NPDES Compliance Inspection Report

Palmer Municipal WWTF

Palmer, AK

Permit # AK-002249-7

Inspection Date: September 27, 2021

Prepared by:

Michelle Lanzoni
U.S. Environmental Protection Agency, Region 10
Enforcement and Compliance Assurance Division
Water Enforcement and Field Branch
Surface Water Enforcement Section

Inspector Signature/Date:

Lanzoni, Michelle
Digitally signed by Lanzoni, Michelle
Date: 2021.12.06 15:09:49 -09'00'

Supervisor Signature/Date:

MICHELE JENCIUS
Digitally signed by MICHELE JENCIUS
Date: 2021.12.06 15:56:03 -08'00'

Contents

Disclaimer:

This report is a summary of observations and information gathered from the facility at the time of the inspection. The information provided does not constitute a final decision on compliance, nor is it meant to be a comprehensive summary of all activities and processes conducted at the facility.

Unless otherwise noted, all details in this inspection report were obtained from conversations with Alycia Anderson or Gregory Howard, or from observations during the inspection.

I. Facility Information

Facility Name:	Palmer Municipal WWTF
Facility Owner/Operator:	City of Palmer
Physical Address:	1392 Little Brook Lane Palmer, AK 99645
Lat/Long:	61.5921352, -149.2521640
Mailing Address:	1316 S. Bonanza St. Palmer, AK 99645
Facility Contacts:	Alycia Anderson, Site Foreman 907-745-3400 Aanderson@palmerak.org
Permit Number:	AK-002249-7
NAICS Code: SIC Code:	221320 4952 Sewerage Systems
Receiving Water:	Matanuska River --- Knik River --- Knik Arm

II. Inspection Information

Inspection Date:	September 27, 2021
Inspectors:	Michelle Lanzoni and Tara Martich
Arrival Time:	11 am
Departure Time:	3:15 pm
Weather:	Sunny and cool
Purpose:	To evaluate the facility's compliance with the National Pollutant Discharge Elimination System (NPDES) permit and the Clean Water Act (CWA).

III. Permit Information

This facility is permitted to discharge under NPDES permit AK-002249-7. The Palmer WWTF first came online in 1972, and its first permit, issued in March 1976, contained secondary treatment requirements. Permit AK-002249-7 became effective on January 1, 2007, and it has been administratively extended since its expiration date of December 31, 2011. This permit contains a compliance schedule for meeting ammonia-nitrogen effluent limits.

IV. Background

The POTW is owned and operated by the City of Palmer and serves a population of approximately 9,000 people, including permanent and transient members. The total design flow of the lagoon system is 0.95 million gallons per day (MGD). The facility's headworks and the facility's UV disinfection process were designed to accommodate 2 MGD. The Moving Bed Biofilm Reactor (MBBR) system was designed to accommodate 1.2 MGD with adjustments. The headworks intake normally runs between 0.5 and 0.7 MGD. The current average flow through the MBBR system is 0.675 MGD, but peak flows are higher.

Permit effluent limits were modified in 1994 and upstream monitoring was required in 2000. In 2002 ultraviolet (UV) disinfection replaced chlorine disinfection, and the most recent permit reflects this change as well as changes to industrial users no longer connected to the municipal, publicly owned treatment works (POTW). Current industrial users now include the area's local hospital and multiple breweries in Palmer. These facilities are responsible for pretreatment of their wastewater before it arrives at the Palmer WWTF.

On December 22, 2016, the U.S. Environmental Protection Agency (EPA) and the State of Alaska entered into a Consent Decree (CD) with the City of Palmer to resolve effluent limit violations under the Clean Water Act (CWA) NPDES permit. The CD required the facility to construct a secondary clarifier. The CD set a date of August 31, 2020, for the City to install and begin operating the secondary clarifier. A modification to the CD, filed May 14, 2021, allows the City to determineif it can achieve permit compliance without the secondary clarifier. The CD modification extends the deadline for construction and installation of the secondary clarifier to July 1, 2022.

As of the inspection on September 27, 2021, the facility's wastewater treatment process consists of the MBBR, an aerated lagoon system with two functioning lagoons, and a UV disinfection system.

The City began construction of a secondary clarifier, which will become a central part of the facility's wastewater treatment process. EPA inspectors observed and photographed the construction's progress (Photos 19, 20) on September 27, and the facility representative said the construction is running on schedule and should be ready to come online in the summer of 2022.

The facility was last inspected for NPDES / APDES permit compliance on February 25, 2019, by the Alaska Department of Environmental Conservation (ADEC).

V. Inspection Chronology

On Thursday, September 23, 2021, I sent an email notice to Mr. Jude Bilafer, the Director of Public Works in Palmer, to inform him an EPA inspection would occur at the Palmer Municipal Wastewater Treatment Facility on Monday, September 27th. ADEC was notified of the upcoming inspection.

On Monday, September 27, Tara Martich and I drove to the Palmer WWTF located at 1392 Little Brook Lane. We arrived at 11 am, and were directed to the facility's Site Forman, Alycia Anderson. We presented our credentials to Ms. Anderson and were granted access to the facility. We were accompanied throughout the inspection by Alycia Anderson and Operator Gregory Howard. Because Ms. Anderson had not been notified by the City's Director of Public Works of the inspection, our inspection was, effectively, unannounced.

I began the inspection with a brief opening conference with Ms. Anderson in her office in the laboratory building. While there, we began with a file review before taking a tour of the WWTF. We ended with a closing conference to discuss observations and next steps.

VI. Opening Conference

The WWTF has recently undergone some management changes. The facility now has a new director and new operators. Two fulltime, wastewater treatment certified personnel operate the facility. Alycia Anderson, the Site Foreman, is a Certified Level II Operator. She oversees the on-site laboratory and signs the DMRs. Gregory Howard is a Certified Level 1 Operator. While the facility's staff works Monday through Friday, they are on-call using a rotating standby list. Ms. Anderson stated she was in the process of hiring another operator.

In the last five years, the MBBR system has been installed, a new laboratory building was constructed, two new blowers were added to the operation, and construction began on the secondary clarifier.

The Palmer municipal wastewater enters at the Headworks building, where two large pumps pull water through augers and grinders and into a dumpster where water travels to the Moving Bed Biofilm Reactor (MBBR), where, as Site Foreman Alycia Anderson explained, "plastic, honeycomb shapes the size of a quarter" encourage microbial growth. From there, water passes through a V-notch weir, into Manhole 10, and enters Lagoon 2 and Lagoon 3. Lagoon 1 is offline. The lagoons contain fine-bubble diffusers evenly spaced. The sludge is periodically dredged and dried on property where it is mixed with lime. After Lagoon 3, water enters the UV disinfection building, moves through a Parshall flume, and is discharged through Outfall 001 to the northernmost channel of the Matanuska River, which flows into Knik River and Knik Arm.

