the effluent limits cannot be increased by more than 10%, relative to the effluent limits in the prior permit (Ecology, 2011). Therefore, the proposed average monthly effluent limits for the non-irrigation season are increased from 9.40 µg/L to 10.34 µg/L and from 0.13 lb/day to 0.143 lb/day, and the proposed maximum daily limits have been increased from 15.8 µg/L to 17.38 µg/L and from 0.22 lb/day to 0.242 lb/day. See below for the antibacksliding analysis. Monthly monitoring for both seasons is still proposed to be maintained. See permit part I.B.

DO and BOD_5

Natural decomposition of organic material in wastewater effluent impacts dissolved oxygen in the receiving water at distances far outside of the regulated mixing zone. The BOD_5 of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of oxygen consumption the wastewater will generate in the receiving water. It is assumed that the more protective BOD_5 TBEL will be stringent enough to protect DO downstream. The BOD_5 of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of

oxygen consumption the wastewater will generate in the receiving water. From October 2019 to November 2024, the 95th percentiles of monthly average and weekly average effluent BOD_5 were 14.1 and 16.5 mg/L, respectively. These are below the secondary treatment standards, thus protective of the receiving waters. In addition to TBELs for BOD_5, effluent monitoring for dissolved oxygen is continued and dissolved oxygen monitoring in the receiving water has been added to the draft permit.

E. coli and fecal coliform bacteria

The Washington WQS at WAC 173-201A-200(2)(b) state that for waters that are designated for primary contact recreation, *E. coli* organism levels within an averaging period 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. For this reason, *E. coli* effluent limits are proposed, which include an average monthly limit of a geometric mean of 320 CFU or MPN per 100 mL and a maximum daily limit of 100 CFU or MPN per 100 mL, as well as weekly effluent monitoring. A mixing zone is not appropriate for bacteria for waters designated for contact recreation.

The Washington water quality standards at WAC 173-201A-200(2)(b) replaced fecal coliform with *E. coli* as the applicable criteria as of December 31, 2020. As such, the fecal coliform effluent limits have been removed from the permit. Since the fecal coliform limits have been replaced with *E. coli* limits, the bacteria limits are not less stringent than the previous permit; thus, there are no backsliding concerns.

Lead

The Washington WQS at WAC 173-201A-240 establish acute and chronic lead criteria for the protection of aquatic life and human health criteria for consumption of water and fish. During the 2013 permit development, the EPA found there to be the reasonable potential for the discharge to exceed aquatic life criteria for lead, therefore effluent limits were established in the permit.

The single maximum observed daily maximum concentration of total recoverable lead between 2019 and 2025 was 2.0 µg/L, and the 90th percentile of monthly average loading samples was 0.010 lb/day. The hardness-dependent water quality criteria, described in WAC 173-201A-240, are 70.97 µg/L and 2.7 µg/L for the acute and chronic criteria, respectively. Reasonable potential analyses were calculated for both the irrigation and non-irrigation seasons; these calculations show that there is no reasonable potential to exceed the water quality criteria. However, since the concentrations of lead in the effluent are relatively high with respect to the chronic water quality criterion, including the 90th percentile average monthly concentration of 1.00 µg/L, the 2013 permit effluent limits for lead are being retained in the permit with associated effluent monitoring.

Nitrogen and Nitrate + Nitrite

The Washington WQS do not establish water quality criteria for total nitrogen or nitrate plus nitrite. However, under 40 CFR 122.44(d)(1)(vi)(B), the EPA-recommended water quality criterion for nitrate + nitrite for the consumption of water and organisms is 10 mg/L (EPA 1986). In the 2013 permitting cycle, it was determined that the discharge had the reasonable potential to cause or contribute to excursions above the 10 mg/L criterion, at the edge of a mixing zone encompassing 25% of the harmonic mean flow of Toppenish Drain. Furthermore, there are documented problems with elevated nitrate + nitrite concentrations in drinking water wells in the Yakima River Basin, and there is exchange between ground and surface water (Washington State Departments of Agriculture, Ecology and Health, et al. 2010). The Washington WQS designate Class III waters, including the Yakima River, downstream from the discharge, for groundwater recharge. Consistent with the recommendations of section 5.4.4 of the TSD for establishing effluent limits based on human health criteria, the average monthly limit in the 2013 permit was set equal to the wasteload allocation of 10.5 mg/L.

During the 2019-2024 monitoring period, the 90th percentile of daily maximum nitrate plus nitrite, as N, was 4.64 mg/L with a maximum single value of 5.90 mg/L. Using the data from this monitoring period, reasonable potential analyses were done for the irrigation season, the non-irrigation season, and annually. No reasonable potential was found under any of the scenarios. However, because of the known nitrogen problems in the Yakima River Basin, the 2013 permit limits for nitrate plus nitrite and the monitoring for total Kjeldahl nitrogen have been retained in the draft permit.

PFAS

PFAS are a group of synthetic chemicals that have been in use since the 1940s. PFAS are found in a wide array of consumer and industrial products. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. Discharges of PFAS above certain levels may cause adverse effects to human health or aquatic life.[2,3]

Since PFAS chemicals are persistent in the environment and may lead to adverse human health and environmental effects, the draft permit requires that the permittee conduct twice yearly influent, effluent, and sludge sampling for PFAS chemicals. This will result in 8 samples being collected over the 5-year permit

- [2] EPA, *EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan,* EPA 823R18004, February 2019. Available at: https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf
- [3] EPA, *Fact Sheet: Draft 2022 Aquatic Life Ambient Water Quality Criteria for Perfluorooctanoic acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS).* Available at: https://www.epa.gov/system/files/documents/2022-04/pfoa-pfos-draft-factsheet-2022.pdf

term. 8 samples are the minimum sample size necessary to calculate the standard deviation and mean of the data with sufficient confidence (USEPA, 1991).

The draft permit also requires that the permittee inventory the industrial users (IUs) of the treatment works, to identify IUs of the POTW that may discharge PFAS chemicals to the collection system. Industry sectors known or suspected to discharge PFAS include, but are not limited to, organic chemicals, plastics & synthetic fibers (OCPSF); metal finishing; electroplating; electric and electronic components; landfills; pulp, paper & paperboard; leather tanning & finishing; plastics molding & forming; textile mills; paint formulating, and airports.[4,5] The EPA's website has public databases such as Enforcement and Compliance History Online (ECHO) (https://echo.epa.gov/) and Envirofacts (https://enviro.epa.gov/) which may be useful in identifying such industrial users.

If PFAS chemicals are detected in the influent, effluent, or sludge in the first year of sampling, then the permittee must sample the IUs identified as potential PFAS sources at least once during the following calendar year.

The purpose of these monitoring and reporting requirements is to better understand potential discharges of PFAS from this facility and to inform future permitting decisions, including the potential development of water quality-based effluent limits. The EPA is authorized to require this monitoring and reporting by CWA section 308(a). The permit conditions reflect the EPA's commitments in the PFAS Strategic Roadmap, which directs the Office of Water to leverage NPDES permits to reduce PFAS discharges to waterways "at the source and obtain more comprehensive information through monitoring on the sources of PFAS and quantity of PFAS discharged by these sources."

There is currently no analytical method approved in 40 CFR Part 136 for PFAS. As stated in 40 CFR 122.44(i)(1)(iv)(B), in the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR Part 136 or methods are not otherwise required under 40 CFR chapter I, subchapter N or O, monitoring shall be conducted according to a test procedure specified in the permit for such pollutants or pollutant parameters. Therefore, the permit specifies that until there is an analytical method approved in 40 CFR Part 136 for PFAS, monitoring shall be conducted using Method 1633.

pH

- [4] EPA, "Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs." Available at: https://www.epa.gov/system/files/documents/2022-12/NPDES_PFAS_State%20Memo_December_2022.pdf.
- [5] A spreadsheet listing industries that may discharge PFAS, including Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes, and a spreadsheet listing Superfund sites with PFAS detections, are available on the EPA's website at: https://echo.epa.gov/tools/data-downloads/national-pfas-datasets#about.

The Washington WQS at WAC 173-201A-200(1)(g) state that pH shall be within the range of 6.5 s.u. to 8.5 s.u. with a human-caused variation within the above range of less than 0.5 units. As is the case with all WQBELs in this draft permit, pH was assessed separately for the irrigation and non-irrigation seasons. During the non-irrigation season, a mixing zone is not permitted and therefore the dilution factor was set to 1. Between the years of 2019 and 2025, the lowest measured instantaneous minimum effluent pH value was 6.5 standard units, while the 10th percentile being 6.6. During the same period, the highest measured instantaneous maximum was 7.7 while the 90th percentile was 7.4. A reasonable potential analysis determined the discharge would not have the reasonable potential to cause or contribute to a violation of the water quality criteria during the non-irrigation season.

During the irrigation season, between the years 2019 and 2025, the instantaneous minimum and 10th percentile effluent values were 6.5 and 6.6, respectively. The maximum and 90th percentile effluent values in the irrigation season were 7.7 and 7.4, respectively. A reasonable potential analysis determined these also would not have the reasonable potential to cause or contribute to a violation of the water quality criteria during the irrigation season.

Annually over the five-year monitoring period, the single lowest instantaneous minimum sample was 6.5 s.u., while the highest instantaneous maximum value was 7.8 s.u. To comply with the WA WQS at WAC 173-201-200(1)(g), new annual effluent limits are proposed for pH that have an instantaneous minimum of 6.5 and an instantaneous maximum of 8.5 to reflect these criteria. Because of the facility's demonstrated ability to meet these proposed effluent limitations, a compliance schedule is not included.

Phosphorus

Cyanobacteria, a phosphorus-limited blue-green algae that contribute to eutrophication, have been observed in the reach of the Yakima River that receives the Toppenish discharge (Johnson et al., 2013; Wise et al., 2009). To address this problem, the 2013 permit includes average monthly and average weekly total phosphorus (TP) effluent limits of 48 lb/day and 82 lb/day, respectively. Between 2019 and 2024, the median of the monthly average effluent loading was 6.3 lb/day while the median of the weekly average was 8.3 lb/day. In Toppenish Drain during this same period, the 90th percentile of the upstream TP was 15.2 µg/L while the downstream 90th percentile was 17.7 µg/L. The EPA's ecoregional nutrient criteria (EPA 2000, Table 3b) includes a recommendation of 30 µg/L. Since there are known downstream nutrient issues in the Yakima River, including a study by Forney, 2022, that measured dissolved inorganic phosphorus load of 2.47 mg/day, the EPA is retaining the 2013 effluent limits in the draft permit.

Silver

Anthropogenic silver, a pollutant known to be toxic to aquatic life in similar ways as heavy metals, is used in a multitude of industries (EPA, 1987). In past permit cycles, silver has been detected in the Toppenish WWTP discharge. During the 2013 permit, a reasonable potential analysis found there to be no reasonable potential for the discharge to exceed aquatic life criteria, so only biannual monitoring was required.

Between 2019 and 2024, the 90th percentile total recoverable silver value was 4.7 µg/L with an average concentration of 2.6 µg/L. Using the effluent and receiving water data, the acute hardness-dependent aquatic life criterion, described in WAC 173-201A-240, was calculated as 4.12 µg/L. Reasonable potential analyses were conducted for both irrigation and non-irrigation seasons. While there is no reasonable potential to exceed aquatic life criteria during the non-irrigation season, the EPA determined there is reasonable potential for the discharge to exceed aquatic life criteria for silver during the irrigation season. Therefore, effluent limits for total recoverable silver from May 1 to September 30 are proposed. These limits include concentration-based daily maximum and monthly average effluent limits of 5.97 µg/L and 2.47 µg/L, respectively, as well as mass-based limits for daily maximum and monthly average of 0.034 lb/day and 0.083 lb/day, respectively. Based on the effluent data, the facility will be able to meet these new effluent limits, thus, a compliance schedule is not being proposed. Monthly total recoverable silver effluent monitoring is also proposed.

Selenium

Similar to total recoverable lead, the Washington WQS at WAC 173-201A-240 establish acute and chronic lead criteria for the protection of aquatic life and human health criteria for consumption of water and fish. The hardness-dependent chronic selenium criterion is 5 µg/L, while the acute criterion is 20 µg/L. During the 2013 permit cycle, it was found that there was reasonable potential for selenium concentrations to exceed water quality standards, therefore effluent limits were introduced.

Between 2019 and 2024, the maximum observed selenium concentration in the effluent was 2.0 µg/L, while the mean of the monthly average concentration during this period was 1.31 µg/L from 61 samples. Using this monitoring data, reasonable potential analyses were run for both the irrigation and non-irrigation seasons. Both selenium analyses found there was no reasonable potential to exceed the water quality criteria. However, because the selenium values in the discharge have been relatively high with respect to the chronic criterion, the 2013 permit effluent limits for selenium have been retained in the draft permit.

Temperature

While not specifically listed on the CWA 303(d) Impaired Waters list for temperature, the Yakima River drains a large basin with complex water use interactions. Widespread impairments of water quality have been documented

for temperature, DO, and pH in the mainstem Yakima River (Ecology, 2016). Because of these broad impairments, temperature is a pollutant of concern in the Toppenish WWTP effluent discharge. The applicable site-specific WQS, described in Table 9, include an annual maximum temperature criterion applicable to the receiving water at the closest point of Washington water quality standards, WRIA 37, Lower Yakima. This criterion states "temperature shall not exceed a 1-Dmax of 21°C due to human activities. When natural conditions exceed a 1-DMax of 21°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed t=34/(T+9)."

During the non-irrigation season of October 1 to April 30, the 95th percentile of daily max effluent temperatures from 2019 to 2024 was 21.0°C with a monthly average of 15.8°C. A reasonable potential analysis calculated for the non-irrigation season determined that the discharge would not have the reasonable potential to cause or contribute to a violation of the water quality criteria. Thus, a temperature effluent limit for the non-irrigation season is not being proposed; however, current monitoring of two samples per week is being maintained.

During the irrigation season of May 1 to September 30, during the same 5-year period, the 95th percentile of daily maximum effluent samples was 25.8°C while the monthly average was 20.98°C. The reasonable potential analysis found that there is reasonable potential to cause or contribute to a violation of the water quality criteria during the irrigation season. As a result, the draft permit proposes a temperature limit of 23.5°C. See Appendix D for calculations.

<u>WET</u>

The federal regulations require POTWs with design influent flows equal to or greater than 1.0 mgd or POTWs with approved treatment programs to submit results of WET testing (40 CFR 122.21(j)(1). Additionally, Washington WQS for toxics states, "Toxic substances shall not be introduced above natural background levels in waters of the state which have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health (WAC 173-201A-240-1)".

The 2013 permit included biannual chronic WET testing for both *Pimephales promelas* (Fathead Minnow) and *Ceriodaphnia dubia*. Using the WET testing data from 2020 through 2024, the EPA determined that the facility's effluent does not have reasonable potential for chronic WET. Therefore, WET effluent limits are not proposed and the 2013 permit monitoring requirements of two times per year, as described in Permit Part I.B.C, are maintained.

<u>Zinc</u>

Zinc, which is generated in wastewater from a multitude of home and industrial uses, can be toxic to humans and aquatic life (EPA, 2005). The Washington WQS

at WAC 173-201A-240 establish hardness dependent acute and chronic zinc criteria for the protection of aquatic life and human health for consumption of water and fish and water.

During the 2019-2024 monitoring period, the facility exceeded the 2013 permit's zinc effluent limits 24 times out of 244 samples. The highest measured daily maximum zinc concentration was 172.0 µg/L, while the 90th percentile of the monthly average was 78.0 µg/L. The means of the monthly average zinc concentration during this period for irrigation season and the non-irrigation season were 37.39 µg/L and 34.88 µg/L, respectively.

Using this facility effluent monitoring data for zinc, as well as the mixing zones described in Table 9, above, reasonable potential analyses were conducted for both the irrigation and non-irrigation seasons. During the non-irrigation season, the EPA determined there is reasonable potential to exceed the water quality criteria for zinc. During the irrigation season, when there is flow in the receiving water, the EPA determined that there is no reasonable potential to exceed the water quality criteria for zinc.

The calculated non-irrigation season average monthly limit is 74.7 µg/L which is 48% greater (less restrictive) than the existing limit of 50.49 µg/L, and the max daily limit of 129.3 µg/L, which is 22% greater than the existing limit of 106 µg/L. However, while there is reasonable potential and the facility has been able to comply with the non-irrigation season effluent limits, these limits have been reduced by 10% to allow the facility some relief from the effluent limits while also ensuring that Washington's Tier II antidegradation implementation procedures are followed. These procedures allow for a 10% reduction before requiring a Tier II socioeconomic justification. This results in a proposed non-irrigation season zinc average monthly limits of 55.54 µg/L from 50.49 µg/L and 0.883 lb/day from 0.803 lb/day. In addition, the proposed maximum daily limits have been reduced from 106 µg/L to 116.6 µg/L and from 1.48 lb/day to 1.628 lb/day.

With regard to the effluent limits for the irrigation season, where there is no reasonable potential, the proposed limits have also been reduced by 10%. Therefore, the irrigation season proposed average monthly limits are reduced from 57.4 µg/L to 63.14 µg/L and from 0.803 lb/day to 0.883 lb/day, and the proposed maximum daily limits have been reduced from 112 µg/L to 123.2 µg/L and from 1.56 lb/day to 1.716 lb/day. See below for antibacksliding analysis.

d. Antibacksliding

CWA § 402(o) and 40 CFR §122.44 (l) generally prohibit the renewal, reissuance or modification of an existing NPDES permit that contains effluent limits, permit conditions or standards that are less stringent than those established in the previous permit (i.e., anti-backsliding) but provides limited exceptions. For

explanation of the antibacksliding exceptions refer to Chapter 7 of the Permit Writers Manual *Final Effluent Limitations and Anti-backsliding*.

The proposed effluent limits for copper (non-irrigation season) zinc (both seasons) are less stringent than the 2013 permit limits. CWA § 303(d)(4)(B) states: "*For waters identified under paragraph (l)(A) where the quality of such waters equals or exceeds levels necessary to protect the designated use for such waters or otherwise required by applicable water quality standards, any effluent limitation based on a total maximum daily load or other waste load allocation established under this section, or any water quality standard established under this section, or any other permitting standard may be revised only if such revision is subject to and consistent with the antidegradation policy established under this section.*" The Toppenish Drain is in attainment and the effluent limit reductions are consistent with the antidegradation policy as explained above. Therefore, backsliding is permitted. An antidegradation analysis is included in Appendix F.

4. Monitoring Requirements for Renewal

The permit also requires the permittee to perform effluent monitoring required by the NPDES Form 2A application so that these data will be available when the permittee applies for a renewal of its NPDES permit.

The permit also requires the permittee to perform effluent monitoring required by Tables B, C, D, and E of the NPDES Form 2A application so that these data will be available when the permittee applies for a renewal of its NPDES permit. See also Appendix J to 40 CFR Part 122.

POTW applicants with a design flow of at least 1 mgd or that have or must develop a pretreatment program must sample and analyze for any pollutants with applicable WQS, in addition to the pollutants listed in Table B and Table C of NPDES Application Form 2A (40 CFR 122.21(j)(4)(iv)). Table 2 of the draft permit lists the pollutants with applicable numeric water quality criteria that are not listed in Table B or C of Form 2A. The permittee must sample and analyze for the pollutants listed in Table 2 of the draft permit and report the results in Table D of Form 2A.

The permittee is responsible for conducting the monitoring and for reporting results on DMRs or on the application for renewal, as appropriate, to the EPA.

B. SURFACE WATER MONITORING

In general, surface water monitoring may be required for pollutants of concern to assess the assimilative capacity of the receiving water for the pollutant. In addition, surface water monitoring may be required for pollutants for which the water quality criteria are dependent and to collect data for TMDL development if the facility discharges to an impaired water body. Table 1 presents the proposed surface water monitoring requirements for the draft permit. Surface water monitoring results must be submitted with the DMR.

Table 11. Surface Water Monitoring in Draft Permit

Parameter	Locations	Monitoring Frequency	Sample Type
Flow (mgd)	Upstream	1/month	Measure
Temperature (°C)	Upstream and downstream	1/month[1]	Grab
Total phosphorus as P (µg/L)	Upstream and downstream	1/quarter[2]	Grab
Total nitrogen as N (mg/L)	Upstream and downstream	1/quarter[2]	Grab
pH (s.u.)	Upstream and downstream	1/quarter[2]	Grab
Hardness (mg/L as $CaCO_3$)	Upstream and downstream	1/quarter[2]	Grab
Dissolved Oxygen	Upstream	1/quarter[2]	Grab

1.Temperature monitoring must occur once per month during June, July, August, and September.
2. Quarters are defined as January – March, April – June, July – September, and October – December.

C. ELECTRONIC SUBMISSION OF DISCHARGE MONITORING REPORTS

The draft permit requires that the permittee submit DMR data electronically using NetDMR. NetDMR is a national web-based tool that allows DMR data to be submitted electronically via a secure Internet application.

The EPA currently conducts free training on the use of NetDMR. Further information about NetDMR, including upcoming trainings and contacts, is provided on the following website: https://netdmr.epa.gov. The permittee may use NetDMR after requesting and receiving permission from the EPA Region 10.

D. SLUDGE (BIOSOLIDS) REQUIREMENTS

The EPA Region 10 separates wastewater and sludge permitting. The EPA has authority under the CWA to issue separate sludge-only permits for the purposes of regulating biosolids. The EPA may issue a sludge-only permit to each facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and any requirements of the State's biosolids program. The Part 503 regulations are self-implementing, which means that facilities must comply with them whether or not a permit has been issued.

V. OTHER PERMIT CONDITIONS

A. QUALITY ASSURANCE PLAN

The City of Toppenish is required to update the Quality Assurance Plan (QAP) within 180 days of the effective date of the permit. The QAP must consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping

samples, laboratory analysis, and data reporting. The plan must be retained on site and made available to the EPA upon request.

B. OPERATION AND MAINTENANCE PLAN

The permit requires the City of Toppenish to properly operate and maintain all facilities and systems of treatment and control. Proper operation and maintenance is essential to meeting discharge limits, monitoring requirements, and all other permit requirements at all times. The permittee is required to develop and implement an operation and maintenance plan for their facility within 180 of the effective date of the permit. The plan must be retained on site and made available to the EPA upon request.

C. SANITARY SEWER OVERFLOWS (SSO) AND PROPER OPERATION AND MAINTENANCE OF THE COLLECTION SYSTEM

SSOs are not authorized under this permit. The permit contains language to address SSO reporting and public notice and operation and maintenance of the collection system. The permit requires that the permittee identify SSO occurrences and their causes. In addition, the permit establishes reporting, record keeping and third party notification of SSOs. Finally, the permit requires proper operation and maintenance of the collection system.

The following specific permit conditions apply:

Immediate Reporting – The permittee is required to notify the EPA of an SSO within 24 hours of the time the permittee becomes aware of the overflow. (See 40 CFR 122.41(l)(6))

Written Reports – The permittee is required to provide the EPA a written report within five days of the time it became aware of any overflow that is subject to the immediate reporting provision. (See 40 CFR 122.41(l)(6)(i)).

Third Party Notice – The permit requires that the permittee establish a process to notify specified third parties of SSOs that may endanger health due to a likelihood of human exposure; or unanticipated bypass and upset that exceeds any effluent limitation in the permit or that may endanger health due to a likelihood of human exposure. The permittee is required to develop, in consultation with appropriate authorities at the local, county, Tribal and/or state level, a plan that describes how, under various overflow (and unanticipated bypass and upset) scenarios, the public, as well as other entities, would be notified of overflows that may endanger health. The plan should identify all overflows that would be reported and to whom, and the specific information that would be reported. The plan should include a description of lines of communication and the identities of responsible officials. (See 40 CFR 122.41(l)(6)).

Record Keeping – The permittee is required to keep records of SSOs. The permittee must retain the reports submitted to the EPA and other appropriate reports that could include work orders associated with investigation of system problems related to a SSO, that describes the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the SSO. (See 40 CFR 122.41(j)).

Proper Operation and Maintenance – The permit requires proper operation and maintenance of the collection system. (See 40 CFR 122.41(d) and (e)). SSOs may be indicative of improper operation and maintenance of the collection system. The permittee may consider the development and implementation of a capacity, management, operation and maintenance (CMOM) program.

The permittee may refer to the Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (EPA 305-B-05-002). This guide identifies some of the criteria used by EPA inspectors to evaluate a collection system's management, operation and maintenance program activities. Owners/operators can review their own systems against the checklist (Chapter 3) to reduce the occurrence of sewer overflows and improve or maintain compliance.

G. Design Criteria

The permit includes design criteria requirements. This provision requires the permittee to compare influent flow to the facility's design flow and prepare a facility plan for maintaining compliance with NPDES permit effluent limits when the flow exceeds 85% of the design criteria values for any two months in a twelve-month period.

D. PRETREATMENT REQUIREMENTS

The City of Toppenish does not have an approved POTW pretreatment program per 40 CFR 403.8. The EPA is the Control Authority over industrial users that might introduce pollutants into the City of Toppenish WWTP.

Permit Part II.G reminds the Permittee that it cannot authorize discharges which may violate the national specific prohibitions of the General Pretreatment Program.

Although, not a permit requirement, the Permittee may wish to consider developing the legal authority enforceable in Federal, State or local courts which authorizes or enables the POTW to apply and to enforce the requirement of CWA §§ 307 (b) and (c) and 402(b)(8), as described in 40 CFR 403.8(f)(1). Where the POTW is a municipality, legal authority is typically through a sewer use ordinance, which is usually part of the city or county code. The EPA has a Model Pretreatment Ordinance for use by municipalities operating POTWs that are required to develop pretreatment programs to regulate industrial discharges to their systems (EPA, 2007). The model ordinance should also be useful for communities with POTWs that are not required to implement a pretreatment program in drafting local ordinances to control nondomestic dischargers within their jurisdictions.

E. STANDARD PERMIT PROVISIONS

Permit Parts III., IV. and V. contain standard regulatory language that must be included in all NPDES permits. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

VI. OTHER LEGAL REQUIREMENTS

A. ENDANGERED SPECIES ACT

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species. A review of the threatened and endangered species located in Washington finds that the bull trout, Middle Columbia River steelhead, Yellow-billed Cuckoo, and Ute Ladies'-tresses (*Spiranthes diluvialis*) are threatened species found within the area.

Bull Trout (*Salvelinus confluentus*) (threatened)

Background and Species Description

Bull trout are a char species of fish, a subgroup within the salmonid family. They are found native throughout the Pacific Northwest, Alaska, and Canada in waters with the following habitat conditions: cold, clean, complex, and connected. Due to these habitat requirements, bull trout are commonly found in high mountainous areas where the water is fed via snowmelt or glacial runoff. Within water systems, they will mainly be found inhabiting deep pools of large and cold rivers or lakes, where riparian habitats are intact, migration corridors are accessible, and conditions allow for both adult spawning and juvenile rearing. (USFWS 2024)

Compared to other salmonids, bull trout have more specific habitat requirements that appear to influence their distribution and abundance. They need cold water to survive, so they are seldom found in waters where temperatures exceed 59 to 64 degrees (F) (15 to 17.8 ℃). They also require stable stream channels, clean spawning and rearing gravel, complex and diverse cover, and unblocked migratory corridors. Bull trout may be distinguished from brook trout (Salvelinus fontinalis) by several characteristics: spots never appear on the dorsal (back) fin, and the spots that rest on the fish's olive green to bronze back are pale yellow, orange or salmon colored. The bull trout's tail is not deeply forked as is the case with lake trout (Salvelinus namaycush). (USFWS 2024)

ESA Status

Bull trout are a threatened species and are likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Geographic Range and Spatial Distribution

A review of the *Bull Trout (Salvelinus confluentus) Recovery Plan* (USFWS, 2015) found that the Ahtanum Creek local population is the only population near the action area, which is 15-20 miles northwest of the action area.

Critical Habitat

According to USFWS's Information for Planning and Conservation tool, the area of and immediately downstream of the discharge from the Toppenish WWTP is not a designated critical habitat for bull trout.

Population Trends and Risks

The decline of bull trout, a cold-water species, is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices, impoundments, dams, water diversions, and the introduction of nonnative species (USFWS, 2019).

Analysis of Potential Impacts to Bull Trout

A Biological Evaluation was developed in support of the 2013 permit issuance where the EPA determined that the discharge would have no effect on bull trout species. The EPA has determined that the wastewater discharge will continue to have no effect on listed species and/or designated critical habitat for the following reasons:

1. The 2013 BE concluded that the discharges would have no effect on listed species or designated critical habitat, therefore, there was no expected take of listed species as a result of the wastewater discharges.
2. Bull Trout require unblocked migratory corridors, and seek out clean gravel bottoms (USFWS, 2010), which are largely different from the rough irrigation canals that comprise Toppenish Drain. Because of the high temperatures of Toppenish Drain and lack of vegetation and subsurface cover, it is unlikely that bull trout are ever present within the stream.
3. There is no new information that would indicate that there are possible effects to ESA-listed species and/or designated critical habitat as a result of the wastewater discharges that were not previously considered.
4. The proposed permit reissuance does not change the composition, appreciable magnitude, duration, and/or frequency of the authorized wastewater discharge. Additionally, the proposed permit reissuance includes the same and more stringent effluent limits and monitoring requirements as what was evaluated during the 2013 permit issuance process. Therefore, the action has not been modified in a manner that would cause effects to listed species and/or designated critical habitat not previously considered.
5. There have been no new species listed or critical habitat designated that may be affected by the action (i.e. all species and critical habitats were previously considered).

Effects Determination

For these reasons, the EPA has determined that issuance of this permit will have no effect on bull trout populations.

Middle-Columbia River Steelhead (*Oncorhynchus mykiss*)

Background and Species Description

Steelhead trout (*Oncorhynchus mykiss*) belong to the family Salmonidae which includes all salmon, trout, and chars. Steelhead are similar to some Pacific salmon in their life cycle and ecological requirements. They are born in freshwater streams, where they spend their first 1-3 years of life. They then migrate to the ocean where most of their growth occurs. After spending between one to four growing seasons in the ocean, steelhead return to their native freshwater stream to spawn. Unlike Pacific salmonids, steelhead do not necessarily die after spawning and are able to spawn more than once. The Yakama Nation is currently capturing postspawning steelhead at Prosser Dam and reconditioning them in hatchery facilities to increase the number that survive to spawn again.

