NPDES Compliance Inspection Report

Warm Springs
Wastewater Treatment Plant
NPDES # OR0032638

Warm Springs, Oregon

Permit #: OR0032638

Inspection Date: September 11, 2023

Prepared by:

Mike Beck, James Phillips
Eastern Research Group

Prepared for:

U.S. Environmental Protection Agency, Region 10
Enforcement & Compliance Assurance Division
Water Enforcement & Field Branch Water Enforcement Section

Signature/Date:

Mike Beck	**11/15/2023**

Supervisor Signature/Date:

Marshalonis, Daniel (Dino)	Digitally signed by Marshalonis, Daniel (Dino) Date: 2023.11.16 09:12:06 -08'00'

Contents

(All details in this report were obtained through conversations with Kurtis Satanus, Chico Holliday, or from observations made during the inspection.)

I. Facility Information

Facility Name:	Warm Springs WWTP
Facility Owner:	Confederated Tribes of Warm Springs
Facility Operator:	Warm Springs Branch of Public Utilities
Facility Address:	Victory Lane Warm Springs, OR 97761
Lat/Long:	44.760951, -121.260214
Mailing Address:	Warm Springs Branch of Public Utilities P.O. Box 1196 Warm Springs, OR 97731
Facility Contacts:	Chico Holliday, General Manager Warm Springs Branch of Public Utilities Phone: 541-553-3452 Email: chico.holliday@wstribes.org Kurtis Satanus, Lead Operator Warm Springs Branch of Public Utilities Email: kurtis.satanus@wstribes.org Patrick Fox, Engineer Indian Health Services Email: Patrick.fox@ihs.gov Kierston Gourlay, Engineer Indian Health Services Email: Kierston.gourlay@ihs.gov
Permit Number:	OR0032638
Receiving Water:	Shitike Creek

II. Inspection Information

Inspection Date:	September 11, 2023

Inspectors:	Mike Beck, Inspector Eastern Research Group (ERG) Email: mike.beck@erg.com James Phillips, Environmental Engineer Eastern Research Group (ERG) Email: james.phillips@erg.com Charissa Bujak EPA Region 10 Email: bujak.charissa@epa.gov
Arrival Time:	9:00 AM
Departure Time:	4:30 PM
Purpose:	To determine compliance with the Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) Permit for the Warm Springs WWTP (OR0032638).

III. Permit Information

The Warm Springs WWTP ("Facility") is permitted under the NPDES permit OR0032638. The permit became effective on July 1, 2021, and is due to expire on June 30, 2026.

IV. Background

The Warm Springs WWTP is located within the Confederated Tribes of Warm Springs along the Shitike Creek, in the town of Warm Springs, OR. The Facility is owned by the Confederated Tribes of Warm Springs and is operated by the Warm Springs Branch of Public Utilities. The facility runs 24 hours a day but is typically staffed 8 hours a day with personnel responding to emergencies off hours on a rotating basis. Current staffing for the WWTP is 2 full-time employees and 1 part-time employee. The Chief Operator, Chico Holliday was the primary operator certification holder at the time of the visit.

A satellite image of the facility with relevant areas and assets outlined in red, is included in **Attachment A**.

According to the facility representatives, the facility was constructed in 2001, and has 1,500 service connections serving approximately 4,500 people. An industrial facility, Warm Springs Composite Products, does discharge to the plant, however, this facility only discharges domestic wastewater to the Facility, not industrial wastewater. The Warm Springs wastewater collection system consists of a mix of PVC, terra cotta, concrete, and cast-iron pipes. The facility has an average daily influent flow of 0.22 MGD. The facility consists of an auger and grinder pumps for pre-screening, two extended aeration basins, two clarifiers,

an aerobic digester, two solids drying beds, and an ultraviolet (UV) disinfection system (refer to Attachment C, Photograph 1-10). The facility does not have a SCADA system requiring systems to be operated locally. Wastewater first enters the treatment plant at the pre-screening process and goes through the auger and grinder pumps. After pre-screening, wastewater flows to the aeration basins and then to the clarifiers where the solids settle at the bottom of the clarifier. The solids from the clarifiers are then returned to the aeration basins while a portion of these solids are sent to the aerobic digester as waste. Sludge waste that has been treated at the aerobic digester is then sent to the solids-drying beds. After the clarifying process, the wastewater flows through a UV disinfection chamber and is then discharged as treated effluent. The facility discharges its effluent to Shitike Creek through Outfall 001. Electrical upgrades across the facility and the addition of variable frequency drives (VFDs) to the blowers were completed in March of 2023 with Phase 2 upgrades of the aerobic digester and SCADA integration reported to be forthcoming in 2024.

V. Inspection Chronology

This was an announced inspection. The facility and Indian Health Services (IHS) was notified of the inspection by email on August 29, 2023.

The inspection consisted of an opening conference, a walk-through of the treatment plant and lift stations, a records review, and a closing conference. For the walk-through, the inspection team viewed the facility's treatment processes, the three lift stations throughout the collection system, the facility's laboratory, and Outfall 001. Following the walk-through, the inspection team conducted a records review within the facility's laboratory. The closing conference occurred following the records review. During the closing conference, the inspection team discussed observations from the inspection with the facility representatives.

VI. Opening Conference

The opening conference was held with Chico Holliday and Kurtis Satanus ("facility representatives") as well as Patrick Fox and Kierston Gourlay from the Indian Health Services (IHS) shortly after the arrival of the inspection team. The opening conference sign-in sheet can be found in **Attachment B**. Mike Beck and Charissa Bujak presented their EPA credentials. The inspection team discussed the purpose and expectations of the inspection. The facility representatives provided a background of the facility and general process flow.

VII. Site Review

Following the opening conference, the inspection team conducted a walkthrough of the treatment plant and collection system. For the entire walk-through, the inspection team was joined by Kurtis Satanus from the Warm Springs Branch of Public Utilities, as well as Patrick Fox and Kierston Gourlay from IHS. Chico Holliday joined mid-way through the inspection. Photographs taken during the facility walkthrough, including a complete photograph log, appear in **Attachment C**.

The inspection team first observed the pre-screening process (refer to Attachment C, Photograph 1). At the pre-screening process area, the facility representatives explained that they dispose of all pre-screened waste approximately once per week at the Cherry Creek landfill. The facility representatives stated that the auger was replaced a few years ago and that they were in the process of installing new grinder pumps. The pre-screening area is pressure washed by the operators regularly.

After the pre-screening process, wastewater flows to a wet well and splitter box where the flow is split between the aeration basins (refer to Attachment C, Photograph 2). At the time of the inspection, only the north aeration basin and clarifier were in use (refer to Attachment C, Photographs 3 and 4). The facility representatives stated this was because the treatment plant was "over-designed" and there was not enough flow to support both aeration basins effectively. The facility representatives stated that the aeration diffusers in the north aeration basin were replaced in 2022 and that they plan to install dissolved oxygen (DO) probes in both aeration basins in the near future. The inspection team also observed the facility's aeration blowers (refer to Attachment C, Photograph 5). The facility representatives stated the output from the blowers would often introduce excess air and turbulence to the aeration basins, leading to effluent limit exceedances at Outfall 001. This was due to the type of blowers, which operated on a single-phase drive; the blowers have since been rehabilitated to operate on a variable frequency drive leading to better aeration control. The facility representatives stated the blowers are all operational and operate in sequence with one another and that there have not been any issues with over-aerating the basins since the upgrade.

After viewing the aeration basin, the inspection team observed the facility's north clarifier (refer to Attachment C, Photograph 6). The facility representatives stated the wasting of solids occurs every 9-10 minutes in the summer and 4-5 minutes in the winter. The inspection team observed small flocs of solids flowing up from the bottom of the clarifier. The facility representatives stated they conduct weekly monitoring of the sludge volume index (SVI) in addition to other operational checks. Treated water from the clarifier continues over a weir where it then flows to the UV disinfection room.

The inspection team viewed the facility's aerobic digester (refer to Attachment C, Photograph 7). The inspection team observed that there were two surface aerators located within the aerobic digester, however, both aerators were nonfunctional and had been offline for multiple months according to facility representatives. There was a substantial number of floating solids in the aerobic digester as well as "islands" of vegetation. Additionally, one side of the aerobic digester was missing adequate fencing (refer to Attachment C, Photographs 7). The inspection team also observed the facility's solids drying beds (refer to Attachment C, Photographs 8 and 9). Both drying beds were heavily vegetated, filled partially with water, and consisted of a gravel bottom. At the time of the inspection, the waste sludge was being stored in the aerobic digester, and the solids "drying beds" were not being used for drying. The facility representatives stated they did not keep an inventory of the volume of sludge being sent to the aerobic digester or solids drying beds. The solids in the drying beds have not been disposed of since the facility began operations in 2001.

The inspection team observed the facility's UV disinfection room (refer to Attachment C, Photographs 10 and 11). In addition to the UV system, the facility had installed an online ammonia, pH, and temperature reader at the effluent sampling point as well as a composite sampler in this room (refer to Attachment C, Photographs 12, 13, and 14). Facility representatives stated the composite sampler was nonfunctional since 2022 and that the online analyzer is not used for compliance sample reporting; only grab samples are used for compliance reporting. The inspection team observed bio-growth inside the tubing of the online analyzer. The facility representatives stated that ammonia readings from the online analyzer have been around 0.7 mg/L for the past 6 months. The inspection team observed expired pH reagents used for calibration of the facility's pH/temperature probe within the UV disinfection room (refer to Attachment C, Photograph 15).

After viewing the UV disinfection room, the inspection team observed the facility's Outfall 001 (refer to Attachment C, Photograph 16). The outfall was in good condition with consistent discharge volume and the inspection team did not observe any evidence of algae or other bio-growth at the outfall into Shitike Creek .

The inspection team viewed each lift station located throughout the collection system: the Museum, Composites, and DC lift stations. The facility representatives stated each lift station is inspected daily.