Besides Lagoon 1, all treatment system units were operational on the day of the inspection. Onsite generators, which would switch on automatically in the event of a power failure, could power all operations in the headworks building, the UV disinfection building, and the blowers at Lagoon 3. The facility has had no spills or bypasses in the past five years.

I explained our purpose was to inspect the facility for NPDES permit compliance, and that while I would be taking photographs of the facility, I would not be taking any samples. Ms. Anderson quickly provided me with a copy of the facility's permit as well as their current Operation and Maintenance Plan, and Quality Assurance Plan. The maintenance schedule was posted on the wall in a neat and organized fashion.

VII. Site Review

Ms. Anderson and Mr. Howard took us on a tour of the facility. An aerial image/site map appears in **Attachment A** and a photograph log appears in **Attachment B**.

We began the site tour at the facility's headworks, where I inspected the municipal intake, the influent flow meter, the autosampler and storage fridge (**Photo 1**), and the facility's screening, auger and grinder, as water flowed through the headworks building. Alycia noted the influent flow meter is not regularly calibrated but the effluent flow meter is. At the time of the inspection, the autosampler was not hooked up in its usual place since Mr. Howard had moved it to conduct weekly sampling.

Next, I inspected the MBBR facility (**Photos 2, 3**). When asked about issues with maintenance, Ms. Anderson said they were getting buildups of grease in some areas, including in Manhole 10. Ms. Anderson explained since people in Palmer have been staying home due to COVID, she's noticed more issues with grease. She also said she wants to build a grease awareness program with local restaurants. To promote BOD removal and nitrification in the MBBR, Ms. Anderson has submerged aeration hoses through individual panel compartments. The facility tests in-house samples from the MBBR weekly, and quarterly, Alycia pulls up the cover panels throughout the MBBR to inspect the system.

I then inspected Lagoon 2 and Lagoon 3. Both Lagoon 2 and 3 are Biolac aerated lagoons roughly 8 feet deep. In 2020, the submerged diffusers in Lagoon 2 became stuck in sludge as it accumulated and rendered the diffusers ineffective. That summer the facility replaced the cracked diffusers and raised the diffusers' elevation. The fine-bubble diffusers now hang three feet from the main manifold and are evenly spaced (**Photo 4**).

The primary challenge for the facility in maintaining this lagoon system is the removal of sludge. The Facility last dredged Lagoon 2 in late April to May 2021. The dredging was only completed halfway because the main motor on the dredger broke. Ms. Anderson said she has ordered a replacement motor. During circumstances when the facility cannot dredge all of the sludge, they add Sludge Rx, biological sludge removal tablets that aid with digestion.

Ms. Anderson noted that sludge dredging can take one month to complete properly in Alaska, and dredging begins late in the season—after everything has thawed. A piped outfall at Lagoon 2 moves the dredged material to a drying bed area, after which it is mixed with lime and allowed to dry. The only sludge parameter currently measured is pH. Ms. Anderson thinks the drying beds may be abandoned after the secondary clarifier is installed. Alycia discussed the possibility

of using geotube bag membranes to dispose of the remaining sludge material, and this may be something the facility implements in the next five years.

Lagoon 3 is situated south of Lagoon 2 and adjacent to the UV Disinfection Building. Some foam was present on the surface of Lagoon 3, in its eastern cell (**Photo 5**). Ms. Anderson said the facility experienced algal buildup in Lagoon 3 this past August.

In the UV Building (**Photo 6**), I inspected the UV bulb replacements, the four UV units, the effluent flow meter, autosampler, sampler tubing, sample location, and sample storage fridge inside the building. Ms. Anderson and Mr. Howard demonstrated their sampling protocol. A recirculation pump collected water post-UV treatment to spray the upstream pump filters.

After the facility tour, I inspected the location of Outfall 001 and the receiving water (**Photos 7, 8**). The mixing zone locations are clearly marked, and the coordinates are as follows:

Upstream:	61.3320, -149.651
Downstream 1:	61.3316, -149.730
Downstream 2:	61.3257, -149.729

Influent samples are collected in the headworks building, before water goes through the grinder. Effluent samples are collected in the UV building, after water has gone through the UV treatment process. Effluent samples are also collected upstream and downstream at the aforementioned waypoints.

The laboratory space was neat and well maintained. The facility analyzes its own temperature, pH, biochemical oxygen demand (BOD), total suspended solids (TSS), and ammonia-nitrogen parameters. The 24-hour composite samples are collected appropriately and held at the correct temperature. The BOD samples are incubated in a dark, biohazard-labeled space with an independent thermometer that reads 20°C. The laboratory uses a Hach DR3900 spectrophotometer for analyzing ions. They use a Hach SensION+ for pH and temperature readings.

Laboratory reading and calibration logs were readily available (**Photo 9**). A partial list of the water quality parameters analyzed and the EPA methods used are shown in **Photo 10**. The facility collects fecal coliform samples and sends them to SGS North America Inc. laboratory in Anchorage for analysis. I did not collect samples during the inspection.

VIII. File Review

I reviewed the following records:

- NPDES Permit
- Discharge Monitoring Reports (DMRs)
- Solids Management Plan, revised December 2, 2020
- Lagoon Dredging and Ammonia Management Plan dated October 12, 2020
- Palmer Polymer Addition Study (for MBBR)
- Quality Assurance Plan (QAP) dated February 26, 2019

- Maintenance Schedule, current as of September 27, 2021
- Operation and Maintenance manuals
- Operator logs, including maintenance records, temperature logs and field logs
- Sampling records, analytical reports, data logs and calculation tables
- Chain of custody forms
- Bench sheets

I reviewed these records, which were emailed to me after the inspection:

- July 2021 DMR Copy of Record
- August 2021 DMR Copy of Record
- July 2021 Log of DMR Values Handwritten
- August 2021 Log of DMR Values Handwritten
- July 2021 Log of DMR Values Excel Sheet
- August 2021 Log of DMR Values Excel Sheet

IX. Areas of Concern

I noted the following areas of concern:

A. Effluent Limit Violations

Part I.B.1. of the permit states that "the permittee must limit and monitor discharges from outfall 001 as specified in Table 1 below… the permittee must comply with the effluent limits at all times..."

EPA records indicate that the facility has recorded 1,681 effluent limit violations in the past five years, since October 1, 2016. Roughly 1/3 of these violations occurred since June 2019. A summary of effluent limit violations covering the period from October 1, 2016, through October 31, 2021 appears in **Attachment C**. This summary shows repeated periods of effluent limit exceedance violations for BOD, fecal coliform, ammonia - nitrogen (NH_3 – N), total suspended solids (TSS), pH, and flow. When ranked, the highest number of exceedance violations are for ammonia – nitrogen followed by TSS.