ESA Status

In 1999, the National Marine Fisheries Service (NMFS) classified Middle Columbia River steelhead as a threatened species under the ESA. In 2006, NOAA Fisheries revised its listing to apply only to the anadromous (ocean-going) form of Middle Columbia River steelhead.

Geographic Range and Spatial Distribution

Middle Columbia River steelhead, a distinct population segment, refers to steelhead spawned and reared throughout central Oregon and south-central Washington. They occupied nine major Columbia River tributaries draining the east side of the Cascades Mountains, as well as numerous smaller systems. Major river systems include the White Salmon, Deschutes, John Day, Klickitat, Umatilla, Walla Walla, and Yakima rivers and Fifteenmile, Rock, and Willow creeks.

Critical Habitat

NMFS has designated the Yakima River as critical habitat for the Mid-Columbia River steelhead on February 16, 2000. However, NMFS excluded all Indian lands from their critical habitat designation.

Population Trends and Risks

The 2009 Yakima Steelhead Recovery Plan by the Yakima Basin Fish & Wildlife Recovery Board (Conley et al., 2009) noted five factors for the decline in Middle Columbia River steelhead populations. These are as followed:

- Alteration of stream flows due to development of irrigation systems.
- Creation of passage barriers associated with both small and large diversion dams, road crossings, and Bureau of Reclamation storage dams.
- Reductions in floodplain function due to diking, channel simplification, and floodplain development for agricultural and urban uses.

- Impacts to riparian areas and upland hydrology due to past and, to a lesser extent, current, grazing, and forestry practices.
- Changed ecological dynamics, including reduction in beaver populations, reductions in delivery of oceanic nutrients to headwaters by salmon, introduction of exotic species, and increased predation by native species.

Analysis of Potential Impacts to Middle Columbia River Steelhead

Middle Columbia River Steelhead are also cold-water salmonid species and seek out cold water refuges for spawning. Since Toppenish Drain is relatively warm and does not contain cold water refuges, they are not likely present anywhere within Toppenish Drain. However, if these steelhead are present, the permitted discharge is not likely to affect the species. Between 2019 and 2024, the average effluent temperature was 17.9℃, while the ambient temperature in Toppenish Drain was 17.3℃. Since the temperature of the effluent and the temperature in the receiving water are essentially the same, the EPA has determined that the permit will have no effect on Middle-Columbia River Steelhead populations.
The draft permit is conditioned to ensure compliance with water quality standards at the edge of a small mixing zone within the Toppenish Drain. Because the effluent will experience additional dilution in the Toppenish and East Toppenish drains before reaching the Yakima River, the issuance of an NPDES permit to the City of Toppenish for discharge to the Toppenish Drain will have no effect on critical habitat for Mid-Columbia steelhead in the Yakima River.

Effects Determination

For these reasons, the EPA has determined that issuance of this permit will have no effect on Middle Columbia River Steelhead populations.

Yellow-billed Cuckoo (*Coccyzus americanus*) (threatened)

The primary cause of decline of yellow-billed cuckoo is the loss and degradation of riparian breeding habitat, which typically entails wooded riparian zones with dense cover (USFWS, 2021). The area surrounding and immediately downstream of the Toppenish WWTP is irrigated, open agricultural land that is not designated as critical habitat for the yellow-billed cuckoo. Because the yellow-billed cuckoos generally prefer wooded and protected areas, the species is unlikely to come in contact with any area within the vicinity of the discharge. The EPA has determined that issuance of this permit will have no effect on yellow-billed cuckoo populations.

Ute Ladies'-tresses (*Spiranthes diluvialis*) (threatened)

Ute ladies'- tresses is a perennial terrestrial orchid (family Orchidaceae). This species generally inhabits riverbanks where inundation occurs infrequently. Ute ladies' tresses is endemic to moist soils in mesic or wet meadows near springs, lakes, and perennial streams. The elevation range of known occurrences is 4,000 to 7,000 feet. Generally, this species occurs in areas where the vegetation is relatively open (e.g. grass dominated sites), but some populations are found in riparian woodlands. This orchid is

found in several areas of the interior western United States. The primary threats to the species are urban development and watershed alterations in riparian and wetland habitats and invasions of exotic plants species such as purple loosestrife, whitetop and reed canary grass. A biological evaluation for the 2013 permit found that the discharge will not have any effect on areas where this species is likely to occur, as this is a high-elevation species and not known to be present within the vicinity of the discharge. Because no known documented occurrences of the species along the receiving waterbody, the EPA does not anticipate that the species will be in contact with the discharge and therefore, EPA has determined that issuance of this permit will have no effect on Ute Ladies'-tresses populations.

B. ESSENTIAL FISH HABITAT

Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires the EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect EFH (i.e., reduce quality and/or quantity of EFH). A review of the Essential Fish Habitat documents and EFH mapper tool shows that no critical habitats are present in Toppenish Drain.

The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

The EPA has determined that issuance of this permit will not affect EFH in the vicinity of the discharge. The EPA has prepared an EFH assessment which appears in Appendix E.

C. CWA § 401 CERTIFICATION

CWA § 401 requires a certification that any permit requirements comply with the appropriate sections of the CWA, as well as any appropriate requirements of applicable State or Tribal Law. See 33 USC § 1341(d). Since this facility discharges to Tribal waters and the Tribe has not been approved for TAS from the EPA under the CWA, the EPA is the certifying authority. The EPA is taking comment on the EPA's intent to certify this permit. See the draft certification in Appendix G.

D. ANTIDEGRADATION

The EPA has completed an antidegradation review. See Appendix F.

E. PERMIT EXPIRATION

The permit will expire five years from the effective date.

VII. REFERENCES

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A. APPENDIX A. FACILITY INFORMATION

Figure 2. The flow area between Toppenish WWTP's outfall, and the relation to the State of Washington- Yakama Reservation of the Yakama Nation border.

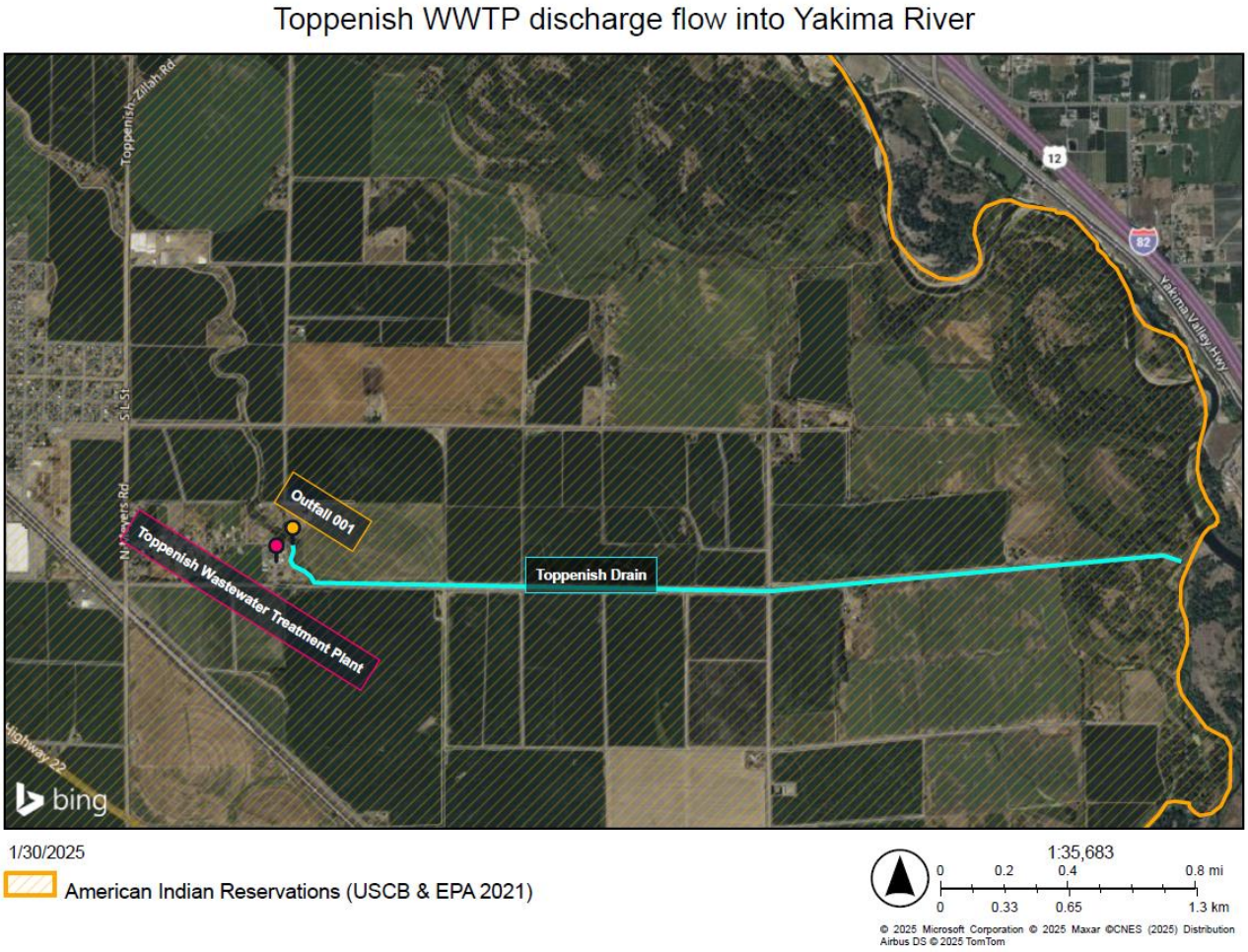
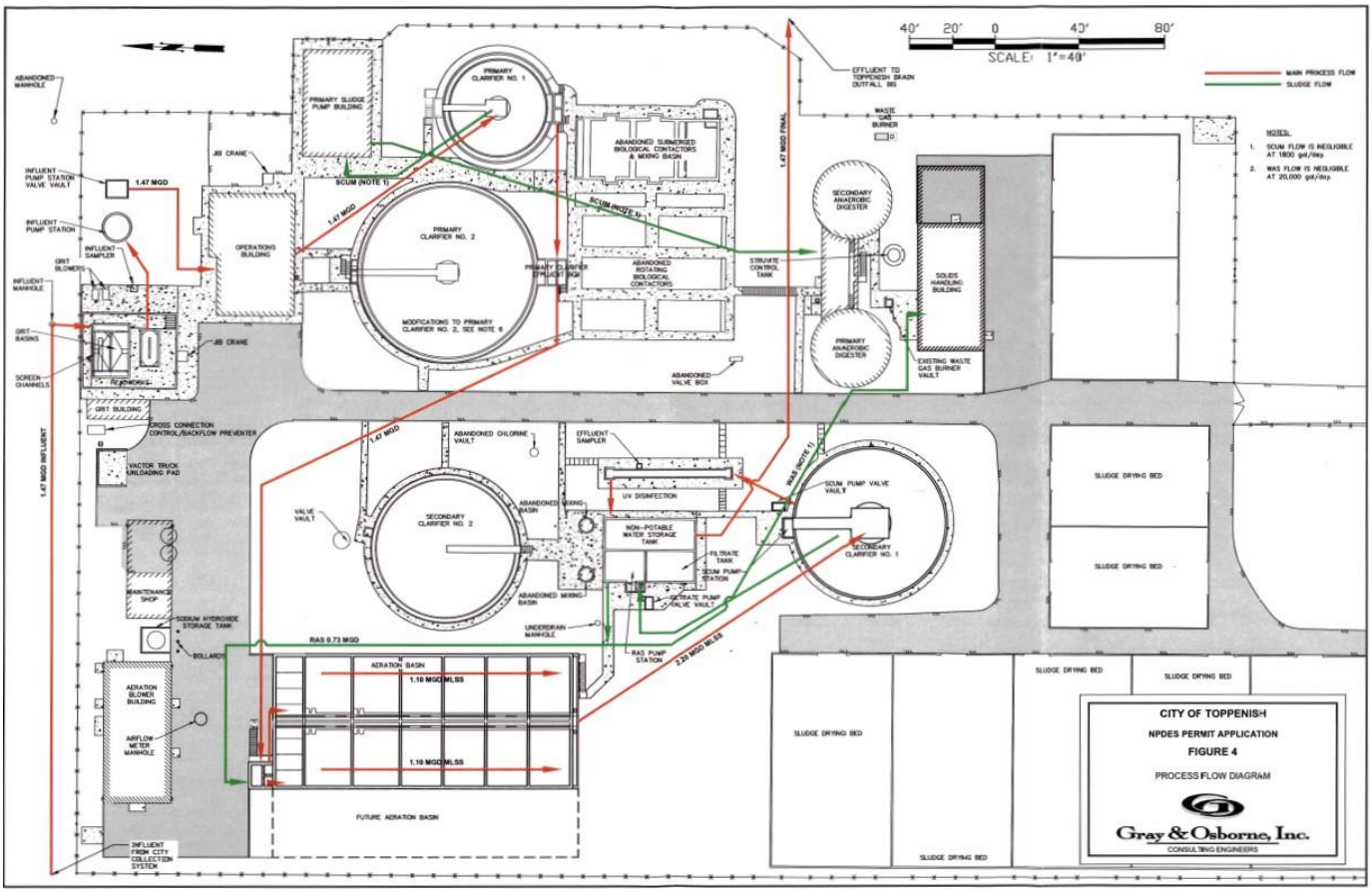


Figure 3. The process flow design schematics of the facility.



VIII. WATER QUALITY DATA

Effluent Monitoring Data

Table 12. BOD5 Effluent Data

Parameter Desc	BOD, 7 day in mg/L		BOD, 7day in lbs/day		BOD, 30day in mg/L		BOD, 30day in lbs/day		BOD, % Removal		Monitoring Period End Date
	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	
BOD, 5-day, 20 deg. C	2.7	45.	27.	627.	2.	30.	21.5	418.	98.7	85.	10/31/2019
BOD, 5-day, 20 deg. C	1.	45.	8.	627.	1.	30.	5.	418.	99.9	85.	11/30/2019
BOD, 5-day, 20 deg. C	1.8	45.	13.6	627.	1.4	30.	10.6	418.	99.2	85.	12/31/2019
BOD, 5-day, 20 deg. C	1.	45.	8.	627.	1.	30.	7.3	418.	99.	85.	01/31/2020
BOD, 5-day, 20 deg. C	2.8	45.	17.	627.	1.9	30.	11.5	418.	98.5	85.	02/29/2020
BOD, 5-day, 20 deg. C	1.5	45.	8.	627.	1.45	30.	8.	418.	99.15	85.	03/31/2020
BOD, 5-day, 20 deg. C	2.5	45.	16.	627.	1.72	30.	9.6	418.	98.2	85.	04/30/2020
BOD, 5-day, 20 deg. C	2.8	45.	18.	627.	1.85	30.	12.5	418.	98.3	85.	05/31/2020
BOD, 5-day, 20 deg. C	2.	45.	10.	627.	1.6	30.	6.	418.	99.5	85.	06/30/2020
BOD, 5-day, 20 deg. C	7.1	45.	42.	627.	4.5	30.	27.	418.	98.6	85.	07/31/2020
BOD, 5-day, 20 deg. C	2.1	45.	13.	627.	1.5	30.	8.	418.	99.26	85.	08/31/2020
BOD, 5-day, 20 deg. C	5.7	45.	37.	627.	3.5	30.	22.	418.	98.6	85.	09/30/2020
BOD, 5-day, 20 deg. C	1.1	45.	11.9	627.	1.5	30.	8.75	418.	99.4	85.	10/31/2020
BOD, 5-day, 20 deg. C	1.	45.	5.	627.	.55	30.	3.	418.	99.9	85.	11/30/2020
BOD, 5-day, 20 deg. C	2.2	45.	10.	627.	1.2	30.	5.6	418.	97.8	85.	12/31/2020
BOD, 5-day, 20 deg. C	8.7	45.	56.	627.	3.175	30.	17.15	418.	99.25	85.	01/31/2021
BOD, 5-day, 20 deg. C	14.7	45.	100.	627.	6.6	30.	44.8	418.	98.24	85.	02/28/2021
BOD, 5-day, 20 deg. C	13.6	45.	70.	627.	10.5	30.	55.	418.	97.06	85.	03/31/2021
BOD, 5-day, 20 deg. C	20.2	45.	197.	627.	13.1	30.	90.75	418.	96.775	85.	04/30/2021
BOD, 5-day, 20 deg. C	14.5	45.	79.	627.	8.425	30.	44.	418.	97.05	85.	05/31/2021
BOD, 5-day, 20 deg. C	2.4	45.	14.	627.	1.85	30.	10.5	418.	99.45	85.	06/30/2021
BOD, 5-day, 20 deg. C	2.44	45.	14.8	627.	2.44	30.	14.8	418.	99.24	85.	07/31/2021
BOD, 5-day, 20 deg. C	5.975	45.	40.75	627.	5.975	30.	40.75	418.	98.3	85.	08/31/2021
BOD, 5-day, 20 deg. C	7.2	45.	55.	627.	7.2	30.	55.	418.	97.	85.	09/30/2021
BOD, 5-day, 20 deg. C	7.3	45.	43.25	627.	7.3	30.	43.25	418.	95.8	85.	10/31/2021
BOD, 5-day, 20 deg. C	9.45	45.	51.5	627.	9.45	30.	51.5	418.	97.63	85.	11/30/2021
BOD, 5-day, 20 deg. C	11.8	45.	58.75	627.	11.8	30.	58.75	418.	96.725	85.	12/31/2021
BOD, 5-day, 20 deg. C	8.35	45.	69.75	627.	8.35	30.	69.75	418.	97.75	85.	01/31/2022
BOD, 5-day, 20 deg. C	11.1	45.	57.5	627.	11.1	30.	57.5	418.	95.2	85.	02/28/2022
BOD, 5-day, 20 deg. C	10.65	45.	53.5	627.	10.65	30.	53.5	418.	95.5	85.	03/31/2022
BOD, 5-day, 20 deg. C	13.38	45.	68.5	627.	13.38	30.	68.5	418.	95.4	85.	04/30/2022
BOD, 5-day, 20 deg. C	8.	45.	40.	627.	8.	30.	40.	418.	97.4	85.	05/31/2022
BOD, 5-day, 20 deg. C	5.2	45.	28.	627.	5.2	30.	28.	418.	98.3	85.	06/30/2022
BOD, 5-day, 20 deg. C	4.95	45.	27.	627.	4.95	30.	27.	418.	98.4	85.	07/31/2022
BOD, 5-day, 20 deg. C	6.05	45.	34.5	627.	6.05	30.	34.5	418.	97.6	85.	08/31/2022
BOD, 5-day, 20 deg. C	4.3	45.	25.5	627.	4.3	30.	25.5	418.	98.55	85.	09/30/2022
BOD, 5-day, 20 deg. C	9.6	45.	54.5	627.	9.6	30.	54.5	418.	97.45	85.	10/31/2022
BOD, 5-day, 20 deg. C	4.6	45.	26.	627.	4.6	30.	26.	418.	97.6	85.	11/30/2022
BOD, 5-day, 20 deg. C	9.96	45.	53.4	627.	9.96	30.	53.4	418.	96.3	85.	12/31/2022

BOD, 5-day, 20 deg. C	14.05	45.	76.5	627.	14.05	30.	76.5	418.	95.1	85.	01/31/2023
BOD, 5-day, 20 deg. C	7.6	45.	39.5	627.	7.6	30.	39.5	418.	97.6	85.	02/28/2023
BOD, 5-day, 20 deg. C	8.2	45.	42.	627.	8.2	30.	42.	418.	97.55	85.	03/31/2023
BOD, 5-day, 20 deg. C	10.8	45.	50.5	627.	10.8	30.	50.5	418.	95.95	85.	04/30/2023
BOD, 5-day, 20 deg. C	8.9	45.	49.	627.	8.9	30.	49.	418.	96.9	85.	05/31/2023
BOD, 5-day, 20 deg. C	5.5	45.	30.	627.	5.5	30.	30.	418.	95.7	85.	06/30/2023
BOD, 5-day, 20 deg. C	12.05	45.	69.	627.	12.05	30.	69.	418.	93.1	85.	07/31/2023
BOD, 5-day, 20 deg. C	22.78	45.	143.	627.	22.78	30.	143.	418.	86.3	85.	08/31/2023
BOD, 5-day, 20 deg. C	29.8	45.	187.	627.	29.8	30.	187.	418.	89.7	85.	09/30/2023
BOD, 5-day, 20 deg. C	16.486	45.	86.714	627.	16.486	30.	86.714	418.	94.071	85.	10/31/2023
BOD, 5-day, 20 deg. C	5.54	45.	29.8	627.	5.54	30.	29.8	418.	95.6	85.	11/30/2023
BOD, 5-day, 20 deg. C	7.8	45.	42.	627.	7.8	30.	42.	418.	97.4	85.	12/31/2023
BOD, 5-day, 20 deg. C	7.03	45.	40.167	627.	7.03	30.	40.167	418.	95.4	85.	01/31/2024
BOD, 5-day, 20 deg. C	6.2333	45.	29.357	627.	6.2333	30.	29.357	418.	97.2	85.	02/29/2024
BOD, 5-day, 20 deg. C	6.2	45.	32.5	627.	6.2	30.	32.5	418.	97.5	85.	03/31/2024
BOD, 5-day, 20 deg. C	12.1	45.	62.5	627.	12.1	30.	62.5	418.	97.1	85.	04/30/2024
BOD, 5-day, 20 deg. C	6.8	45.	37.	627.	6.8	30.	37.	418.	98.	85.	05/31/2024
BOD, 5-day, 20 deg. C	10.45	45.	53.	627.	10.45	30.	53.	418.	96.2	85.	06/30/2024
BOD, 5-day, 20 deg. C	9.2	45.	48.5	627.	9.2	30.	48.5	418.	95.7	85.	07/31/2024
BOD, 5-day, 20 deg. C	5.825	45.	31.25	627.	5.825	30.	31.25	418.	97.4	85.	08/31/2024
BOD, 5-day, 20 deg. C	11.25	45.	61.	627.	11.25	30.	61.	418.	96.4	85.	09/30/2024
BOD, 5-day, 20 deg. C	12.8	45.	68.5	627.	12.8	30.	68.5	418.	96.1	85.	10/31/2024

Average	8.0	47.1	7.3	41.6	97.1
Minimum	1.0	5.0	0.6	3.0	86.3
Maximum	29.8	197.0	29.8	187.0	99.9
Count	61	61	61	61	61
Std Dev	5.6	37.1	5.4	31.9	2.3
CV	0.7	0.8	0.7	0.8	0.0
95th Percentile	16.5	100.0	14.1	86.7	99.5
5th Percentile	1.1	8.0	1.2	6.0	94.1
90th percentile	14.1	76.5	12.8	69.0	99.3

Table 13. TSS Effluent Data

Parameter Desc	TSS, 7 day in mg/L		TSS, 7day in lbs/day		TSS, 30day in mg/L		TSS, 30day in lbs/day		TSS, % Removal		Monitoring Period End Date
	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	
Solids, total suspended	2.	45.	23.	627.	23.	627.	14.2	418.	99.1	85.	10/31/2019
Solids, total suspended	1.5	45.	12.	627.	12.	627.	7.	418.	99.1	85.	11/30/2019
Solids, total suspended	2.	45.	15.1	627.	15.1	627.	11.3	418.	99.8	85.	12/31/2019
Solids, total suspended	1.	45.	13.3	627.	13.3	627.	9.6	418.	98.5	85.	01/31/2020
Solids, total suspended	2.	45.	13.	627.	13.	627.	11.	418.	97.8	85.	02/29/2020
Solids, total suspended	2.	45.	12.	627.	12.	627.	9.	418.	98.85	85.	03/31/2020
Solids, total suspended	6.	45.	39.	627.	39.	627.	13.4	418.	97.7	85.	04/30/2020
Solids, total suspended	2.	45.	15.	627.	15.	627.	12.5	418.	98.4	85.	05/31/2020
Solids, total suspended	1.5	45.	12.	627.	12.	627.	10.5	418.	98.75	85.	06/30/2020
Solids, total suspended	2.	45.	11.	627.	11.	627.	8.5	418.	99.3	85.	07/31/2020

Solids, total suspended	2.	45.	13.	627.	13.	627.	9.6	418.	99.1	85.	08/31/2020
Solids, total suspended	3.	45.	20.	627.	20.	627.	16.3	418.	99.	85.	09/30/2020
Solids, total suspended	2.	45.	11.2	627.	11.2	627.	10.08	418.	99.2	85.	10/31/2020
Solids, total suspended	2.	45.	13.	627.	13.	627.	11.	418.	99.3	85.	11/30/2020
Solids, total suspended	2.5	45.	12.	627.	12.	627.	8.6	418.	99.1	85.	12/31/2020
Solids, total suspended	4.5	45.	24.7	627.	24.7	627.	10.74	418.	99.15	85.	01/31/2021
Solids, total suspended	5.	45.	25.	627.	25.	627.	13.6	418.	99.1	85.	02/28/2021
Solids, total suspended	4.	45.	20.7	627.	20.7	627.	14.09	418.	99.1	85.	03/31/2021
Solids, total suspended	5.	45.	26.	627.	26.	627.	25.08	418.	97.25	85.	04/30/2021
Solids, total suspended	10.5	45.	57.	627.	57.	627.	25.667	418.	97.4	85.	05/31/2021
Solids, total suspended	13.5	45.	78.	627.	78.	627.	38.25	418.	92.175	85.	06/30/2021
Solids, total suspended	5.8	45.	34.8	627.	34.8	627.	34.8	418.	94.38	85.	07/31/2021
Solids, total suspended	5.125	45.	36.75	627.	36.75	627.	36.75	418.	94.	85.	08/31/2021
Solids, total suspended	4.5	45.	25.5	627.	25.5	627.	25.5	418.	92.9	85.	09/30/2021
Solids, total suspended	8.	45.	43.25	627.	43.25	627.	43.25	418.	93.175	85.	10/31/2021
Solids, total suspended	14.8	45.	85.16	627.	85.16	627.	85.16	418.	88.16	85.	11/30/2021
Solids, total suspended	3.5	45.	17.75	627.	17.75	627.	17.75	418.	98.45	85.	12/31/2021
Solids, total suspended	6.5	45.	33.25	627.	33.25	627.	33.25	418.	96.925	85.	01/31/2022
Solids, total suspended	5.25	45.	27.	627.	27.	627.	27.	418.	96.4	85.	02/28/2022
Solids, total suspended	25.08	45.	126.33	627.	126.33	627.	126.33	418.	91.217	85.	03/31/2022
Solids, total suspended	22.5	45.	115.6	627.	115.6	627.	115.6	418.	90.	85.	04/30/2022
Solids, total suspended	7.	45.	33.75	627.	33.75	627.	33.75	418.	96.9	85.	05/31/2022
Solids, total suspended	3.	45.	16.3	627.	16.3	627.	16.3	418.	98.1	85.	06/30/2022
Solids, total suspended	4.75	45.	25.	627.	25.	627.	25.	418.	98.2	85.	07/31/2022
Solids, total suspended	5.75	45.	33.75	627.	33.75	627.	33.75	418.	96.3	85.	08/31/2022
Solids, total suspended	14.	45.	86.8	627.	86.8	627.	86.8	418.	92.4	85.	09/30/2022
Solids, total suspended	26.375	45.	151.25	627.	151.25	627.	151.25	418.	88.05	85.	10/31/2022
Solids, total suspended	15.6	45.	87.8	627.	87.8	627.	87.8	418.	86.94	85.	11/30/2022
Solids, total suspended	14.833	45.	81.5	627.	81.5	627.	81.5	418.	86.	85.	12/31/2022
Solids, total suspended	5.375	45.	28.	627.	28.	627.	28.	418.	92.35	85.	01/31/2023
Solids, total suspended	8.25	45.	43.	627.	43.	627.	43.	418.	94.	85.	02/28/2023
Solids, total suspended	9.1	45.	47.	627.	47.	627.	47.	418.	92.7	85.	03/31/2023
Solids, total suspended	8.5	45.	41.25	627.	41.25	627.	41.25	418.	94.2	85.	04/30/2023
Solids, total suspended	15.625	45.	84.75	627.	84.75	627.	84.75	418.	85.	85.	05/31/2023
Solids, total suspended	28.3	45.	165.8	627.	165.8	627.	165.8	418.	85.24	85.	06/30/2023
Solids, total suspended	19.5	45.	110.75	627.	110.75	627.	110.75	418.	66.8	85.	07/31/2023
Solids, total suspended	29.625	45.	126.13	627.	126.13	627.	126.13	418.	86.5	85.	08/31/2023
Solids, total suspended	20.5	45.	131.	627.	131.	627.	131.	418.	88.1	85.	09/30/2023
Solids, total suspended	19.471	45.	191.71	627.	191.71	627.	191.71	418.	87.614	85.	10/31/2023
Solids, total suspended	11.625	45.	63.375	627.	63.375	627.	63.375	418.	87.4	85.	11/30/2023
Solids, total suspended	2.8571	45.	15.614	627.	15.614	627.	15.614	418.	95.6	85.	12/31/2023
Solids, total suspended	6.06	45.	34.37	627.	34.37	627.	34.37	418.	93.3	85.	01/31/2024
Solids, total suspended	8.6111	45.	22.1	627.	22.1	627.	22.1	418.	94.5	85.	02/29/2024
Solids, total suspended	12.25	45.	64.	627.	64.	627.	64.	418.	92.	85.	03/31/2024
Solids, total suspended	14.75	45.	75.5	627.	75.5	627.	75.5	418.	91.65	85.	04/30/2024
Solids, total suspended	14.9	45.	82.	627.	82.	627.	82.	418.	91.64	85.	05/31/2024
Solids, total suspended	15.5	45.	80.	627.	80.	627.	80.	418.	88.8	85.	06/30/2024
Solids, total suspended	14.625	45.	77.	627.	77.	627.	77.	418.	89.6	85.	07/31/2024
Solids, total suspended	9.2857	45.	50.429	627.	50.429	627.	50.429	418.	89.7	85.	08/31/2024