The facility representatives stated they were encountering issues with vandalism at the Museum lift station and were in the process of improving security by building a new structure to house the pump and controls (refer to Attachment C, Photograph 17). The inspectors observed an emergency generator at the Museum lift station; however, the facility representatives stated it was nonfunctional and is planned to be replaced soon. There is one visual alarm at the Museum lift station but no audio or digital alarms.

At the Composites lift station the inspection team observed that all equipment and controls were located below grade (refer to Attachment C, Photograph 18). The facility representatives stated there were not any alarms at this lift station.

Equipment and controls for the DC lift station were also located below grade (refer to Attachment C, Photograph 19). The inspectors observed approximately two inches of standing water within the valve vault at the lift station. The facility representatives stated this was due to leakage from a valve. There is one visual alarm at the DC lift station but no audio or digital alarms. The inspectors did not observe any confined space entry signage at any of the three lift stations.

The inspection team concluded the facility walkthrough and returned to the facility's laboratory to begin the file review. Additionally, the inspection team observed the facility's sampling bottles and equipment. The facility sends its required compliance samples: including BOD5, TSS, Ammonia, and E. Coli to Edge Analytical in Bend, OR for analysis and utilizes a courier service for the submittal of these samples. Internal samples analyzed include flow, pH, and Temperature. Sampling procedures are outlined in the facility's Quality Assurance Plan (QAP).

VIII. File Review

While onsite, the inspection team reviewed the facility's operational logs/checklists (refer to Attachment C, Photographs 20, 21, and 22), operations and maintenance (O&M) plan, standard operating procedures (SOP), compliance sampling schedule, and laboratory chains of custody (CoC). The inspection team reviewed the facility's QAP and discharge monitoring reports (DMR) offsite since it was received after the inspection (see Attachment D.). Table 1 outlines the records reviewed as part of the inspection as well as their compliance with permit requirements.

Table 1. Documents reviewed as part of the inspection.

Document Title	Date Required to be Submitted	Permit Requirements Met?	Notes
DMRs	Monthly	Yes	In the last two years, 4 DMRs were submitted past the due date (refer to Table 3).
QAP	December 28, 2021	Yes	The QAP was submitted 387 days late, on January 19, 2023.
O&M Plan	December 28, 2021	Yes	
SOPs	Ongoing	Yes	
Sampling Schedule	Ongoing	Yes	
CoCs	Ongoing	Yes	
Operational Logs	Ongoing	No	The operational logs are not always completed nor conducted weekly.

The inspection team did not review the NPDES Application Renewal or Surface Water Monitoring Report (SWMRP) since they have not been required to be submitted yet. The facility did not have a completed Emergency Response Plan (ERP) available. The facility also did not develop a List of Industrial Users; however, this is not required as the facility does not have any significant industrial users.

IX. Areas of Concern

The following areas of concern were noted during the inspection and were discussed with the facility during the closing conference:

A. Effluent Limit Exceedances

NPDES Permit OR0032638 Section I Part B.1: "The permittee must comply with the effluent limits in the tables at all times unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit."

Observation 1. Table 2 outlines the facility's effluent limit exceedances for the past 2 years, last updated on June 15, 2023. There has been a total of 25 effluent limit exceedances from August 2021 to August 2023, with 17 exceedances for ammonia-nitrogen, 3 exceedances for *E. coli*, 3 exceedances for BOD, and 2 exceedances for TSS.

Table 2. Effluent limit exceedances from August 2021 to August 2023.

Month	Parameter	DMR Value	Permit Limit	Limit Type
Jan-23	Nitrogen, ammonia total [as N]	2.45	2.4 mg/L	MO AVG
Dec-22	Nitrogen, ammonia total [as N]	3.12	2.4 mg/L	MO AVG
Aug-22	Nitrogen, ammonia total [as N]	12.4	2.4 mg/L	MO AVG
Aug-22	Nitrogen, ammonia total [as N]	14.4	6.8 mg/L	DAILY MX
Aug-22	Nitrogen, ammonia total [as N]	20.89	17.4 lb/d	MO AVG
Jul-22	Nitrogen, ammonia total [as N]	2.91	2.4 mg/L	MO AVG
Jun-22	Nitrogen, ammonia total [as N]	4.74	2.4 mg/L	MO AVG
Jun-22	Nitrogen, ammonia total [as N]	8.15	6.8 mg/L	DAILY MX
May-22	Nitrogen, ammonia total [as N]	11.15	2.4 mg/L	MO AVG
May-22	Nitrogen, ammonia total [as N]	11.6	6.8 mg/L	DAILY MX
May-22	Nitrogen, ammonia total [as N]	18.78	17.4 lb/d	MO AVG
Apr-22	Nitrogen, ammonia total [as N]	10.7	2.4 mg/L	MO AVG
Apr-22	Nitrogen, ammonia total [as N]	13.4	6.8 mg/L	DAILY MX
Apr-22	Nitrogen, ammonia total [as N]	18.2	17.4 lb/d	MO AVG
Mar-22	Nitrogen, ammonia total [as N]	2.82	2.4 mg/L	MO AVG
Jan-22	E. coli, MTEC-MF	2420	406 CFU/100	INST MAX
Sep-21	BOD, 5-day, 20 deg. C	10.3	10 mg/L	MO AVG
Sep-21	BOD, 5-day, 20 deg. C	21	15 mg/L	WKLY AVG
Sep-21	Nitrogen, ammonia total [as N]	9.9	2.4 mg/L	MO AVG
Sep-21	Nitrogen, ammonia total [as N]	9.9	6.8 mg/L	DAILY MX
Sep-21	E. coli, MTEC-MF	2420	406 CFU/100	INST MAX
Sep-21	BOD, 5-day, percent removal	75.7	85%	MO AV MN
Aug-21	Solids, total suspended	11.2	10 mg/L	MO AVG
Aug-21	Solids, total suspended	29	15 mg/L	WKLY AVG
Aug-21	E. coli, MTEC-MF	687	406 CFU/100	INST MAX

The facility representatives stated they have been better able to meet effluent limit

requirements since several improvements at the facility have occurred in 2022. Examples of these improvements include new aeration diffusers, variable frequency drives for the blowers, new pre-screening equipment, new UV lamps, and electrical upgrades. According to the facility's DMRs, there have not been any effluent limit exceedances since January 2023 which coincides with some of the most recent improvements at the facility.

B. Late DMR Submittals

NPDES Permit OR0032638 Section III Part B.1: "Monitoring data must be submitted electronically to EPA no later than the 10th of the month following the completed reporting period."

Observation 2. Table 3 outlines the facility's late DMR submissions for the past 2 years. The facility representatives stated they have been short-staffed for the past few years, impacting their ability to submit DMRs on time consistently. There have not been any late DMR submittals since January 20, 2022.

Table 3. DMR late submittals from August 2021 to August 2023.

Month	DMR Due Date	DMR Date Received
Dec-21	1/20/2022	2/4/2022
Oct-21	11/20/2021	2/4/2022
Sep-21	10/20/2021	12/30/2021
Aug-21	9/20/2021	12/30/2021

C. Emergency Response and Public Notification Plan

NPDES Permit OR0032638 Schedule of Submissions: "The permittee must develop and implement an overflow emergency response and public notification plan. The permittee must submit written notice to EPA and Confederated Tribes of Warm Springs Water Control Board that the plan has been developed and implemented within 180 days of the effective date of this permit. (See Part II.F of this permit)."

Observation 3. The facility has not completed an Emergency Response Plan (ERP) as specified by the permit. At the time of the inspection, the facility representatives stated the ERP was approximately 50% developed.

D. Records Retention and Development

NPDES Permit OR0032638 Section III Part F: "The permittee must retain records of all monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, copies of DMRs, a copy of the NPDES permit, and

records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application."

Observation 4. The facility representatives stated they did not keep any calibration records for the pH/temperature probe or online analyzer.

Observation 5. During the document review, the inspection team observed that the facility's operational logs/checklists were not always filled out and were not conducted on a daily or other routine basis but were rather conducted sporadically throughout the week (refer to Attachment C, Photographs 20, 21, and 22).

Observation 6. The facility does not keep any records of its solids wasting inventory and the facility representatives were unsure of the total amount of sludge that have been transferred to the aerobic digester and solids drying beds.

Observation 7. The facility did not have any records of an asset management plan. Although the facility has been working on obtaining a thorough inventory of spare parts and equipment, the facility did not have an asset management plan for the current equipment in use at the treatment plant or collection system.

E. Operations and Maintenance

NPDES Permit OR0032638 Section IV Part E: "The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of the permit."

Observation 8. The inspection team observed that the facility's pH calibration reagents were out of date (refer to Attachment C, Photograph 15).

Observation 9. The facility representatives stated there were not any visual, digital, or audio alarms at the Composites lift station. Additionally, there were only visual alarms at the Museum and DC lift stations. The facility does not have a SCADA system to relay alarms for the lift stations or treatment plant.

Observation 10. The inspection team observed bio-growth inside the tubing of the online analyzer (refer to Attachment C, Photograph 13). Although the online analyzers are not used for compliance reporting,

interference with the online analyzers could affect the facility's operations.

Observation 11. The equipment and controls for the Composites and DC lift stations were all below grade, requiring the operators to access the controls by descending a ladder into a confined space (refer to Attachment C, Photographs 18 and 19).

Observation 12. During the inspection, the inspection team did not observe any confined space warning signage at any of the three lift stations.

Observation 13. The inspection team observed that none of the lift stations had emergency power capabilities. There was an emergency generator at the Museum lift station, however, the facility representatives stated it was out of service and needed to be rehabilitated.

Observation 14. The inspection team observed floating solids and vegetation in the aerobic digester as well as vegetation, standing water, and a gravel bottom in the solids drying beds (refer to Attachment C, Photographs 7, 8, and 9). Additionally, at the time of the inspection, the two surface aerators in the aerobic digester were out of service and the aerobic digester was being used for storage of the waste sludge rather than treatment. The solids drying beds were not being used for drying.

F. Sampling and Reporting

NPDES Permit OR0032638 Section III Part A: "Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity."