Ammonia effluent limits as permitted are significantly lower for the months of July and August than they are for the rest of the year. Ms. Anderson immediately identified the ammonia - nitrogen parameter the most difficult for her facility to achieve, and she said the lagoon system, as it currently stands, and the challenge of sludge removal are why the facility frequently fails this parameter, especially during the summer months. Ms. Anderson expressed her belief that the secondary clarifier (construction shown in

Photo 11) will significantly upgrade the Palmer Municipal WWTF and improve its treatment efficiency.

B. Discharge of Floating Solids

Part I.B.2. of the permit states that "The permittee must not discharge any floating solids, visible foam in other than trace amounts...."

I observed what appeared to be foam in the receiving water, directly downstream from Outfall 001. Photo 6, taken while standing on the northern bank of the receiving waters, appears to show foam in the northernmost channel of the Matanuska. This foam was not seen further downstream (as seen in Photo 7).

X. Closing Conference

I held a closing conference with Alycia Anderson. We discussed the areas of concern identified during the inspection and I gave a brief overview of the post-inspection process. Ms. Anderson indicated again that the Palmer WWTF's position is to utilize the secondary clarifier, now under construction, to achieve a higher degree of wastewater treatment as scheduled. I thanked Ms. Anderson for her time and assistance.

ATTACHMENT A – Site Plan

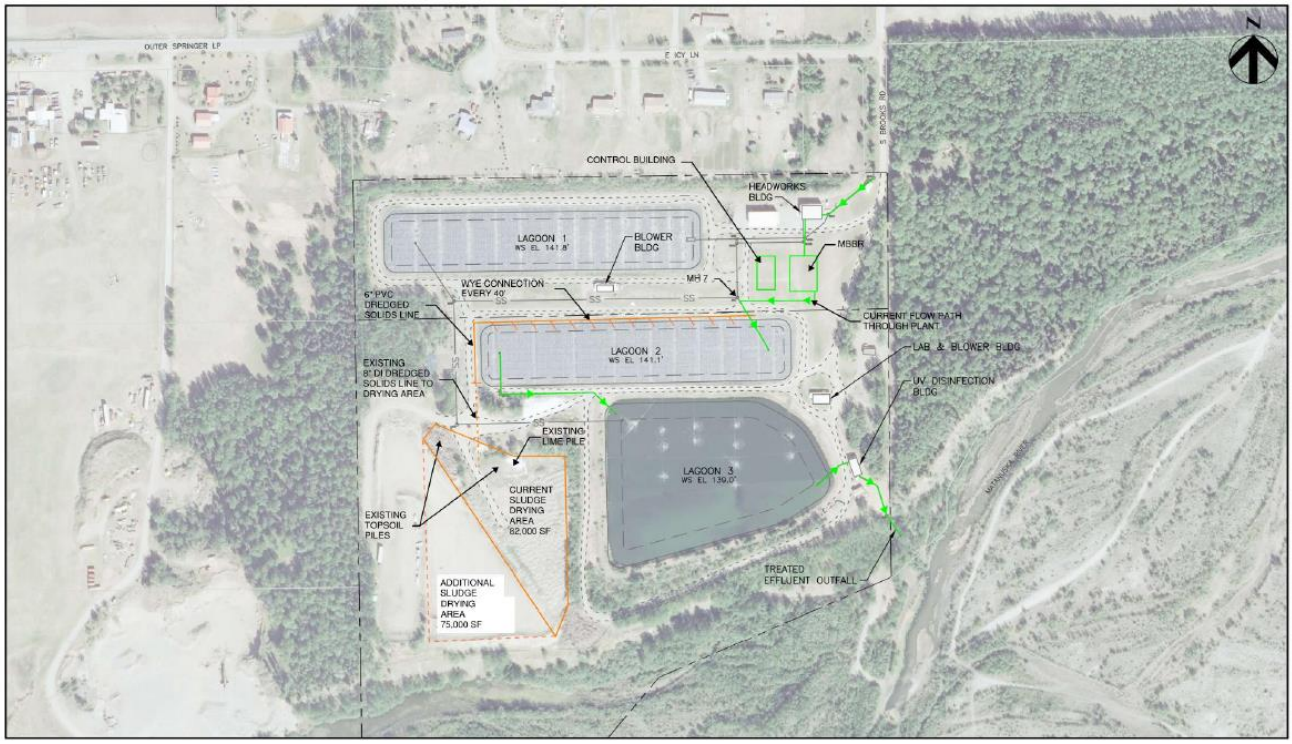


Figure 1: City of Palmer WWTF Site Plan as of June 2020.

ATTACHMENT B – Photograph Log

Michelle Lanzoni took photographs on September 27, 2021with a Sony Cybershot DSC-W350 camera.

Photo 1
Description: Refrigerator where the sampled water is stored during composite sampling inside the headworks building.

Photo 2
Description: Above-ground view of the new MBBR system. The new laboratory building can be seen on the right.

Photo 3
Description: Corner view of the MBBR.

Photo 4
Description: After water is brought from the headworks intake through the MBBR, it is released into Lagoon 2. View of Lagoon 2 with fine-bubble diffusers. Facing SW.