Solids, total suspended	6.375	45.	34.25	627.	34.25	627.	34.25	418.	95.5	85.	09/30/2024
Solids, total suspended	12.9	45.	69.	627.	69.	627.	69.	418.	88.6	85.	10/31/2024
Average	9.22		51.88		51.88		48.99		93.71		
Minimum	1.00		11.00		11.00		7.00		66.80		
Maximum	29.63		191.71		191.71		191.71		99.80		
Count	61		61		61		61		61		
Std Dev	7.40		42.86		42.86		44.15		5.69		
CV	0.80		0.83		0.83		0.90		0.06		
95th Percentile	25.08		131.00		131.00		131.00		99.20		
5th Percentile	2.00		12.00		12.00		9.00		86.00		
90th percentile	19.50		115.60		115.60		115.60		99.10		

Table 14. Alkalinity Effluent Data

Parameter Desc	Daily Max		Monthly Average		Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30)		Irrigation Season (May 1 - Sep 31)	
	mg/L		mg/L						
	DMR	Limit	DMR	Limit		Daily Max	Monthly Ave	Daily Max	Monthly Ave
Alkalinity, carbonate [as CaCO3]	23.7		23.7		12/31/2019	23.7	23.7	92.	85.6
Alkalinity, carbonate [as CaCO3]	87.		87.		03/31/2020	87.	87.	91.	91.
Alkalinity, carbonate [as CaCO3]	92.		85.6		06/30/2020	48.	46.	101.	101.
Alkalinity, carbonate [as CaCO3]	91.		91.		09/30/2020	85.5	86.7	105.6	105.6
Alkalinity, carbonate [as CaCO3]	48.		46.		12/31/2020	54.4	54.4	87.2	87.2
Alkalinity, carbonate [as CaCO3]	85.5		86.7		03/31/2021	54.8	54.8	68.4	68.4
Alkalinity, carbonate [as CaCO3]	101.		101.		06/30/2021	103.	90.	8.	8.
Alkalinity, carbonate [as CaCO3]	105.6		105.6		09/30/2021	100.	100.	308.	308.
Alkalinity, carbonate [as CaCO3]	54.4		54.4		12/31/2021	124.	115.	113.	113.
Alkalinity, carbonate [as CaCO3]	54.8		54.8		03/31/2022	114.	114.	120.	120.
Alkalinity, carbonate [as CaCO3]	87.2		87.2		06/30/2022				
Alkalinity, carbonate [as CaCO3]	68.4		68.4		09/30/2022				
Alkalinity, carbonate [as CaCO3]	103.		90.		12/31/2022				
Alkalinity, carbonate [as CaCO3]	100.		100.		03/31/2023				
Alkalinity, carbonate [as CaCO3]	8.		8.		06/30/2023				
Alkalinity, carbonate [as CaCO3]	308.		308.		09/30/2023				
Alkalinity, carbonate [as CaCO3]	124.		115.		12/31/2023				
Alkalinity, carbonate [as CaCO3]	114.		114.		03/31/2024				
Alkalinity, carbonate [as CaCO3]	113.		113.		06/30/2024				
Alkalinity, carbonate [as CaCO3]	120.		120.		09/30/2024				
Average	94.4		93.0			79.4	77.2	109.4	108.8
Minimum	8.0		8.0			23.7	23.7	8.0	8.0
Maximum	308.0		308.0			124.0	115.0	308.0	308.0
Count	20.0		20.0			10.0	10.0	10.0	10.0
Std Dev	59.3		59.2			32.6	30.8	76.6	76.7
CV	0.6		0.6			0.4	0.4	0.7	0.7
95th Percentile	133.2		129.4			119.5	114.6	223.4	223.4
5th Percentile	22.9		22.9			34.6	33.7	35.2	35.2
90th percentile	120.4		115.5			115.0	114.1	138.8	138.8

Table 15. Arsenic Effluent Data

Parameter Desc	Daily Max µg/L		Monthly Average µg/L		Monitoring Period End Date
	DMR	Limit	DMR	Limit	
Arsenic, total recoverable	1		1.		12/31/2019
Arsenic, total recoverable	1.4		1.4		06/30/2020
Arsenic, total recoverable	1.4		1.4		12/31/2020
Arsenic, total recoverable	1.4		1.4		06/30/2021
Arsenic, total recoverable	1		1.		12/31/2021
Arsenic, total recoverable	0		.		06/30/2022
Arsenic, total recoverable	0		.		12/31/2022
Arsenic, total recoverable	0.001		.001		06/30/2023
Arsenic, total recoverable	0.001		.001		12/31/2023
Arsenic, total recoverable	1		1.		06/30/2024

Average	0.720	0.720
Minimum	0.000	0.000
Maximum	1.400	1.400
Count	10.0	10.0
Std Dev	0.641	0.641
CV	0.889	0.889
95th Percentile	1.400	1.400
5th Percentile	0.000	0.000
90th percentile	1.400	1.400

Table 16. Total Recoverable Copper Effluent Data

Parameter Desc	Daily Max Concentration µg/L		Daily Max Loading lbs/day		Monthly Average Concentration µg/L		Monthly Average Loading lbs/day		Monitoring Period End Date
	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	
Copper, total recoverable	2.58	15.8	.03	.22	2.58	9.4	.03	.13	10/31/2019
Copper, total recoverable	2.6	15.8	.02	.22	2.6	9.4	.02	.13	11/30/2019
Copper, total recoverable	2.	15.8	.015	.22	2.	9.4	.015	.13	12/31/2019
Copper, total recoverable	2.	15.8	.012	.22	2.	9.4	.012	.13	01/31/2020
Copper, total recoverable	2.	15.8	.0012	.22	2.	9.4	.0012	.13	02/29/2020
Copper, total recoverable	2.	15.8	.017	.22	2.	9.4	.017	.13	03/31/2020
Copper, total recoverable	2.15	15.8	.012	.22	2.05	9.4	.012	.13	04/30/2020
Copper, total recoverable	2.	16.3	.008	.23	2.	9.71	.008	.14	05/31/2020
Copper, total recoverable	2.	16.3	.01	.23	2.	9.71	.01	.14	06/30/2020
Copper, total recoverable	2.	16.3	.011	.23	2.	9.71	.011	.14	07/31/2020
Copper, total recoverable	3.5	16.3	.021	.23	3.5	9.71	.021	.14	08/31/2020
Copper, total recoverable	2.	16.3	.013	.23	2.	9.71	.013	.14	09/30/2020
Copper, total recoverable	2.75	15.8	.016	.22	2.75	9.4	.016	.13	10/31/2020

Copper, total recoverable	2.	15.8	.01	.22	2.	9.4	.01	.13	11/30/2020
Copper, total recoverable	2.5	15.8	.01	.22	2.	9.4	.01	.13	12/31/2020
Copper, total recoverable	3.55	15.8	.018	.22	3.55	9.4	.018	.13	01/31/2021
Copper, total recoverable	6.9	15.8	.036	.22	6.	9.4	.033	.13	02/28/2021
Copper, total recoverable	11.	15.8	.056	.22	7.2	9.4	.034	.13	03/31/2021
Copper, total recoverable	9.	15.8	.044	.22	8.1	9.4	.04	.13	04/30/2021
Copper, total recoverable	5.15	16.3	.025	.23	5.0167	9.71	.025	.14	05/31/2021
Copper, total recoverable	4.42	16.3	.023	.23	4.42	9.71	.023	.14	06/30/2021
Copper, total recoverable	4.1	16.3	.023	.23	3.35	9.71	.019	.14	07/31/2021
Copper, total recoverable	5.35	16.3	.039	.23	3.82	9.71	.027	.14	08/31/2021
Copper, total recoverable	11.8	16.3	.08	.23	8.325	9.71	.055	.14	09/30/2021
Copper, total recoverable	6.25	15.8	.037	.22	5.245	9.4	.0315	.13	10/31/2021
Copper, total recoverable	5.7	15.8	.03	.22	4.35	9.4	.02	.13	11/30/2021
Copper, total recoverable	2.	15.8	.009	.22	2.	9.4	.009	.13	12/31/2021
Copper, total recoverable	6.6	15.8	.03	.22	6.6	9.4	.03	.13	01/31/2022
Copper, total recoverable	.6	15.8	.003	.22	.6	9.4	.003	.13	02/28/2022
Copper, total recoverable	6.9	15.8	.03	.22	6.9	9.4	.03	.13	03/31/2022
Copper, total recoverable	6.1	15.8	.029	.22	6.1	9.4	.029	.13	04/30/2022
Copper, total recoverable	6.4	16.3	.032	.23	6.4	9.71	.032	.14	05/31/2022
Copper, total recoverable	.062	16.3	.003	.23	.062	9.71	.003	.14	06/30/2022
Copper, total recoverable	.06	16.3	.0003	.23	.06	9.71	.0003	.14	07/31/2022
Copper, total recoverable	9.	16.3	.05	.23	9.	9.71	.05	.14	08/31/2022
Copper, total recoverable	6.7	16.3	.04	.23	6.7	9.71	.04	.14	09/30/2022
Copper, total recoverable	5.	15.8	.03	.22	5.	9.4	.03	.13	10/31/2022
Copper, total recoverable	.55	15.8	.03	.22	.55	9.4	.03	.13	11/30/2022
Copper, total recoverable	7.8	15.8	.04	.22	5.98	9.4	.0276	.13	12/31/2022
Copper, total recoverable	.005	15.8	.02	.22	.005	9.4	.02	.13	01/31/2023
Copper, total recoverable	1.	15.8	.005	.22	1.	9.4	.005	.13	02/28/2023
Copper, total recoverable	.005	15.8	.02	.22	.005	9.4	.02	.13	03/31/2023
Copper, total recoverable	1.	15.8	.005	.22	1.	9.4	.005	.13	04/30/2023
Copper, total recoverable	1.	16.3	.005	.23	1.	9.71	.005	.14	05/31/2023
Copper, total recoverable	.058	16.3	.03	.23	.058	9.71	.03	.14	06/30/2023
Copper, total recoverable	36.	16.3	.2	.23	36.	9.71	.2	.14	07/31/2023
Copper, total recoverable	1.	16.3	.005	.23	1.	9.71	.005	.14	08/31/2023
Copper, total recoverable	1.	16.3	.006	.23	1.	9.71	.006	.14	09/30/2023
Copper, total recoverable	1.	15.8	.006	.22	.812	9.4	.0043	.13	10/31/2023
Copper, total recoverable	1.	15.8	.005	.22	1.	9.4	.005	.13	11/30/2023
Copper, total recoverable	.001	15.8	.005	.22	.001	9.4	.005	.13	12/31/2023
Copper, total recoverable	1.	15.8	.005	.22	1.	9.4	.005	.13	01/31/2024
Copper, total recoverable	1.	15.8	.005	.22	1.	9.4	.005	.13	02/29/2024
Copper, total recoverable	1.	15.8	.005	.22	1.	9.4	.005	.13	03/31/2024
Copper, total recoverable	1.	15.8	.005	.22	1.	9.4	.005	.13	04/30/2024
Copper, total recoverable	1.	16.3	.005	.23	1.	9.71	.005	.14	05/31/2024
Copper, total recoverable	1.	16.3	.005	.23	1.	9.71	.005	.14	06/30/2024
Copper, total recoverable	1.	16.3	.005	.23	1.	9.71	.005	.14	07/31/2024
Copper, total recoverable	1.	16.3	.005	.23	1.	9.71	.005	.14	08/31/2024
Copper, total recoverable	1.	16.3	.005	.23	1.	9.71	.005	.14	09/30/2024
Copper, total recoverable	1.	15.8	.	.22	1.	9.4	.005	.13	10/31/2024

Average	3.576	0.021	3.306	0.020
Minimum	0.001	0.000	0.001	0.000
Maximum	36.000	0.200	36.000	0.200
Count	61	61	61	61
Std Dev	5.104	0.028	4.893	0.027
CV	1.427	1.323	1.480	1.355
95th Percentile	9.000	0.050	8.100	0.040
5th Percentile	0.058	0.003	0.058	0.003
90th percentile	6.900	0.040	6.700	0.033

Parameter Desc	Non-Irrigation Season (Oct 1 - April 30)				Irrigation Season (May 1 - Sep 31)			
	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading
Copper, total recoverable	2.58	.03	2.58	.03	2.	.008	2.	.008
Copper, total recoverable	2.6	.02	2.6	.02	2.	.01	2.	.01
Copper, total recoverable	2.	.015	2.	.015	2.	.011	2.	.011
Copper, total recoverable	2.	.012	2.	.012	3.5	.021	3.5	.021
Copper, total recoverable	2.	.0012	2.	.0012	2.	.013	2.	.013
Copper, total recoverable	2.	.017	2.	.017	5.15	.025	5.0167	.025
Copper, total recoverable	2.15	.012	2.05	.012	4.42	.023	4.42	.023
Copper, total recoverable	2.75	.016	2.75	.016	4.1	.023	3.35	.019
Copper, total recoverable	2.	.01	2.	.01	5.35	.039	3.82	.027
Copper, total recoverable	2.5	.01	2.	.01	11.8	.08	8.325	.055
Copper, total recoverable	3.55	.018	3.55	.018	6.4	.032	6.4	.032
Copper, total recoverable	6.9	.036	6.	.033	.062	.003	.062	.003
Copper, total recoverable	11.	.056	7.2	.034	.06	.0003	.06	.0003
Copper, total recoverable	9.	.044	8.1	.04	9.	.05	9.	.05
Copper, total recoverable	6.25	.037	5.245	.0315	6.7	.04	6.7	.04
Copper, total recoverable	5.7	.03	4.35	.02	1.	.005	1.	.005
Copper, total recoverable	2.	.009	2.	.009	.058	.03	.058	.03
Copper, total recoverable	6.6	.03	6.6	.03	36.	.2	36.	.2
Copper, total recoverable	.6	.003	.6	.003	1.	.005	1.	.005
Copper, total recoverable	6.9	.03	6.9	.03	1.	.006	1.	.006
Copper, total recoverable	6.1	.029	6.1	.029	1.	.005	1.	.005
Copper, total recoverable	5.	.03	5.	.03	1.	.005	1.	.005
Copper, total recoverable	.55	.03	.55	.03	1.	.005	1.	.005
Copper, total recoverable	7.8	.04	5.98	.0276	1.	.005	1.	.005
Copper, total recoverable	.005	.02	.005	.02	1.	.005	1.	.005
Copper, total recoverable	1.	.005	1.	.005				
Copper, total recoverable	.005	.02	.005	.02				
Copper, total recoverable	1.	.005	1.	.005				
Copper, total recoverable	1.	.006	.812	.0043				
Copper, total recoverable	1.	.005	1.	.005				
Copper, total recoverable	.001	.005	.001	.005				
Copper, total recoverable	1.	.005	1.	.005				
Copper, total recoverable	1.	.005	1.	.005				

Copper, total recoverable	1.	.005	1.	.005
Copper, total recoverable	1.	.005	1.	.005
Copper, total recoverable	1.	.	1.	.005

Average	3.043	0.018	2.749	0.017	4.344	0.026	4.108	0.024
Minimum	0.001	0.000	0.001	0.001	0.058	0.000	0.058	0.000
Maximum	11.000	0.056	8.100	0.040	36.000	0.200	36.000	0.200
Count	36	36	36	36	25	25	25	25
Std Dev	2.829	0.014	2.342	0.011	7.240	0.041	7.121	0.040
CV	0.930	0.777	0.852	0.686	1.667	1.570	1.733	1.627
95th Percentile	8.100	0.041	6.975	0.033	11.240	0.074	8.865	0.054
5th Percentile	0.005	0.003	0.005	0.004	0.060	0.003	0.060	0.003
90th percentile	6.900	0.037	6.350	0.031	8.080	0.046	7.675	0.046

Table 17. Fecal Coliform Bacteria Effluent Data

Parameter Desc	Daily Max		Monthly Geomean		Monitoring Period End Date
	CFU/100 ml		CFU/100 ml		
	DMR	Limit	DMR	Limit	
Fecal coliform, MPN, EC med, 44.5 C	1.1	200.	1.02	100.	10/31/2019
Fecal coliform, MPN, EC med, 44.5 C	.	200.	.	100.	11/30/2019
Fecal coliform, MPN, EC med, 44.5 C	.	200.	.	100.	12/31/2019
Fecal coliform, MPN, EC med, 44.5 C	.	200.	.	100.	01/31/2020
Fecal coliform, MPN, EC med, 44.5 C	3.3	200.	1.4	100.	02/29/2020
Fecal coliform, MPN, EC med, 44.5 C	.	200.	.	100.	03/31/2020
Fecal coliform, MPN, EC med, 44.5 C	5.6	200.	1.65	100.	04/30/2020
Fecal coliform, MPN, EC med, 44.5 C	10.	200.	2.27	100.	05/31/2020
Fecal coliform, MPN, EC med, 44.5 C	24.4	200.	3.6	100.	06/30/2020
Fecal coliform, MPN, EC med, 44.5 C	15.6	200.	4.8	100.	07/31/2020
Fecal coliform, MPN, EC med, 44.5 C	12.2	200.	2.9	100.	08/31/2020
Fecal coliform, MPN, EC med, 44.5 C	4.4	200.	1.45	100.	09/30/2020
Fecal coliform, MPN, EC med, 44.5 C	1.1	200.	1.	100.	10/31/2020
Fecal coliform, MPN, EC med, 44.5 C	.	200.	.	100.	11/30/2020
Fecal coliform, MPN, EC med, 44.5 C	2.2	200.	1.3	100.	12/31/2020
Fecal coliform, MPN, EC med, 44.5 C	.25	200.	.	100.	01/31/2021
Fecal coliform, MPN, EC med, 44.5 C	12.7	200.	11.7	100.	02/28/2021
Fecal coliform, MPN, EC med, 44.5 C	127.	200.	28.	100.	03/31/2021
Fecal coliform, MPN, EC med, 44.5 C	145.6	200.	21.928	100.	04/30/2021
Fecal coliform, MPN, EC med, 44.5 C	14.4	200.	3.72	100.	05/31/2021
Fecal coliform, MPN, EC med, 44.5 C	16.7	200.	5.62	100.	06/30/2021
Fecal coliform, MPN, EC med, 44.5 C	48.9	200.	9.55	100.	07/31/2021
Fecal coliform, MPN, EC med, 44.5 C	30.	200.	6.35	100.	08/31/2021
Fecal coliform, MPN, EC med, 44.5 C	13.36	200.	11.48	100.	09/30/2021
Fecal coliform, MPN, EC med, 44.5 C	20.	200.	16.21	100.	10/31/2021
Fecal coliform, MPN, EC med, 44.5 C	20.	200.	9.33	100.	11/30/2021
Fecal coliform, MPN, EC med, 44.5 C	10.	200.	4.18	100.	12/31/2021
Fecal coliform, MPN, EC med, 44.5 C	14.4	200.	7.41	100.	01/31/2022

Fecal coliform, MPN, EC med, 44.5 C	13.3	200.	7.94	100.	02/28/2022
Fecal coliform, MPN, EC med, 44.5 C	16.	200.	13.8	100.	03/31/2022
Fecal coliform, MPN, EC med, 44.5 C	7.24	200.	7.24	100.	04/30/2022
Fecal coliform, MPN, EC med, 44.5 C	13.11	200.	13.11	100.	05/31/2022
Fecal coliform, MPN, EC med, 44.5 C	2.51	200.	2.51	100.	06/30/2022
Fecal coliform, MPN, EC med, 44.5 C	6.6	200.	6.6	100.	07/31/2022
Fecal coliform, MPN, EC med, 44.5 C	6.3	200.	6.3	100.	08/31/2022
Fecal coliform, MPN, EC med, 44.5 C	193.3	200.	18.2	100.	09/30/2022
Fecal coliform, MPN, EC med, 44.5 C	25.6	200.	18.09	100.	10/31/2022
Fecal coliform, MPN, EC med, 44.5 C	20.	200.	10.38	100.	11/30/2022
Fecal coliform, MPN, EC med, 44.5 C	17.8	200.	7.76	100.	12/31/2022
Fecal coliform, MPN, EC med, 44.5 C	193.3	200.	14.8	100.	01/31/2023
Fecal coliform, MPN, EC med, 44.5 C	190.	200.	12.74	100.	02/28/2023
Fecal coliform, MPN, EC med, 44.5 C	176.7	200.	16.6	100.	03/31/2023
Fecal coliform, MPN, EC med, 44.5 C	30.	200.	18.2	100.	04/30/2023
Fecal coliform, MPN, EC med, 44.5 C	166.7	200.	29.85	100.	05/31/2023
Fecal coliform, MPN, EC med, 44.5 C	243.3	200.	117.49	100.	06/30/2023
Fecal coliform, MPN, EC med, 44.5 C	226.7	200.	182.	100.	07/31/2023
Fecal coliform, MPN, EC med, 44.5 C	187.5	200.	173.8	100.	08/31/2023
Fecal coliform, MPN, EC med, 44.5 C	174.	200.	2.19	100.	09/30/2023
Fecal coliform, MPN, EC med, 44.5 C	166.7	200.	70.79	100.	10/31/2023
Fecal coliform, MPN, EC med, 44.5 C	133.3	200.	20.42	100.	11/30/2023
Fecal coliform, MPN, EC med, 44.5 C	66.7	200.	17.	100.	12/31/2023
Fecal coliform, MPN, EC med, 44.5 C	106.7	200.	12.63	100.	01/31/2024
Fecal coliform, MPN, EC med, 44.5 C	20.	200.	6.21	100.	02/29/2024
Fecal coliform, MPN, EC med, 44.5 C	20.	200.	7.41	100.	03/31/2024
Fecal coliform, MPN, EC med, 44.5 C	6.7	200.	4.27	100.	04/30/2024
Fecal coliform, MPN, EC med, 44.5 C	26.7	200.	19.95	100.	05/31/2024
Fecal coliform, MPN, EC med, 44.5 C	40.	200.	23.	100.	06/30/2024
Fecal coliform, MPN, EC med, 44.5 C	50.	200.	28.18	100.	07/31/2024
Fecal coliform, MPN, EC med, 44.5 C	102.2	200.	35.48	100.	08/31/2024
Fecal coliform, MPN, EC med, 44.5 C	66.7	200.	34.	100.	09/30/2024
Fecal coliform, MPN, EC med, 44.5 C	30.	200.	21.88	100.	10/31/2024

Average	54.1	18.7
Minimum	0.0	0.0
Maximum	243.3	182.0
Count	61	61
Std Dev	70.4	34.6
CV	1.3	1.9
95th Percentile	193.3	70.8
5th Percentile	0.0	0.0
90th percentile	176.7	29.9

Table 18. Floating Solids Effluent Data

Parameter Desc	Monthly Max		Monitoring Period End Date
	No=0; Yes=1		
	DMR	Limit	
Floating solids, waste or visible foam-visual	0	0	10/31/2019
Floating solids, waste or visible foam-visual	0	0	11/30/2019
Floating solids, waste or visible foam-visual	0	0	12/31/2019
Floating solids, waste or visible foam-visual	0	0	01/31/2020
Floating solids, waste or visible foam-visual	0	0	02/29/2020
Floating solids, waste or visible foam-visual	0	0	03/31/2020
Floating solids, waste or visible foam-visual	0	0	04/30/2020
Floating solids, waste or visible foam-visual	0	0	05/31/2020
Floating solids, waste or visible foam-visual	0	0	06/30/2020
Floating solids, waste or visible foam-visual	0	0	07/31/2020
Floating solids, waste or visible foam-visual	0	0	08/31/2020
Floating solids, waste or visible foam-visual	0	0	09/30/2020
Floating solids, waste or visible foam-visual	0	0	10/31/2020
Floating solids, waste or visible foam-visual	0	0	11/30/2020
Floating solids, waste or visible foam-visual	0	0	12/31/2020
Floating solids, waste or visible foam-visual	0	0	01/31/2021
Floating solids, waste or visible foam-visual	0	0	02/28/2021
Floating solids, waste or visible foam-visual	0	0	03/31/2021
Floating solids, waste or visible foam-visual	0	0	04/30/2021
Floating solids, waste or visible foam-visual	0	0	05/31/2021
Floating solids, waste or visible foam-visual	0	0	06/30/2021
Floating solids, waste or visible foam-visual	0	0	07/31/2021
Floating solids, waste or visible foam-visual	0	0	08/31/2021
Floating solids, waste or visible foam-visual	0	0	09/30/2021
Floating solids, waste or visible foam-visual	0	0	10/31/2021
Floating solids, waste or visible foam-visual	0	0	11/30/2021
Floating solids, waste or visible foam-visual	0	0	12/31/2021
Floating solids, waste or visible foam-visual	0	0	01/31/2022
Floating solids, waste or visible foam-visual	0	0	02/28/2022
Floating solids, waste or visible foam-visual	0	0	03/31/2022
Floating solids, waste or visible foam-visual	0	0	04/30/2022
Floating solids, waste or visible foam-visual	0	0	05/31/2022
Floating solids, waste or visible foam-visual	0	0	06/30/2022
Floating solids, waste or visible foam-visual	0	0	07/31/2022
Floating solids, waste or visible foam-visual	0	0	08/31/2022
Floating solids, waste or visible foam-visual	0	0	09/30/2022
Floating solids, waste or visible foam-visual	0	0	10/31/2022
Floating solids, waste or visible foam-visual	0	0	11/30/2022
Floating solids, waste or visible foam-visual	0	0	12/31/2022
Floating solids, waste or visible foam-visual	0	0	01/31/2023
Floating solids, waste or visible foam-visual	0	0	02/28/2023

Floating solids, waste or visible foam-visual	0	0	03/31/2023
Floating solids, waste or visible foam-visual	0	0	04/30/2023
Floating solids, waste or visible foam-visual	0	0	05/31/2023
Floating solids, waste or visible foam-visual	0	0	06/30/2023
Floating solids, waste or visible foam-visual	0	0	07/31/2023
Floating solids, waste or visible foam-visual	0	0	08/31/2023
Floating solids, waste or visible foam-visual	0	0	09/30/2023
Floating solids, waste or visible foam-visual	0	0	10/31/2023
Floating solids, waste or visible foam-visual	0	0	11/30/2023
Floating solids, waste or visible foam-visual	0	0	12/31/2023
Floating solids, waste or visible foam-visual	0	0	01/31/2024
Floating solids, waste or visible foam-visual	0	0	02/29/2024
Floating solids, waste or visible foam-visual	0	0	03/31/2024
Floating solids, waste or visible foam-visual	0	0	04/30/2024
Floating solids, waste or visible foam-visual	0	0	05/31/2024
Floating solids, waste or visible foam-visual	0	0	06/30/2024
Floating solids, waste or visible foam-visual	0	0	07/31/2024
Floating solids, waste or visible foam-visual	0	0	08/31/2024
Floating solids, waste or visible foam-visual	0	0	09/30/2024
Floating solids, waste or visible foam-visual	0	0	10/31/2024

Table 19. Total Recoverable Lead Effluent Data

Parameter Desc	Daily Max Concentration		Daily Max Loading		Monthly Average Concentration		Monthly Average Loading		Monitoring Period End Date
	µg/L		lbs/day		µg/L		lbs/day		
	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	
Lead, total recoverable	.5	6.18	.008	.0861	.5	2.28	.008	.0317	10/31/2019
Lead, total recoverable	.6	6.18	.005	.0861	.6	2.28	.005	.0317	11/30/2019
Lead, total recoverable	1.	6.18	.007	.0861	1.	2.28	.007	.0317	12/31/2019
Lead, total recoverable	.7	6.18	.004	.0861	.7	2.28	.004	.0317	01/31/2020
Lead, total recoverable	.5	6.18	.003	.0861	.5	2.28	.003	.0317	02/29/2020
Lead, total recoverable	.5	6.18	.003	.0861	.5	2.28	.003	.0317	03/31/2020
Lead, total recoverable	.8	6.18	.005	.0861	.6	2.28	.003	.0317	04/30/2020
Lead, total recoverable	1.5	10.3	.011	.143	1.5	3.81	.011	.0531	05/31/2020
Lead, total recoverable	.5	10.3	.003	.143	.5	3.81	.003	.0531	06/30/2020
Lead, total recoverable	.5	10.3	.002	.143	.5	3.81	.002	.0531	07/31/2020
Lead, total recoverable	.6	10.3	.0038	.143	.6	3.81	.0038	.0531	08/31/2020
Lead, total recoverable	.5	10.3	.003	.143	.5	3.81	.003	.0531	09/30/2020
Lead, total recoverable	.5	6.18	.003	.0861	.5	2.28	.003	.0317	10/31/2020
Lead, total recoverable	.05	6.18	.002	.0861	.05	2.28	.002	.0317	11/30/2020
Lead, total recoverable	.5	6.18	.003	.0861	.5	2.28	.002	.0317	12/31/2020
Lead, total recoverable	.9	6.18	.004	.0861	.9	2.28	.004	.0317	01/31/2021
Lead, total recoverable	2.	6.18	.012	.0861	.95	2.28	.006	.0317	02/28/2021
Lead, total recoverable	.8	6.18	.004	.0861	.377	2.28	.0018	.0317	03/31/2021
Lead, total recoverable	.9	6.18	.0044	.0861	.825	2.28	.0041	.0317	04/30/2021
Lead, total recoverable	.7	10.3	.002	.143	.5667	3.81	.0009	.0531	05/31/2021
Lead, total recoverable	.6	10.3	.003	.143	.6	3.81	.003	.0531	06/30/2021
Lead, total recoverable	.4	10.3	.002	.143	.4	3.81	.002	.0531	07/31/2021
Lead, total recoverable	.4	10.3	.002	.143	.4	3.81	.002	.0531	08/31/2021