Observation 15. The inspection team observed that the composite sampler was out of service at the time of the inspection (refer to Attachment C, Photograph 14). Due to this, the facility has not been submitting 24-hour composite samples as required by the permit and has instead been submitting discrete grab samples for compliance reporting. The facility representatives stated that the current sampler has been out of service since 2022 and a new composite sampler is planned to be purchased in the near future.

X. Closing Conference

Following the walk-through and records review, the inspection team held a closing conference with the facility representatives. The inspection team discussed all observations made during the inspection and gave an overview of the post-inspection process.

ATTACHMENT A

Satellite Imagery of the Facility

Figure A-1. Satellite imagery of the facility with relevant areas and assets outlined in red. Source: Google Earth.

ATTACHMENT B

Opening Conference Sign-In Sheet

Inspection Name: Warm Springs WWTP Date: 09/11/2023

Name	Title	Contact Information	Signature
Mike Beck	Credentialed Inspector (ERG)	mike.beck@erg.com	Mike Beck
James Phillips	Env. Eng.	james.phillips@erg.com	
Charissa Bujak	EPA	bujak.charissa@epa.gov	
Kurtis Satanus	Public Utilities	Kurtis.Satanus@wstribes.org	
Patrick Fox	Engineer	Patrick.fox@ihs.gov	
Kiersten Gourlay	Engineer	kiersten.gourlay@ihs.gov	
CHICO HOLLIDAY			

ATTACHMENT C

Photograph Log

All photographs taken by Mike Beck on September 11, 2023

Photo Log – Warm Springs WWTP	
	
Photograph #01 (DSC03509) Description: Pre-treatment area of the Warm Springs WWTP. The grinder pump is in the foreground while the auger is located behind it.	Photograph #02 (DSC03514) Description: Splitter box for the two aeration basins. The gate on the right leads to the north aeration basin and is open, while the gate on the left leads to the south aeration basin and is closed.
	
Photograph #03 (DSC03515) Description: North aeration basin with 5 diffusers running along the top of the water level.	Photograph #04 (DSC03516) Description: South aeration basin. This basin is out of service due to the treatment plant not having enough flow to support both aeration basins.

Photo Log – Warm Springs WWTP	
	
Photograph #05 (DSC03540) Description: One of the treatment plant's three blowers.	Photograph #06 (DSC03524) Description: North clarifier with a weir in the middle that flows to the UV disinfection room. Note some solids floating at the top of the clarifier, outlined in red.
	
Photograph #07 (DSC03526) Description: Aerobic digester. Note the floating islands of vegetation as well as other solids within the digester. Not pictured are two surface aerators that were out of service.	Photograph #08 (DSC03532) Description: North solids drying bed. The drying bed had standing water as well as a gravel bottom and vegetation growth throughout.

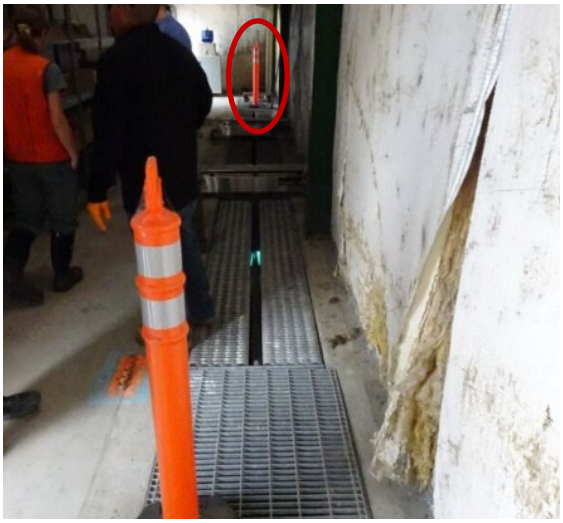
Photo Log – Warm Springs WWTP	
	
Photograph #09 (DSC03533) Description: South solids drying bed. The drying bed had standing water as well as a gravel bottom and vegetation growth throughout.	Photograph #10 (DSC03545) Description: UV treatment disinfection room and effluent compliance sampling point, outlined in red.
	
Photograph #11 (DSC03547) Description: Control box for the treatment plant's UV disinfection system.	Photograph #12 (DSC03550) Description: The treatment plant's online ammonia, pH, and temperature analyzer.

Photo Log – Warm Springs WWTP	
	
Photograph #13 (DSC03550) Description: Bio-growth observed in the tubing to the online ammonia, pH, and temperature analyzer.	Photograph #14 (DSC03554) Description: The treatment plant's out of service composite sampler.
	
Photograph #15 (DSC03556) Description: pH probe calibration reagents that were expired at the time of the inspection.	Photograph #16 (DSC03558) Description: Outfall 001 discharge to the Shitike Creek.

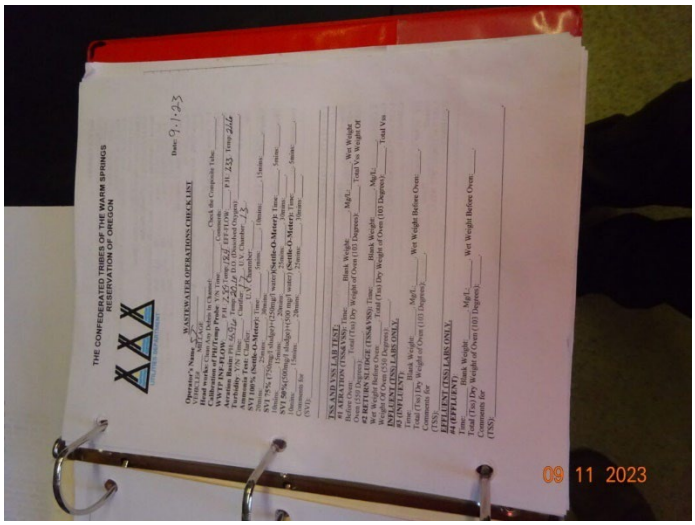
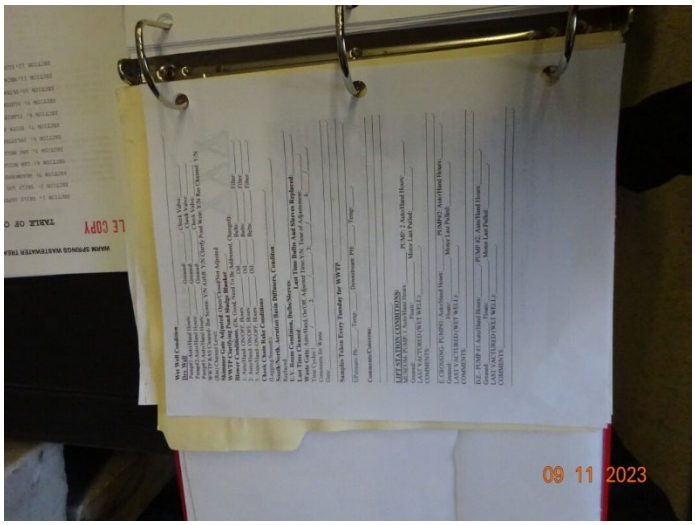
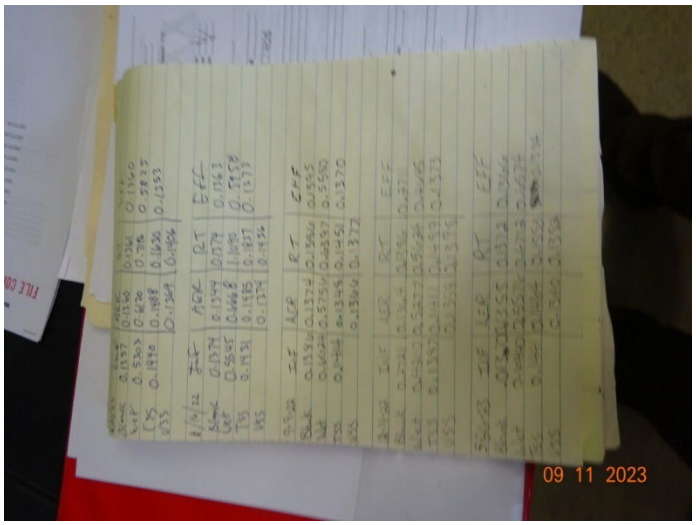
Photo Log – Warm Springs WWTP	
	
Photograph #17 (DSC03569) Description: Control box for the Museum lift station. The controls were located in a shed next to the pumps.	Photograph #18 (DSC03570) Description: Control box for the Composites lift station. Note that the controls are located below grade.
	
Photograph #19 (DSC03579) Description: Control box for the DC lift station. Note that the controls are located below grade.	Photograph #20 (DSC03589) Description: A front-page example of the treatment plant's operational logs. Note that the logs are not completely filled out. Additionally, the logs are not conducted daily, but rather sporadically 2-3 times a week.

Photo Log – Warm Springs WWTP	
	
Photograph #21 (DSC03587) Description: A back page example of the treatment plant's operational logs. Note that the logs are not completely filled out. Additionally, the logs are not conducted daily, but rather sporadically 2-3 times a week.	Photograph #22 (DSC03593) Description: Logs of the facility's TSS and VSS measurements at various points throughout the treatment process, sometimes recorded in the operational logbook as well.

Attachment D
Quality Assurance Plan

Quality Assurance Plan

Monitoring of Effluent Discharge
Confederated Tribes of Warm Springs Wastewater Treatment Plant

Prepared by
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&
Bai Engineers
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Greenwood Village, Colorado, 80111

Prepared for
U.S. EPA Region 10
1200 Sixth Avenue, Suite 155, WD 19-C04
Seattle, WA 98101-3188

January 19, 2023
Version 1

Approval List

_____ Date: _____
Warm Springs Branch of Public Utilities General Manager

_____ Date: _____
Warm Springs On-Call Engineer/Quality Assurance (QA) Officer

_____ Date: _____
Confederated Tribes of Warm Springs Water Control Board

_____ Date: _____
USEPA Region 10 NPDES Permitting Section Manager / Water Division Manager

_____ Date: _____
USEPA Region 10 Quality Assurance Manager/Representative

Revision History

Version1 - January 19, 2023

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1. PROJECT MANAGEMENT

This Quality Assurance Plan (QAP) has been prepared for the monitoring of the effluent discharge by the Confederated Tribes of Warm Springs (CWS) Wastewater Treatment Plant (WWTP) located in Warm Springs, Jefferson County, Oregon. The effluent discharge monitoring program is part of the Warm Springs Branch of Public Utilities (WSPU)'s effluent monitoring program developed per Section II of the CWS WWTP's National Pollutant Discharge Elimination System (NPDES) Permit OR0032638 and under the provisions of the Clean Water Act. This section of the QAP describes how the project will be managed, organized, and implemented.