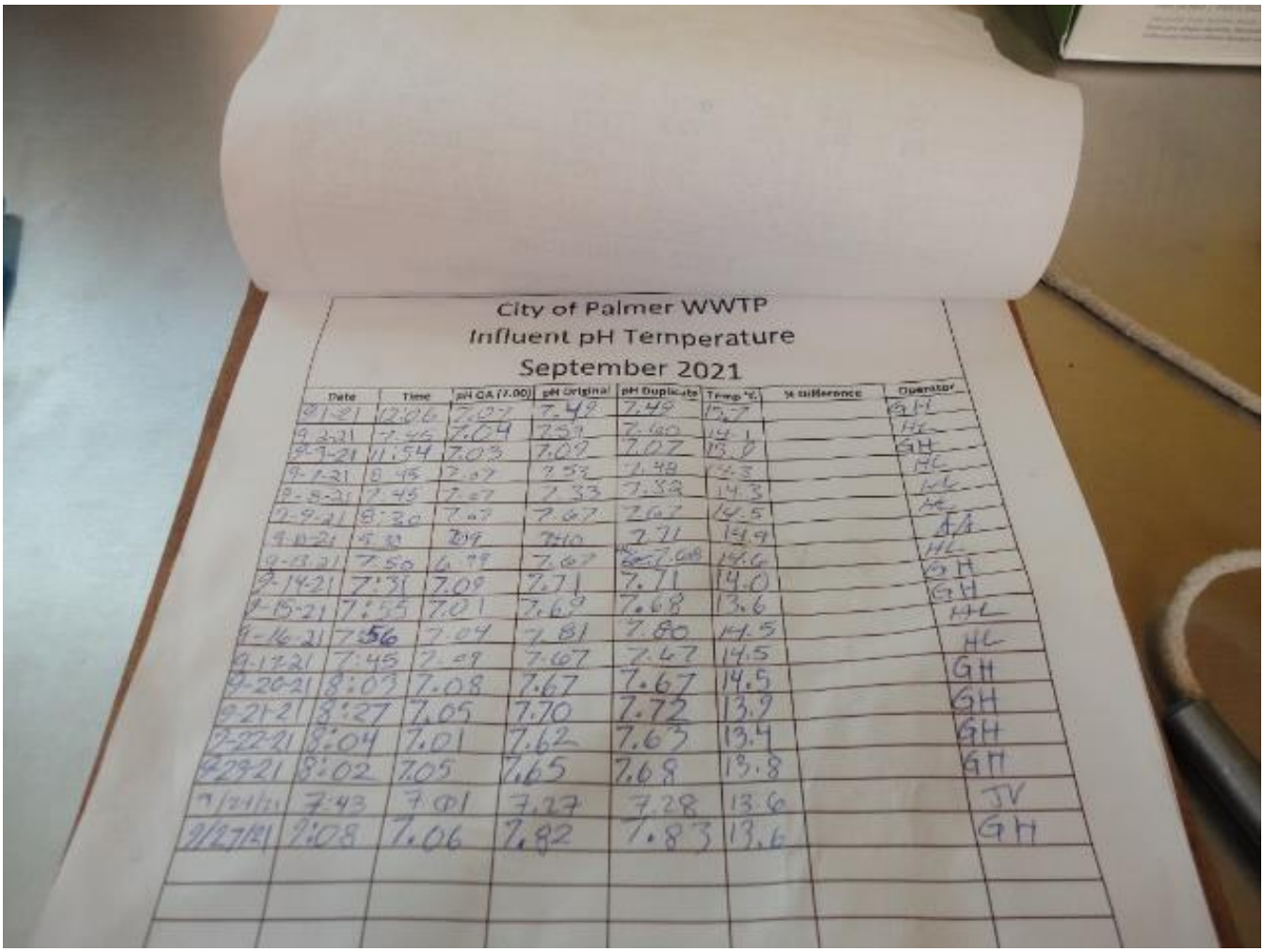
Photo 5
Description: Closer view of water in Lagoon 3. Foam present in a cell on the eastern side of Lagoon 3.

Photo 6
Description: Inside the UV building, looking down at the enclosed, UV lamp process streams. Show here are the four UV units, each with five ballasts, each of which contain eight UV bulbs.

Photo 7

Description: Outfall 001 discharges into the minor, northernmost channel of the Matanuska River, approximately 5 miles NE of where it enters the Knik Arm. In this photo, taken from the northern bank of this channel, effluent from Outfall 001 can be seen upstream.

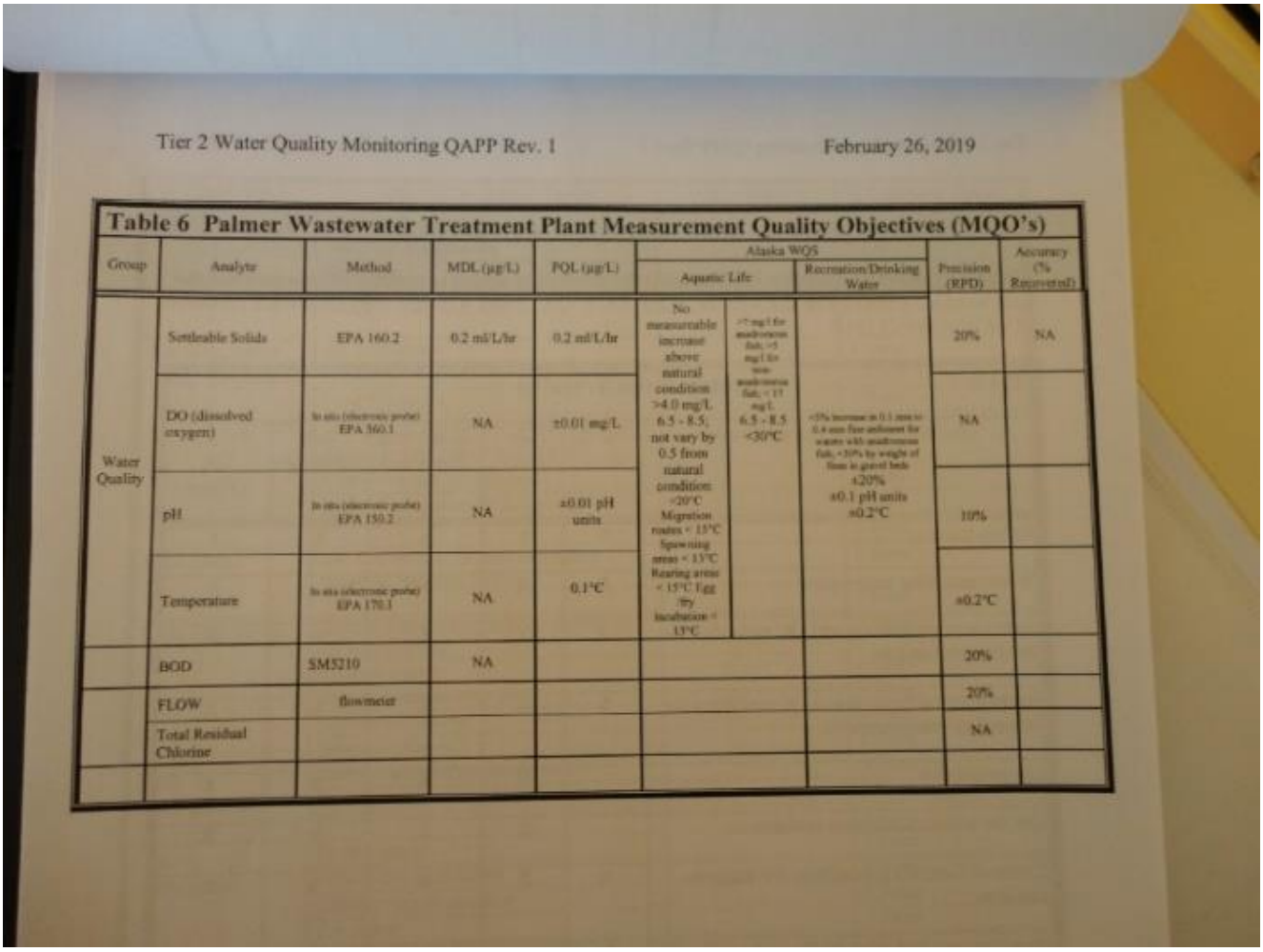
Photo 8
Description: Salmon spotted in the receiving waters of the Matanuska River.