Lead, total recoverable	.4	10.3	.003	.143	.4	3.81	.003	.0531	09/30/2021
Lead, total recoverable	.4	6.18	.002	.0861	.4	2.28	.002	.0317	10/31/2021
Lead, total recoverable	.4	6.18	.002	.0861	.4	2.28	.002	.0317	11/30/2021
Lead, total recoverable	.4	6.18	.001	.0861	.4	2.28	.001	.0317	12/31/2021
Lead, total recoverable	.3	6.18	.001	.0861	.3	2.28	.001	.0317	01/31/2022
Lead, total recoverable	.04	6.18	.0002	.0861	.04	2.28	.0002	.0317	02/28/2022
Lead, total recoverable	.	6.18	.	.0861	.	2.28	.	.0317	03/31/2022
Lead, total recoverable	2.	6.18	.009	.0861	2.	2.28	.009	.0317	04/30/2022
Lead, total recoverable	2.	10.3	.01	.143	2.	3.81	.01	.0531	05/31/2022
Lead, total recoverable	2.	10.3	.009	.143	2.	3.81	.009	.0531	06/30/2022
Lead, total recoverable	2.	10.3	.01	.143	2.	3.81	.01	.0531	07/31/2022
Lead, total recoverable	2.	10.3	.01	.143	2.	3.81	.01	.0531	08/31/2022
Lead, total recoverable	2.	10.3	.01	.143	2.	3.81	.01	.0531	09/30/2022
Lead, total recoverable	2.	6.18	.01	.0861	2.	2.28	.01	.0317	10/31/2022
Lead, total recoverable	.27	6.18	.01	.0861	.27	2.28	.01	.0317	11/30/2022
Lead, total recoverable	2.	6.18	.01	.0861	1.4	2.28	.007	.0317	12/31/2022
Lead, total recoverable	.005	6.18	.02	.0861	.005	2.28	.02	.0317	01/31/2023
Lead, total recoverable	1.	6.18	.005	.0861	1.	2.28	.005	.0317	02/28/2023
Lead, total recoverable	.005	6.18	.02	.0861	.005	2.28	.02	.0317	03/31/2023
Lead, total recoverable	1.	6.18	.005	.0861	1.	2.28	.005	.0317	04/30/2023
Lead, total recoverable	1.	10.3	.005	.143	1.	3.81	.005	.0531	05/31/2023
Lead, total recoverable	.008	10.3	.05	.143	.008	3.81	.05	.0531	06/30/2023
Lead, total recoverable	.002	10.3	.01	.143	.002	3.81	.01	.0531	07/31/2023
Lead, total recoverable	.002	10.3	.01	.143	.002	3.81	.01	.0531	08/31/2023
Lead, total recoverable	1.	10.3	.006	.143	1.	3.81	.006	.0531	09/30/2023
Lead, total recoverable	1.	6.18	.006	.0861	1.	2.28	.0052	.0317	10/31/2023
Lead, total recoverable	1.	6.18	.005	.0861	1.	2.28	.005	.0317	11/30/2023
Lead, total recoverable	.001	6.18	.005	.0861	.001	2.28	.005	.0317	12/31/2023
Lead, total recoverable	1.	6.18	.005	.0861	1.	2.28	.005	.0317	01/31/2024
Lead, total recoverable	1.	6.18	.005	.0861	1.	2.28	.005	.0317	02/29/2024
Lead, total recoverable	1.	6.18	.005	.0861	1.	2.28	.005	.0317	03/31/2024
Lead, total recoverable	1.	6.18	.005	.0861	1.	2.28	.005	.0317	04/30/2024
Lead, total recoverable	1.	10.3	.005	.143	1.	3.81	.005	.0531	05/31/2024
Lead, total recoverable	1.	10.3	.005	.143	1.	3.81	.005	.0531	06/30/2024
Lead, total recoverable	1.	10.3	.005	.143	1.	3.81	.005	.0531	07/31/2024
Lead, total recoverable	1.	10.3	.005	.143	1.	3.81	.005	.0531	08/31/2024
Lead, total recoverable	1.	10.3	.005	.143	1.	3.81	.005	.0531	09/30/2024
Lead, total recoverable	1.	6.18	.005	.0861	1.	2.28	.005	.0317	10/31/2024

Average	0.823	0.006	0.782	0.006
Minimum	0.000	0.000	0.000	0.000
Maximum	2.000	0.050	2.000	0.050
Count	61	61	61	61
Std Dev	0.606	0.007	0.575	0.007
CV	0.737	1.075	0.735	1.122
95th Percentile	2.000	0.012	2.000	0.011
5th Percentile	0.002	0.001	0.002	0.001
90th percentile	2.000	0.010	2.000	0.010

Parameter Desc	Non-Irrigation Season (Nov 1 - March 31)				Irrigation Season (April 1 - Oct 31)			
	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading
Lead, total recoverable	.5	.008	.5	.008	1.5	.011	1.5	.011
Lead, total recoverable	.6	.005	.6	.005	.5	.003	.5	.003
Lead, total recoverable	1.	.007	1.	.007	.5	.002	.5	.002
Lead, total recoverable	.7	.004	.7	.004	.6	.0038	.6	.0038
Lead, total recoverable	.5	.003	.5	.003	.5	.003	.5	.003
Lead, total recoverable	.5	.003	.5	.003	.7	.002	.5667	.0009
Lead, total recoverable	.8	.005	.6	.003	.6	.003	.6	.003
Lead, total recoverable	.5	.003	.5	.003	.4	.002	.4	.002
Lead, total recoverable	.05	.002	.05	.002	.4	.002	.4	.002
Lead, total recoverable	.5	.003	.5	.002	.4	.003	.4	.003
Lead, total recoverable	.9	.004	.9	.004	2.	.01	2.	.01
Lead, total recoverable	2.	.012	.95	.006	2.	.009	2.	.009
Lead, total recoverable	.8	.004	.377	.0018	2.	.01	2.	.01
Lead, total recoverable	.9	.0044	.825	.0041	2.	.01	2.	.01
Lead, total recoverable	.4	.002	.4	.002	2.	.01	2.	.01
Lead, total recoverable	.4	.002	.4	.002	1.	.005	1.	.005
Lead, total recoverable	.4	.001	.4	.001	.008	.05	.008	.05
Lead, total recoverable	.3	.001	.3	.001	.002	.01	.002	.01
Lead, total recoverable	.04	.0002	.04	.0002	.002	.01	.002	.01
Lead, total recoverable	.	.	.	.	1.	.006	1.	.006
Lead, total recoverable	2.	.009	2.	.009	1.	.005	1.	.005
Lead, total recoverable	2.	.01	2.	.01	1.	.005	1.	.005
Lead, total recoverable	.27	.01	.27	.01	1.	.005	1.	.005
Lead, total recoverable	2.	.01	1.4	.007	1.	.005	1.	.005
Lead, total recoverable	.005	.02	.005	.02	1.	.005	1.	.005
Lead, total recoverable	1.	.005	1.	.005				
Lead, total recoverable	.005	.02	.005	.02				
Lead, total recoverable	1.	.005	1.	.005				
Lead, total recoverable	1.	.006	1.	.0052				
Lead, total recoverable	1.	.005	1.	.005				
Lead, total recoverable	.001	.005	.001	.005				
Lead, total recoverable	1.	.005	1.	.005				
Lead, total recoverable	1.	.005	1.	.005				
Lead, total recoverable	1.	.005	1.	.005				
Lead, total recoverable	1.	.005	1.	.005				
Lead, total recoverable	1.	.005	1.	.005				
Lead, total recoverable								
Lead, total recoverable								

Average	0.752	0.006	0.687	0.005	0.924	0.008	0.919	0.008
Minimum	0.000	0.000	0.000	0.000	0.002	0.002	0.002	0.001
Maximum	2.000	0.020	2.000	0.020	2.000	0.050	2.000	0.050
Count	36	36	36	36	25	25	25	25
Std Dev	0.568	0.005	0.496	0.004	0.656	0.009	0.658	0.009
CV	0.755	0.799	0.723	0.841	0.709	1.236	0.716	1.247

95th Percentile	2.000	0.014	1.550	0.013	2.000	0.011	2.000	0.011
5th Percentile	0.004	0.001	0.004	0.001	0.003	0.002	0.003	0.002
90th percentile	1.500	0.010	1.000	0.010	2.000	0.010	2.000	0.010

Table 20. Effluent Flow Data

Parameter Desc	Daily Max mgd		Monthly Average mdg		Monitoring Period End Date
	DMR	Limit	DMR	Limit	
Flow, in conduit or thru treatment plant	1.472		1.24		10/31/2019
Flow, in conduit or thru treatment plant	1.125		.965		11/30/2019
Flow, in conduit or thru treatment plant	.918		.865		12/31/2019
Flow, in conduit or thru treatment plant	.84		.777		01/31/2020
Flow, in conduit or thru treatment plant	.744		.688		02/29/2020
Flow, in conduit or thru treatment plant	.792		.692		03/31/2020
Flow, in conduit or thru treatment plant	.842		.761		04/30/2020
Flow, in conduit or thru treatment plant	.959		.832		05/31/2020
Flow, in conduit or thru treatment plant	1.218		.938		06/30/2020
Flow, in conduit or thru treatment plant	.775		.716		07/31/2020
Flow, in conduit or thru treatment plant	1.06		.771		08/31/2020
Flow, in conduit or thru treatment plant	.854		.763		09/30/2020
Flow, in conduit or thru treatment plant	.77		.679		10/31/2020
Flow, in conduit or thru treatment plant	.77		.668		11/30/2020
Flow, in conduit or thru treatment plant	.657		.616		12/31/2020
Flow, in conduit or thru treatment plant	.68		.61		01/31/2021
Flow, in conduit or thru treatment plant	.729		.632		02/28/2021
Flow, in conduit or thru treatment plant	1.191		.651		03/31/2021
Flow, in conduit or thru treatment plant	.882		.6135		04/30/2021
Flow, in conduit or thru treatment plant	.672		.6221		05/31/2021
Flow, in conduit or thru treatment plant	.892		.6868		06/30/2021
Flow, in conduit or thru treatment plant	.767		.7204		07/31/2021
Flow, in conduit or thru treatment plant	.959		.8498		08/31/2021
Flow, in conduit or thru treatment plant	1.145		.9111		09/30/2021
Flow, in conduit or thru treatment plant	.865		.7279		10/31/2021
Flow, in conduit or thru treatment plant	.879		.6602		11/30/2021
Flow, in conduit or thru treatment plant	.689		.6064		12/31/2021
Flow, in conduit or thru treatment plant	.711		.6236		01/31/2022
Flow, in conduit or thru treatment plant	.679		.6229		02/28/2022
Flow, in conduit or thru treatment plant	.699		.6207		03/31/2022
Flow, in conduit or thru treatment plant	.666		.612		04/30/2022
Flow, in conduit or thru treatment plant	.656		.592		05/31/2022
Flow, in conduit or thru treatment plant	.764		.646		06/30/2022
Flow, in conduit or thru treatment plant	.723		.6483		07/31/2022
Flow, in conduit or thru treatment plant	.776		.7003		08/31/2022
Flow, in conduit or thru treatment plant	.797		.7376		09/30/2022
Flow, in conduit or thru treatment plant	.768		.709		10/31/2022
Flow, in conduit or thru treatment plant	.752		.6866		11/30/2022
Flow, in conduit or thru treatment plant	.769		.645		12/31/2022
Flow, in conduit or thru treatment plant	.696		.6443		01/31/2023

Flow, in conduit or thru treatment plant	.684		.6275		02/28/2023
Flow, in conduit or thru treatment plant	.693		.6408		03/31/2023
Flow, in conduit or thru treatment plant	.872		.601		04/30/2023
Flow, in conduit or thru treatment plant	.802		.628		05/31/2023
Flow, in conduit or thru treatment plant	.951		.7415		06/30/2023
Flow, in conduit or thru treatment plant	.834		.6848		07/31/2023
Flow, in conduit or thru treatment plant	1.173		.7602		08/31/2023
Flow, in conduit or thru treatment plant	.942		.75		09/30/2023
Flow, in conduit or thru treatment plant	1.115		.6689		10/31/2023
Flow, in conduit or thru treatment plant	.682		.6399		11/30/2023
Flow, in conduit or thru treatment plant	.702		.6474		12/31/2023
Flow, in conduit or thru treatment plant	.74		.676		01/31/2024
Flow, in conduit or thru treatment plant	.712		.6401		02/29/2024
Flow, in conduit or thru treatment plant	.717		.6459		03/31/2024
Flow, in conduit or thru treatment plant	.687		.632		04/30/2024
Flow, in conduit or thru treatment plant	.699		.662		05/31/2024
Flow, in conduit or thru treatment plant	.666		.6235		06/30/2024
Flow, in conduit or thru treatment plant	.668		.6332		07/31/2024
Flow, in conduit or thru treatment plant	.698		.6498		08/31/2024
Flow, in conduit or thru treatment plant	.687		.6442		09/30/2024
Flow, in conduit or thru treatment plant	.69		.653		10/31/2024

Average	0.820		0.698
Minimum	0.656		0.592
Maximum	1.472		1.240
Count	61		61
Std Dev	0.171		0.109
CV	0.209		0.157
95th Percentile	1.173		0.911
5th Percentile	0.666		0.610
90th percentile	1.115		0.832

Table 21. Hardness Effluent Data

Parameter Desc	Daily Max		Monthly Average		Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30)		Irrigation Season (May 1 - Sep 31)	
	mg/L		mg/L						
	DMR	Limit	DMR	Limit		Daily Max	Monthly Ave	Daily Max	Monthly Ave
Hardness, total [as CaCO3]	76.		76.		12/31/2019	76.	76.	98.	94.
Hardness, total [as CaCO3]	72.		72.		03/31/2020	72.	72.	102.	102.
Hardness, total [as CaCO3]	98.		94.		06/30/2020	81.	77.	90.8	87.6
Hardness, total [as CaCO3]	102.		102.		09/30/2020	80.	77.6	109.	109.
Hardness, total [as CaCO3]	81.		77.		12/31/2020	81.2	81.2	39.2	39.2
Hardness, total [as CaCO3]	80.		77.6		03/31/2021	82.3	82.3	88.8	88.8
Hardness, total [as CaCO3]	90.8		87.6		06/30/2021	95.	92.75	70.	70.
Hardness, total [as CaCO3]	109.		109.		09/30/2021	73.5	73.5	76.	76.
Hardness, total [as CaCO3]	81.2		81.2		12/31/2021	77.	68.25	73.	73.
Hardness, total [as CaCO3]	82.3		82.3		03/31/2022	69.	69.	71.	71.
Hardness, total [as CaCO3]	39.2		39.2		06/30/2022				
Hardness, total [as CaCO3]	88.8		88.8		09/30/2022				

Hardness, total [as CaCO3]	95.		92.75		12/31/2022
Hardness, total [as CaCO3]	73.5		73.5		03/31/2023
Hardness, total [as CaCO3]	70.		70.		06/30/2023
Hardness, total [as CaCO3]	76.		76.		09/30/2023
Hardness, total [as CaCO3]	77.		68.25		12/31/2023
Hardness, total [as CaCO3]	69.		69.		03/31/2024
Hardness, total [as CaCO3]	73.		73.		06/30/2024
Hardness, total [as CaCO3]	71.		71.		09/30/2024

Average	80.2	79.0	78.7	77.0	81.8	81.1
Minimum	39.2	39.2	69.0	68.3	39.2	39.2
Maximum	109.0	109.0	95.0	92.8	109.0	109.0
Count	20	20	10	10	10	10
Std Dev	14.9	14.7	7.2	7.2	20.3	19.9
CV	0.2	0.2	0.1	0.1	0.2	0.2
95th Percentile	102.4	102.4	89.3	88.0	105.9	105.9
5th Percentile	67.5	66.8	70.4	68.6	53.1	53.1
90th percentile	98.4	94.8	83.6	83.3	102.7	102.7

Table 22. Nitrate Plus Nitrite Effluent Data

Parameter Desc	Daily Max		Daily Max		Monthly Average		Monthly Average		Monitoring Period End Date
	mg/L		lbs/day		mg/L		µg/L		
	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	
Nitrite + Nitrate total [as N]	4.3	17.3	51.4	241.	3.1	10.5	33.3	146.	10/31/2019
Nitrite + Nitrate total [as N]	5.9	17.3	51.6	241.	5.09	10.5	41.14	146.	11/30/2019
Nitrite + Nitrate total [as N]	3.96	17.3	28.5	241.	3.21	10.5	23.2	146.	12/31/2019
Nitrite + Nitrate total [as N]	4.64	17.3	32.5	241.	3.33	10.5	21.9	146.	01/31/2020
Nitrite + Nitrate total [as N]	2.55	17.3	15.26	241.	2.185	10.5	13.03	146.	02/29/2020
Nitrite + Nitrate total [as N]	4.63	17.3	25.9	241.	2.53	10.5	14.2	146.	03/31/2020
Nitrite + Nitrate total [as N]	4.1	17.3	25.78	241.	3.32	10.5	20.45	146.	04/30/2020
Nitrite + Nitrate total [as N]	3.77	17.3	28.86	241.	3.28	10.5	23.48	146.	05/31/2020
Nitrite + Nitrate total [as N]	3.3	17.3	83.12	241.	2.38	10.5	38.06	146.	06/30/2020
Nitrite + Nitrate total [as N]	3.48	17.3	83.25	241.	2.095	10.5	25.05	146.	07/31/2020
Nitrite + Nitrate total [as N]	3.44	17.3	21.86	241.	3.3	10.5	21.04	146.	08/31/2020
Nitrite + Nitrate total [as N]	3.71	17.3	22.6	241.	2.52	10.5	15.6	146.	09/30/2020
Nitrite + Nitrate total [as N]	4.86	17.3	29.98	241.	4.23	10.5	24.43	146.	10/31/2020
Nitrite + Nitrate total [as N]	3.28	17.3	19.58	241.	2.69	10.5	15.44	146.	11/30/2020
Nitrite + Nitrate total [as N]	2.29	17.3	11.2	241.	1.87	10.5	9.2	146.	12/31/2020
Nitrite + Nitrate total [as N]	2.42	17.3	12.7	241.	1.63	10.5	8.78	146.	01/31/2021
Nitrite + Nitrate total [as N]	2.14	17.3	11.2	241.	1.62	10.5	8.7	146.	02/28/2021
Nitrite + Nitrate total [as N]	5.2	17.3	27.36	241.	3.9	10.5	20.2	146.	03/31/2021
Nitrite + Nitrate total [as N]	5.33	17.3	27.64	241.	3.3306	10.5	17.046	146.	04/30/2021
Nitrite + Nitrate total [as N]	4.62	17.3	23.85	241.	3.9	10.5	20.353	146.	05/31/2021
Nitrite + Nitrate total [as N]	3.86	17.3	21.79	241.	3.0475	10.5	16.865	146.	06/30/2021
Nitrite + Nitrate total [as N]	2.968	17.3	17.756	241.	2.968	10.5	17.756	146.	07/31/2021
Nitrite + Nitrate total [as N]	2.45	17.3	17.155	241.	2.45	10.5	17.155	146.	08/31/2021
Nitrite + Nitrate total [as N]	3.306	17.3	25.226	241.	3.306	10.5	25.226	146.	09/30/2021
Nitrite + Nitrate total [as N]	3.198	17.3	18.754	241.	3.198	10.5	18.754	146.	10/31/2021

Nitrite + Nitrate total [as N]	2.66	17.3	14.82	241.	2.66	10.5	14.82	146.	11/30/2021
Nitrite + Nitrate total [as N]	5.07	17.3	25.315	241.	5.07	10.5	25.315	146.	12/31/2021
Nitrite + Nitrate total [as N]	2.4375	17.3	12.565	241.	2.4375	10.5	12.565	146.	01/31/2022
Nitrite + Nitrate total [as N]	2.72	17.3	13.755	241.	2.72	10.5	13.755	146.	02/28/2022
Nitrite + Nitrate total [as N]	2.225	17.3	11.63	241.	2.225	10.5	11.63	146.	03/31/2022
Nitrite + Nitrate total [as N]	2.932	17.3	15.14	241.	2.932	10.5	15.14	146.	04/30/2022
Nitrite + Nitrate total [as N]	3.085	17.3	14.96	241.	3.085	10.5	14.96	146.	05/31/2022
Nitrite + Nitrate total [as N]	3.742	17.3	18.93	241.	3.742	10.5	18.93	146.	06/30/2022
Nitrite + Nitrate total [as N]	3.2825	17.3	18.823	241.	3.2825	10.5	18.823	146.	07/31/2022
Nitrite + Nitrate total [as N]	3.1575	17.3	18.23	241.	3.1575	10.5	18.23	146.	08/31/2022
Nitrite + Nitrate total [as N]	2.49	17.3	15.42	241.	2.49	10.5	15.42	146.	09/30/2022
Nitrite + Nitrate total [as N]	3.105	17.3	17.793	241.	3.105	10.5	17.793	146.	10/31/2022
Nitrite + Nitrate total [as N]	4.078	17.3	23.348	241.	4.078	10.5	23.348	146.	11/30/2022
Nitrite + Nitrate total [as N]	4.1835	17.3	22.74	241.	4.1835	10.5	22.74	146.	12/31/2022
Nitrite + Nitrate total [as N]	3.8075	17.3	20.103	241.	3.8075	10.5	20.103	146.	01/31/2023
Nitrite + Nitrate total [as N]	3.635	17.3	18.768	241.	3.635	10.5	18.768	146.	02/28/2023
Nitrite + Nitrate total [as N]	1.9548	17.3	10.336	241.	1.9548	10.5	10.336	146.	03/31/2023
Nitrite + Nitrate total [as N]	.501	17.3	2.43	241.	.501	10.5	2.43	146.	04/30/2023
Nitrite + Nitrate total [as N]	.4153	17.3	2.5125	241.	.4153	10.5	2.5125	146.	05/31/2023
Nitrite + Nitrate total [as N]	.4646	17.3	2.886	241.	.4646	10.5	2.886	146.	06/30/2023
Nitrite + Nitrate total [as N]	.5	17.3	2.8575	241.	.5	10.5	2.8575	146.	07/31/2023
Nitrite + Nitrate total [as N]	.4529	17.3	2.9663	241.	.4529	10.5	2.9663	146.	08/31/2023
Nitrite + Nitrate total [as N]	.3881	17.3	3.03	241.	.3881	10.5	2.4156	146.	09/30/2023
Nitrite + Nitrate total [as N]	.5107	17.3	2.7833	241.	.5107	10.5	2.7833	146.	10/31/2023
Nitrite + Nitrate total [as N]	2.6863	17.3	14.315	241.	2.6863	10.5	14.315	146.	11/30/2023
Nitrite + Nitrate total [as N]	3.8057	17.3	20.843	241.	3.8057	10.5	20.843	146.	12/31/2023
Nitrite + Nitrate total [as N]	2.85	17.3	15.78	241.	2.85	10.5	15.78	146.	01/31/2024
Nitrite + Nitrate total [as N]	2.7836	17.3	14.886	241.	2.7836	10.5	14.886	146.	02/29/2024
Nitrite + Nitrate total [as N]	3.8975	17.3	20.605	241.	3.8975	10.5	20.605	146.	03/31/2024
Nitrite + Nitrate total [as N]	4.7125	17.3	24.67	241.	4.7125	10.5	24.67	146.	04/30/2024
Nitrite + Nitrate total [as N]	3.984	17.3	21.822	241.	3.984	10.5	21.822	146.	05/31/2024
Nitrite + Nitrate total [as N]	2.6225	17.3	13.58	241.	2.6225	10.5	13.58	146.	06/30/2024
Nitrite + Nitrate total [as N]	2.74	17.3	14.375	241.	2.74	10.5	14.375	146.	07/31/2024
Nitrite + Nitrate total [as N]	3.4629	17.3	18.863	241.	3.4629	10.5	18.863	146.	08/31/2024
Nitrite + Nitrate total [as N]	1.7785	17.3	9.34	241.	1.7785	10.5	9.34	146.	09/30/2024
Nitrite + Nitrate total [as N]	2.4922	17.3	13.532	241.	2.4922	10.5	13.532	146.	10/31/2024

Average	3.104	20.485	2.788	16.795
Minimum	0.388	2.430	0.388	2.416
Maximum	5.900	83.250	5.090	41.140
Count	61	61	61	61
Std Dev	1.302	15.091	1.133	7.950
CV	0.420	0.737	0.406	0.473
95th Percentile	5.070	51.400	4.230	25.315
5th Percentile	0.465	2.858	0.465	2.783
90th percentile	4.640	28.860	3.984	24.670
50th percentile	3.198	18.754	2.932	17.046

Parameter Desc	Non-Irrigation Season (Oct 1 - April 30)				Irrigation Season (May 1 - Sep 31)			
	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading
Nitrite + Nitrate total [as N]	4.3	51.4	3.1	33.3	3.77	28.86	3.28	23.48
Nitrite + Nitrate total [as N]	5.9	51.6	5.09	41.14	3.3	83.12	2.38	38.06
Nitrite + Nitrate total [as N]	3.96	28.5	3.21	23.2	3.48	83.25	2.095	25.05
Nitrite + Nitrate total [as N]	4.64	32.5	3.33	21.9	3.44	21.86	3.3	21.04
Nitrite + Nitrate total [as N]	2.55	15.26	2.185	13.03	3.71	22.6	2.52	15.6
Nitrite + Nitrate total [as N]	4.63	25.9	2.53	14.2	4.62	23.85	3.9	20.353
Nitrite + Nitrate total [as N]	4.1	25.78	3.32	20.45	3.86	21.79	3.0475	16.865
Nitrite + Nitrate total [as N]	4.86	29.98	4.23	24.43	2.968	17.756	2.968	17.756
Nitrite + Nitrate total [as N]	3.28	19.58	2.69	15.44	2.45	17.155	2.45	17.155
Nitrite + Nitrate total [as N]	2.29	11.2	1.87	9.2	3.306	25.226	3.306	25.226
Nitrite + Nitrate total [as N]	2.42	12.7	1.63	8.78	3.085	14.96	3.085	14.96
Nitrite + Nitrate total [as N]	2.14	11.2	1.62	8.7	3.742	18.93	3.742	18.93
Nitrite + Nitrate total [as N]	5.2	27.36	3.9	20.2	3.2825	18.823	3.2825	18.823
Nitrite + Nitrate total [as N]	5.33	27.64	3.3306	17.046	3.1575	18.23	3.1575	18.23
Nitrite + Nitrate total [as N]	3.198	18.754	3.198	18.754	2.49	15.42	2.49	15.42
Nitrite + Nitrate total [as N]	2.66	14.82	2.66	14.82	.4153	2.5125	.4153	2.5125
Nitrite + Nitrate total [as N]	5.07	25.315	5.07	25.315	.4646	2.886	.4646	2.886
Nitrite + Nitrate total [as N]	2.4375	12.565	2.4375	12.565	.5	2.8575	.5	2.8575
Nitrite + Nitrate total [as N]	2.72	13.755	2.72	13.755	.4529	2.9663	.4529	2.9663
Nitrite + Nitrate total [as N]	2.225	11.63	2.225	11.63	.3881	3.03	.3881	2.4156
Nitrite + Nitrate total [as N]	2.932	15.14	2.932	15.14	3.984	21.822	3.984	21.822
Nitrite + Nitrate total [as N]	3.105	17.793	3.105	17.793	2.6225	13.58	2.6225	13.58
Nitrite + Nitrate total [as N]	4.078	23.348	4.078	23.348	2.74	14.375	2.74	14.375
Nitrite + Nitrate total [as N]	4.1835	22.74	4.1835	22.74	3.4629	18.863	3.4629	18.863
Nitrite + Nitrate total [as N]	3.8075	20.103	3.8075	20.103	1.7785	9.34	1.7785	9.34
Nitrite + Nitrate total [as N]	3.635	18.768	3.635	18.768				
Nitrite + Nitrate total [as N]	1.9548	10.336	1.9548	10.336				
Nitrite + Nitrate total [as N]	.501	2.43	.501	2.43				
Nitrite + Nitrate total [as N]	.5107	2.7833	.5107	2.7833				
Nitrite + Nitrate total [as N]	2.6863	14.315	2.6863	14.315				
Nitrite + Nitrate total [as N]	3.8057	20.843	3.8057	20.843				
Nitrite + Nitrate total [as N]	2.85	15.78	2.85	15.78				
Nitrite + Nitrate total [as N]	2.7836	14.886	2.7836	14.886				
Nitrite + Nitrate total [as N]	3.8975	20.605	3.8975	20.605				
Nitrite + Nitrate total [as N]	4.7125	24.67	4.7125	24.67				
Nitrite + Nitrate total [as N]	2.4922	13.532	2.4922	13.532				

Average	3.385	20.153	3.008	17.387	2.699	20.962	2.472	15.943
Minimum	0.501	2.430	0.501	2.430	0.388	2.513	0.388	2.416
Maximum	5.900	51.600	5.090	41.140	4.620	83.250	3.984	38.060
Count	36	36	36	36	25	25	25	25
Std Dev	1.3	10.5	1.1	7.6	1.3	20.2	1.2	8.6
CV	0.371	0.519	0.358	0.435	0.476	0.965	0.469	0.537
95th Percentile	5.233	37.225	4.802	27.311	3.959	72.268	3.868	25.191
5th Percentile	1.594	8.448	1.343	7.221	0.423	2.863	0.423	2.582

90th percentile	4.965	29.240	4.207	24.550	3.824	27.406	3.630	24.422
50th percentile	3.239	18.761	3.016	16.413	3.158	18.230	2.740	17.155