1.1 Title and Approval Page (EPA QA/R-5 A1) - See page 1.

1.2 Table of Contents (EPA QA/R-5 A2) **-** See pages 2 - 3.

1.3 Distribution List (EPA QA/R-5 A3)

The following is a list of organizations and persons who will receive copies of the approved QA Project Plan and any subsequent revisions:

Name:	Chico Holiday
Title:	General Manager
Organization:	Warm Springs Branch of Public Utilities
Contact Information:	541-553-3452
	P.O. Box 1196, Warm Springs, OR 97731
	chico.holliday@wstribes.org

Name:	Xuehua Bai
Title:	Warm Springs Branch of Public Utilities On-Call Engineer / QA Officer
Organization:	Bai Engineers
Contact Information:	720-474-0941
	5350 DTC Pkwy, Suite 206, Greenwood Village, Colorado, 80111
	xbai@bai-eng.com

Name:	Chico Holiday
Title:	Utility Operator / Field Sampler
Organization:	Warm Springs Branch of Public Utilities
Contact Information:	541-553-3452
	P.O. Box 1196, Warm Springs, OR 97731
	chico.holliday@wstribes.org

Name:	Chico Holiday
Title:	General Manager
Organization:	Confederated Tribes of Warm Springs Water Control Board
Contact Information:	541-553-1161

1233 Veterans Street, PO Box C, Warm Springs, OR 97761

Name:	Daniel D. Opalski
Title:	Director of Water Division
Organization:	U.S. Environmental Protection Agency (US EPA), Region 10
Contact Information:	1200 Sixth Avenue, Suite 155, WD 19-C04, Seattle, WA 98101-3188

Name:	
Title:	Quality Assurance Manager
Organization:	U.S. Environmental Protection Agency (US EPA), Region 10
Contact Information:	1200 Sixth Avenue, Suite 155, WD 19-C04, Seattle, WA 98101-3188

Name:	Michelle R Angland
Title:	Lab Manager, Bend Office
Organization:	Edge Analytical, Inc.
Contact Information:	800-755-9295 / 541-639-8423 20332 Empire Blvd Ste 4 - Bend, OR 97701 (Bend Office) office@edgeanalytical.com

1.4 Project Organization (EPA QA/R-5 A4)

The responsible agency for this effluent discharge monitoring program is the WSPU. The participating agency is the CWS Water Control Board, U.S. Environmental Protection Agency, Region 10 (USEPA). Edge Analytical Inc. Bend Oregon Laboratory is the Oregon state-certified laboratory that will be performing the chemical and microbiological analyses for the monitoring program following USEPA standard used analytical methods. If, in the future, Edge Analytical Inc. Bend Oregon Laboratory is no longer the laboratory and a new laboratory is selected, this QAP will be amended accordingly.

The roles and responsibilities of those involved in the implementation of the effluent discharge monitoring program are described in an organization chart below in **Figure 1-1**.

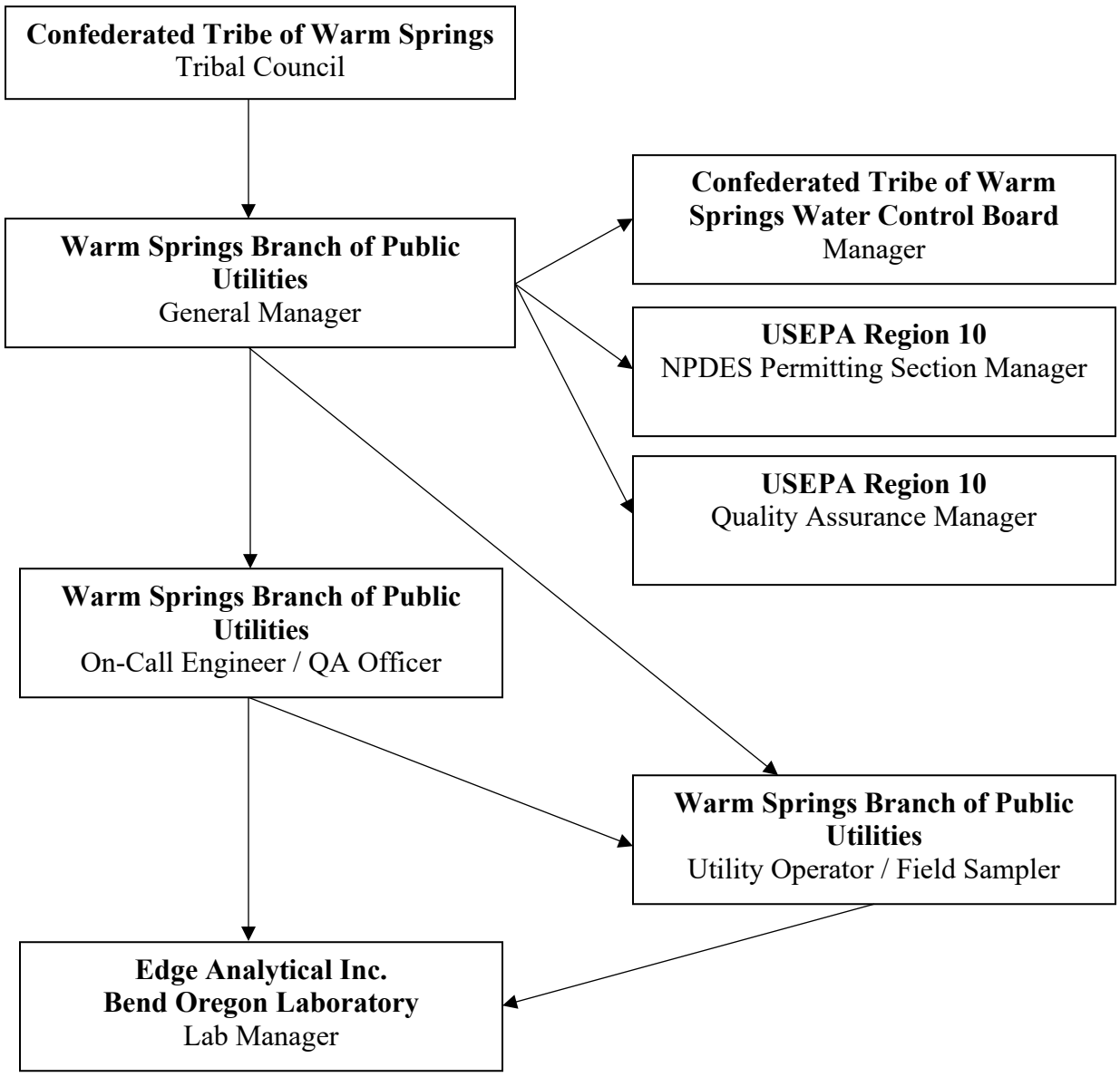

Figure 1-1. Organization Chart

WSPU General Manager will be the responsible official for this project overseeing the overall project and budget, as well as tasking the laboratory contractors with the work required to complete this project. He will communicate project needs to the contractors. He will also be responsible for ensuring that any amended versions of the QAP are distributed to the organizations and individuals listed in Section 1.3.

WSPU On-Call Engineer / QA Officer will be responsible for the development of the sampling design and protocols discussed in this QAP, as well as ensuring protocols are followed. Before beginning the monitoring program, he will coordinate with the WSPU Operator / Field Sampler and the Laboratory

Manager to review field and laboratory roles and responsibilities, sampling and field measurement requirements, analytical requirements, sampling schedule, courier logistics (for sample transfer to the laboratory), and requirements for field and laboratory documentation to minimize potential problems that could occur during the project. He is responsible for the Quality Assurance/Quality Control (QA/QC) review of all data generated for the samples collected. He will receive all data reports from the analytical laboratory and will be their main contact regarding data quality issues and concerns. He will consolidate and report the data to the WSPU General Manager for final approval and distribution. He will review this QAP.

WSPU Operator / Field Sampler will be responsible for performing the sample collection and field measurement activities. He/she has overall responsibility for all field activities. He/she will report to the On-Call Engineer / QA Officer and General Manager.

Edge Analytical Inc. will be responsible for assigning appropriate laboratory staff to perform the analyses specified in this plan, as well as reviewing the analytical data it generates, to ensure it is consistent with its QA/QC program defined in this QA Project Plan. The Bend Oregon Laboratory Manager will oversee all laboratory-related activities and will have the prime responsibility for the laboratory work.

1.5 Problem Definition/Background (EPA QA/R-5 A5)

The CWS currently operates a WWTP located in Warm Springs, Oregon under the NPDES permit No. OR0032638. The CWS WWTP is an extended aeration system constructed in 2001 and serves a resident population of approximately 1,500 people and a community consisting of approximately 450 homes and businesses. The WWTP receives residential and commercial domestic wastewater from the Warm Springs Agency Campus area. There are no industrial dischargers to the system and the collection system consists of separate sewer lines. The collection system has no known combined sewers. **Figure 1-2** includes a map of the location of the treatment plant.