City of Palmer WWTP
Influent pH Temperature
September 2021

Date	Time	pH QA (7.00)	pH Original	pH Duplicate	Temp °C	% Difference	Operator
9-1-21	12:06	7.07	7.49	7.49	15.7		BL
9-2-21	7:46	7.04	7.51	7.60	14.1		HL
9-7-21	11:54	7.03	7.09	7.07	13.1		GH
9-1-21	8:45	7.07	7.52	7.48	14.3		HL
9-8-21	7:45	7.07	7.33	7.32	14.3		HL
9-9-21	8:30	7.07	7.67	7.67	14.5		HL
9-10-21	5:31	7.09	7.40	7.71	14.9		AA
9-13-21	7:50	6.99	7.67	7.68	14.6		HL
9-14-21	7:31	7.09	7.71	7.71	14.0		GH
9-15-21	7:55	7.01	7.69	7.68	13.6		GH
9-16-21	7:56	7.04	7.81	7.80	14.5		HL
9-17-21	7:45	7.09	7.67	7.67	14.5		HL
9-20-21	8:03	7.08	7.67	7.67	14.5		GH
9-21-21	8:27	7.05	7.70	7.72	13.7		GH
9-22-21	8:04	7.01	7.62	7.63	13.4		GH
9-23-21	8:02	7.05	7.65	7.68	13.8		GH
9/24/21	7:43	7.01	7.27	7.28	13.6		JV
9/27/21	7:08	7.06	7.82	7.83	13.6		GH

Photo 9
Description: Measurement log in the on-site laboratory.



Tier 2 Water Quality Monitoring QAPP Rev. 1 February 26, 2019

Table 6 Palmer Wastewater Treatment Plant Measurement Quality Objectives (MQO's)

Group	Analyte	Method	MDL (µg/L)	PQL (µg/L)	Alaska WQS		Precision (RPD)	Accuracy (% Recovered)
					Aquatic Life	Recreation/Drinking Water		
Water Quality	Settleable Solids	EPA 160.2	0.2 ml/L/hr	0.2 ml/L/hr	No measurable increase above natural condition >4.0 mg/L 6.5 - 8.5; not vary by 0.5 from natural condition <20°C Migration routes < 15°C Spawning areas < 13°C Rearing areas < 15°C Egg /fry incubation < 13°C	<7 mg/l for anadromous fish; <5 mg/l for non-anadromous fish; < 19 mg/L 6.5 - 8.5 <30°C	<5% increase in 0.1 mm to 0.4 mm fine sediment for waters with anadromous fish; <20% by weight of fines in gravel beds ±20% ±0.1 pH units ±0.2°C	20%	NA
	DO (dissolved oxygen)	In situ (electronic probe) EPA 360.1	NA	±0.01 mg/L				NA	
	pH	In situ (electronic probe) EPA 150.2	NA	±0.01 pH units				10%	
	Temperature	In situ (electronic probe) EPA 170.1	NA	0.1°C				±0.2°C	
	BOD	SM5210	NA					20%	
	FLOW	flowmeter						20%	
	Total Residual Chlorine							NA	

Photo 10
Description: A table of measurement methods and water quality parameters covered in the facility's QAPP.

Photo 11
Description: Construction progress of the facility's secondary clarifier.

Complete log of photographs taken during the inspection:

Photo 1 of 32
File Name: DSC00684
Description: Measurement log in the on-site laboratory.

Photo 2 of 32
File Name: DSC00685
Description: Hach pH meter in the facility's on-site lab.

Photo 3 of 32
File Name: DSC00686
Description: Three-point standards for pH analysis are not expired.

Photo 4 of 32
File Name: DSC00687
Description: Maintenance schedule is well-organized and viewable from the main office and laboratory.

Photo 5 of 32
File Name: DSC00688
Description: A table of measurement methods and water quality parameters covered in the facility's QAPP.

Photo 6 of 32
File Name: DSC00689
Description: The laboratory refrigerator / incubator where samples are held.

Photo 7 of 32
File Name: DSC00690
Description: Above-ground view of the new MBBR system. The new laboratory building can be seen on the right.

Photo 8 of 32
File Name: DSC00691
Description: Side view of the initial water intake and screening inside the headworks building.

Photo 9 of 32
File Name: DSC00692
Description: Signage in the entryway of the headworks building.

Photo 10 of 32
File Name: DSC00693
Description: Photo of water moving through auger in the headworks building.

Photo 11 of 32
File Name: DSC00694
Description: View of wastewater as it is pumped into the municipal WWTF's headworks building.

Photo 12 of 32
File Name: DSC00695
Description: Flow meter measuring water intake in the headworks building.

Photo 13 of 32
File Name: DSC00696
Description: Refrigerator where the sampled water is stored during composite sampling inside the headworks building.

Photo 14 of 32
File Name: DSC00697
Description: Closer view of the MBBR unit. Each of the floor panels is removable for access to the MBBR.

Photo 15 of 32
File Name: DSC00698
Description: Corner view of the MBBR.

Photo 16 of 32
File Name: DSC00699
Description: After water is brought from the headworks intake through the MBBR, it is released into Lagoon 2. View of Lagoon 2 with fine-bubble diffusers. Facing SW.

Photo 17 of 32
File Name: DSC00700
Description: View of Lagoon 2, facing south.

Photo 18 of 32
File Name: DSC00701
Description: Lagoon 2, with vegetation in the foreground.

Photo 19 of 32
File Name: DSC00702
Description: Photo taken from behind orange safety fencing, looking down at in-progress construction of the facility's secondary clarifier.

Photo 20 of 32
File Name: DSC00703
Description: Construction progress of the facility's secondary clarifier.

Photo 21 of 32
File Name: DSC00704
Description: Lagoon 3. Construction materials in the lower right.

Photo 22 of 32
File Name: DSC00705
Description: Lagoon 3.

Photo 23 of 32
File Name: DSC00706
Description: Closer view of water in Lagoon 3. Foam present in a cell on the eastern side of Lagoon 3.

Photo 24 of 32
File Name: DSC00707
Description: Inside the UV building, looking down at the enclosed, UV lamp process streams. Show here are the four UV units, each with five ballasts, each of which contain eight UV bulbs.

Photo 25 of 32
File Name: DSC00708
Description: The refrigerator where samples are stored during composite auto-sampling in the UV treatment building.

Photo 26 of 32
File Name: DSC00709
Description: Photo looking down at the Parshall flume. This location is post-UV treatment and just before release through Outfall 001.