Table 23. Ammonia Effluent Data

Parameter Desc	Daily Max		Daily Max		Monthly Average		Monthly Average		Monitoring Period End Date
	mg/L		lbs/day		mg/L		lbs/day		
	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	
Nitrogen, ammonia total [as N]	.05	6.22	.56	86.6	.03	1.35	.39	21.5	10/31/2019
Nitrogen, ammonia total [as N]	.11	6.22	.58	86.6	.08	1.35	.53	21.5	11/30/2019
Nitrogen, ammonia total [as N]	.08	6.22	.59	86.6	.07	1.35	.48	21.5	12/31/2019
Nitrogen, ammonia total [as N]	.08	6.22	.53	86.6	.05	1.35	.29	21.5	01/31/2020
Nitrogen, ammonia total [as N]	.06	6.22	.359	86.6	.045	1.35	.269	21.5	02/29/2020
Nitrogen, ammonia total [as N]	.061	6.22	.34	86.6	.031	1.35	.17	21.5	03/31/2020
Nitrogen, ammonia total [as N]	.04	6.22	.23	86.6	.03	1.35	.18	21.5	04/30/2020
Nitrogen, ammonia total [as N]	.09	5.23	.46	72.8	.057	1.35	.34	21.5	05/31/2020
Nitrogen, ammonia total [as N]	.068	5.23	.59	72.8	.056	1.35	.439	21.5	06/30/2020
Nitrogen, ammonia total [as N]	.061	5.23	.36	72.8	.04	1.35	.23	21.5	07/31/2020
Nitrogen, ammonia total [as N]	.04	5.23	.27	72.8	.03	1.35	.23	21.5	08/31/2020
Nitrogen, ammonia total [as N]	.08	5.23	.48	72.8	.042	1.35	.3	21.5	09/30/2020
Nitrogen, ammonia total [as N]	.08	6.22	.45	86.6	.056	1.35	.275	21.5	10/31/2020
Nitrogen, ammonia total [as N]	.08	6.22	.41	86.6	.057	1.35	.317	21.5	11/30/2020
Nitrogen, ammonia total [as N]	.08	6.22	.49	86.6	.06	1.35	.32	21.5	12/31/2020
Nitrogen, ammonia total [as N]	.06	6.22	.34	86.6	.019	1.35	.116	21.5	01/31/2021
Nitrogen, ammonia total [as N]	.027	6.22	.14	86.6	.015	1.35	.064	21.5	02/28/2021
Nitrogen, ammonia total [as N]	.24	6.22	1.26	86.6	.073	1.35	.38	21.5	03/31/2021
Nitrogen, ammonia total [as N]	.08	6.22	.32	86.6	.05	1.35	.28	21.5	04/30/2021
Nitrogen, ammonia total [as N]	.137	5.23	.723	72.8	.1167	1.35	.6085	21.5	05/31/2021
Nitrogen, ammonia total [as N]	.208	5.23	1.17	72.8	.1698	1.35	.9343	21.5	06/30/2021
Nitrogen, ammonia total [as N]	.229	5.23	1.39	72.8	.1778	1.35	1.0636	21.5	07/31/2021
Nitrogen, ammonia total [as N]	.173	5.23	1.211	72.8	.173	1.35	1.211	21.5	08/31/2021
Nitrogen, ammonia total [as N]	.16	5.23	1.258	72.8	.131	1.35	1.016	21.5	09/30/2021
Nitrogen, ammonia total [as N]	.131	6.22	.778	86.6	.1182	1.35	.6854	21.5	10/31/2021
Nitrogen, ammonia total [as N]	.1	6.22	.58	86.6	.06	1.35	.33	21.5	11/30/2021
Nitrogen, ammonia total [as N]	.09	6.22	.44	86.6	.045	1.35	.22	21.5	12/31/2021
Nitrogen, ammonia total [as N]	.024	6.22	.12	86.6	.0205	1.35	.1	21.5	01/31/2022
Nitrogen, ammonia total [as N]	.028	6.22	.139	86.6	.0225	1.35	.112	21.5	02/28/2022
Nitrogen, ammonia total [as N]	.124	6.22	.64	86.6	.098	1.35	.5075	21.5	03/31/2022
Nitrogen, ammonia total [as N]	.068	6.22	.33	86.6	.049	1.35	.253	21.5	04/30/2022
Nitrogen, ammonia total [as N]	.149	5.23	.73	72.8	.089	1.35	.425	21.5	05/31/2022
Nitrogen, ammonia total [as N]	.19	5.23	.94	72.8	.17	1.35	.858	21.5	06/30/2022
Nitrogen, ammonia total [as N]	.358	5.23	2.02	72.8	.269	1.35	1.52	21.5	07/31/2022
Nitrogen, ammonia total [as N]	.239	5.23	1.43	72.8	.1733	1.35	1.0025	21.5	08/31/2022
Nitrogen, ammonia total [as N]	.162	5.23	1.02	72.8	.1488	1.35	.918	21.5	09/30/2022
Nitrogen, ammonia total [as N]	.18	6.22	1.01	86.6	.174	1.35	.9925	21.5	10/31/2022
Nitrogen, ammonia total [as N]	.103	6.22	.57	86.6	.0712	1.35	.406	21.5	11/30/2022
Nitrogen, ammonia total [as N]	.098	6.22	.6	86.6	.072	1.35	.4667	21.5	12/31/2022
Nitrogen, ammonia total [as N]	.202	6.22	1.07	86.6	.1393	1.35	.745	21.5	01/31/2023
Nitrogen, ammonia total [as N]	1.18	6.22	5.99	86.6	.504	1.35	2.58	21.5	02/28/2023

Nitrogen, ammonia total [as N]	1.24	6.22	6.51	86.6	.6764	1.35	3.566	21.5	03/31/2023
Nitrogen, ammonia total [as N]	.455	6.22	2.18	86.6	.2268	1.35	1.11	21.5	04/30/2023
Nitrogen, ammonia total [as N]	.554	5.23	3.7	72.8	.255	1.35	1.5325	21.5	05/31/2023
Nitrogen, ammonia total [as N]	.721	5.23	5.12	72.8	.521	1.35	3.306	21.5	06/30/2023
Nitrogen, ammonia total [as N]	1.06	5.23	5.92	72.8	.9875	1.35	5.635	21.5	07/31/2023
Nitrogen, ammonia total [as N]	1.47	5.23	11.	72.8	1.1593	1.35	7.6525	21.5	08/31/2023
Nitrogen, ammonia total [as N]	1.41	5.23	8.84	72.8	1.1481	1.35	7.1244	21.5	09/30/2023
Nitrogen, ammonia total [as N]	2.45	6.22	13.26	86.6	1.4505	1.35	8.0825	21.5	10/31/2023
Nitrogen, ammonia total [as N]	.098	6.22	.51	86.6	.044	1.35	.2288	21.5	11/30/2023
Nitrogen, ammonia total [as N]	.079	6.22	.44	86.6	.0543	1.35	.2971	21.5	12/31/2023
Nitrogen, ammonia total [as N]	.06	6.22	.34	86.6	.029	1.35	.158	21.5	01/31/2024
Nitrogen, ammonia total [as N]	.051	6.22	.27	86.6	.0402	1.35	.2111	21.5	02/29/2024
Nitrogen, ammonia total [as N]	.164	6.22	.88	86.6	.093	1.35	.4925	21.5	03/31/2024
Nitrogen, ammonia total [as N]	.171	6.22	.91	86.6	.1278	1.35	.6625	21.5	04/30/2024
Nitrogen, ammonia total [as N]	.1858	5.23	1.018	72.8	.1858	1.35	1.018	21.5	05/31/2024
Nitrogen, ammonia total [as N]	.647	5.23	3.23	72.8	.378	1.35	1.93	21.5	06/30/2024
Nitrogen, ammonia total [as N]	.627	5.23	3.37	72.8	.4042	1.35	2.146	21.5	07/31/2024
Nitrogen, ammonia total [as N]	.244	5.23	1.33	72.8	.1384	1.35	.7529	21.5	08/31/2024
Nitrogen, ammonia total [as N]	.091	5.23	.47	72.8	.0783	1.35	.41	21.5	09/30/2024
Nitrogen, ammonia total [as N]	.286	6.22	.	86.6	.1222	1.35	.656	21.5	10/31/2024

Average	0.3	1.7	0.2	1.1
Minimum	0.0	0.0	0.0	0.1
Maximum	2.5	13.3	1.5	8.1
Count	61	61	61	61
Std Dev	0.4	2.6	0.3	1.8
CV	1.5	1.6	1.5	1.5
95th Percentile	1.2	6.5	1.0	5.6
50th Percentile			0.1	0.5
5th Percentile	0.0	0.1	0.0	0.1
90th percentile	0.7	5.1	0.5	2.6

Parameter Desc	Non-Irrigation Season (Oct 1 - April 30)				Irrigation Season (May 1 - Sep 31)			
	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading
Nitrogen, ammonia total [as N]	.05	.56	.03	.39	.09	.46	.057	.34
Nitrogen, ammonia total [as N]	.11	.58	.08	.53	.068	.59	.056	.439
Nitrogen, ammonia total [as N]	.08	.59	.07	.48	.061	.36	.04	.23
Nitrogen, ammonia total [as N]	.08	.53	.05	.29	.04	.27	.03	.23
Nitrogen, ammonia total [as N]	.06	.359	.045	.269	.08	.48	.042	.3
Nitrogen, ammonia total [as N]	.061	.34	.031	.17	.137	.723	.1167	.6085
Nitrogen, ammonia total [as N]	.04	.23	.03	.18	.208	1.17	.1698	.9343
Nitrogen, ammonia total [as N]	.08	.45	.056	.275	.229	1.39	.1778	1.0636
Nitrogen, ammonia total [as N]	.08	.41	.057	.317	.173	1.211	.173	1.211
Nitrogen, ammonia total [as N]	.08	.49	.06	.32	.16	1.258	.131	1.016
Nitrogen, ammonia total [as N]	.06	.34	.019	.116	.149	.73	.089	.425
Nitrogen, ammonia total [as N]	.027	.14	.015	.064	.19	.94	.17	.858

Nitrogen, ammonia total [as N]	.24	1.26	.073	.38	.358	2.02	.269	1.52
Nitrogen, ammonia total [as N]	.08	.32	.05	.28	.239	1.43	.1733	1.0025
Nitrogen, ammonia total [as N]	.131	.778	.1182	.6854	.162	1.02	.1488	.918
Nitrogen, ammonia total [as N]	.1	.58	.06	.33	.554	3.7	.255	1.5325
Nitrogen, ammonia total [as N]	.09	.44	.045	.22	.721	5.12	.521	3.306
Nitrogen, ammonia total [as N]	.024	.12	.0205	.1	1.06	5.92	.9875	5.635
Nitrogen, ammonia total [as N]	.028	.139	.0225	.112	1.47	11.	1.1593	7.6525
Nitrogen, ammonia total [as N]	.124	.64	.098	.5075	1.41	8.84	1.1481	7.1244
Nitrogen, ammonia total [as N]	.068	.33	.049	.253	.1858	1.018	.1858	1.018
Nitrogen, ammonia total [as N]	.18	1.01	.174	.9925	.647	3.23	.378	1.93
Nitrogen, ammonia total [as N]	.103	.57	.0712	.406	.627	3.37	.4042	2.146
Nitrogen, ammonia total [as N]	.098	.6	.072	.4667	.244	1.33	.1384	.7529
Nitrogen, ammonia total [as N]	.202	1.07	.1393	.745	.091	.47	.0783	.41
Nitrogen, ammonia total [as N]	1.18	5.99	.504	2.58				
Nitrogen, ammonia total [as N]	1.24	6.51	.6764	3.566				
Nitrogen, ammonia total [as N]	.455	2.18	.2268	1.11				
Nitrogen, ammonia total [as N]	2.45	13.26	1.4505	8.0825				
Nitrogen, ammonia total [as N]	.098	.51	.044	.2288				
Nitrogen, ammonia total [as N]	.079	.44	.0543	.2971				
Nitrogen, ammonia total [as N]	.06	.34	.029	.158				
Nitrogen, ammonia total [as N]	.051	.27	.0402	.2111				
Nitrogen, ammonia total [as N]	.164	.88	.093	.4925				
Nitrogen, ammonia total [as N]	.171	.91	.1278	.6625				
Nitrogen, ammonia total [as N]	.286	.	.1222	.656				

Average	0.236	1.227	0.136	0.748	0.374	2.322	0.284	1.704
Minimum	0.024	0.000	0.015	0.064	0.040	0.270	0.030	0.230
Maximum	2.450	13.260	1.451	8.083	1.470	11.000	1.159	7.653
Count	36	36	36	36	25	25	25	25
Std Dev	0.465	2.481	0.261	1.428	0.407	2.743	0.330	2.065
CV	1.966	2.022	1.913	1.910	1.088	1.181	1.163	1.212
95th Percentile	1.195	6.120	0.547	2.827	1.340	8.256	1.116	6.827
50th Percentile	0.085	0.520	0.059	0.325	0.190	1.211	0.170	1.003
5th Percentile	0.028	0.134	0.020	0.109	0.062	0.380	0.040	0.244
90th percentile	0.371	1.720	0.200	1.051	0.924	5.600	0.801	4.703

Table 24. Total Kjeldahl Nitrogen Effluent Data

Parameter Desc	Daily Max		Monthly Average		Monitoring Period End Date
	mg/L		mg/L		
	DMR	Limit	DMR	Limit	
Nitrogen, Kjeldahl, total [as N]	.6		.6		12/31/2019
Nitrogen, Kjeldahl, total [as N]	.3		.3		03/31/2020
Nitrogen, Kjeldahl, total [as N]	1.1		.867		06/30/2020
Nitrogen, Kjeldahl, total [as N]	1.4		1.4		09/30/2020
Nitrogen, Kjeldahl, total [as N]	.8		.75		12/31/2020
Nitrogen, Kjeldahl, total [as N]	2.4		1.47		03/31/2021
Nitrogen, Kjeldahl, total [as N]	1.4		1.4		06/30/2021
Nitrogen, Kjeldahl, total [as N]	1.2		1.2		09/30/2021

Nitrogen, Kjeldahl, total [as N]	1.4		1.4		12/31/2021
Nitrogen, Kjeldahl, total [as N]	1.72		1.72		03/31/2022
Nitrogen, Kjeldahl, total [as N]	1.48		1.48		06/30/2022
Nitrogen, Kjeldahl, total [as N]	1.54		1.54		09/30/2022
Nitrogen, Kjeldahl, total [as N]	1.8		1.208		12/31/2022
Nitrogen, Kjeldahl, total [as N]	1.		1.		03/31/2023
Nitrogen, Kjeldahl, total [as N]	1.		1.		06/30/2023
Nitrogen, Kjeldahl, total [as N]	3.		3.		09/30/2023
Nitrogen, Kjeldahl, total [as N]	1.		.5		12/31/2023
Nitrogen, Kjeldahl, total [as N]	1.		1.		03/31/2024
Nitrogen, Kjeldahl, total [as N]	1.		1.		06/30/2024
Nitrogen, Kjeldahl, total [as N]	1.		1.		09/30/2024

Average	1.3	1.2
Minimum	0.3	0.3
Maximum	3.0	3.0
Count	20	20
Std Dev	0.6	0.6
CV	0.5	0.5
95th Percentile	2.4	1.8
5th Percentile	0.6	0.5
90th percentile	1.9	1.6

Table 25. Oil and Grease Effluent Data

Parameter Desc	Daily Max		Monthly Average		Monitoring Period End Date
	mg/L		mg/L		
	DMR	Limit	DMR	Limit	
Oil and grease	1.4		1.4		12/31/2019
Oil and grease	1.4		1.4		03/31/2020
Oil and grease	2.6		2.6		06/30/2020
Oil and grease	1.4		1.4		09/30/2020
Oil and grease	1.4		1.4		12/31/2020
Oil and grease	1.4		1.4		03/31/2021
Oil and grease	1.4		1.4		06/30/2021
Oil and grease	1.4		1.4		09/30/2021
Oil and grease	1.4		1.4		12/31/2021
Oil and grease	1.4		1.4		03/31/2022
Oil and grease	.		.		06/30/2022
Oil and grease	1.44		1.44		09/30/2022
Oil and grease	9.9		9.9		12/31/2022
Oil and grease	43.		43.		03/31/2023
Oil and grease	93.		93.		06/30/2023
Oil and grease	89.		89.		09/30/2023
Oil and grease	42.		42.		12/31/2023
Oil and grease	64.		64.		03/31/2024
Oil and grease	1.8		1.8		06/30/2024
Oil and grease	1.3		1.3		09/30/2024

Average	18.0	18.0
Minimum	0.0	0.0
Maximum	93.0	93.0
Count	20	20
Std Dev	30.7	30.7
CV	1.7	1.7
95th Percentile	89.2	89.2
5th Percentile	1.2	1.2
90th percentile	66.5	66.5

Table 26. Total Phosphorus Effluent Data

Parameter Desc	Daily Max		Weekly Average		Monthly Average		Monthly Average		Monitoring Period End Date
	mg/L		lbs/day		mg/L		lbs/day		
	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	
Phosphorus, total [as P]	3.11		19.7	82.			16.8	48.	10/31/2019
Phosphorus, total [as P]					1.89				
Phosphorus, total [as P]	1.37		24.9	82.	1.2		23.15	48.	03/31/2020
Phosphorus, total [as P]	2.01		28.13	82.	1.46		19.9	48.	04/30/2020
Phosphorus, total [as P]	2.68		9.74	82.	2.36		3.56	48.	05/31/2020
Phosphorus, total [as P]	1.15		10.9	82.	.78		6.8	48.	06/30/2020
Phosphorus, total [as P]	.84		3.65	82.	.49		2.029	48.	07/31/2020
Phosphorus, total [as P]	.882		1.74	82.	.488		1.08	48.	08/31/2020
Phosphorus, total [as P]	2.12		6.35	82.	.855		4.99	48.	09/30/2020
Phosphorus, total [as P]	.74		4.86	82.	.52		3.99	48.	10/31/2020
Phosphorus, total [as P]	.719		14.86	82.	.324		11.65	48.	03/31/2021
Phosphorus, total [as P]	.247		8.72	82.	.195		3.6571	48.	04/30/2021
Phosphorus, total [as P]	.435		11.89	82.	.3893		6.795	48.	05/31/2021
Phosphorus, total [as P]	1.89		3.9	82.	.8614		2.76	48.	06/30/2021
Phosphorus, total [as P]	2.58		7.032	82.	1.6835		7.032	48.	07/31/2021
Phosphorus, total [as P]	3.43		3.02	82.	3.2025		3.02	48.	08/31/2021
Phosphorus, total [as P]	2.43		4.284	82.	1.12		4.284	48.	09/30/2021
Phosphorus, total [as P]	.843		6.324	82.	.3616		6.324	48.	10/31/2021
Phosphorus, total [as P]	.32		9.14	82.	.1559		9.14	48.	03/31/2022
Phosphorus, total [as P]	.304		6.058	82.	.193		6.058	48.	04/30/2022
Phosphorus, total [as P]	.33		1.218	82.	.183		1.218	48.	05/31/2022
Phosphorus, total [as P]			3.024	82.			3.024	48.	06/30/2022
Phosphorus, total [as P]			4.0325	82.			4.0325	48.	07/31/2022
Phosphorus, total [as P]			10.855	82.			10.855	48.	08/31/2022
Phosphorus, total [as P]			8.394	82.			8.394	48.	09/30/2022
Phosphorus, total [as P]			3.3525	82.			3.3525	48.	10/31/2022
Phosphorus, total [as P]			3.084	82.			3.084	48.	03/31/2023
Phosphorus, total [as P]			3.515	82.			3.515	48.	04/30/2023
Phosphorus, total [as P]			11.633	82.			11.633	48.	05/31/2023
Phosphorus, total [as P]			30.65	82.			30.65	48.	06/30/2023
Phosphorus, total [as P]			19.403	82.			19.403	48.	07/31/2023
Phosphorus, total [as P]			18.744	82.			18.744	48.	08/31/2023
Phosphorus, total [as P]			16.38	82.			16.38	48.	09/30/2023
Phosphorus, total [as P]			15.225	82.			15.225	48.	10/31/2023

Phosphorus, total [as P]	1.51	82.	1.51	48.	03/31/2024
Phosphorus, total [as P]	12.395	82.	12.395	48.	04/30/2024
Phosphorus, total [as P]	9.286	82.	9.286	48.	05/31/2024
Phosphorus, total [as P]	19.1	82.	19.1	48.	06/30/2024
Phosphorus, total [as P]	10.575	82.	10.575	48.	07/31/2024
Phosphorus, total [as P]	5.8329	82.	5.8329	48.	08/31/2024
Phosphorus, total [as P]	3.745	82.	3.745	48.	09/30/2024
Phosphorus, total [as P]	3.588	82.	3.588	48.	10/31/2024

Average	1.4	9.8	0.9	8.7
Minimum	0.2	1.2	0.2	1.1
Maximum	3.4	30.7	3.2	30.7
Count	20	41	20	41
Std Dev	1.0	7.4	0.8	7.0
CV	0.7	0.8	0.9	0.8
95th Percentile	3.1	24.9	2.4	19.9
5th Percentile	0.3	1.7	0.2	1.5
90th percentile	2.7	19.4	1.9	19.1

Table 27. Dissolved Oxygen Effluent Data

Parameter Desc	Instant. Min		Monthly Average		Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30)		Irrigation Season (May 1 - Sep 31)	
	mg/L		mg/L						
	DMR	Limit	DMR	Limit		Daily Max	Monthly Ave	Daily Max	Monthly Ave
Oxygen, dissolved [DO]	7.9		7.9		10/31/2019	7.9	7.9	8.1	8.1
Oxygen, dissolved [DO]	8.1		8.1		11/30/2019	8.1	8.1	8.	8.
Oxygen, dissolved [DO]	8.		8.		12/31/2019	8.	8.	8.	8.
Oxygen, dissolved [DO]	8.1		8.1		01/31/2020	8.1	8.1	8.2	8.2
Oxygen, dissolved [DO]	8.1		8.1		02/29/2020	8.1	8.1	8.2	8.2
Oxygen, dissolved [DO]	8.		8.		03/31/2020	8.	8.	7.3	7.35
Oxygen, dissolved [DO]	8.1		8.1		04/30/2020	8.1	8.1	7.03	7.03
Oxygen, dissolved [DO]	8.1		8.1		05/31/2020	8.3	8.3	5.7	5.79
Oxygen, dissolved [DO]	8.		8.		06/30/2020	8.5	8.5	5.73	5.785
Oxygen, dissolved [DO]	8.		8.		07/31/2020	7.8	7.8	7.9	8.
Oxygen, dissolved [DO]	8.2		8.2		08/31/2020	8.6	8.6	7.66	7.66
Oxygen, dissolved [DO]	8.2		8.2		09/30/2020	8.1	8.2	6.4	6.4
Oxygen, dissolved [DO]	8.3		8.3		10/31/2020	7.6	7.69	6.3	6.3
Oxygen, dissolved [DO]	8.5		8.5		11/30/2020	8.2	8.2	7.9	7.9
Oxygen, dissolved [DO]	7.8		7.8		12/31/2020	7.85	8.0633	5.72	5.95
Oxygen, dissolved [DO]	8.6		8.6		01/31/2021	7.28	7.38	4.99	5.32
Oxygen, dissolved [DO]	8.1		8.2		02/28/2021	8.4	8.4	4.91	4.96
Oxygen, dissolved [DO]	7.6		7.69		03/31/2021	8.43	8.43	4.91	5.11
Oxygen, dissolved [DO]	8.2		8.2		04/30/2021	8.87	8.94	4.86	4.945
Oxygen, dissolved [DO]	7.3		7.35		05/31/2021	6.62	6.64	4.61	4.61
Oxygen, dissolved [DO]	7.03		7.03		06/30/2021	7.9	7.9	7.2	7.2
Oxygen, dissolved [DO]	5.7		5.79		07/31/2021	5.63	6.24	7.23	7.23
Oxygen, dissolved [DO]	5.73		5.785		08/31/2021	6.86	7.16	5.59	6.06

Oxygen, dissolved [DO]	7.9		8.		09/30/2021	7.43	8.195	5.58	6.05
Oxygen, dissolved [DO]	7.85		8.0633		10/31/2021	7.71	8.035	6.26	6.4567
Oxygen, dissolved [DO]	7.28		7.38		11/30/2021	7.36	7.5233		
Oxygen, dissolved [DO]	8.4		8.4		12/31/2021	6.64	6.785		
Oxygen, dissolved [DO]	8.43		8.43		01/31/2022	6.5	6.61		
Oxygen, dissolved [DO]	8.87		8.94		02/28/2022	5.09	5.8325		
Oxygen, dissolved [DO]	6.62		6.64		03/31/2022	8.1	8.1		
Oxygen, dissolved [DO]	7.9		7.9		04/30/2022	7.04	7.3367		
Oxygen, dissolved [DO]	7.66		7.66		05/31/2022	7.68	7.99		
Oxygen, dissolved [DO]	6.4		6.4		06/30/2022	7.86	8.1167		
Oxygen, dissolved [DO]	6.3		6.3		07/31/2022	7.51	7.71		
Oxygen, dissolved [DO]	7.9		7.9		08/31/2022	6.97	6.97		
Oxygen, dissolved [DO]	5.72		5.95		09/30/2022	6.74	7.115		
Oxygen, dissolved [DO]	5.63		6.24		10/31/2022				
Oxygen, dissolved [DO]	6.86		7.16		11/30/2022				
Oxygen, dissolved [DO]	7.43		8.195		12/31/2022				
Oxygen, dissolved [DO]	7.71		8.035		01/31/2023				
Oxygen, dissolved [DO]	7.36		7.5233		02/28/2023				
Oxygen, dissolved [DO]	6.64		6.785		03/31/2023				
Oxygen, dissolved [DO]	6.5		6.61		04/30/2023				
Oxygen, dissolved [DO]	4.99		5.32		05/31/2023				
Oxygen, dissolved [DO]	4.91		4.96		06/30/2023				
Oxygen, dissolved [DO]	4.91		5.11		07/31/2023				
Oxygen, dissolved [DO]	4.86		4.945		08/31/2023				
Oxygen, dissolved [DO]	4.61		4.61		09/30/2023				
Oxygen, dissolved [DO]	5.09		5.8325		10/31/2023				
Oxygen, dissolved [DO]	8.1		8.1		11/30/2023				
Oxygen, dissolved [DO]	7.04		7.3367		12/31/2023				
Oxygen, dissolved [DO]	7.68		7.99		01/31/2024				
Oxygen, dissolved [DO]	7.86		8.1167		02/29/2024				
Oxygen, dissolved [DO]	7.51		7.71		03/31/2024				
Oxygen, dissolved [DO]	6.97		6.97		04/30/2024				
Oxygen, dissolved [DO]	7.2		7.2		05/31/2024				
Oxygen, dissolved [DO]	7.23		7.23		06/30/2024				
Oxygen, dissolved [DO]	5.59		6.06		07/31/2024				
Oxygen, dissolved [DO]	5.58		6.05		08/31/2024				
Oxygen, dissolved [DO]	6.26		6.4567		09/30/2024				
Oxygen, dissolved [DO]	6.74		7.115		10/31/2024				

Average	7.2	7.3		7.6	7.8	6.6	6.7
Minimum	4.6	4.6		5.1	5.8	4.6	4.6
Maximum	8.9	8.9		8.9	8.9	8.2	8.2
Count	61	61		36	36	25	25
Std Dev	1.1	1.1		0.8	0.7	1.2	1.2
CV	0.2	0.1		0.1	0.1	0.2	0.2
95th Percentile	8.4	8.4		8.5	8.5	8.2	8.2
5th Percentile	4.9	5.1		6.3	6.5	4.9	4.9
90th percentile	8.2	8.2		8.4	8.4	8.1	8.1

Table 28. pH Effluent Data

Parameter Desc	Instant. Min		Instant. Max		Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30)		Irrigation Season (May 1 - Sep 31)	
	DMR	Limit	DMR	Limit		Inst Min	Inst Max	Inst Min	Inst Max
pH	6.9	6.5	7.2	8.8	10/31/2019	6.9	7.2	6.9	7.2
pH	6.9	6.5	7.2	8.8	11/30/2019	6.9	7.2	6.9	7.3
pH	6.8	6.5	7.1	8.8	12/31/2019	6.8	7.1	7.	7.5
pH	6.9	6.5	7.	8.8	01/31/2020	6.9	7.	6.6	7.6
pH	6.9	6.5	7.	8.8	02/29/2020	6.9	7.	6.6	7.2
pH	6.8	6.5	7.	8.8	03/31/2020	6.8	7.	6.6	7.6
pH	6.9	6.5	7.2	8.8	04/30/2020	6.9	7.2	6.9	7.4
pH	6.9	6.5	7.2	9.	05/31/2020	6.6	7.7	6.5	7.2
pH	6.9	6.5	7.3	9.	06/30/2020	6.6	7.	6.8	7.2
pH	7.	6.5	7.5	9.	07/31/2020	6.6	7.	6.7	6.9318
pH	6.6	6.5	7.6	9.	08/31/2020	6.6	6.9	7.1	7.3
pH	6.6	6.5	7.2	9.	09/30/2020	6.7	6.9	7.	7.2
pH	6.6	6.5	7.7	8.8	10/31/2020	6.6	6.9	7.2	7.3
pH	6.6	6.5	7.	8.8	11/30/2020	6.5	6.7	7.	7.2
pH	6.6	6.5	7.	8.8	12/31/2020	6.8	7.1	7.	7.2
pH	6.6	6.5	6.9	8.8	01/31/2021	6.5	7.	7.3	7.6
pH	6.7	6.5	6.9	8.8	02/28/2021	6.6	6.8	7.2	7.6
pH	6.6	6.5	6.9	8.8	03/31/2021	6.5	6.7	7.5	7.8
pH	6.5	6.5	6.7	8.8	04/30/2021	6.6	7.1	7.5	7.7
pH	6.6	6.5	7.6	9.	05/31/2021	6.9	7.3	7.3	7.6
pH	6.9	6.5	7.4	9.	06/30/2021	7.	7.2	7.	7.3
pH	6.5	6.5	7.2	9.	07/31/2021	7.	7.3	7.1	7.2
pH	6.8	6.5	7.2	9.	08/31/2021	7.	7.2	7.	7.4
pH	6.7	6.5	6.9318	9.	09/30/2021	7.	7.1	7.1	7.5
pH	6.8	6.5	7.1	8.8	10/31/2021	7.	7.	7.1	7.4
pH	6.5	6.5	7.	8.8	11/30/2021	7.	7.3		
pH	6.6	6.5	6.8	8.8	12/31/2021	7.1	7.4		
pH	6.5	6.5	6.7	8.8	01/31/2022	7.2	7.7		
pH	6.6	6.5	7.1	8.8	02/28/2022	7.3	7.4435		
pH	6.9	6.5	7.3	8.8	03/31/2022	7.2	7.3		
pH	7.	6.5	7.2	8.8	04/30/2022	6.8	7.4		
pH	7.1	6.5	7.3	9.	05/31/2022	7.	7.3		
pH	7.	6.5	7.2	9.	06/30/2022	7.	7.4		
pH	7.2	6.5	7.3	9.	07/31/2022	6.8	7.3		
pH	7.	6.5	7.2	9.	08/31/2022	7.	7.2		
pH	7.	6.5	7.2	9.	09/30/2022	7.1	7.3		
pH	7.	6.5	7.3	8.8	10/31/2022				
pH	7.	6.5	7.2	8.8	11/30/2022				
pH	7.	6.5	7.1	8.8	12/31/2022				
pH	7.	6.5	7.	8.8	01/31/2023				
pH	7.	6.5	7.3	8.8	02/28/2023				
pH	7.1	6.5	7.4	8.8	03/31/2023				
pH	7.2	6.5	7.7	8.8	04/30/2023				
pH	7.3	6.5	7.6	9.	05/31/2023				
pH	7.2	6.5	7.6	9.	06/30/2023				
pH	7.5	6.5	7.8	9.	07/31/2023				
pH	7.5	6.5	7.7	9.	08/31/2023				
pH	7.3	6.5	7.6	9.	09/30/2023				
pH	7.3	6.5	7.4435	8.8	10/31/2023				
pH	7.2	6.5	7.3	8.8	11/30/2023				
pH	6.8	6.5	7.4	8.8	12/31/2023				

pH	7.	6.5	7.3	8.8	01/31/2024
pH	7.	6.5	7.4	8.8	02/29/2024
pH	6.8	6.5	7.3	8.8	03/31/2024
pH	7.	6.5	7.2	8.8	04/30/2024
pH	7.	6.5	7.3	9.	05/31/2024
pH	7.1	6.5	7.2	9.	06/30/2024
pH	7.	6.5	7.4	9.	07/31/2024
pH	7.1	6.5	7.5	9.	08/31/2024
pH	7.1	6.5	7.4	9.	09/30/2024
pH	7.1	6.5	7.3	8.8	10/31/2024