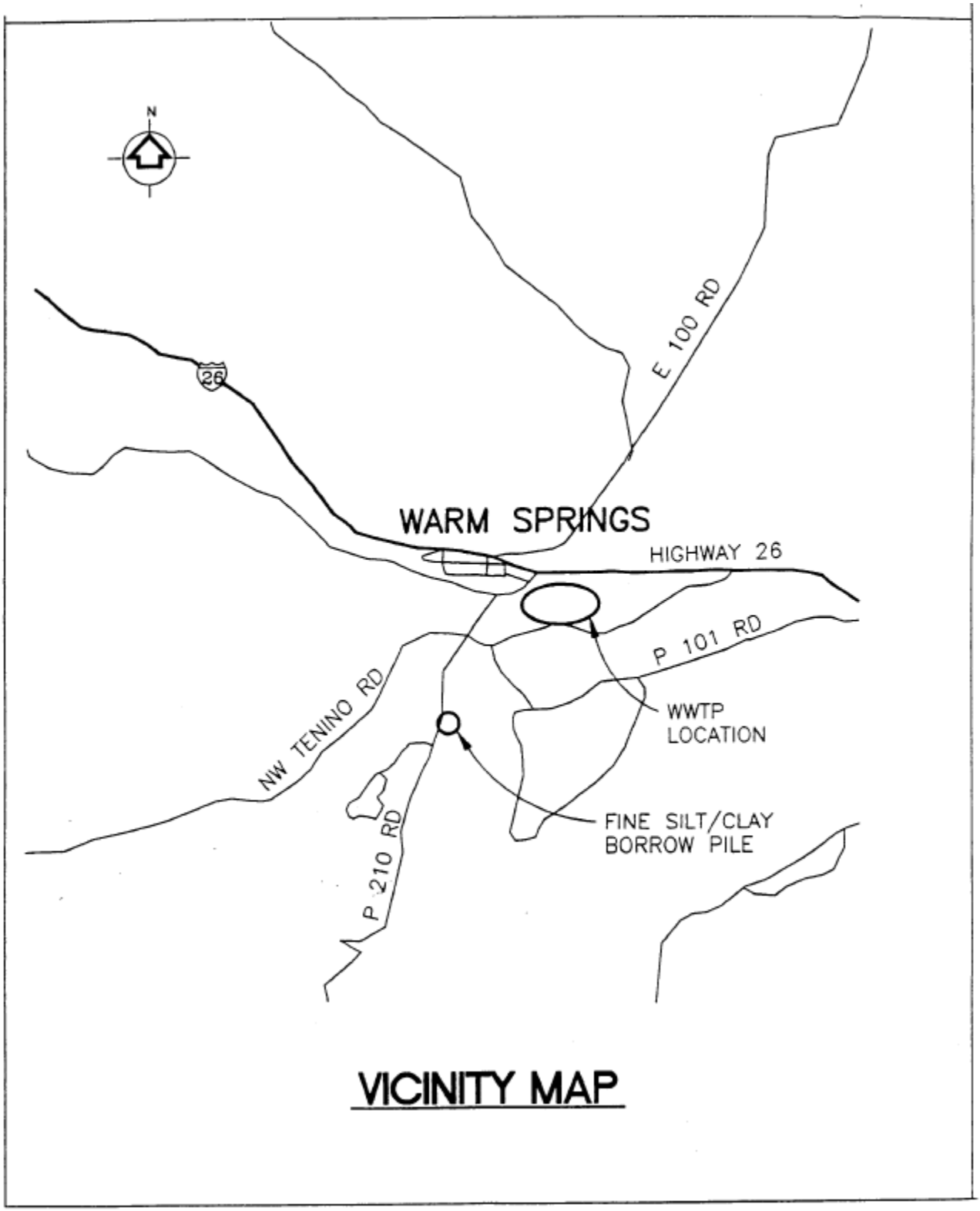

Figure 1-2. WWTP Vicinity Map

The main treatment processes at the WWTP include two BioLac aeration basins and clarifiers. The treated effluent is disinfected by UV disinfection prior to discharge. The process flow diagram is shown in **Figure 1-3**. The treated WWTP effluent is discharged to Shitike Creek, located North of the WWTP, and flows to the Deschutes River. Based on the Clean Water Act, an NPDES permit is required to discharge any pollutant from a point source into navigable waters. A list of effluent discharge parameters and requirements is established in the CWS WWTP NPDES permit attached as **Appendix 1**. The treated WWTP effluent should meet the water quality requirement prior to the discharge. As part of the requirement, an effluent discharge monitoring program, monthly monitoring reports, and surface water monitoring reports are required to provide continuous monitoring of the WWTP effluent quality and to meet the regulations and ordinances of the USEPA Region 10.

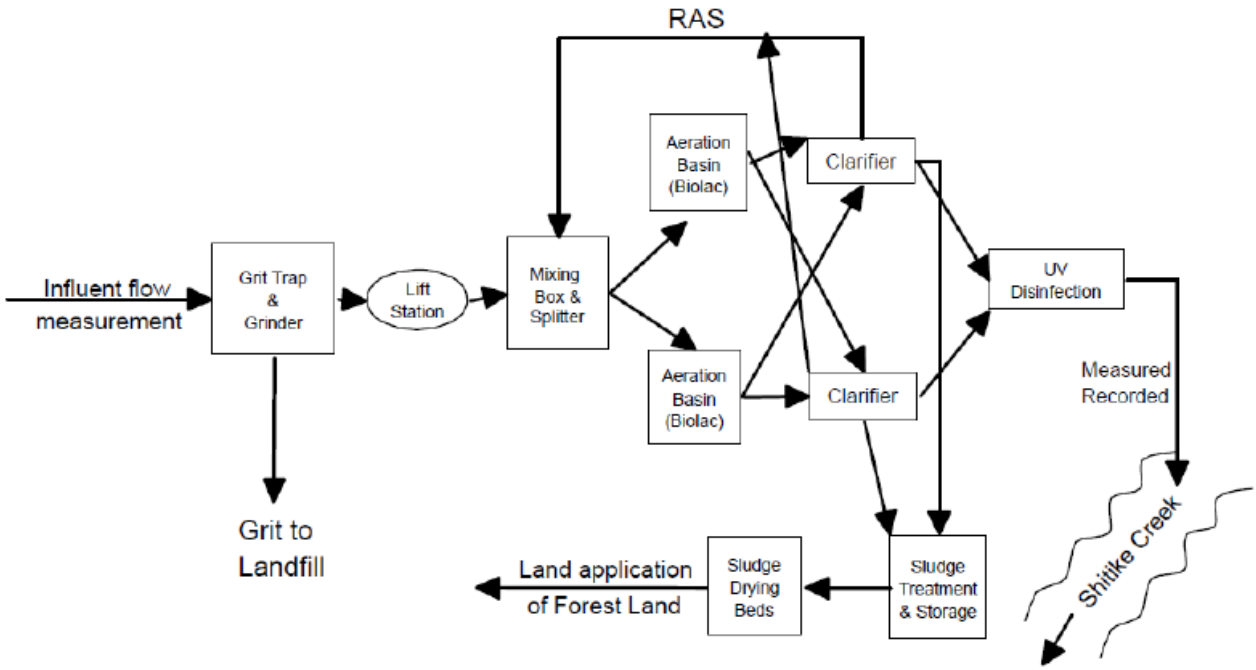

Figure 1-3. WWTP Process Flow Diagram

1.6 Project/Task Description and Schedule (EPA QA/R-5 A6)

A discharge monitoring report (DMR) is due monthly per NPDES permit requirement and must be submitted on or before the 20th of the month following the monitoring month.

Per DMR requirements, two locations will be sampled at the WWTP. The first location will be located at the influent headworks. The second location will be located at the post-UV disinfection effluent channel. The sample locations are also shown in **Figure 1-4**. Both sampling locations are accessible to the utility operator and field sampler.

Figure 1-4. Sample Locations for Monthly Monitoring Report

All samples for laboratory analysis will be collected as 24-hour composite samples once per week, and the sampling locations and dates will be recorded on the chain of custody. Samples for laboratory analysis will be sent to the Edge Analytical Inc. Bend Laboratory for analysis of the following parameters at a minimum:

- Influent Biological Oxygen Demand, BOD5.
- Influent Total Suspended Solids, TSS.
- Influent Total Ammonia as N.
- Effluent BOD5.
- Effluent TSS.
- Effluent Total Ammonia as N.
- Effluent E. Coli.

WSPU may request additional water quality sampling if deemed necessary which may include the following. The requested water quality sampling parameters will be listed in the chain of custody for each test.

- Influent Total Kjeldahl Nitrogen (TKN)
- Effluent Nitrate.

Samples that are analyzed on-site at the WWTP will be collected as grab. The list of water quality to be analyzed on-site include:

- Flow
- pH
- Temperature
- Floating, Suspended, or Submerged Matter

The ambient surface water qualities of Shitike Creek will also be reported on the monthly DMR. A Surface Water Monitoring Report (SWMRP) will also be submitted with the next NPDES permit application. For surface water monitoring, two locations will be sampled at Shitike Creek. The first location will be located at the softball field area, upstream of the WWTP discharge. The second location will be located at the Museum area, downstream of the WWTP discharge where the effluent has completely mixed with Shitike Creek. The sample locations are also shown in **Figure 1-5**. Both sampling locations are accessible to the utility operator and field sampler.

Figure 1-5. Sample Locations for Surface Water Monitoring Report

All samples for surface water monitoring analysis will be collected as grab samples once per month, and the sampling locations and dates will be recorded on the chain of custody. Samples for laboratory analysis will be sent to the Edge Analytical Inc. Bend Laboratory for analysis of the following parameters at a minimum:

- Total Ammonia as N

Samples for water quality to be analyzed on-site include:

- Flow
- Temperature
- pH

The WSPU Field Sampler will notify the WSPU General Manager once the sampling and on-site analyses are completed and the samples are shipped to Edge Analytical Inc.

1.7 Quality Objectives and Criteria for Measurement Data (EPA QA/R-5 A7)

This section describes the objectives of the project (i.e., decision or study questions to be answered), identifies the targeted action limits/levels, and defines the measurement performance or acceptance criteria deemed necessary to meet those objectives.

1.7.1 Objectives and Project Decisions

The effluent discharge monitoring program is designed to characterize the treated effluent water quality of the CWS WWTP. The effluent water quality data will be compiled into a monthly DMR and submitted to the USEPA Region 10 as part of the continuous monitoring requirement specified in the NPDES permit. The long-term use of the effluent water quality data is to provide information on the WWTP operation efficiency, ensure the effluent water quality, assist wastewater treatment process optimization, troubleshooting, and capital improvement projects planning, and help the validation of the NPDES permit and the USEPA in the establishment of interim and final effluent water quality parameters.