Photo 27 of 32
File Name: DSC00710
Description: Outfall 001 discharges into the minor, northernmost channel of the Matanuska River, approximately 5 miles NE of where it enters the Knik Arm. In this photo, taken from the northern bank of this channel, effluent from Outfall 001 can be seen upstream.

Photo 28 of 32
File Name: DSC00711
Description: Effluent from Outfall 001 enters the minor channel and descends in a small waterfall.

Photo 29 of 32
File Name: DSC00712
Description: At the base of the waterfall, some foam is observed in the river channel.

Photo 30 of 32
File Name: DSC00713
Description: Several yards downstream, the Matanuska River receiving water from the northern bank.

Photo 31 of 32
File Name: DSC00714
Description: Another view of the Matanuska River receiving water.

Photo 32 of 32
File Name: DSC00715
Description: Salmon spotted in the receiving waters of the Matanuska River.

ATTACHMENT C – Effluent Limit Violations from 10/1/16 – 10/31/21

DMR Review Range: Oct 1, 2016 to Oct 31, 2021 **Violation Code:** E90 **Last Resfresh Date** Nov 18, 2021

Facility Information

FRS Facility UIN	110039730459
NPDES ID	AK0022497
Permit Name	PALMER, CITY OF
Major/Minor	Minor
Permit SIC Desc	Sewerage Systems
Water Body Name	MATANUSKA RIV
TMDL ID	

Facility Location

LAT	61.567785
LONG	-149.110485

Permit Information

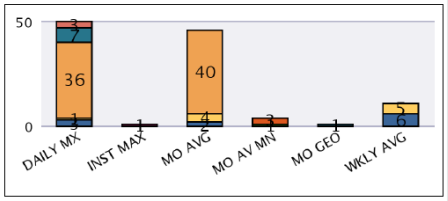
Original Issue Date	2/6/76
Issue Date	12/5/06
Effective Date	1/1/07
Expiration Date	12/31/11
Permit Status	EXP

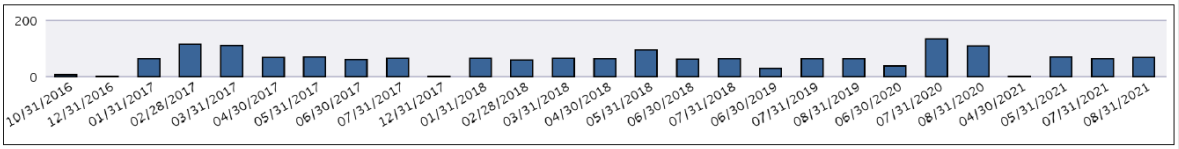
Last Formal Enforcement Action

EA Identifier	
Final Order Issued	
EA Type Desc	

Number and Months of Violations

1,681	27





Month	Outfall	Parameter Code and Name	DMR Value	Permit Limit	% Exceeda	Limit Type	#V	Due/Rec'd		#DL
OCT 2016	001 A	00310 BOD, 5-day, 20 deg. C	50	45 mg/L	11	WKLY AVG	7	11/10	11/28	18
DEC 2016	001 A	31615 Fecal coliform, MPN, EC med, 44.5 C	1010	200 #/100mL	405	DAILY MX	1	1/10	1/18	8
JAN 2017	001 A	00610 Nitrogen, ammonia total [as N]	14.4	8.7 mg/L	66	MO AVG	31	2/10	2/14	4
JAN 2017	001 A	00610 Nitrogen, ammonia total [as N]	19.3	18.5 mg/L	4	DAILY MX	1	2/10	2/14	4
JAN 2017	001 A	00610 Nitrogen, ammonia total [as N]	74.6	68.9 lb/d	8	MO AVG	31	2/10	2/14	4
FEB 2017	001 A	00310 BOD, 5-day, 20 deg. C	41	30 mg/L	37	MO AVG	28	3/10	3/07	
FEB 2017	001 A	00310 BOD, 5-day, 20 deg. C	64	60 mg/L	7	DAILY MX	1	3/10	3/07	
FEB 2017	001 A	00610 Nitrogen, ammonia total [as N]	25.8	8.7 mg/L	197	MO AVG	28	3/10	3/07	
FEB 2017	001 A	00610 Nitrogen, ammonia total [as N]	30.6	18.5 mg/L	65	DAILY MX	1	3/10	3/07	
FEB 2017	001 A	00610 Nitrogen, ammonia total [as N]	136.9	68.9 lb/d	99	MO AVG	28	3/10	3/07	
FEB 2017	001 A	00610 Nitrogen, ammonia total [as N]	193.4	146.6 lb/d	32	DAILY MX	1	3/10	3/07	
FEB 2017	001 A	31615 Fecal coliform, MPN, EC med, 44.5 C	220	200 #/100mL	10	DAILY MX	1	3/10	3/07	
FEB 2017	001 A	81010 BOD, 5-day, percent removal	82	85 %	20	MO AV MN	28	3/10	3/07	
MAR 2017	001 A	00310 BOD, 5-day, 20 deg. C	40	30 mg/L	33	MO AVG	31	4/10	4/18	8
MAR 2017	001 A	00310 BOD, 5-day, 20 deg. C	105	45 mg/L	133	WKLY AVG	7	4/10	4/18	8
MAR 2017	001 A	00310 BOD, 5-day, 20 deg. C	105	60 mg/L	75	DAILY MX	1	4/10	4/18	8
MAR 2017	001 A	00310 BOD, 5-day, 20 deg. C	547	357 lb/d	53	WKLY AVG	7	4/10	4/18	8
MAR 2017	001 A	00310 BOD, 5-day, 20 deg. C	694	475 lb/d	46	DAILY MX	1	4/10	4/18	8
MAR 2017	001 A	00610 Nitrogen, ammonia total [as N]	27.9	8.7 mg/L	221	MO AVG	31	4/10	4/18	8
MAR 2017	001 A	00610 Nitrogen, ammonia total [as N]	29.8	18.5 mg/L	61	DAILY MX	1	4/10	4/18	8
MAR 2017	001 A	00610 Nitrogen, ammonia total [as N]	145.5	68.9 lb/d	111	MO AVG	31	4/10	4/18	8
MAR 2017	001 A	00610 Nitrogen, ammonia total [as N]	196.8	146.6 lb/d	34	DAILY MX	1	4/10	4/18	8
APR 2017	001 A	00310 BOD, 5-day, 20 deg. C	52	45 mg/L	16	WKLY AVG	7	5/10	5/17	7
APR 2017	001 A	00610 Nitrogen, ammonia total [as N]	22.3	8.7 mg/L	156	MO AVG	30	5/10	5/17	7
APR 2017	001 A	00610 Nitrogen, ammonia total [as N]	25	18.5 mg/L	35	DAILY MX	1	5/10	5/17	7
APR 2017	001 A	00610 Nitrogen, ammonia total [as N]	92.1	68.9 lb/d	34	MO AVG	30	5/10	5/17	7
APR 2017	001 A	00610 Nitrogen, ammonia total [as N]	164.7	146.6 lb/d	12	DAILY MX	1	5/10	5/17	7
MAY 2017	001 A	00310 BOD, 5-day, 20 deg. C	47	45 mg/L	4	WKLY AVG	7	6/10	6/14	4
MAY 2017	001 A	00610 Nitrogen, ammonia total [as N]	25.4	8.7 mg/L	192	MO AVG	31	6/10	6/14	4
MAY 2017	001 A	00610 Nitrogen, ammonia total [as N]	28.8	18.5 mg/L	56	DAILY MX	1	6/10	6/14	4
MAY 2017	001 A	00610 Nitrogen, ammonia total [as N]	89.7	68.9 lb/d	30	MO AVG	31	6/10	6/14	4
JUN 2017	001 A	00610 Nitrogen, ammonia total [as N]	24.3	8.7 mg/L	179	MO AVG	30	7/10	7/14	4
JUN 2017	001 A	00610 Nitrogen, ammonia total [as N]	25.1	18.5 mg/L	36	DAILY MX	1	7/10	7/14	4
JUN 2017	001 A	00610 Nitrogen, ammonia total [as N]	81	68.9 lb/d	18	MO AVG	30	7/10	7/14	4