Average	6.9	7.2	6.9	7.2	7.0	7.4		
Minimum	6.5	6.7	6.5	6.7	6.5	6.9		
Maximum	7.5	7.8	7.3	7.7	7.5	7.8		
Count	61	61	36.0	36.0	25.0	25.0		
Std Dev	0.2	0.2	0.2	0.2	0.3	0.2		
CV	0.0	0.0	0.0	0.0	0.0	0.0		
95th Percentile	7.3	7.7	7.2	7.5	7.5	7.7		
10th Percentile	6.6	6.9	6.6	6.9	6.6	7.2		
90th percentile	7.2	7.6	7.1	7.4	7.3	7.6		

Table 29. Total Recoverable Selenium Effluent Data

Parameter Desc	Daily Max		Daily Max		Monthly Average		Monthly Average		Monitoring Period End Date
	µg/L		lbs/day		µg/L		lbs/day		
	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	
Selenium, total recoverable	2.	11.5	.023	.16	2.	4.24	.023	.0591	10/31/2019
Selenium, total recoverable	2.	11.5	.015	.16	2.	4.24	.015	.0591	11/30/2019
Selenium, total recoverable	1.	11.5	.007	.16	1.	4.24	.007	.0591	12/31/2019
Selenium, total recoverable	2.	11.5	.012	.16	2.	4.24	.012	.0591	01/31/2020
Selenium, total recoverable	2.	11.5	.0012	.16	2.	4.24	.0012	.0591	02/29/2020
Selenium, total recoverable	2.	11.5	.017	.16	2.	4.24	.017	.0591	03/31/2020
Selenium, total recoverable	2.	11.5	.011	.16	2.	4.24	.011	.0591	04/30/2020
Selenium, total recoverable	2.	19.2	.008	.267	2.	7.08	.008	.0986	05/31/2020
Selenium, total recoverable	2.	19.2	.01	.267	2.	7.08	.01	.0986	06/30/2020
Selenium, total recoverable	2.	19.2	.011	.267	2.	7.08	.011	.0986	07/31/2020
Selenium, total recoverable	2.	19.2	.011	.267	2.	7.08	.011	.0986	08/31/2020
Selenium, total recoverable	2.	19.2	.013	.267	2.	7.08	.013	.0986	09/30/2020
Selenium, total recoverable	2.	11.5	.011	.16	2.	4.24	.011	.0591	10/31/2020
Selenium, total recoverable	2.	11.5	.01	.16	2.	4.24	.01	.0591	11/30/2020
Selenium, total recoverable	2.	11.5	.01	.16	2.	4.24	.01	.0591	12/31/2020
Selenium, total recoverable	2.	11.5	.01	.16	2.	4.24	.01	.0591	01/31/2021
Selenium, total recoverable	2.	11.5	.012	.16	2.	4.24	.011	.0591	02/28/2021
Selenium, total recoverable	2.	11.5	.01	.16	2.	4.24	.01	.0591	03/31/2021
Selenium, total recoverable	2.	11.5	.01	.16	2.	4.24	.0099	.0591	04/30/2021
Selenium, total recoverable	2.	19.2	.01	.267	2.	7.08	.01	.0986	05/31/2021
Selenium, total recoverable	2.	19.2	.01	.267	2.	7.08	.01	.0986	06/30/2021
Selenium, total recoverable	.008	19.2	.046	.267	.008	7.08	.046	.0986	07/31/2021
Selenium, total recoverable	8.	19.2	.059	.267	6.	7.08	.043	.0986	08/31/2021
Selenium, total recoverable	.008	19.2	.06	.267	.008	7.08	.06	.0986	09/30/2021
Selenium, total recoverable	.008	11.5	.05	.16	.008	4.24	.05	.0591	10/31/2021
Selenium, total recoverable	.008	11.5	.046	.16	.008	4.24	.045	.0591	11/30/2021
Selenium, total recoverable	2.	11.5	.03	.16	2.	4.24	.03	.0591	12/31/2021
Selenium, total recoverable	2.	11.5	.01	.16	2.	4.24	.01	.0591	01/31/2022
Selenium, total recoverable	2.	11.5	.01	.16	2.	4.24	.01	.0591	02/28/2022

Selenium, total recoverable	.	11.5	.	.16	.	4.24	.	.0591	03/31/2022
Selenium, total recoverable	1.	11.5	.004	.16	1.	4.24	.004	.0591	04/30/2022
Selenium, total recoverable	1.	19.2	.05	.267	1.	7.08	.05	.0986	05/31/2022
Selenium, total recoverable	1.	19.2	.007	.267	1.	7.08	.007	.0986	06/30/2022
Selenium, total recoverable	1.	19.2	.005	.267	1.	7.08	.005	.0986	07/31/2022
Selenium, total recoverable	1.	19.2	.005	.267	1.	7.08	.005	.0986	08/31/2022
Selenium, total recoverable	1.	19.2	.006	.267	1.	7.08	.006	.0986	09/30/2022
Selenium, total recoverable	1.	11.5	.005	.16	1.	4.24	.005	.0591	10/31/2022
Selenium, total recoverable	.87	11.5	.04	.16	.87	4.24	.04	.0591	11/30/2022
Selenium, total recoverable	1.	11.5	.005	.16	1.	4.24	.005	.0591	12/31/2022
Selenium, total recoverable	.005	11.5	.02	.16	.005	4.24	.02	.0591	01/31/2023
Selenium, total recoverable	1.	11.5	.005	.16	1.	4.24	.005	.0591	02/28/2023
Selenium, total recoverable	.005	11.5	.02	.16	.005	4.24	.02	.0591	03/31/2023
Selenium, total recoverable	1.	11.5	.005	.16	1.	4.24	.005	.0591	04/30/2023
Selenium, total recoverable	1.	19.2	.005	.267	1.	7.08	.005	.0986	05/31/2023
Selenium, total recoverable	.005	19.2	.03	.267	.005	7.08	.03	.0986	06/30/2023
Selenium, total recoverable	1.	19.2	.005	.267	1.	7.08	.005	.0986	07/31/2023
Selenium, total recoverable	1.	19.2	.005	.267	1.	7.08	.005	.0986	08/31/2023
Selenium, total recoverable	1.	19.2	.006	.267	1.	7.08	.006	.0986	09/30/2023
Selenium, total recoverable	1.	11.5	.006	.16	1.	4.24	.0052	.0591	10/31/2023
Selenium, total recoverable	1.	11.5	.005	.16	1.	4.24	.005	.0591	11/30/2023
Selenium, total recoverable	.001	11.5	.005	.16	.001	4.24	.005	.0591	12/31/2023
Selenium, total recoverable	1.	11.5	.005	.16	1.	4.24	.005	.0591	01/31/2024
Selenium, total recoverable	1.	11.5	.005	.16	1.	4.24	.005	.0591	02/29/2024
Selenium, total recoverable	1.	11.5	.005	.16	1.	4.24	.005	.0591	03/31/2024
Selenium, total recoverable	1.	11.5	.005	.16	1.	4.24	.005	.0591	04/30/2024
Selenium, total recoverable	1.	19.2	.005	.267	1.	7.08	.005	.0986	05/31/2024
Selenium, total recoverable	1.	19.2	.005	.267	1.	7.08	.005	.0986	06/30/2024
Selenium, total recoverable	1.	19.2	.005	.267	1.	7.08	.005	.0986	07/31/2024
Selenium, total recoverable	1.	19.2	.005	.267	1.	7.08	.005	.0986	08/31/2024
Selenium, total recoverable	1.	19.2	.005	.267	1.	7.08	.005	.0986	09/30/2024
Selenium, total recoverable	1.	11.5	.005	.16	1.	4.24	.005	.0591	10/31/2024

Average	1.343	0.014	1.310	0.013
Minimum	0.000	0.000	0.000	0.000
Maximum	8.000	0.060	6.000	0.060
Count	61	61	61	61
Std Dev	1.109	0.015	0.922	0.014
CV	0.826	1.065	0.704	1.035
95th Percentile	2.000	0.050	2.000	0.046
5th Percentile	0.005	0.005	0.005	0.005
90th percentile	2.000	0.040	2.000	0.040

Parameter Desc	Non-Irrigation Season (Oct 1 - April 30)				Irrigation Season (May 1 - Sep 31)			
	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading
Selenium, total recoverable	2.	.023	2.	.023	2.	.008	2.	.008
Selenium, total recoverable	2.	.015	2.	.015	2.	.01	2.	.01
Selenium, total recoverable	1.	.007	1.	.007	2.	.011	2.	.011
Selenium, total recoverable	2.	.012	2.	.012	2.	.011	2.	.011
Selenium, total recoverable	2.	.0012	2.	.0012	2.	.013	2.	.013
Selenium, total recoverable	2.	.017	2.	.017	2.	.01	2.	.01
Selenium, total recoverable	2.	.011	2.	.011	2.	.01	2.	.01
Selenium, total recoverable	2.	.011	2.	.011	.008	.046	.008	.046

Selenium, total recoverable	2.	.01	2.	.01	8.	.059	6.	.043
Selenium, total recoverable	2.	.01	2.	.01	.008	.06	.008	.06
Selenium, total recoverable	2.	.01	2.	.01	1.	.05	1.	.05
Selenium, total recoverable	2.	.012	2.	.011	1.	.007	1.	.007
Selenium, total recoverable	2.	.01	2.	.01	1.	.005	1.	.005
Selenium, total recoverable	2.	.01	2.	.0099	1.	.005	1.	.005
Selenium, total recoverable	.008	.05	.008	.05	1.	.006	1.	.006
Selenium, total recoverable	.008	.046	.008	.045	1.	.005	1.	.005
Selenium, total recoverable	2.	.03	2.	.03	.005	.03	.005	.03
Selenium, total recoverable	2.	.01	2.	.01	1.	.005	1.	.005
Selenium, total recoverable	2.	.01	2.	.01	1.	.005	1.	.005
Selenium, total recoverable	.	.	.	.	1.	.006	1.	.006
Selenium, total recoverable	1.	.004	1.	.004	1.	.005	1.	.005
Selenium, total recoverable	1.	.005	1.	.005	1.	.005	1.	.005
Selenium, total recoverable	.87	.04	.87	.04	1.	.005	1.	.005
Selenium, total recoverable	1.	.005	1.	.005	1.	.005	1.	.005
Selenium, total recoverable	.005	.02	.005	.02	1.	.005	1.	.005
Selenium, total recoverable	1.	.005	1.	.005				
Selenium, total recoverable	.005	.02	.005	.02				
Selenium, total recoverable	1.	.005	1.	.005				
Selenium, total recoverable	1.	.006	1.	.0052				
Selenium, total recoverable	1.	.005	1.	.005				
Selenium, total recoverable	.001	.005	.001	.005				
Selenium, total recoverable	1.	.005	1.	.005				
Selenium, total recoverable	1.	.005	1.	.005				
Selenium, total recoverable	1.	.005	1.	.005				
Selenium, total recoverable	1.	.005	1.	.005				
Selenium, total recoverable	1.	.005	1.	.005				

Average	1.275	0.013	1.275	0.012	1.441	0.015	1.361	0.015
Minimum	0.000	0.000	0.000	0.000	0.005	0.005	0.005	0.005
Maximum	2.000	0.050	2.000	0.050	8.000	0.060	6.000	0.060
Count	36	36	36	36	25	25	25	25
Std Dev	0.741	0.012	0.741	0.012	1.501	0.018	1.149	0.017
CV	0.582	0.950	0.582	0.951	1.042	1.161	0.845	1.118
95th Percentile	2.000	0.042	2.000	0.041	2.000	0.057	2.000	0.049
5th Percentile	0.004	0.003	0.004	0.003	0.008	0.005	0.008	0.005
90th percentile	2.000	0.027	2.000	0.027	2.000	0.048	2.000	0.045

Table 30. Total Recoverable Silver Effluent Data

Parameter Desc	Daily Max µg/L		Monthly Average µg/L		Monitoring Period End Date
	DMR	Limit	DMR	Limit	
Silver total recoverable	4.7		4.7		12/31/2019
Silver total recoverable	4.7		4.7		06/30/2020
Silver total recoverable	4.7		4.7		12/31/2020
Silver total recoverable	4.7		4.7		06/30/2021
Silver total recoverable	4.7		4.7		12/31/2021
Silver total recoverable	.		.		06/30/2022
Silver total recoverable	.		.		12/31/2022
Silver total recoverable	1.		1.		06/30/2023
Silver total recoverable	.001		.001		12/31/2023
Silver total recoverable	1.		1.		06/30/2024

Average	2.6		2.6

Minimum	0.0	0.0
Maximum	4.7	4.7
Count	10	10
Std Dev	2.3	2.3
CV	0.900	0.9
95th Percentile	4.7	4.7
5th Percentile	0.0	0.0
90th percentile	4.7	4.7

Table 31. Total Dissolved Solids Effluent Data

Parameter Desc	Daily Max		Monthly Average		Monitoring Period End Date
	mg/L		mg/L		
	DMR	Limit	DMR	Limit	
Solids, total dissolved	101.		101.		12/31/2019
Solids, total dissolved	84.		84.		03/31/2020
Solids, total dissolved	244.		185.3		06/30/2020
Solids, total dissolved	236.		236.		09/30/2020
Solids, total dissolved	108.		98.		12/31/2020
Solids, total dissolved	298.		279.		03/31/2021
Solids, total dissolved	266.		266.		06/30/2021
Solids, total dissolved	248.		248.		09/30/2021
Solids, total dissolved	266.		266.		12/31/2021
Solids, total dissolved	260.		260.		03/31/2022
Solids, total dissolved	302.		302.		06/30/2022
Solids, total dissolved	302.		302.		09/30/2022
Solids, total dissolved	405.		295.2		12/31/2022
Solids, total dissolved	398.		398.		03/31/2023
Solids, total dissolved	154.		154.		06/30/2023
Solids, total dissolved	185.		185.		09/30/2023
Solids, total dissolved	285.		248.75		12/31/2023
Solids, total dissolved	258.		258.		03/31/2024
Solids, total dissolved	221.		221.		06/30/2024
Solids, total dissolved	262.		262.		09/30/2024

Average	244.2	232.5
Minimum	84.0	84.0
Maximum	405.0	398.0
Count	20	20
Std Dev	85.7	78.3
CV	0.4	0.3
95th Percentile	398.4	306.8
5th Percentile	100.2	97.3
90th percentile	311.6	302.0

Table 32. Temperature Effluent Data

Parameter Desc	Daily Max		Monthly Average		Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30)		Irrigation Season (May 1 - Sep 31)	
	Degrees C		Degrees C						
	DMR	Limit	DMR	Limit		Daily Max	Monthly Ave	Daily Max	Monthly Ave

Temperature, water deg. centigrade	17.		18.		10/31/2019	17.	18.	20.	18.3
Temperature, water deg. centigrade	16.		15.6		11/30/2019	16.	15.6	23.	19.95
Temperature, water deg. centigrade	16.		14.9		12/31/2019	16.	14.9	25.	22.7
Temperature, water deg. centigrade	15.		14.4		01/31/2020	15.	14.4	24.	23.6
Temperature, water deg. centigrade	16.		14.5		02/29/2020	16.	14.5	24.	22.
Temperature, water deg. centigrade	17.		15.5		03/31/2020	17.	15.5	7.6	7.1
Temperature, water deg. centigrade	18.		17.41		04/30/2020	18.	17.41	25.	21.818
Temperature, water deg. centigrade	20.		18.3		05/31/2020	22.	20.	25.	22.9
Temperature, water deg. centigrade	23.		19.95		06/30/2020	19.	16.7	26.	23.45
Temperature, water deg. centigrade	25.		22.7		07/31/2020	16.	14.5	22.	21.045
Temperature, water deg. centigrade	24.		23.6		08/31/2020	15.	14.14	20.	17.68
Temperature, water deg. centigrade	24.		22.		09/30/2020	16.	14.5	23.	20.45
Temperature, water deg. centigrade	22.		20.		10/31/2020	16.	15.5	24.	23.23
Temperature, water deg. centigrade	19.		16.7		11/30/2020	20.	17.625	24.	23.478
Temperature, water deg. centigrade	16.		14.5		12/31/2020	21.	20.095	23.	21.636
Temperature, water deg. centigrade	15.		14.14		01/31/2021	21.	18.3	21.	18.87
Temperature, water deg. centigrade	16.		14.5		02/28/2021	19.	15.69	23.	21.227
Temperature, water deg. centigrade	16.		15.5		03/31/2021	14.	13.286	24.	23.048
Temperature, water deg. centigrade	20.		17.625		04/30/2021	15.	13.95	24.	23.04
Temperature, water deg. centigrade	7.6		7.1		05/31/2021	16.	15.43	22.	20.81
Temperature, water deg. centigrade	25.		21.818		06/30/2021	17.	16.24	21.	18.217
Temperature, water deg. centigrade	25.		22.9		07/31/2021	21.	19.952	24.	21.45
Temperature, water deg. centigrade	26.		23.45		08/31/2021	18.	16.364	26.	23.957
Temperature, water deg. centigrade	22.		21.045		09/30/2021	16.	14.227	25.	22.545
Temperature, water deg. centigrade	21.		20.095		10/31/2021	14.	13.857	23.	22.048
Temperature, water deg. centigrade	21.		18.3		11/30/2021	14.	13.35		
Temperature, water deg. centigrade	19.		15.69		12/31/2021	15.	14.4		
Temperature, water deg. centigrade	14.		13.286		01/31/2022	17.	15.45		
Temperature, water deg. centigrade	15.		13.95		02/28/2022	20.	18.696		
Temperature, water deg. centigrade	16.		15.43		03/31/2022	17.	15.182		
Temperature, water deg. centigrade	17.		16.24		04/30/2022	16.	15.048		
Temperature, water deg. centigrade	20.		17.68		05/31/2022	15.	12.522		
Temperature, water deg. centigrade	23.		20.45		06/30/2022	15.	13.762		
Temperature, water deg. centigrade	24.		23.23		07/31/2022	17.	14.81		
Temperature, water deg. centigrade	24.		23.478		08/31/2022	19.	16.955		
Temperature, water deg. centigrade	23.		21.636		09/30/2022	21.	19.043		
Temperature, water deg. centigrade	21.		19.952		10/31/2022				
Temperature, water deg. centigrade	18.		16.364		11/30/2022				
Temperature, water deg. centigrade	16.		14.227		12/31/2022				
Temperature, water deg. centigrade	14.		13.857		01/31/2023				
Temperature, water deg. centigrade	14.		13.35		02/28/2023				
Temperature, water deg. centigrade	15.		14.4		03/31/2023				
Temperature, water deg. centigrade	17.		15.45		04/30/2023				
Temperature, water deg. centigrade	21.		18.87		05/31/2023				
Temperature, water deg. centigrade	23.		21.227		06/30/2023				
Temperature, water deg. centigrade	24.		23.048		07/31/2023				
Temperature, water deg. centigrade	24.		23.04		08/31/2023				
Temperature, water deg. centigrade	22.		20.81		09/30/2023				
Temperature, water deg. centigrade	20.		18.696		10/31/2023				
Temperature, water deg. centigrade	17.		15.182		11/30/2023				
Temperature, water deg. centigrade	16.		15.048		12/31/2023				
Temperature, water deg. centigrade	15.		12.522		01/31/2024				
Temperature, water deg. centigrade	15.		13.762		02/29/2024				
Temperature, water deg. centigrade	17.		14.81		03/31/2024				
Temperature, water deg. centigrade	19.		16.955		04/30/2024				
Temperature, water deg. centigrade	21.		18.217		05/31/2024				
Temperature, water deg. centigrade	24.		21.45		06/30/2024				
Temperature, water deg. centigrade	26.		23.957		07/31/2024				

Temperature, water deg. centigrade	25.		22.545		08/31/2024				
Temperature, water deg. centigrade	23.		22.048		09/30/2024				
Temperature, water deg. centigrade	21.		19.043		10/31/2024				

Average	19.4	17.9		17.14	15.83	22.74	20.98
Minimum	7.6	7.1		14.00	12.52	7.60	7.10
Maximum	26.0	24.0		22.00	20.10	26.00	23.96
Count	61	61		36.00	36.00	25.00	25.00
Std Dev	4.0	3.7		2.27	2.03	3.56	3.41
CV	0.2	0.2		0.13	0.13	0.16	0.16
95th Percentile	25.0	23.5		21.00	19.96	25.80	23.58
5th Percentile	14.0	13.4		14.00	13.33	20.00	17.79
90th percentile	24.0	23.0		21.00	18.87	25.00	23.47

Table 33. Total Recoverable Zinc Effluent Data

Parameter Desc	Daily Max µg/L		Daily Max lbs/day		Monthly Average µg/L		Monthly Average lbs/day		Monitoring Period End Date
	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	
Zinc, total recoverable	44.6	106.	.52	1.48	44.6	50.49	.52	.803	10/31/2019
Zinc, total recoverable	48.1	106.	.38	1.48	48.1	50.49	.38	.803	11/30/2019
Zinc, total recoverable	23.	106.	.17	1.48	23.	50.49	.17	.803	12/31/2019
Zinc, total recoverable	24.6	106.	.15	1.48	24.6	50.49	.15	.803	01/31/2020
Zinc, total recoverable	41.4	106.	.247	1.48	41.4	50.49	.247	.803	02/29/2020
Zinc, total recoverable	25.6	106.	.15	1.48	25.6	50.49	.15	.803	03/31/2020
Zinc, total recoverable	57.5	106.	.34	1.48	42.7	50.49	.253	.803	04/30/2020
Zinc, total recoverable	43.6	112.	.33	1.56	43.6	57.4	.33	.803	05/31/2020
Zinc, total recoverable	30.9	112.	.2	1.56	30.9	57.4	.2	.803	06/30/2020
Zinc, total recoverable	38.	112.	.218	1.56	38.	57.4	.218	.803	07/31/2020
Zinc, total recoverable	49.	112.	.314	1.56	49.	57.4	.314	.803	08/31/2020
Zinc, total recoverable	29.2	112.	.195	1.56	29.2	57.4	.195	.803	09/30/2020
Zinc, total recoverable	41.9	106.	.247	1.48	41.4	50.49	.247	.803	10/31/2020
Zinc, total recoverable	37.5	106.	.192	1.48	37.5	50.49	.192	.803	11/30/2020
Zinc, total recoverable	51.	106.	.23	1.48	44.	50.49	.21	.803	12/31/2020
Zinc, total recoverable	48.4	106.	.255	1.48	48.4	50.49	.255	.803	01/31/2021
Zinc, total recoverable	120.	106.	.729	1.48	99.3	50.49	.544	.803	02/28/2021
Zinc, total recoverable	172.	106.	.89	1.48	126.	50.49	.66	.803	03/31/2021
Zinc, total recoverable	108.	106.	.547	1.48	101.63	50.49	.509	.803	04/30/2021
Zinc, total recoverable	108.	112.	.56	1.56	104.33	57.4	.5367	.803	05/31/2021
Zinc, total recoverable	92.	112.	.488	1.56	92.	57.4	.488	.803	06/30/2021
Zinc, total recoverable	79.5	112.	.458	1.56	68.5	57.4	.3965	.803	07/31/2021
Zinc, total recoverable	82.	112.	.593	1.56	74.	57.4	.531	.803	08/31/2021
Zinc, total recoverable	74.5	112.	.58	1.56	72.25	57.4	.565	.803	09/30/2021
Zinc, total recoverable	61.5	106.	.386	1.48	64.	50.49	.3755	.803	10/31/2021
Zinc, total recoverable	72.5	106.	.42	1.48	67.16	50.49	.38	.803	11/30/2021
Zinc, total recoverable	59.	106.	.29	1.48	59.	50.49	.29	.803	12/31/2021
Zinc, total recoverable	61.	106.	.32	1.48	61.	50.49	.32	.803	01/31/2022
Zinc, total recoverable	88.	106.	.45	1.48	88.	50.49	.45	.803	02/28/2022
Zinc, total recoverable	70.5	106.	.38	1.48	70.5	50.49	.38	.803	03/31/2022
Zinc, total recoverable	61.	106.	.294	1.48	61.	50.49	.294	.803	04/30/2022
Zinc, total recoverable	69.6	112.	.35	1.56	69.6	57.4	.35	.803	05/31/2022
Zinc, total recoverable	71.4	112.	.34	1.56	71.4	57.4	.34	.803	06/30/2022
Zinc, total recoverable	64.	112.	.35	1.56	64.	57.4	.35	.803	07/31/2022
Zinc, total recoverable	62.	112.	.6	1.56	62.	57.4	.6	.803	08/31/2022
Zinc, total recoverable	57.	112.	.348	1.56	57.	57.4	.348	.803	09/30/2022
Zinc, total recoverable	45.	106.	.26	1.48	45.	50.49	.26	.803	10/31/2022
Zinc, total recoverable	78.	106.	.44	1.48	78.	50.49	.44	.803	11/30/2022
Zinc, total recoverable	100.	106.	.54	1.48	75.	50.49	.3996	.803	12/31/2022

Zinc, total recoverable	.2	106.	.001	1.48	.2	50.49	.001	.803	01/31/2023
Zinc, total recoverable	1.	106.	.005	1.48	1.	50.49	.005	.803	02/28/2023
Zinc, total recoverable	.1	106.	.0005	1.48	.1	50.49	.0005	.803	03/31/2023
Zinc, total recoverable	1.	106.	.005	1.48	1.	50.49	.005	.803	04/30/2023
Zinc, total recoverable	1.	112.	.005	1.56	1.	57.4	.005	.803	05/31/2023
Zinc, total recoverable	.005	112.	.03	1.56	.005	57.4	.03	.803	06/30/2023
Zinc, total recoverable	1.	112.	.005	1.56	1.	57.4	.005	.803	07/31/2023
Zinc, total recoverable	1.	112.	.005	1.56	1.	57.4	.005	.803	08/31/2023
Zinc, total recoverable	1.	112.	.006	1.56	1.	57.4	.006	.803	09/30/2023
Zinc, total recoverable	1.	106.	.006	1.48	.88	50.49	.0046	.803	10/31/2023
Zinc, total recoverable	1.	106.	.005	1.48	1.	50.49	.005	.803	11/30/2023
Zinc, total recoverable	.001	106.	.005	1.48	.001	50.49	.0039	.803	12/31/2023
Zinc, total recoverable	1.	106.	.005	1.48	1.	50.49	.005	.803	01/31/2024
Zinc, total recoverable	1.	106.	.005	1.48	1.	50.49	.005	.803	02/29/2024
Zinc, total recoverable	1.	106.	.005	1.48	1.	50.49	.005	.803	03/31/2024
Zinc, total recoverable	1.	106.	.005	1.48	1.	50.49	.005	.803	04/30/2024
Zinc, total recoverable	1.	112.	.005	1.56	1.	57.4	.005	.803	05/31/2024
Zinc, total recoverable	1.	112.	.005	1.56	1.	57.4	.005	.803	06/30/2024
Zinc, total recoverable	1.	112.	.005	1.56	1.	57.4	.005	.803	07/31/2024
Zinc, total recoverable	1.	112.	.005	1.56	1.	57.4	.005	.803	08/31/2024
Zinc, total recoverable	1.	112.	.005	1.56	1.	57.4	.005	.803	09/30/2024
Zinc, total recoverable	1.	106.	.005	1.48	1.	50.49	.005	.803	10/31/2024

Average	41.13	0.24	38.70	0.23
Minimum	0.00	0.00	0.00	0.00
Maximum	172.00	0.89	126.00	0.66
Count	61	61	61	61
Std Dev	38.70	0.22	34.43	0.20
CV	0.94	0.92	0.89	0.87
95th Percentile	108.00	0.59	99.30	0.54
5th Percentile	0.20	0.01	0.20	0.00
90th percentile	88.00	0.55	78.00	0.52