Decisions to be made with the data include:

- If the following data or field parameters are found non-compliant and exceeded the NDPES Permit standards, then the USEPA Region 10 will be notified. Within 24 hours, WSPU will contact the NPDES Compliance Hotline in Seattle, Washington, by telephone, at (206) 553-1846.:
  a) any noncompliance that may endanger the health or the environment;
  b) any unanticipated bypass that exceeds any effluent limitation in the NPDES permit (See Part IV.F of the NPDES permit, Bypass of Treatment Facilities);
  c) any upset that exceeds any effluent limitation in the permit (See Part IV.G of the NPDES permit, Upset Conditions); or
  d) any violation of a maximum daily discharge limitation for applicable pollutants identified by Table 1. Effluent Limitations and Monitoring Requirements of the NPDES permit.
  e) any overflow prior to the treatment works over which the permittee has ownership or operational control. An overflow is any spill, release, or diversion of municipal sewage including:
     - an overflow that results in a discharge to the waters of the United States; and
     - an overflow of wastewater, including a wastewater backup into a building (other than a backup caused solely by a blockage or other malfunction in a privately-

owned sewer or building lateral) that does not reach the waters of the United States.

- If a noncompliance occurs, a written submission within five days of the time that WSPU becomes aware of any event required to be reported stated above. The written submission must contain:
  a) a description of the noncompliance and its cause;
  b) the period of noncompliance, including exact dates and times;
  c) the estimated time noncompliance is expected to continue if it has not been corrected; and
  d) steps taken or planned to reduce, eliminate, and prevent the recurrence of the noncompliance.
  e) if the noncompliance involves an overflow, the written submission must contain:
    - The location of the overflow;
    - The receiving water (if there is one);
    - An estimate of the volume of the overflow;
    - A description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);
    - The estimated date and time when the overflow began and stopped or will be stopped;
    - The cause or suspected cause of the overflow;
    - Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;
    - An estimate of the number of persons who came into contact with wastewater from the overflow; and
    - Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps.

The Director of the Enforcement and Compliance Assurance Division may waive the written report on a case-by-case basis after receiving the noncompliance notice within 24 hours. The reports will be submitted in paper form. WSPU will sign and certify the report in accordance with the requirements of Part V.E, of the NPDES permit Signatory Requirements. The permittee must submit the legible originals of these documents to the US EPA Region 10 Water Division Director, Enforcement and Compliance Assurance Division, with copies to CWS Water Control Board at the following addresses:

U.S. EPA Region 10
Attn: Data Manager,
1200 Sixth Avenue, Suite 155, ECAD 20-C04
Seattle, Washington 98101-3188

The Confederated Tribes of the Warm Springs
Water Control Board
PO Box C
Warm Springs, Oregon 97761

- If the maximum daily limits of the effluent ammonia and effluent E. coli are violated, WSPU must report within 24 hours the violation. Violations of all other effluent limits are to be reported at the time that monthly discharge monitoring reports are submitted.

1.7.2 Action Limits/Levels

The Target Limits can be referred to the Effluent Limitations and Monitoring Requirements and Surface Water Monitoring Requirements of the NPDES permit shown below in **Table 1-1** and **Table 1-2**.

Table 1-1. NPDES Permit WWTP Water Quality Parameters

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
Parameters with Effluent Limits							
Biochemical Oxygen Demand (BOD_5) April 1 - October 31	mg/L	10	15	--	Influent and Effluent	1/week	24-hour composite
	lbs/day	73	109	--			Calculation[1]
Biochemical Oxygen Demand (BOD_5) November 1 - March 31	mg/L	30	45	--	Influent and Effluent	1/week	24-hour composite
	lbs/day	218	327	--			Calculation[1]
Biochemical Oxygen Demand (BOD_5) Percent Removal	%	85% (minimum)	--	--	--	1/month	Calculation[2]
Total Suspended Solids (TSS) April 1 - October 31	mg/L	10	15	--	Influent and Effluent	1/week	24-hour composite
	lbs/day	73	109	--			Calculation[1]
Total Suspended Solids (TSS) November 1 - March 31	mg/L	30	45	--	Influent and Effluent	1/week	24-hour composite
	lbs/day	218	327	--			Calculation[1]
TSS Percent Removal	%	85 (minimum)	--	--	--	1/month	Calculation[2]
E. coli [3]	CFU/100 ml	126	--	406 (instant. max) [4]	Effluent	5/month	Grab

Total Ammonia (as N) (Interim Compliance Schedule)	mg/L	2.4	--	6.8[4]	Effluent	1/week	24-hour composite
	lbs/day	17.4	--	49.3			Calculation[1]
Total Ammonia (as N)[6]	mg/L	1.4	--	3.8[4]	Effluent	1/week	24-hour composite
	lbs/day	10.2	--	27.6			Calculation[1]
pH	std units	Between 6.5 – 8.5			Effluent	1/week [5]	Grab
Report Parameters							
Temperature	°C	--	--	Report	Effluent	1/week	Grab
Flow	mgd	Report	--	Report	Effluent	1/month	Grab
Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.2				1/month	Visual Observation

Notes

1. Loading (in lbs/day) is calculated by multiplying the concentration (in mg/L) by the corresponding flow (in mgd) for the day of sampling and a conversion factor of 8.34. 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. The average monthly *E. coli* bacteria counts must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken every 3 - 7 days within a calendar month. See Part VI of this permit for a definition of geometric mean.

4. Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation. See Paragraph I.B.4 and Part III.G of this permit.

5. Samples must be taken on different days.

6. Total Ammonia (as N) concentration and mass limits are effective on July 1st, 2026. This date is at the end of a 5-year Compliance Schedule. See Part II.C for more information. Until final concentration and mass limits are effective on July 1st, 2026, an interim limit has been established. The interim limit is effective the first day of permit issuance.

Table 1-2. NPDES Permit Surface Water Quality Parameters

Parameter	Units	Frequency	Sample Type
Flow	cfs	Monthly	Grab
Total Ammonia as N	mg/L	Monthly	Grab
Temperature	C	Monthly	Grab
pH	standard units	Monthly	Grab

The analytical parameters are listed in **Table 1-3**. The analytical methods selected for this project are capable of providing data with quantitation limits (QLs) and analytical detection limits (DLs) reported to concentrations lower than the NPDES Permit values shown in **Table 1-1**. Therefore, the data generated will be able to support sound decisions at the Target Limits.

Table 1-3. Analytical Parameters and Target Limits

Analytical Parameter[1]	Project Action Limit/Level (applicable units)	Laboratory Limits[2] (applicable units)	
		Quantitation Limits	Detection Limits
Laboratory Analyses			
BOD5 (04/01 - 10/31)	10 mg/L	1 mg/L	
BOD5 (11/01 - 03/31)	30 mg/L	1 mg/L	
TSS (04/01 - 10/31)	10 mg/L	2 mg/L	
TSS (11/01 - 03/31)	30 mg/L	2 mg/L	
E. Coli	CFU / 100mL	1 MPN/100mL	
Total Ammonia (as N) Interim	2.4 mg/L	0.01 mg/L	
Total Ammonia (as N)	1.4 mg/L	0.01 mg/L	
TKN	--	5 mg/L	
Nitrate	--	0.1 mg/L	
Field Measurement			
pH	6.5 - 8.5 std units	4.0 - 10.0	
Temperature	-- oC	0 - 40oC	
Flow	mgd		
Floating, Suspended, or Submerged Matter	n/a		

Notes:

1. Analytical parameters include both field and laboratory analyses.
2. Laboratory quantitation limits and detection limits are those that an individual laboratory or organization is able to achieve for a given analysis on a routine basis.
   - Quantitation limits are the minimum concentrations that can be identified and quantified above the detection limit within some known limits of precision and accuracy/bias. It is recommended that the quantitation limit is supported by the analysis of a standard of equivalent concentration (typically, the lowest calibration standard).
   - Detection limits are the minimum concentration that can be detected above the background or baseline/signal noise of an instrument.

1.7.3 Measurement Performance Criteria/Acceptance Criteria

To define acceptable data quality for this project, data quality indicators (DQIs) were identified for each analytical parameter, and decisions were made regarding how each DQI would be assessed. The DQIs include: precision, accuracy/bias (as related to %recovery and contamination), representativeness, comparability, completeness, and sensitivity.

Accuracy

Accuracy is a measure of confidence that describes how close a measurement is to its "true" value.

Field accuracy is ensured by field instrument calibration according to the manufacturer's instructions and by using standards and chemicals that are current (prior to the expiration date), and by following proper sampling, sample handling, and field analysis protocols.

Laboratory accuracy is normally determined by the percent recovery of the target analyte in spiked samples and also by the recoveries of the surrogates in all samples and QC samples. Accuracy is calculated as follows:

$$\%R = \frac{\text{Analyzed value}}{\text{true value}} \times 100$$

Laboratory accuracy ranges are specified in the contracted laboratory Quality Management Plans (kept on file at ADEC) and depend on the parameter being measured. The Quality Assurance Officer will ensure the facility's laboratory accuracy by meeting %R-values.

Precision

Precision is the degree of agreement among repeated measurements of the same characteristic, or parameter, and gives information about the consistency of methods. Precision can be considered a product of the repetitiveness of monitoring.

Precision is expressed in terms of the relative percent difference (RPD) between two measurements (A and B), and is computed as follows:

$$RPD = \frac{A - B \times 100}{(A + B)/2}$$

Field precision is measured by collecting and analyzing field duplicate samples. Taking field duplicates at least every quarter ensures Field precision

Laboratory precision is ensured by measuring Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples and by the analysis of laboratory duplicate samples. The laboratory usually performs the analysis of one set of MS/MSD and duplicate samples per matrix measured. RPD is usually <20% but can vary widely depending on the analytical method. Control charts are graphical representations showing the limits of acceptable data.

Representativeness

Representativeness is the extent to which measurements actually represent the true environmental condition. Representativeness of data collected was considered in the permit development process. This included sampling locations, the delineation of the mixing zone and ambient sampling water quality site selections. (See permit and/or certification for details.)