JUL 2017	001 A	00610	Nitrogen, ammonia total [as N]	3.9	1.7 mg/L	129	MO AVG	31	8/10	8/16	6
JUL 2017	001 A	00610	Nitrogen, ammonia total [as N]	15.1	3.6 mg/L	319	DAILY MX	1	8/10	8/16	6
JUL 2017	001 A	00610	Nitrogen, ammonia total [as N]	15.9	13.5 lb/d	18	MO AVG	31	8/10	8/16	6
JUL 2017	001 A	00610	Nitrogen, ammonia total [as N]	80.6	28.5 lb/d	183	DAILY MX	1	8/10	8/16	6
JUL 2017	001 A	31615	Fecal coliform, MPN, EC med, 44.5 C	69	40 #/100mL	73	DAILY MX	1	8/10	8/16	6
DEC 2017	001 A	31615	Fecal coliform, MPN, EC med, 44.5 C	406	200 #/100mL	103	DAILY MX	1	1/10	1/09	
DEC 2017	001 A	50050	Flow, in conduit or thru treatment plant	1.423	.95 MGD	50	DAILY MX	1	1/10	1/09	
JAN 2018	001 A	00610	Nitrogen, ammonia total [as N]	18.8	8.7 mg/L	116	MO AVG	31	2/10	2/09	
JAN 2018	001 A	00610	Nitrogen, ammonia total [as N]	28.8	18.5 mg/L	56	DAILY MX	1	2/10	2/09	
JAN 2018	001 A	00610	Nitrogen, ammonia total [as N]	93.8	68.9 lb/d	36	MO AVG	31	2/10	2/09	
JAN 2018	001 A	00610	Nitrogen, ammonia total [as N]	165.73	146.6 lb/d	13	DAILY MX	1	2/10	2/09	
JAN 2018	001 A	31615	Fecal coliform, MPN, EC med, 44.5 C	310	200 #/100mL	55	DAILY MX	1	2/10	2/09	
FEB 2018	001 A	00610	Nitrogen, ammonia total [as N]	25.9	8.7 mg/L	198	MO AVG	28	3/10	3/08	
FEB 2018	001 A	00610	Nitrogen, ammonia total [as N]	30.1	18.5 mg/L	63	DAILY MX	1	3/10	3/08	
FEB 2018	001 A	00610	Nitrogen, ammonia total [as N]	143	68.9 lb/d	108	MO AVG	28	3/10	3/08	
FEB 2018	001 A	00610	Nitrogen, ammonia total [as N]	166	146.6 lb/d	13	DAILY MX	1	3/10	3/08	
FEB 2018	001 A	50050	Flow, in conduit or thru treatment plant	.955	.95 MGD	1	DAILY MX	1	3/10	3/08	
MAR 2018	001 A	00610	Nitrogen, ammonia total [as N]	31.3	8.7 mg/L	260	MO AVG	31	4/10	4/10	
MAR 2018	001 A	00610	Nitrogen, ammonia total [as N]	34	18.5 mg/L	84	DAILY MX	1	4/10	4/10	
MAR 2018	001 A	00610	Nitrogen, ammonia total [as N]	179.39	68.9 lb/d	160	MO AVG	31	4/10	4/10	
MAR 2018	001 A	00610	Nitrogen, ammonia total [as N]	227	146.6 lb/d	55	DAILY MX	1	4/10	4/10	
MAR 2018	001 A	31615	Fecal coliform, MPN, EC med, 44.5 C	755	200 #/100mL	278	DAILY MX	1	4/10	4/10	
APR 2018	001 A	00610	Nitrogen, ammonia total [as N]	25.7	8.7 mg/L	195	MO AVG	30	5/10	5/11	1
APR 2018	001 A	00610	Nitrogen, ammonia total [as N]	30.4	18.5 mg/L	64	DAILY MX	1	5/10	5/11	1
APR 2018	001 A	00610	Nitrogen, ammonia total [as N]	116.64	68.9 lb/d	69	MO AVG	30	5/10	5/11	1
APR 2018	001 A	00610	Nitrogen, ammonia total [as N]	225.13	146.6 lb/d	54	DAILY MX	1	5/10	5/11	1
APR 2018	001 A	31615	Fecal coliform, MPN, EC med, 44.5 C	633	200 #/100mL	217	DAILY MX	1	5/10	5/11	1
MAY 2018	001 A	00610	Nitrogen, ammonia total [as N]	25.2	8.7 mg/L	190	MO AVG	31	6/10	6/08	
MAY 2018	001 A	00610	Nitrogen, ammonia total [as N]	28.5	18.5 mg/L	54	DAILY MX	1	6/10	6/08	
MAY 2018	001 A	00610	Nitrogen, ammonia total [as N]	93.5	68.9 lb/d	36	MO AVG	31	6/10	6/08	
MAY 2018	001 A	00610	Nitrogen, ammonia total [as N]	225.8	146.6 lb/d	54	DAILY MX	1	6/10	6/08	
MAY 2018	001 A	31615	Fecal coliform, MPN, EC med, 44.5 C	102	100 #/100mL	2	MO GEO	31	6/10	6/08	
JUN 2018	001 A	00610	Nitrogen, ammonia total [as N]	33	8.7 mg/L	279	MO AVG	30	7/10	7/10	
JUN 2018	001 A	00610	Nitrogen, ammonia total [as N]	34.5	18.5 mg/L	86	DAILY MX	1	7/10	7/10	
JUN 2018	001 A	00610	Nitrogen, ammonia total [as N]	159.9	68.9 lb/d	132	MO AVG	30	7/10	7/10	
JUN 2018	001 A	00610	Nitrogen, ammonia total [as N]	225	146.6 lb/d	53	DAILY MX	1	7/10	7/10	
JUL 2018	001 A	00610	Nitrogen, ammonia total [as N]	12.37	1.7 mg/L	628	MO AVG	31	8/10	8/10	
JUL 2018	001 A	00610	Nitrogen, ammonia total [as N]	31.6	3.6 mg/L	778	DAILY MX	1	8/10	8/10	
JUL 2018	001 A	00610	Nitrogen, ammonia total [as N]	50.66	13.5 lb/d	275	MO AVG	31	8/10	8/10	
JUL 2018	001 A	00610	Nitrogen, ammonia total [as N]	168.14	28.5 lb/d	490	DAILY MX	1	8/10	8/10	
JUN 2019	001 A	00610	Nitrogen, ammonia total [as N]	11.65	8.7 mg/L	34	MO AVG	30	7/10	7/05	
JUL 2019	001 A	00610	Nitrogen, ammonia total [as N]	15.72	1.7 mg/L	825	MO AVG	31	8/10	8/09	
JUL 2019	001 A	00610	Nitrogen, ammonia total [as N]	18.3	3.6 mg/L	408	DAILY MX	1	8/10	8/09	
JUL 2019	001 A	00610	Nitrogen, ammonia total [as N]	59.39	13.5 lb/d	340	MO AVG	31	8/10	8/09	
JUL 2019	001 A	00610	Nitrogen, ammonia total [as N]	81.19	28.5 lb/d	185	DAILY MX	1	8/10	8/09	
AUG 2019	001 A	00610	Nitrogen, ammonia total [as N]	11.99	1.7 mg/L	605	MO AVG	31	9/10	9/09	
AUG 2019	001 A	00610	Nitrogen, ammonia total [as N]	16.3	3.6 mg/L	353	DAILY MX	1	9/10	9/09	
AUG 2019	001 A	00610	Nitrogen, ammonia total [as N]	49.75	13.5 lb/d	269	MO AVG	31	9/10	9/09	
AUG 2019	001 A	00610	Nitrogen, ammonia total [as N]	82.2	28.5 lb/d	188	DAILY MX	1	9/10	9/09	
JUN 2020	001 A	00530	Solids, total suspended	50	45 mg/L	11	WKLY AVG	7	7/10	7/09	
JUN 2020	001 A	00610	Nitrogen, ammonia total [as N]	14.81	8.7 mg/L	70	MO AVG	30	7/10	7/09	
JUN 2020	001 A	00610	Nitrogen, ammonia total [as N]	30	18.5 mg/L	62	DAILY MX	1	7/10	7/09	
JUL 2020	001 A	00530	Solids, total suspended	38.6	30 mg/L	29	MO AVG	31	8/10	8/07	
JUL 2020	001 A	00530	Solids, total suspended	71	45 mg/L	58	WKLY AVG	7	8/10	8/07	
JUL 2020	001 A	00530	Solids, total suspended	71	60 mg/L	18	DAILY MX	1	8/10	8/07	
JUL 2020	001 A	00610	Nitrogen, ammonia total [as N]	24.95	1.7 mg/L	1,368	MO AVG	31	8/10	8/07	