Parameter Desc	Non-Irrigation Season (Oct 1 - April 30)				Irrigation Season (May 1 - Sep 31)			
	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading	Daily Max Concentration	Daily Max Loading	Monthly Average Concentration	Monthly Average Loading
Zinc, total recoverable	44.6	.52	44.6	.52	43.6	.33	43.6	.33
Zinc, total recoverable	48.1	.38	48.1	.38	30.9	.2	30.9	.2
Zinc, total recoverable	23.	.17	23.	.17	38.	.218	38.	.218
Zinc, total recoverable	24.6	.15	24.6	.15	49.	.314	49.	.314
Zinc, total recoverable	41.4	.247	41.4	.247	29.2	.195	29.2	.195
Zinc, total recoverable	25.6	.15	25.6	.15	108.	.56	104.33	.5367
Zinc, total recoverable	57.5	.34	42.7	.253	92.	.488	92.	.488
Zinc, total recoverable	41.9	.247	41.4	.247	79.5	.458	68.5	.3965
Zinc, total recoverable	37.5	.192	37.5	.192	82.	.593	74.	.531
Zinc, total recoverable	51.	.23	44.	.21	74.5	.58	72.25	.565
Zinc, total recoverable	48.4	.255	48.4	.255	69.6	.35	69.6	.35
Zinc, total recoverable	120.	.729	99.3	.544	71.4	.34	71.4	.34
Zinc, total recoverable	172.	.89	126.	.66	64.	.35	64.	.35
Zinc, total recoverable	108.	.547	101.63	.509	62.	.6	62.	.6
Zinc, total recoverable	61.5	.386	64.	.3755	57.	.348	57.	.348
Zinc, total recoverable	72.5	.42	67.16	.38	1.	.005	1.	.005
Zinc, total recoverable	59.	.29	59.	.29	.005	.03	.005	.03
Zinc, total recoverable	61.	.32	61.	.32	1.	.005	1.	.005
Zinc, total recoverable	88.	.45	88.	.45	1.	.005	1.	.005

Zinc, total recoverable	70.5	.38	70.5	.38	1.	.006	1.	.006
Zinc, total recoverable	61.	.294	61.	.294	1.	.005	1.	.005
Zinc, total recoverable	45.	.26	45.	.26	1.	.005	1.	.005
Zinc, total recoverable	78.	.44	78.	.44	1.	.005	1.	.005
Zinc, total recoverable	100.	.54	75.	.3996	1.	.005	1.	.005
Zinc, total recoverable	.2	.001	.2	.001	1.	.005	1.	.005
Zinc, total recoverable	1.	.005	1.	.005				
Zinc, total recoverable	.1	.0005	.1	.0005				
Zinc, total recoverable	1.	.005	1.	.005				
Zinc, total recoverable	1.	.006	.88	.0046				
Zinc, total recoverable	1.	.005	1.	.005				
Zinc, total recoverable	.001	.005	.001	.0039				
Zinc, total recoverable	1.	.005	1.	.005				
Zinc, total recoverable	1.	.005	1.	.005				
Zinc, total recoverable	1.	.005	1.	.005				
Zinc, total recoverable	1.	.005	1.	.005				
Zinc, total recoverable	1.	.005	1.	.005				

Average	43.039	0.247	39.613	0.226	38.388	0.240	37.391	0.234
Minimum	0.001	0.001	0.001	0.001	0.005	0.005	0.005	0.005
Maximum	172.000	0.890	126.000	0.660	108.000	0.600	104.330	0.600
Count	36	36	36	36	25	25	25	25
Std Dev	41.049	0.228	34.883	0.193	35.692	0.222	34.447	0.214
CV	0.954	0.922	0.881	0.855	0.930	0.926	0.921	0.916
95th Percentile	111.000	0.593	99.883	0.526	90.000	0.590	88.400	0.559
5th Percentile	0.175	0.004	0.175	0.003	1.000	0.005	1.000	0.005
90th percentile	94.000	0.530	83.000	0.480	81.000	0.572	73.300	0.534

Downstream Monitoring Data

Table 34. Downstream Hardness Data

Parameter Desc	Quarterly Max mg/L		Monitoring Period End Date	Limits.Monitoring Location Desc
	DMR	Limit		
Hardness, total [as CaCO3]	82.		12/31/2019	Downstream Monitoring
Hardness, total [as CaCO3]	92.6		03/31/2020	Downstream Monitoring
Hardness, total [as CaCO3]	102.		06/30/2020	Downstream Monitoring
Hardness, total [as CaCO3]	108.		09/30/2020	Downstream Monitoring
Hardness, total [as CaCO3]	102.		12/31/2020	Downstream Monitoring
Hardness, total [as CaCO3]	71.		03/31/2021	Downstream Monitoring
Hardness, total [as CaCO3]	90.8		06/30/2021	Downstream Monitoring
Hardness, total [as CaCO3]	150.		09/30/2021	Downstream Monitoring
Hardness, total [as CaCO3]	99.		12/31/2021	Downstream Monitoring
Hardness, total [as CaCO3]	99.		03/31/2022	Downstream Monitoring
Hardness, total [as CaCO3]	81.8		06/30/2022	Downstream Monitoring
Hardness, total [as CaCO3]	94.		09/30/2022	Downstream Monitoring
Hardness, total [as CaCO3]	109.6		12/31/2022	Downstream Monitoring
Hardness, total [as CaCO3]	90.4		03/31/2023	Downstream Monitoring
Hardness, total [as CaCO3]	68.		06/30/2023	Downstream Monitoring
Hardness, total [as CaCO3]	109.6		09/30/2023	Downstream Monitoring
Hardness, total [as CaCO3]	108.4		12/31/2023	Downstream Monitoring
Hardness, total [as CaCO3]	70.		03/31/2024	Downstream Monitoring
Hardness, total [as CaCO3]	77.		06/30/2024	Downstream Monitoring
Hardness, total [as CaCO3]	99.2		09/30/2024	Downstream Monitoring

Average	95.2
Minimum	68.0

Maximum	150.0
Count	20
Std Dev	18.6
CV	0.2
95th Percentile	111.6
5th Percentile	69.9
90th percentile	109.6

Table 35. Downstream Nitrogen Data

Parameter Desc	Quarterly Max mg/L		Monitoring Period End Date	Limits.Monitoring Location Desc
	DMR	Limit		
Nitrogen, total [as N]	3.83		12/31/2019	Downstream Monitoring
Nitrogen, total [as N]	4.1		03/31/2020	Downstream Monitoring
Nitrogen, total [as N]	3.86		06/30/2020	Downstream Monitoring
Nitrogen, total [as N]	3.98		09/30/2020	Downstream Monitoring
Nitrogen, total [as N]	4.04		12/31/2020	Downstream Monitoring
Nitrogen, total [as N]	3.27		03/31/2021	Downstream Monitoring
Nitrogen, total [as N]	4.48		06/30/2021	Downstream Monitoring
Nitrogen, total [as N]	.772		09/30/2021	Downstream Monitoring
Nitrogen, total [as N]	4.57		12/31/2021	Downstream Monitoring
Nitrogen, total [as N]	.733		03/31/2022	Downstream Monitoring
Nitrogen, total [as N]	4.3		06/30/2022	Downstream Monitoring
Nitrogen, total [as N]	1.78		09/30/2022	Downstream Monitoring
Nitrogen, total [as N]	3.76		12/31/2022	Downstream Monitoring
Nitrogen, total [as N]	1.69		03/31/2023	Downstream Monitoring
Nitrogen, total [as N]	3.74		06/30/2023	Downstream Monitoring
Nitrogen, total [as N]	4.74		09/30/2023	Downstream Monitoring
Nitrogen, total [as N]	3.79		12/31/2023	Downstream Monitoring
Nitrogen, total [as N]	3.81		03/31/2024	Downstream Monitoring
Nitrogen, total [as N]	.51		06/30/2024	Downstream Monitoring
Nitrogen, total [as N]	1.17		09/30/2024	Downstream Monitoring

Average	3.1
Minimum	0.5
Maximum	4.7
Count	20
Std Dev	1.4
CV	0.5
95th Percentile	4.6
5th Percentile	0.7
90th percentile	4.5

Table 36. Downstream pH Data

Parameter Desc	Monitoring Location	Instant. Min mg/L	Instant. Max mg/L	Monitoring Period End Date	Non-Irrigation Season	Irrigation Season

						(Oct 1 - April 30)		(May 1 - Sep 31)	
		DMR	Limit	DMR	Limit	Inst Min	Inst Max	Inst Min	Inst Max
pH	Downstream	7.1		7.1		12/31/2019	7.1	7.1	7.2	7.2
pH	Downstream	7.		7.		03/31/2020	7.	7.	7.3	7.3
pH	Downstream	7.2		7.2		06/30/2020	7.	7.	7.1	7.1
pH	Downstream	7.3		7.3		09/30/2020	7.	7.	7.1	7.1
pH	Downstream	7.		7.		12/31/2020	6.6	6.6	7.2	7.2
pH	Downstream	7.		7.		03/31/2021	7.1	7.1	7.1	7.1
pH	Downstream	7.1		7.1		06/30/2021	7.4	7.4	7.3	7.3
pH	Downstream	7.1		7.1		09/30/2021	7.1	7.1	7.3	7.3
pH	Downstream	6.6		6.6		12/31/2021	7.3	7.3	7.3	7.3
pH	Downstream	7.1		7.1		03/31/2022	7.2	7.2	7.	7.
pH	Downstream	7.2		7.2		06/30/2022				
pH	Downstream	7.1		7.1		09/30/2022				
pH	Downstream	7.4		7.4		12/31/2022				
pH	Downstream	7.1		7.1		03/31/2023				
pH	Downstream	7.3		7.3		06/30/2023				
pH	Downstream	7.3		7.3		09/30/2023				
pH	Downstream	7.3		7.3		12/31/2023				
pH	Downstream	7.2		7.2		03/31/2024				
pH	Downstream	7.3		7.3		06/30/2024				
pH	Downstream	7.		7.		09/30/2024				
Average		7.1		7.1			7.1	7.1	7.2	7.2
Minimum		6.6		6.6			6.6	6.6	7.0	7.0
Maximum		7.4		7.4			7.4	7.4	7.3	7.3
Count		20		20			10	10	10	10
Std Dev		0.2		0.2			0.2	0.2	0.1	0.1
CV		0.0		0.0			0.0	0.0	0.0	0.0
95th Percentile		7.3		7.3			7.4	7.4	7.3	7.3
5th Percentile		7.0		7.0			6.8	6.8	7.0	7.0
90th percentile		7.3		7.3			7.3	7.3	7.3	7.3

Table 37. Downstream Total Phosphorus Data

Parameter Desc	Monitoring Location	Quarterly Max mg/L		Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30)	Irrigation Season (May 1 - Sep 31)
		DMR	Limit		Quarterly Max	Quarterly Max
Phosphorus, total [as P]	Downstream	366.		12/31/2019	366.	166.
Phosphorus, total [as P]	Downstream	.5		03/31/2020	.5	.27
Phosphorus, total [as P]	Downstream	166.		06/30/2020	.194	.057
Phosphorus, total [as P]	Downstream	.27		09/30/2020	.098	1.14
Phosphorus, total [as P]	Downstream	.194		12/31/2020	.426	.452
Phosphorus, total [as P]	Downstream	.098		03/31/2021	.426	.08
Phosphorus, total [as P]	Downstream	.057		06/30/2021	.092	.547
Phosphorus, total [as P]	Downstream	1.14		09/30/2021	.09	1.19
Phosphorus, total [as P]	Downstream	.426		12/31/2021	.091	.15
Phosphorus, total [as P]	Downstream	.426		03/31/2022	.553	.328
Phosphorus, total [as P]	Downstream	.452		06/30/2022		
Phosphorus, total [as P]	Downstream	.08		09/30/2022		
Phosphorus, total [as P]	Downstream	.092		12/31/2022		
Phosphorus, total [as P]	Downstream	.09		03/31/2023		
Phosphorus, total [as P]	Downstream	.547		06/30/2023		
Phosphorus, total [as P]	Downstream	1.19		09/30/2023		

Phosphorus, total [as P]	Downstream	.091		12/31/2023
Phosphorus, total [as P]	Downstream	.553		03/31/2024
Phosphorus, total [as P]	Downstream	.15		06/30/2024
Phosphorus, total [as P]	Downstream	.328		09/30/2024

Average		26.9	36.8	17.0
Minimum		0.1	0.1	0.1
Maximum		366.0	366.0	166.0
Count		20	10	10
Std Dev		88.0	115.7	52.3
CV		3.3	3.1	3.1
95th Percentile		176.0	201.5	91.8
5th Percentile		0.1	0.1	0.1
90th percentile		17.7	37.1	17.7

Table 38. Downstream Temperature Data

Parameter Desc	Monitoring Location	Monthly Max Degrees C DMR	Monthly Max Degrees C Limit	Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30) Monthly Max	Irrigation Season (May 1 - Sep 31) Monthly Max
Temperature, water deg. centigrade	Downstream	19.1		06/30/2020		19.1
Temperature, water deg. centigrade	Downstream	16.8		07/31/2020		16.8
Temperature, water deg. centigrade	Downstream	20.7		08/31/2020		20.7
Temperature, water deg. centigrade	Downstream	16.2		09/30/2020		16.2
Temperature, water deg. centigrade	Downstream	19.		06/30/2021		19.
Temperature, water deg. centigrade	Downstream	21.		07/31/2021		21.
Temperature, water deg. centigrade	Downstream	20.		08/31/2021		20.
Temperature, water deg. centigrade	Downstream	20.		09/30/2021		20.
Temperature, water deg. centigrade	Downstream	14.9		06/30/2022		14.9
Temperature, water deg. centigrade	Downstream	15.3		07/31/2022		15.3
Temperature, water deg. centigrade	Downstream	17.		08/31/2022		17.
Temperature, water deg. centigrade	Downstream	17.		09/30/2022		17.
Temperature, water deg. centigrade	Downstream	17.		06/30/2023		17.
Temperature, water deg. centigrade	Downstream	17.		07/31/2023		17.
Temperature, water deg. centigrade	Downstream	17.		08/31/2023		17.
Temperature, water deg. centigrade	Downstream	18.		09/30/2023		18.
Temperature, water deg. centigrade	Downstream	17.		06/30/2024		17.
Temperature, water deg. centigrade	Downstream	18.		07/31/2024		18.
Temperature, water deg. centigrade	Downstream	18.		08/31/2024		18.
Temperature, water deg. centigrade	Downstream	17.		09/30/2024		17.

Average		17.8		17.8
Minimum		14.9		14.9
Maximum		21.0		21.0
Count		20		20
Std Dev		1.7		1.7
CV		0.1		0.1
95th Percentile		20.7		20.7
5th Percentile		15.3		15.3
90th percentile		20.1		20.1

Receiving Water Data

Table 39. Toppenish Drain Flow Data

Parameter Desc	Monitoring Location	Monthly Minimum	Monthly Average		Non-Irrigation Season (Oct 1 - April 30)	Irrigation Season (May 1 - Sep 31)

		mgd		mdg		Monitoring Period End Date				
		DMR	Limit	DMR	Limit		Monthly Min	Monthly Ave	Monthly Min	Monthly Ave
Flow Upstream Monitoring	Upstream	9.8		9.8		10/31/2019	9.8	9.8	12.3	12.3
Flow Upstream Monitoring	Upstream	8.4		8.4		11/30/2019	8.4	8.4	21.5	21.5
Flow Upstream Monitoring	Upstream	2.1		2.1		12/31/2019	2.1	2.1	14.4	14.4
Flow Upstream Monitoring	Upstream	3.1		3.1		01/31/2020	3.1	3.1	19.8	19.8
Flow Upstream Monitoring	Upstream	2.15		2.15		02/29/2020	2.15	2.15	28.9	28.9
Flow Upstream Monitoring	Upstream	2.35		2.35		03/31/2020	2.35	2.35	11.8	11.8
Flow Upstream Monitoring	Upstream	5.75		5.75		04/30/2020	5.75	5.75	21.3	21.3
Flow Upstream Monitoring	Upstream	12.3		12.3		05/31/2020	8.8	8.8	31.7	31.7
Flow Upstream Monitoring	Upstream	21.5		21.5		06/30/2020	2.8	2.8	33.7	33.7
Flow Upstream Monitoring	Upstream	14.4		14.4		07/31/2020	9.2	9.2	34.8	34.8
Flow Upstream Monitoring	Upstream	19.8		19.8		08/31/2020	2.4	2.4	44.6	44.6
Flow Upstream Monitoring	Upstream	28.9		28.9		09/30/2020	4.	4.	35.8	35.8
Flow Upstream Monitoring	Upstream	8.8		8.8		10/31/2020	6.9	6.9	34.1	34.1
Flow Upstream Monitoring	Upstream	2.8		2.8		11/30/2020	11.6	11.6	34.2	34.2
Flow Upstream Monitoring	Upstream	9.2		9.2		12/31/2020	31.2	31.2	36.7	36.7
Flow Upstream Monitoring	Upstream	2.4		2.4		01/31/2021	18.6	18.6	38.4	38.4
Flow Upstream Monitoring	Upstream	4.		4.		02/28/2021	6.2	6.2	46.2	46.2
Flow Upstream Monitoring	Upstream	6.9		6.9		03/31/2021	5.17	5.17	37.5	37.5
Flow Upstream Monitoring	Upstream	11.6		11.6		04/30/2021	5.17	5.17	15.87	15.87
Flow Upstream Monitoring	Upstream	11.8		11.8		05/31/2021	6.9	6.9	42.3	42.3
Flow Upstream Monitoring	Upstream	21.3		21.3		06/30/2021	22.6	22.6	46.8	46.8
Flow Upstream Monitoring	Upstream	31.7		31.7		07/31/2021	16.3	16.3	57.6	57.6
Flow Upstream Monitoring	Upstream	33.7		33.7		08/31/2021	9.9	9.9	24.	24.
Flow Upstream Monitoring	Upstream					09/30/2021	7.8	7.8	18.8	18.8
Flow Upstream Monitoring	Upstream	31.2		31.2		10/31/2021	9.4	9.4		
Flow Upstream Monitoring	Upstream	18.6		18.6		11/30/2021	11.5	11.5		
Flow Upstream Monitoring	Upstream	6.2		6.2		12/31/2021	8.5	8.5		
Flow Upstream Monitoring	Upstream	5.17		5.17		01/31/2022	35.	35.		
Flow Upstream Monitoring	Upstream	5.17		5.17		02/28/2022	12.8	12.8		
Flow Upstream Monitoring	Upstream	6.9		6.9		03/31/2022	9.8	9.8		
Flow Upstream Monitoring	Upstream	22.6		22.6		04/30/2022	9.8	9.8		
Flow Upstream Monitoring	Upstream	34.8		34.8		05/31/2022	14.1	14.1		
Flow Upstream Monitoring	Upstream	44.6		44.6		06/30/2022	21.6	21.6		
Flow Upstream Monitoring	Upstream	35.8		35.8		07/31/2022	6.2	6.2		
Flow Upstream Monitoring	Upstream	34.1		34.1		08/31/2022	33.3	33.3		
Flow Upstream Monitoring	Upstream	34.2		34.2		09/30/2022	12.6	12.6		
Flow Upstream Monitoring	Upstream	16.3		16.3		10/31/2022				
Flow Upstream Monitoring	Upstream	9.9		9.9		11/30/2022				
Flow Upstream Monitoring	Upstream	7.8		7.8		12/31/2022				
Flow Upstream Monitoring	Upstream	9.4		9.4		01/31/2023				
Flow Upstream Monitoring	Upstream	11.5		11.5		02/28/2023				
Flow Upstream Monitoring	Upstream	8.5		8.5		03/31/2023				
Flow Upstream Monitoring	Upstream	35.		35.		04/30/2023				
Flow Upstream Monitoring	Upstream	36.7		36.7		05/31/2023				
Flow Upstream Monitoring	Upstream	38.4		38.4		06/30/2023				
Flow Upstream Monitoring	Upstream	46.2		46.2		07/31/2023				
Flow Upstream Monitoring	Upstream	37.5		37.5		08/31/2023				
Flow Upstream Monitoring	Upstream	15.87		15.87		09/30/2023				
Flow Upstream Monitoring	Upstream	12.8		12.8		10/31/2023				
Flow Upstream Monitoring	Upstream	9.8		9.8		11/30/2023				
Flow Upstream Monitoring	Upstream	9.8		9.8		12/31/2023				
Flow Upstream Monitoring	Upstream	14.1		14.1		01/31/2024				
Flow Upstream Monitoring	Upstream	21.6		21.6		02/29/2024				
Flow Upstream Monitoring	Upstream	6.2		6.2		03/31/2024				

Flow Upstream Monitoring	Upstream	33.3		33.3		04/30/2024
Flow Upstream Monitoring	Upstream	42.3		42.3		05/31/2024
Flow Upstream Monitoring	Upstream	46.8		46.8		06/30/2024
Flow Upstream Monitoring	Upstream	57.6		57.6		07/31/2024
Flow Upstream Monitoring	Upstream	24.		24.		08/31/2024
Flow Upstream Monitoring	Upstream	18.8		18.8		09/30/2024
Flow Upstream Monitoring	Upstream	12.6		12.6		10/31/2024

Average		18.9	18.9	10.9	10.9	31.0	31.0
Minimum		2.1	2.1	2.1	2.1	11.8	11.8
Maximum		57.6	57.6	35.0	35.0	57.6	57.6
Count		60	60	36	36	24	24
Std Dev		14.1	14.1	8.5	8.5	12.2	12.2
CV		0.7	0.7	0.8	0.8	0.4	0.4
95th Percentile		44.7	44.7	31.7	31.7	46.7	46.7
5th Percentile		2.4	2.4	2.3	2.3	12.6	12.6
90th percentile		37.6	37.6	22.1	22.1	45.7	45.7

Table 40. Toppenish Drain Total Nitrogen Data

Parameter Desc	Monitoring Location	Quarterly Max mg/L		Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30)	Irrigation Season (May 1 - Sep 31)
		DMR	Limit		Quarterly Max	Quarterly Max
Nitrogen, total [as N]	Upstream	3.08		12/31/2019	3.08	4.05
Nitrogen, total [as N]	Upstream	3.1		03/31/2020	3.1	4.21
Nitrogen, total [as N]	Upstream	4.05		06/30/2020	4.28	4.63
Nitrogen, total [as N]	Upstream	4.21		09/30/2020	3.98	1.1
Nitrogen, total [as N]	Upstream	4.28		12/31/2020	3.56	3.54
Nitrogen, total [as N]	Upstream	3.98		03/31/2021	.676	2.36
Nitrogen, total [as N]	Upstream	4.63		06/30/2021	3.68	3.37
Nitrogen, total [as N]	Upstream	1.1		09/30/2021	2.19	5.59
Nitrogen, total [as N]	Upstream	3.56		12/31/2021	3.71	.42
Nitrogen, total [as N]	Upstream	.676		03/31/2022	3.41	4.68
Nitrogen, total [as N]	Upstream	3.54		06/30/2022		
Nitrogen, total [as N]	Upstream	2.36		09/30/2022		
Nitrogen, total [as N]	Upstream	3.68		12/31/2022		
Nitrogen, total [as N]	Upstream	2.19		03/31/2023		
Nitrogen, total [as N]	Upstream	3.37		06/30/2023		
Nitrogen, total [as N]	Upstream	5.59		09/30/2023		
Nitrogen, total [as N]	Upstream	3.71		12/31/2023		
Nitrogen, total [as N]	Upstream	3.41		03/31/2024		
Nitrogen, total [as N]	Upstream	.42		06/30/2024		
Nitrogen, total [as N]	Upstream	4.68		09/30/2024		

Average		3.3	3.2	3.4
Minimum		0.4	0.7	0.4
Maximum		5.6	4.3	5.6
Count		20	10	10
Std Dev		1.3	1.0	1.6
CV		0.4	0.3	0.5
95th Percentile		4.7	4.1	5.2
5th Percentile		0.7	1.4	0.7
90th percentile		4.6	4.0	4.8

Table 41. Toppenish Drain pH Data

Parameter Desc	Monitoring Location	Instant. Min mg/L	Instant. Max mg/L	Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30)	Irrigation Season (May 1 - Sep 31)

		DMR	Limit	DMR	Limit		Inst Min	Inst Max	Inst Min	Inst Max
pH	Upstream	7.1		7.1		12/31/2019	7.1	7.1	7.1	7.1
pH	Upstream	7.1		7.1		03/31/2020	7.1	7.1	7.4	7.4
pH	Upstream	7.1		7.1		06/30/2020	7.	7.	6.9	6.9
pH	Upstream	7.4		7.4		09/30/2020	7.1	7.1	7.2	7.2
pH	Upstream	7.		7.		12/31/2020	6.5	6.5	7.2	7.2
pH	Upstream	7.1		7.1		03/31/2021	6.8	6.8	7.2	7.2
pH	Upstream	6.9		6.9		06/30/2021	7.5	7.5	7.3	7.3
pH	Upstream	7.2		7.2		09/30/2021	7.2	7.2	7.3	7.3
pH	Upstream	6.5		6.5		12/31/2021	7.5	7.5	7.1	7.1
pH	Upstream	6.8		6.8		03/31/2022	7.2	7.2	7.1	7.1
pH	Upstream	7.2		7.2		06/30/2022				
pH	Upstream	7.2		7.2		09/30/2022				
pH	Upstream	7.5		7.5		12/31/2022				
pH	Upstream	7.2		7.2		03/31/2023				
pH	Upstream	7.3		7.3		06/30/2023				
pH	Upstream	7.3		7.3		09/30/2023				
pH	Upstream	7.5		7.5		12/31/2023				
pH	Upstream	7.2		7.2		03/31/2024				
pH	Upstream	7.1		7.1		06/30/2024				
pH	Upstream	7.1		7.1		09/30/2024				
Average		7.1		7.1			7.1	7.1	7.2	7.2
Minimum		6.5		6.5			6.5	6.5	6.9	6.9
Maximum		7.5		7.5			7.5	7.5	7.4	7.4
Count		20		20			10	10	10	10
Std Dev		0.2		0.2			0.3	0.3	0.1	0.1
CV		0.0		0.0			0.0	0.0	0.0	0.0
95th Percentile		7.5		7.5			7.5	7.5	7.4	7.4
5th Percentile		6.8		6.8			6.6	6.6	7.0	7.0
90th percentile		7.4		7.4			7.5	7.5	7.3	7.3

Table 42. Toppenish Drain Total Phosphorus Data

Parameter Desc	Monitoring Location	Quarterly Max µg/L		Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30)	Irrigation Season (May 1 - Sep 31)
		DMR	Limit		Quarterly Max	Quarterly Max
Phosphorus, total [as P]	Upstream	285.		12/31/2019	285.	138.
Phosphorus, total [as P]	Upstream	.08		03/31/2020	.08	.12
Phosphorus, total [as P]	Upstream	138.		06/30/2020	.068	.053
Phosphorus, total [as P]	Upstream	.12		09/30/2020	.044	.108
Phosphorus, total [as P]	Upstream	.068		12/31/2020	.184	.135
Phosphorus, total [as P]	Upstream	.044		03/31/2021	.184	1.57
Phosphorus, total [as P]	Upstream	.053		06/30/2021	.088	.117
Phosphorus, total [as P]	Upstream	.108		09/30/2021	1.48	.032
Phosphorus, total [as P]	Upstream	.184		12/31/2021	.089	.19
Phosphorus, total [as P]	Upstream	.184		03/31/2022	.109	.038
Phosphorus, total [as P]	Upstream	.135		06/30/2022		
Phosphorus, total [as P]	Upstream	1.57		09/30/2022		
Phosphorus, total [as P]	Upstream	.088		12/31/2022		
Phosphorus, total [as P]	Upstream	1.48		03/31/2023		
Phosphorus, total [as P]	Upstream	.117		06/30/2023		
Phosphorus, total [as P]	Upstream	.032		09/30/2023		
Phosphorus, total [as P]	Upstream	.089		12/31/2023		
Phosphorus, total [as P]	Upstream	.109		03/31/2024		
Phosphorus, total [as P]	Upstream	.19		06/30/2024		
Phosphorus, total [as P]	Upstream	.038		09/30/2024		

Average		0.3	28.7	14.0
Minimum		0.0	0.0	0.0
Maximum		285.0	285.0	138.0
Count		20	10	10
Std Dev		69.3	90.0	43.6
CV		255.4	3.1	3.1
95th Percentile		145.4	157.4	76.6
5th Percentile		0.0	0.1	0.0
90th percentile		15.2	29.8	15.2

Table 43. Toppenish Drain Temperature Data

Parameter Desc	Monitoring Location	Monthly Max Degrees C DMR	Monthly Max Degrees C Limit	Monitoring Period End Date	Non-Irrigation Season (Oct 1 - April 30) Quarterly Max	Irrigation Season (May 1 - Sep 31) Quarterly Max
Temperature, water deg. centigrade	Upstream	18.2		06/30/2020		18.2
Temperature, water deg. centigrade	Upstream	16.2		07/31/2020		16.2
Temperature, water deg. centigrade	Upstream	19.2		08/31/2020		19.2
Temperature, water deg. centigrade	Upstream	15.1		09/30/2020		15.1
Temperature, water deg. centigrade	Upstream	20.		06/30/2021		20.
Temperature, water deg. centigrade	Upstream	21.		07/31/2021		21.
Temperature, water deg. centigrade	Upstream	20.		08/31/2021		20.
Temperature, water deg. centigrade	Upstream	18.		09/30/2021		18.
Temperature, water deg. centigrade	Upstream	14.6		06/30/2022		14.6
Temperature, water deg. centigrade	Upstream	15.		07/31/2022		15.
Temperature, water deg. centigrade	Upstream	17.		08/31/2022		17.
Temperature, water deg. centigrade	Upstream	17.		09/30/2022		17.
Temperature, water deg. centigrade	Upstream	16.		06/30/2023		16.
Temperature, water deg. centigrade	Upstream	16.		07/31/2023		16.
Temperature, water deg. centigrade	Upstream	16.		08/31/2023		16.
Temperature, water deg. centigrade	Upstream	17.		09/30/2023		17.
Temperature, water deg. centigrade	Upstream	16.		06/30/2024		16.
Temperature, water deg. centigrade	Upstream	22.		07/31/2024		22.
Temperature, water deg. centigrade	Upstream	17.		08/31/2024		17.
Temperature, water deg. centigrade	Upstream	15.		09/30/2024		15.
Average		17.3				17.3
Minimum		14.6				14.6
Maximum		22.0				22.0
Count		20				20
Std Dev		2.1				2.1
CV		0.1				0.1
95th Percentile		21.1				21.1
5th Percentile		15.0				15.0
90th percentile		20.1				20.1

Appendix C. Reasonable Potential and WQBEL Formulae

1. Reasonable Potential Analysis

The EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA, 1991) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, the EPA compares the maximum projected receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a WQBEL must be included in the permit.