Comparability

Comparability is the degree to which data can be compared directly to similar studies. Using standardized sampling and analytical methods and units of reporting with comparable sensitivity ensures comparability. EPA-approved methods as listed in 40 CFR 136.3 will be used for standard measurements.

Completeness

Completeness is the comparison between the amount of usable data collected versus the amount of data called for in the permit or certification. Completeness will be determined by comparing sampling and analyses with the requirements in the permit.

The general approach to assessing each DQI is described below. Some DQIs will be assessed quantitatively, while others will be assessed qualitatively. For quantitative assessments, example calculations have been provided and the QC samples (to assess each DQI) have been identified. The frequency of the QC samples and the measurement performance criteria for each QC sample for each type of analysis are provided in **Tables 1-4** and **Table 1-5**. For quantitative assessment of laboratory methodology, the laboratory's QA Manual and analytical SOPs have been reviewed by the WSPU, and the associated laboratory QC (types & frequencies of QC samples and QC acceptance limits) have been determined to be adequate to meet the data quality needs of the project. As such, the laboratory QC has been accepted as the project's measurement performance criteria for the analytical component, while project-specific criteria have been defined to assess the field sampling component.

Table 1-4. Typical Quality Control Requirements for Sample Analyses

QC Sample:	Data Quality Indicator (DQI)	Frequency / Number	Method/SOP QC Acceptance Limits	Acceptance Criteria/ Measurement Performance Criteria[1]	Corrective Action
Field Analyses:					
Field Duplicate	Precision (S&A)	1 / 10 field samples	NA	RPD </= 20% for concentrations > 5 x QL	Qualify associated field data and/or resample.
Field Blank	Accuracy / Bias as Contamination (S & A)	1 / 20 field samples	NA	Concentration < QL	Qualify associated field data and/or resample.
Lab Analyses:					
Laboratory Duplicate	Precision (A)	1 / 20 samples	RPD </= 20% for concentrations > 5 x QL	RPD </= 20% for concentrations > 5 x QL	Review with lab manager. Reanalyze or justify in data report.
Laboratory Blank	Accuracy / Bias as Contamination (A)	1 / 20 samples	Concentration < 1/2QL or associated sample concentration > 10x blank value	Concentration < 1/2QL or associated sample concentration > 10x blank value	Reprep and reanalyze. If problem recurs, reprep and reanalyze blank and all associated samples.

Matrix Spike	Accuracy / Bias as Recovery (S & A)	1 / 20 samples	70-130% recovery of true valve	70-130% recovery of true valve	Reprep and reanalyze. If problem recurs, justify in data report.
Laboratory Control Sample	Accuracy / Bias as Recovery (A)	1 / 20 samples	70-130% recovery of true valve	70-130% recovery of true valve	Review with lab manager. Reanalyzer or justify in data report.

Table 1-5. Quality Control Precision and Accuracy List

Parameter	Approved Test Procedures1	Precision (RPD)	Accuracy (% R)
BOD5	SM 5210B	<30	80 - 120
TSS	SM 2540 D	<20	85 - 115
E. Coli	SM 9222 D or SM 9221 C or E	NA	NA
pH	SM 4500-H+ B	0. 1 pH units	0. 1 pH units
Temperature	SM 2550 B	<10	90 – 110
Total Ammonia	EPA 350.1	<30	70-130
Sample Preparation	EPA 200.2	NA	NA

Note:

1. "SM" means Standard Methods for Examination of Water and Wastewater, 18th, 19th, ,20th or online editions.
   "EPA" means Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983.
   "EPA SW-846" means Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.
   "EPA/600/4-91/002" means Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, 2nd edition, Environmental Monitoring Systems Laboratory, U.S. EPA, Cincinnati, Ohio (July 1994)

For field measurements, the DQIs to be assessed quantitatively include precision and accuracy alone. The associated acceptance criteria (types & frequencies of QC checks and acceptance limits) for the project are summarized in **Table 1-6**.

Table 1-6. Quality Control Requirements for Field Measurements

QC Sample	Data Quality Indicator (DQI)	Frequency / Number	Method/SOP QC Acceptance Limits	Acceptance Criteria/ Measurement Performance Criteria[1]	Corrective Action
Temerature - Multimeter					
Field Duplicate	Recision (S & A)	1/5 field samples	NA	±0.5 oC	Collect & Analyze 3rd sample. Qualify data, if still exceeding criteria.
QC Check Sample	Accuracy	NA	NA	NA	None. Sensor not used if didn't meet annual calibration criteria.

pH - Multimeter					
Field Duplicate	Recision (S & A)	1/5 field samples	NA	±0.3 std units	Collect & Analyze 3rd sample. Qualify data, if still exceeding criteria.
QC Check Sample	Accuracy	1/batch (each day)	±0.5 units of true value for both calibration check standards	±0.5 units of true value	Qualify associated field data.

1.8 Special Training Requirements/Certification (EPA QA/R-5 A8)

No special training of laboratory personnel is required for this project. Annual training of the WSPU will be performed by the WSPU On-Call Engineer.

1.9 Documents and Records (EPA QA/R-5 A9)

1.9.1 QA Project Plan Distribution

It is the responsibility of the WSPU On-Call Engineer/QA Officer to prepare and maintain amended versions of the QAP and to distribute the amended QAP to the individuals listed in Section 1.3.

1.9.2 Field Documentation and Records

In the field, records will be documented in several ways, including daily logbooks, photographs, pre-printed forms (such as labels and chain-of-custody forms), corrective action reports, checklists, and reports. Field activities must be conducted according to the appropriate standard operation procedure (SOP) attached in **Appendix 2**. It is the responsibility of WSPU On-Call Engineer/QA Officer to maintain updated revisions of SOPs at all times and to distribute updated SOPs to the Field Sampling Technician, as appropriate. All documentation generated by the sampling program will be kept on file in the WSPU office.

1.9.2.1 Daily Logbook

WSPU maintains a daily WWTP operation log book that is used to record the daily WWTP operation condition, including:

- Influent and Effluent
  - pH
  - Temperature
  - Flow Rate
- Aeration Basin pH
- Aeration Basin Temperature
- Aeration DO
- Clarifier Turbidity

- UV Channel Turbidity
- Sludge Volume Index (SVI) Observation
- Weekly Lab Sample Record (If Conducted)

1.9.2.2 Photographs

Photographs may be taken by the Field Sampler and reported to the WSPU General Manager and On-Call Engineer. The photographs will serve to verify information entered into the field logbook. Digital photographs will be archived in a permanent digital file to be kept in the WSPU office.

1.9.2.3 Labels

All samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. Edge Analytical Inc. will provide sample labels for this project. The samples will have preassigned, identifiable, and unique numbers. At a minimum, the sample labels will contain the following information:

- Sampling location or name,
- Unique sample number,
- Sample description (e.g., grab, composite),
- Date and time of collection,
- Initials/signature of sampler,
- Analytical parameter(s), and
- Method of preservation.

Each sample location will have a unique sample identification number.

1.9.2.4 Field Quality Control Sample Records

Field QC samples can be prepared as needed. Field QC samples (duplicates and blanks) will be labeled as such in the field logbooks. They will be given unique (fictitious) sample identification numbers and will be submitted "blind" to the laboratory (i.e., only the field logbook entry will document their identification and the laboratory will not know these are QC samples). The frequency of QC sample collection will also be recorded in the field logbook.

1.9.2.5 Sample Chain-of-Custody Forms and Custody Seals

Chain-of-custody forms and custody seals will be provided by the laboratory. The forms will be used to document the collection and shipment of samples for off-site laboratory analysis, while the seals will serve to ensure the integrity of (i.e., there has been no tampering with) the individual samples.

All sample shipments will be accompanied by a chain-of-custody form. The forms will be completed and sent with each shipment of samples to the laboratory. If multiple coolers

are sent to a laboratory on a single day, forms will be completed and sent with the samples for each cooler. The original form will be included with the samples and sent to the laboratory. Copies will be sent to the WSPU General Manager and On-Call Engineer /QA Officer at the time of reporting.

The chain-of-custody form will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until the samples are shipped, the custody of the samples will be the responsibility of the field personnel, who will sign the chain-of-custody form in the "relinquished by" box and note the date, time, and air bill number.

A self-adhesive custody seal will be placed across the lid of each sample container/bottle. The shipping containers in which samples are stored will also be sealed with self-adhesive custody seals any time they are not in someone's possession or view before shipping, as well as during shipping. All custody seals will be signed and dated.

1.9.3 Laboratory Documentation and Records

The analytical laboratory will keep a sample receiving log and all completed chain-of-custody forms submitted with the samples collected for this project. The analytical laboratory will also keep records of all analyses performed, as well as associated QC information, including: laboratory blanks, matrix spikes, laboratory control samples, and laboratory duplicates. Hard copy data of the analytical results will be maintained for six years by the laboratory.

The data generated by the laboratory for each sampling event will be compiled into individual data packages/reports. The data packages will include the following information:

- Project narrative including a discussion of problems or unusual events (including but not limited to the topics such as: receipt of samples in incorrect, broken, or leaking containers, with improperly or incompletely filled out chain-of-custody forms, with broken chain-of-custody seals, etc.; receipt and/or analysis of samples after the holding times have expired; summary of QC results exceeding acceptance criteria; etc.),
- Sample results and associated QLs,
- Copies of completed sample receiving logs and chain-of-custody forms, and,
- QC check sample records and acceptance criteria (to be included for all QC samples listed in **Tables 2-4** and **Table 2-5**, including the temperature blank check).

All data packages will be reviewed by the Laboratory QA Officer to ensure the accurate documentation of any deviations from sample preparation, analysis, and/or QA/QC procedures; highlights of any excursions from the QC acceptance limits; and pertinent sample data. Once finalized, the Laboratory QA Officer will provide the data packages/reports to the Laboratory Project Manager who will sign them and submit them to the WSPU General Manager and On-

Call Engineer/QA Officer. Any problems identified by the Laboratory QA Officer will be documented in the narrative part of the data report.