JUL 2020	001 A	00610	Nitrogen, ammonia total [as N]	34	3.6 mg/L	844	DAILY MX	1	8/10	8/07
JUL 2020	001 A	00610	Nitrogen, ammonia total [as N]	85.9	13.5 lb/d	536	MO AVG	31	8/10	8/07
JUL 2020	001 A	00610	Nitrogen, ammonia total [as N]	157.7	28.5 lb/d	453	DAILY MX	1	8/10	8/07
JUL 2020	001 A	81011	Solids, suspended percent removal	79	85 %	40	MO AV MN	31	8/10	8/07
AUG 2020	001 A	00310	BOD, 5-day, 20 deg. C	55	45 mg/L	22	WKLY AVG	7	9/10	9/02
AUG 2020	001 A	00530	Solids, total suspended	30.6	30 mg/L	2	MO AVG	31	9/10	9/02
AUG 2020	001 A	00530	Solids, total suspended	47	45 mg/L	4	WKLY AVG	7	9/10	9/02
AUG 2020	001 A	00610	Nitrogen, ammonia total [as N]	8.61	1.7 mg/L	406	MO AVG	31	9/10	9/02
AUG 2020	001 A	00610	Nitrogen, ammonia total [as N]	9.56	3.6 mg/L	166	DAILY MX	1	9/10	9/02
AUG 2020	001 A	00610	Nitrogen, ammonia total [as N]	28.56	13.5 lb/d	112	MO AVG	31	9/10	9/02
AUG 2020	001 A	00610	Nitrogen, ammonia total [as N]	38.4	28.5 lb/d	35	DAILY MX	1	9/10	9/02
APR 2021	001 A	50050	Flow, in conduit or thru treatment plant	.973	.95 MGD	2	DAILY MX	1	5/10	5/10
MAY 2021	001 A	00400	pH	9.2	8.5 SU	8	INST MAX	1	6/10	6/09
MAY 2021	001 A	00530	Solids, total suspended	39.7	30 mg/L	32	MO AVG	31	6/10	6/09
MAY 2021	001 A	00530	Solids, total suspended	56.8	45 mg/L	26	WKLY AVG	7	6/10	6/09
MAY 2021	001 A	81011	Solids, suspended percent removal	82	85 %	20	MO AV MN	31	6/10	6/09
JUL 2021	001 A	00610	Nitrogen, ammonia total [as N]	9.85	1.7 mg/L	479	MO AVG	31	8/10	8/07
JUL 2021	001 A	00610	Nitrogen, ammonia total [as N]	11.6	3.6 mg/L	222	DAILY MX	1	8/10	8/07
JUL 2021	001 A	00610	Nitrogen, ammonia total [as N]	40.99	13.5 lb/d	204	MO AVG	31	8/10	8/07
JUL 2021	001 A	00610	Nitrogen, ammonia total [as N]	54.37	28.5 lb/d	91	DAILY MX	1	8/10	8/07
AUG 2021	001 A	00530	Solids, total suspended	32.9	30 mg/L	10	MO AVG	31	9/10	9/10
AUG 2021	001 A	00530	Solids, total suspended	54.6	45 mg/L	21	WKLY AVG	7	9/10	9/10
AUG 2021	001 A	81011	Solids, suspended percent removal	84	85 %	7	MO AV MN	31	9/10	9/10