Mass Balance

For discharges to flowing water bodies, the maximum projected receiving water concentration is determined using the following mass balance equation:

$$C_d Q_d = C_e Q_e + C_u Q_u \qquad \textit{Equation 1}$$

where,

C_d	=	Receiving water concentration downstream of the effluent discharge (that is, the concentration at the edge of the mixing zone)
C_e	=	Maximum projected effluent concentration
C_u	=	95th percentile measured receiving water upstream concentration
Q_d	=	Receiving water flow rate downstream of the effluent discharge = Q_e+Q_u
Q_e	=	Effluent flow rate (set equal to the design flow of the WWTP)
Q_u	=	Receiving water low flow rate upstream of the discharge (1Q10, 7Q10 or 30B3)

When the mass balance equation is solved for C_d, it becomes:

$$C_d = \frac{C_e \times Q_e + C_u \times Q_u}{Q_e + Q_u} \qquad \textit{Equation 2}$$

The above form of the equation is based on the assumption that the discharge is rapidly and completely mixed with 100% of the receiving stream.

If the mixing zone is based on less than complete mixing with the receiving water, the equation becomes:

$$C_d = \frac{C_e \times Q_e + C_u \times (Q_u \times \%MZ)}{Q_e + (Q_u \times \%MZ)} \qquad \textit{Equation 3}$$

Where:

% MZ = the percentage of the receiving water flow available for mixing.

If a mixing zone is not allowed, dilution is not considered when projecting the receiving water concentration and,

$$C_d = C_e \qquad \textit{Equation 4}$$

A dilution factor (D) can be introduced to describe the allowable mixing. Where the dilution factor is expressed as:

$$D = \frac{Q_e + Q_u \times \%MZ}{Q_e} \qquad \textit{Equation 5}$$

After the dilution factor simplification, the mass balance equation becomes:

$$C_d = \frac{C_e - C_u}{D} + C_u \qquad \textit{Equation 6}$$

If the criterion is expressed as dissolved metal, the effluent concentrations are measured in total recoverable metal and must be converted to dissolved metal as follows:

$$C_d = \frac{CF \times C_e - C_u}{D} + C_u \qquad \textit{Equation 7}$$

Where C_e is expressed as total recoverable metal, C_u and C_d are expressed as dissolved metal, and CF is a conversion factor used to convert between dissolved and total recoverable metal.

The above equations for C_d are the forms of the mass balance equation which were used to determine reasonable potential and calculate wasteload allocations.

Maximum Projected Effluent Concentration

When determining the projected receiving water concentration downstream of the effluent discharge, the EPA's Technical Support Document for Water Quality-based Toxics Control (TSD, 1991) recommends using the maximum projected effluent concentration (Ce) in the mass balance calculation (see equation 3, page C-5). To determine the maximum projected effluent concentration (Ce) EPA has developed a statistical approach to better characterize the effects of effluent variability. The approach combines knowledge of effluent variability as estimated by a coefficient of variation (CV) with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. Once the CV for each pollutant parameter has been calculated, the reasonable potential multiplier (RPM) used to derive the maximum projected effluent concentration (Ce) can be calculated using the following equations:

First, the percentile represented by the highest reported concentration is calculated.

$$p_n = (1 - \text{confidence level})^{1/n} \qquad \textit{Equation 8}$$

where,

p_n = the percentile represented by the highest reported concentration

n = the number of samples

confidence level = 99% = 0.99

and

$$RPM = \frac{C_{99}}{C_{P_n}} = \frac{e^{Z_{99} \times \sigma - 0.5 \times \sigma^2}}{e^{Z_{P_n} \times \sigma - 0.5 \times \sigma^2}} \qquad \textit{Equation 9}$$

Where,

σ^2 = $\ln(CV^2 + 1)$

Z_{99} = 2.326 (z-score for the 99th percentile)

Z_{Pn} = z-score for the P_n percentile (inverse of the normal cumul distribution function at a given percentile)

CV = coefficient of variation (standard deviation ÷ mean)

The maximum projected effluent concentration is determined by simply multiplying the maximum reported effluent concentration by the RPM:

$$C_e = (RPM)(MRC) \qquad \textit{Equation 10}$$

where MRC = Maximum Reported Concentration

Maximum Projected Effluent Concentration at the Edge of the Mixing Zone

Once the maximum projected effluent concentration is calculated, the maximum projected effluent concentration at the edge of the acute and chronic mixing zones is calculated using the mass balance equations presented previously.

Reasonable Potential

The discharge has reasonable potential to cause or contribute to an exceedance of water quality criteria if the maximum projected concentration of the pollutant at the edge of the mixing zone exceeds the most stringent criterion for that pollutant.

2. WQBEL Calculations

Calculate the Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated using the same mass balance equations used to calculate the concentration of the pollutant at the edge of the mixing zone in the reasonable potential analysis. To calculate the wasteload allocations, C_d is set equal to the acute or chronic criterion and the equation is solved for C_e. The calculated C_e is the acute or chronic WLA. Equation 6 is rearranged to solve for the WLA, becoming:

$$C_e = WLA = D \times (C_d - C_u) + C_u \qquad \textit{Equation 11}$$

Washington's water quality criteria for some metals are expressed as the dissolved fraction, but the Federal regulation at 40 CFR 122.45(c) requires that effluent limits be expressed as total recoverable metal. Therefore, the EPA must calculate a wasteload allocation in total recoverable metal that will be protective of the dissolved criterion. This is accomplished by dividing the WLA expressed as dissolved by the criteria translator, as shown in equation __. As discussed in Appendix ___, the criteria translator (CT) is equal to the conversion factor, because site-specific translators are not available for this discharge.

$$C_e = WLA = \frac{D \times (C_d - C_u) + C_u}{CT}$$ *Equation 12*

The next step is to compute the "long term average" concentrations which will be protective of the WLAs. This is done using the following equations from the EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD):

$$LTA_a = WLA_a \times e^{(0.5\sigma^2 - z\,\sigma)}$$ *Equation 13*

$$LTA_c = WLA_c \times e^{(0.5\sigma_4^2 - z\sigma_4)}$$ *Equation 14*

where,

σ^2 = $\ln(CV^2 + 1)$

Z_{99} = 2.326 (z-score for the 99th percentile probability basis)

CV = coefficient of variation (standard deviation ÷ mean)

σ_4^2 = $\ln(CV^2/4 + 1)$

For ammonia, because the chronic criterion is based on a 30-day averaging period, the Chronic Long Term Average (LTAc) is calculated as follows:

$$LTA_c = WLA_c \times e^{(0.5\sigma_{30}^2 - z\sigma_{30})}$$ *Equation 15*

where,

σ_{30}^2 = $\ln(CV^2/30 + 1)$

The LTAs are compared and the more stringent is used to develop the daily maximum and monthly average permit limits as shown below.

Derive the maximum daily and average monthly effluent limits

Using the TSD equations, the MDL and AML effluent limits are calculated as follows:

$$\mathrm{MDL} = \mathrm{LTA} \times e^{(z_m\sigma - 0.5\sigma^2)}$$ *Equation 16*

$$\mathrm{AML} = \mathrm{LTA} \times e^{(z_a\sigma_n - 0.5\sigma_n^2}$$ *Equation 17*

where σ, and σ^2 are defined as they are for the LTA equations above, and,

σ_n^2	=	$\ln(CV^2/n + 1$
z_a	=	1.645 (z-score for the 95th percentile probability basis)
z_m	=	2.326 (z-score for the 99th percentile probability basis)
n	=	number of sampling events required per month. With the exception of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 4. For ammonia, In the case of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 30.

3. Critical Low Flow Conditions

The low flow conditions of a water body are used to determine WQBELs. In general, Washington's WQS require criteria be evaluated at the following low flow receiving water conditions. Applicable Criteria/Design Conditions for Determining the Acute and Chronic Dilution Factors for Aquatic Life, Department of Ecology Water Quality Program Permit Writer's Manual page 190 at https://apps.ecology.wa.gov/publications/summarypages/92109.html) as defined below:

Acute aquatic life	1Q10
Chronic aquatic life	7Q10
Non-carcinogenic human health criteria	30Q5
Carcinogenic human health criteria	harmonic mean flow
Ammonia	30Q10

1. The 1Q10 represents the lowest one-day flow with an average recurrence frequency of once in 10 years.
3. The 7Q10 represents lowest average 7 consecutive day flow with an average recurrence frequency of once in 10 years.
5. The 30Q5 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 5 years.
6. The 30Q10 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 10 years.
7. The harmonic mean is a long-term mean flow value calculated by dividing the number of daily flow measurements by the sum of the reciprocals of the flows.

Appendix D. Reasonable Potential and WQBEL Calculations

The reasonable potential analyses for the non-irrigation season (October 1 – April 30)

Pollutant, CAS No. & NPDES Application Ref. No.			AMMONIA, Criteria as Total NH3	COPPER - 744058 6M Hardness dependent	LEAD - 7439921 7M Dependent on hardness	SELENIUM 7782492 10M	ZINC- 7440666 13M hardness dependent	ARSENIC (dissolved) 7440382 2M	SILVER - 7740224 11M dependent on hardness.	NITRATE/NITRITE (N)
Effluent Data	# of Samples (n)		36	36	36	36	36	5	5	36
	Coeff of Variation (Cv)		1.966	0.93	0.755	0.582	0.954	0.6	0.6	0.371
	Effluent Concentration, ug/L (Max. or 95th Percentile)		1,195	11	2	2	172	1.4	4.7	
	Calculated 50th percentile Effluent Conc. (when n>10)			2		1	43.25			3239
Receiving Water Data	90th Percentile Conc., ug/L			0						
	Geo Mean, ug/L									9.32
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	13,283	18.4715	70.996	20	123.212	360	4.00754	-
		Chronic	1,790	12.2279	2.76661	5	112.512	190	-	-
	WQ Criteria for Protection of Human Health, ug/L		-	1300	-	120	2300	-	-	10000
	Metal Criteria Translator, decimal	Acute	-	0.996	0.466	-	0.996	1	0.85	-
		Chronic	-	0.996	0.466	-	0.996	1	-	-
	Carcinogen?		N	N	N	N	N	Y	N	N

Aquatic Life Reasonable Potential

Effluent percentile value			0.950	0.950	0.950	0.950	0.950	0.950	0.950
s	$s^2=\ln(CV^2+1)$		1.258	0.789	0.672	0.540	0.804	0.555	0.555
Pn	$Pn=(1\text{-confidence level})^{1/n}$		0.920	0.920	0.920	0.920	0.920	0.549	0.549
Multiplier			1.00	1.00	1.00	1.00	1.00	2.32	2.32
Max concentration (ug/L) at edge of…		Acute	1,144	10.485	0.892	1.914	163.950	3.114	8.887
		Chronic	1,195	10.956	0.932	2.000	171.312	3.254	10.924
Reasonable Potential? Limit Required?			**NO**	**NO**	**NO**	**NO**	**YES**	**NO**	**YES**

Aquatic Life Limit Calculation

# of Compliance Samples Expected per month							1		1
LTA Coeff. Var. (CV), decimal							0.954		0.6
Permit Limit Coeff. Var. (CV), decimal							0.954		0.6

Waste Load Allocations, ug/L	Acute		128.745	4.18748
	Chronic		112.512	-
Long Term Averages, ug/L	Acute		27.3914	1.34453
	Chronic		43.4847	-
Limiting LTA, ug/L			27.3914	1.34453
Metal Translator or 1?			1.00	0.85
Average Monthly Limit (AML), ug/L			**74.7**	**3.38**
Maximum Daily Limit (MDL), ug/L			**129.3**	**4.93**

Human Health
Reasonable Potential

s	$s^2=\ln(CV^2+1)$	0.78943	0.54011	0.80447	0.35911
Pn	Pn=(1-confidence level)1/n	0.920	0.920	0.920	0.920
Multiplier		0.32955	0.46792	0.32266	0.60354
Dilution Factor		1	1	1	1
Max Conc. at edge of Chronic Zone, ug/L		2	1	43.25	3239
Reasonable Potential? Limit Required?		**NO**	**NO**	**NO**	**NO**

The reasonable potential analyses for the irrigation season (May 1 – September 30)

Pollutant, CAS No. & NPDES Application Ref. No.			AMMONIA, Criteria as Total NH3	COPPER - 744058 6M Hardness dependent	LEAD - 7439921 7M Dependent on hardness	SELENIUM 7782492 10M	ZINC- 7440666 13M hardness dependent	ARSENIC (dissolved) 7440382 2M	SILVER - 7740224 11M dependent on hardness.	NITRATE/NITRITE (N)
Effluent Data	# of Samples (n)		25	25	25	25	25	10	10	25
	Coeff of Variation (Cv)		1.088	1.667	0.709	1.042	0.93	0.889	0.9	0.476
	Effluent Concentration, ug/L (Max. or 95th Percentile)		1,470	36	2	8	108	1.4	4.7	
	Calculated 50th percentile Effluent Conc. (when n>10)			2		1	38			3.158
Receiving Water Data	90th Percentile Conc., ug/L									
	Geo Mean, ug/L									9.32
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	32,274	18.7404	72.1879	20	124.824	360	4.11466	-
		Chronic	1,236	13.7271	3.20353	5	126.183	190	-	-
	WQ Criteria for Protection of Human Health, ug/L		-	1300	-	120	2300	-	-	10000
	Metal Criteria Translator, decimal	Acute	-	0.996	0.466	-	0.996	1	0.85	-
		Chronic	-	0.996	0.466	-	0.996	1	-	-
	Carcinogen?		N	N	N	N	N	Y	N	N

Aquatic Life
Reasonable Potential

Effluent percentile value		0.950	0.950	0.950	0.950	0.950	0.950	0.950
s	$s^2=\ln(CV^2+1)$	0.884	1.153	0.638	0.857	0.789	0.763	0.770
Pn	$Pn=(1\text{-confidence level})^{1/n}$	0.887	0.887	0.887	0.887	0.887	0.741	0.741
Multiplier		1.00	1.00	1.00	1.00	1.00	2.14	2.16
Max concentration (ug/L) at edge of…	Acute	1,193	29.092	0.756	6.491	87.275	2.433	6.992
	Chronic	391	9.535	0.248	2.127	28.606	0.797	2.696
Reasonable Potential? Limit Required?		**NO**	**YES**	**NO**	**NO**	**NO**	**NO**	**YES**

Aquatic Life Limit
Calculation

# of Compliance Samples Expected per month			1					4
LTA Coeff. Var. (CV), decimal			1.667					0.9
Permit Limit Coeff. Var. (CV), decimal			1.667					0.9
Waste Load Allocations, ug/L	Acute		23.098					5.07142
	Chronic		51.6178					-
Long Term Averages, ug/L	Acute		3.07271					1.13726
	Chronic		12.4068					-
Limiting LTA, ug/L			3.07271					1.13726
Metal Translator or 1?			1.00					0.85
Average Monthly Limit (AML), ug/L			**10.58**					**2.47**
Maximum Daily Limit (MDL), ug/L			**23.19**					**5.97**

Human Health
Reasonable Potential

s	$s^2=\ln(CV^2+1)$		1.15301		0.8574	0.78943		0.45191
Pn	Pn=(1-confidence level)1/n		0.887		0.887	0.887		0.887
Multiplier			0.24748		0.35402	0.38439		0.5785
Dilution Factor			4.03657		4.03657	4.03657		4.03657
Max Conc. at edge of Chronic Zone, ug/L			0.49547		0.24773	9.41392		7.79346
Reasonable Potential? Limit Required?			**NO**		**NO**	**NO**		**NO**

The reasonable potential analyses for irrigation season and non-irrigation season temperature.

INPUT	May 1 - Sep 30	Oct 1 - Apr 30
1. Chronic Dilution Factor at Mixing Zone Boundary	3.8	1.0
2. 7DADMax Ambient Temperature (T) (Upstream Background 90th percentile)	20.1 °C	20.1 °C
3. 7DADMax Effluent Temperature (95th percentile)	25.8 °C	21.0 °C
4. Aquatic Life Temperature WQ Criterion in Fresh Water	21.0 °C	21.0 °C
OUTPUT		
5. Temperature at Chronic Mixing Zone Boundary:	21.6 °C	21.0 °C
6. Incremental Temperature Increase or decrease:	1.5 °C	0.9 °C
7. Maximum Allowable Incremental Temperature Increase:	1.0 °C	1.0 °C
8. Maximum Allowable Temperature at Mixing Zone Boundary:	21.0 °C	21.0 °C
A. If ambient temp is warmer than WQ criterion		
9. Does temp fall within this warmer temp range?	NO	NO
10. **If YES - Use TMDL-based or performance-based limit - Do Not use this spreadsheet**		
B. If ambient temp is cooler than WQ criterion but within 28/(T_{amb}+7) of the criterion		
11. Does temp fall within this Incremental temp. range?	YES	YES
12. Temp increase allowed at mixing zone boundary, if required:	0.9 °C	NO LIMIT
C. If ambient temp is cooler than (WQ criterion - 28/(T_{amb}+7))		
13. Does temp fall within this Incremental temp. range?	NO	NO
14. Temp increase allowed at mixing zone boundary, if required:	---	---
RESULTS		
15. Do any of the above cells show a temp increase?	**YES**	**NO**
16. Temperature Limit if Required?	**23.5 °C**	**NO LIMIT**

Effluent Limit Calculations for pH

The reasonable potential calculation for the minimum pH effluent limit

INPUT				
	Irrigation season (May 1 – September 30)		Non-irrigation season (October 1 – April 30)	
	@ Acute Boundary	@ Acute Boundary	@ Chronic Boundary	@ Acute Boundary
1. Dilution Factor at Mixing Zone Boundary	1.2	3.8	1.0	1.0
2. Ambient/Upstream/Background Conditions				
Temperature (deg C):	20.10	20.10	17.40	17.40
pH:	7.30	7.30	7.50	7.50
Alkalinity (mg CaCO3/L):	57.00	57.00	57.00	57.00
3. Effluent Characteristics				
Temperature (deg C):	25.00	25.00	21.00	21.00
pH:	6.50	6.50	6.50	6.50
Alkalinity (mg CaCO3/L):	138.80	138.80	115.00	115.00
4. Aquatic Life Use Designation	Char spawning & rearing and/or core summer habitat			
OUTPUT				
1. Ionization Constants				
Upstream/Background pKa:	6.38	6.38	6.40	6.40
Effluent pKa:	6.35	6.35	6.38	6.38
2. Ionization Fractions				
Upstream/Background Ionization Fraction:	0.89	0.89	0.93	0.93
Effluent Ionization Fraction:	0.59	0.59	0.57	0.57
3. Total Inorganic Carbon				
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	64	64	62	62
Effluent Total Inorganic Carbon (mg CaCO3/L):	237	237	201	201
4. Conditions at Mixing Zone Boundary				
Temperature (deg C):	24.18	21.39	21.00	21.00
Alkalinity (mg CaCO3/L):	125.17	78.53	115.00	115.00
Total Inorganic Carbon (mg CaCO3/L):	208.20	109.45	201.26	201.26
pKa:	6.35	6.37	6.38	6.38
5. Allowable pH change	NA	0.20	NA	0.20
RESULTS				
pH at Mixing Zone Boundary:	**6.53**	**6.78**	**6.50**	**6.50**
pH change at Mixing Zone Boundary:	0.77	0.52	1.00	1.00
Is permit limit needed?	NO	YES	NO	YES

The reasonable potential calculation for the maximum pH effluent limit

INPUT				
	Irrigation season (May 1 – September 30)		Non-irrigation season (October 1 – April 30)	
	@ Acute Boundary	@ Acute Boundary	@ Chronic Boundary	@ Acute Boundary
1. Dilution Factor at Mixing Zone Boundary	1.2	3.8	1.0	1.0
2. Ambient/Upstream/Background Conditions				
Temperature (deg C):	20.10	20.10	17.40	17.40
pH:	7.30	7.30	7.50	7.50
Alkalinity (mg CaCO3/L):	57.00	57.00	57.00	57.00
3. Effluent Characteristics				
Temperature (deg C):	25.00	25.00	21.00	21.00
pH:	8.50	8.50	8.50	8.50
Alkalinity (mg CaCO3/L):	138.80	138.80	115.00	115.00
4. Aquatic Life Use Designation	Char spawning & rearing and/or core summer habitat			
OUTPUT				
1. Ionization Constants				
Upstream/Background pKa:	6.38	6.38	6.40	6.40
Effluent pKa:	6.35	6.35	6.38	6.38
2. Ionization Fractions				
Upstream/Background Ionization Fraction:	0.89	0.89	0.93	0.93
Effluent Ionization Fraction:	0.99	0.99	0.99	0.99
3. Total Inorganic Carbon				
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	64	64	62	62
Effluent Total Inorganic Carbon (mg CaCO3/L):	140	140	116	116
4. Conditions at Mixing Zone Boundary				
Temperature (deg C):	24.18	21.39	21.00	21.00
Alkalinity (mg CaCO3/L):	125.17	78.53	115.00	115.00
Total Inorganic Carbon (mg CaCO3/L):	127.13	83.85	115.86	115.86
pKa:	6.35	6.37	6.38	6.38
5. Allowable pH change	NA	0.20	NA	0.20
RESULTS				
pH at Mixing Zone Boundary:	8.16	7.54	8.50	8.50
pH change at Mixing Zone Boundary:	0.86	0.24	1.00	1.00
Is permit limit needed?	NO	YES	NO	YES

Appendix E. Essential Fish Habitat Assessment

Pursuant to the requirements for Essential Fish Habitat (EFH) assessments, this appendix contains the following information:

- Listing of EFH Species in the Facility Area
- Description of the Facility and Discharge Location
- The EPA's Evaluation of Potential Effects to EFH

Listing of EFH Species in the Facility Area

According to NOAA Fisheries' EFH Mapper, the Lower Yakima Basin is EFH for chinook and coho salmon.

Description of the Facility and Discharge Location

The activities and sources of wastewater at the Toppenish WWTP are described in detail in Part II and Appendix A of this fact sheet. The location of the outfall is described in Part III ("Receiving Water").

The EPA's Evaluation of Potential Effects to EFH

Water quality is an important component of aquatic life habitat. NPDES permits are developed to protect water quality in accordance with WQS. The standards protect the beneficial uses of the waterbody, including all life stages of aquatic life. The development of permit limits for an NPDES discharger includes the basic elements of ecological risk analysis. The underlying technical process leading to NPDES permit requirements incorporates the following elements of risk analysis:

Effluent Characterization

Characterization of the Toppenish WWTP effluent was accomplished using a variety of sources, including:

- Permit application monitoring
- Permit compliance monitoring
- Statistical evaluation of effluent variability
- Quality assurance plans and evaluations

Identification of Pollutants of Concern and Threshold Concentrations

The pollutants of concern include pollutants with aquatic life criteria in the Washington WQS. Threshold concentrations are equal to the numeric water quality criteria for the protection of aquatic life.

Exposure and Wasteload Allocation

Analysis of the transport of pollutants near the discharge point with respect to the following:

- Mixing zone policies in the Washington WQS

- Dilution modeling and analysis
- Exposure considerations (e.g., prevention of lethality to passing organisms)
- Consideration of multiple sources and background concentrations

Statistical Evaluation for Permit Limit Development

Calculation of permit limits using statistical procedures addressing the following:

- Effluent variability and non-continuous sampling
- Fate/transport variability
- Duration and frequency thresholds identified in the water quality criteria

Monitoring Programs

Development of monitoring requirements, including:

- Compliance monitoring of the effluent
- Ambient monitoring

Protection of Aquatic Life in NPDES Permitting

The EPA's approach to aquatic life protection is outlined in detail in the Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001, March 1991). The EPA and states evaluate toxicological information from a wide range of species and life stages in establishing water quality criteria for the protection of aquatic life.

The NPDES program evaluates a wide range of chemical constituents (as well as whole effluent toxicity testing results) to identify pollutants of concern with respect to the criteria values. When a facility discharges a pollutant at a level that has a "reasonable potential" to exceed, or to contribute to an exceedance of, the water quality criteria, permit limits are established to prevent exceedances of the criteria in the receiving water (outside any authorized mixing zone).

Effects Determination

Since the proposed permit has been developed to protect aquatic life species in the receiving water in accordance with the Washington WQS, the EPA has determined that issuance of this permit is not likely to adversely affect any EFH in the vicinity of the discharge. The EPA will provide NMFS with copies of the draft permit and fact sheet during the public notice period. Any recommendations received from NMFS regarding EFH will be considered prior to reissuance of this permit.

Appendix F. Antidegradation Analysis

The purpose of Washington's Antidegradation Policy 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.

- Apply three tiers of protection (described below) for surface waters of the state.

    1. Tier I is used to ensure existing and designated uses are maintained and protected and applies to all waters and all sources of pollution.

    2. Tier II is used to ensure that waters of a higher quality than the criteria assigned in this chapter 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.

    3. Tier III is used to prevent the degradation of waters formally listed in this chapter as "outstanding resource waters," and applies to all sources of pollution.

The EPA utilized Washington's WQS downstream from the discharge in the Toppenish Drain to establish discharge limits in the permit and accordingly, the antidegradation analysis was completed for the Yakima River downstream of the discharge. The discharge proposed in this permit should not cause a loss of beneficial uses because there have not been any changes in the process of the existing facility, and there is no change in the design flow. Therefore, the EPA concludes that the discharge does not trigger the need for any further antidegradation analysis beyond Tier I Protection.

Tier I Protection – Protection and maintenance of existing and designated uses

According to Washington's antidegradation policy, WAC 172-210A-310, this facility must meet Tier I requirements. Existing and designated uses must be maintained and protected. No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in WAC 173-201A612. The waters of the Toppenish Drain in Washington downstream of the point of discharge are protected for the following designated beneficial uses:

- Aquatic Life Uses: Salmonoid Spawning, Rearing, and Migration Wildlife Habitat;
- Recreational Uses: Primary Contact
- Water Supply Uses: Domestic Water; Industrial Water; Agricultural Water; Stock Water
- Aesthetic Values.

The effluent limits in the permit ensure compliance with applicable numeric and narrative water quality criteria. The numeric and narrative water quality criteria are set at levels that ensure protection of the designated uses. As there is no information indicating the presence of existing beneficial uses other than those that are designated, the draft permit ensures a level of water quality necessary to protect the designated uses and, in compliance with WAC 173-201A-310 and 40 CFR § 131.12(a)(1), also ensures that the level of water quality necessary to protect existing uses is maintained and protected. If the EPA receives information during the public comment period demonstrating that there are existing uses for which Toppenish Drain is not designated, the EPA will consider this information before issuing a final permit and will establish additional or more stringent permit conditions if necessary to ensure protection of existing uses.

Tier II Protection – Protection of waters of higher quality than the standards

The EPA determined that analysis for a Tier II Protection is not necessary because the facility is not a new or expanded action that has the potential to cause measurable degradation to existing water quality. According to WAC 173-210A-320(2), a facility must prepare a Tier II analysis when the facility is planning a new or expanded action that has the potential to cause measurable degradation to the physical, chemical, or biological quality of the water body.

Tier III Protection – Protection of Outstanding Resource Waters

The EPA determined that a Tier III antidegradation analysis is not necessary because the receiving water does not meet the conditions as an Outstanding Resource Water pertaining to WAC 173-201A-330(1).

Appendix G. CWA § 401 Certification

Below is the EPA's draft CWA § 401 Certification. The EPA is taking comment on the EPA's intent to certify this permit as described in Section VI.C.

REGION 10
SEATTLE, WA 98101

September 4, 2025

Clean Water Act (CWA) Section 401 Certification for Discharger Located within Tribal Boundaries

Facility:	City of Toppenish Wastewater Treatment Plant
NPDES Permit Number:	WA0026123
Location:	Yakama Nation
Receiving Water:	Toppenish Drain
Facility Location:	501 Annahat Road, Toppenish, Washington 98948

This grant of certification without conditions applies to the water quality-related impacts from the activity subject to the National Pollutant Discharge Elimination System (NPDES) permit referenced above. The City of Toppenish Wastewater Treatment Plant is located near the town of Toppenish, Washington within the bounds of the Yakama Nation.

Section 401 of the Clean Water Act requires applicants for Federal licenses or permits to conduct any activity which may result in any discharge into waters of the United States to obtain a certification or waiver from the certifying authority where the discharge originates or will originate. When a NPDES permit is issued on Tribal Land, the Tribe is the certifying authority where the Tribe has been approved by the EPA for Treatment as a State (TAS) pursuant to CWA Section 518(e) and 40 CFR § 131.8. Where a Tribe does not have TAS, the EPA is the certifying authority. 33 U.S.C. 1341(a)(1). In this case, the Yakama Nation does not have TAS for the reservation. Therefore, the EPA is making the certification decision for the permit.

The EPA has determined that the activity will comply with the applicable water quality requirements, including any limitation, standard, or other requirement under sections 301, 302, 303, 306, and 307 of the CWA; any federal and state or Tribal laws or regulations implementing those sections; and any other water quality-related requirement of state or Tribal law.

The EPA's Public Notice Process

On [*DATE*], the EPA issued a public notice for the draft permit, including the intent to certify under Section 401, and provided the opportunity for the public to submit comments until [*DATE*].

Susan Poulsom
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EPA Region 10