1.9.4 Monthly and/or Final Reports

As required by the NPDES Permit, a monthly DMR will be submitted. The WSPU On-Call Engineer/QA officer is responsible for the preparation of the monthly DMR on or before the 20th of the month following the monitoring month. The monthly discharge monitoring report will be submitted to the US EPA Region 10 electronically using NetDMR.

1. Monitoring data must be submitted electronically to EPA no later than the 20th of the month following the completed reporting period.
2. WSPU must sign and certify all DMRs, and all other reports, in accordance with the requirements of Part V.E, of the NDPES permit Signatory Requirements.
3. WSPU must submit copies of the DMRs and other reports to the Confederated Tribes of Warm Springs Water Control Board.
4. Submittal of Reports as NetDMR Attachments. Unless otherwise specified in this permit, WSPU may submit all reports to EPA and the Confederated Tribes of Warm Springs Water Control Board as NetDMR attachments rather than as hard copies. The file name of the electronic attachment must be as follows: YYYY_MM_DD_OR0032638_Report Type Name_Identifying Code, where YYYY_MM_DD is the date that WSPU submits the attachment.
5. WSPU may use NetDMR after requesting and receiving permission from US EPA Region 10. NetDMR is accessed from: https://cdxnodengn.epa.gov/net-netdmr/

The monthly discharge monitoring report should include, at a minimum:

1. the date, exact place, and time of sampling or measurements;
2. the name(s) of the individual(s) who performed the sampling or measurements;
3. the date(s) analyses were performed;
4. the names of the individual(s) who performed the analyses;
5. the analytical techniques or methods used; and
6. the results of such analyses.

WSPU must retain records of all monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, copies of DMRs, a copy of the NPDES permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of EPA or the Confederated Tribes of Warm Springs Water Control Board at any time.

A Surface Water Monitoring Report (SWMRP) will be submitted with the next NPDES permit application.

2. DATA GENERATION AND ACQUISITION

2.1 Sampling Design (Experimental Design) (EPA QA/R-5 B1)

A total of four locations will be sampled for the effluent monitoring program, two at the WWTP, one at Shitike Creek upstream of WWTP discharge, and one at Shitike Creek downstream of WWTP discharge. The sample locations, names, and rationale for selecting each sampling location are included in **Table 2-1**.

Table 2-1. Sampling Design and Rationale

Sampling Location/ID Number	Depth (Appropriate Units)	Analytical Parameter[1]	Rationale for Sampling Design[2]
WWTP - Influent	24-Hour Composite	BOD5, TSS, Total Ammonia as N,	Influent wastewater quality as the baseline to determine the BOD5, TSS, and Ammonia removal percentage.
WWTP - Effluent	24-Hour Composite	BOD5, TSS, Total Ammonia as N, E. Coli, pH, Temperature, Flow, and Floating, Suspended, or Submerged Matter	Effluent wastewater quality to meet the NPDES permit.
Shitike Creek - Upstream	Grab, 6" - 12"	Flow, Total Amonia as N, Temerature, pH	Above the influence of the facility's discharge at a point representative of stream water quality.
Shitike Creek - Downstream	Grab, 6" - 12"	Flow, Total Amonia as N, Temerature, pH	Below the facility's discharge, at a point where the effluent and Shitike Creek are completely mixed.

Note:
1. Analytical parameters include all planned field measurements (e.g., dissolved oxygen, turbidity, pH, etc.), field screening analysis (e.g., PCBs by immunoassay test kit, selected metals by XRF), and laboratory analyses.
2. Rationale supports the selection of sampling locations and associated analytical parameters.

The samples to be collected are summarized in Table 2-2.

Table 2-2. Summary of Field and QC Samples To Be Collected

Matrix/ Media	Analytical Parameter[1]	No. of Sampling Locations	Depth[2] (surface, mid, or deep)	No. of Field Duplicates	Organic Analyses[3] No. of:		Inorganic Analyses[3] No. of:		No. of Trip Blanks (for VOCs only)	No. of Equipment Blanks	No. of PE Samples[4]	Total No. of Samples
					MS	MS D	Dup	MS				
Laboratory Analyses:												
Wastewater	BOD5	2		2								4
Wastewater	TSS	2		2								4
Wastewater	Ammonia	2		2								4
Wastewater	E. Coli	1		1								2
Surface Water	Ammonia	2		2								4
Field Measurements:												
Wastewater	pH	2		2								4
Wastewater	Flow	2		2								4
Wastewater	Temperature	2		2								4
Surface Water	pH	2		2								4
Surface Water	Flow	2		2								4
Surface Water	Temperature	2		2								4

Note:
1. Analytical parameters include all laboratory analyses, field analyses (e.g., nutrients by various field test kits, PCBs by immunoassay test kit, select metals by XRF, etc.), and field measurements (e.g., dissolved oxygen, turbidity, pH, etc.).
2. When samples are collected at different depths at the same location, information for each depth category (e.g., surface, mid, or deep/bottom) is provided on a separate line.
3. Information includes the number of associated analytical QC samples, if collection of additional sample volume and/or bottles is necessary. If the QC samples listed are part of the analysis and don't require the collection of additional sample volume and/or bottles, ANAS@ (for Ano additional sample@) is included in the column. (Note: MS=matrix spike, MSD=matrix spike duplicate, Dup=laboratory duplicate/replicate.)
4. PE or Performance will be submitted for laboratory analysis along with the associated field sampled where noted.

2.2 Sampling Methods (EPA QA/R-5 B2)

Wastewater samples at the WWTP will be collected as 24-hour composite per **Table 1-1**. Preservatives and dilutions are not required. At each sampling location, all sample bottles/containers designated for a particular analysis will be filled sequentially before containers designated for another analysis are filled. If a QC sample is to be collected at a given location, all containers designated for a particular analysis

for both the sample and QC sample will be filled sequentially before containers for another analysis are filled. For field duplicate samples, containers with two different sample designations will be filled alternately.

Water samples at Shitke Creek will be collected as grab at 6 - 12 inches below the water's surface.

2.3 Sample Handling and Custody (EPA QA/R-5 B3)

The WSPU General Manager has worked directly with the Laboratory Project Manager to determine the number of sample containers, and associated sizes/volumes and materials, needed for this monitoring project. The containers will be provided precleaned from the laboratory directly and require no washing or rinsing by the field samplers prior to sample collection.

All sample containers will be placed in a sturdy shipping container (e.g., a steel-belted cooler). The following outlines the packaging procedures that will be followed for this project:

1. Line the bottom of the cooler with a large trash bag to minimize leakage of water.
2. Place bubble wrap around the inside edge of the cooler to prevent breakage during shipment, and/or wrap bottles individually.
3. Seal the drain plug of the cooler with fiberglass tape to prevent potential leakage from the cooler (should sample bottles or bagged ice leak.)
4. Prepare bags of ice to be used to keep the samples cool during transport. Ice will be used. Pack the ice in doubled, zip-locked plastic bags.
5. Check the sample bottle screw caps for tightness and, if not full, mark the sample volume level of liquid samples on the outside of the sample bottles with indelible ink.
6. Secure sample bottle/container tops and place a custody seal over the container's top.
7. Ensure sample labels are affixed to each sample container and protected by a cover of clear tape.
8. Wrap all glass sample containers in bubble wrap to prevent breakage.
9. Seal all sample containers in heavy duty plastic zip-lock bags. Write the sample numbers on the outside of the plastic bags with indelible ink.
10. Place sample containers (wrapped and sealed) into the cooler. Place the bagged ice on top and around the samples to chill them to the correct temperature.
11. Fill the empty space in the cooler with bubble wrap, Styrofoam peanuts, or any other available inert material to prevent movement and breakage during shipment.
12. Enclose the appropriate chain-of-custody(s) in a zip-lock plastic bag and affix to the underside of the cooler lid.
13. Close the lid of the cooler. Tape the cooler shut with fiberglass strapping tape.
14. Affix custody seals across the openings of the cooler both front and back to ensure that samples are not tampered with during transport. Include sample packer's initials and date on the custody seals.

WSPU Field Samplers will notify the Laboratory Project Manager of the sample shipment schedule (note: Friday shipments must be reported no later than noon). The laboratory will be provided with the following information:

- Sampler's name,
- Name and location of the site or sampling area,
- Names of the tribe and project,
- Total number(s) and matrix of samples shipped to the laboratory,
- Carrier, air bill number(s), method of shipment (e.g., priority next day),
- Shipment date and when it should be received by the laboratory,
- Irregularities or anticipated problems associated with the samples, and
- Whether additional samples will be shipped or if this is the last shipment.

A Chain-of-custody forms will be completed by the WSPU Field Samplers in the field and sent to the Laboratory along with the samples.

Following sample analysis, the laboratory will store the unused portions for 6 months. At that time, the laboratory will properly dispose of all the samples.

2.4 Analytical Methods (EPA QA/R-5 B4)

2.4.1 Field Measurements Methods

Field measurement procedures for pH, Temperature, and flow are described in the SOP. Field measurements will be taken at each location prior to sample collection laboratory analysis. All field instruments will be calibrated (according to the manufacturer's instructions) at the beginning of each date of sampling and checked at the end of each day. Field instrument calibration and sample measurement data will be recorded in the field logbook.

2.4.3 Laboratory Analyses Methods (Off-Site)

All samples will be analyzed at Edge Analytical Inc. Bend Laboratory. Analyses will be performed following either EPA-approved methods or methods from *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, as summarized in **Table 2-3**. The Laboratory QA/QC Officer must notify the Laboratory Project Manager if there is any knowledge of the standard operation procedures not being followed.

The laboratory will summarize the data and associated QC results in a data report, and provide this report to the WSPU Manager within 2 weeks of sample receipt. The content of the data report is described in Section 1.9.3. The WSPU On-Call Engineer/QA Officer will review the data reports and associated QC results to make decisions on data quality and usability in addressing the project objectives.

Table 2-3. Sample Handling, Preservation, and Holding Times

Parameter	Analytical Method Number	Container[1]	Minimum Sample Volume	Preservation[2]	Maximum Holding Time[3]
BOD5	SM5210 B	P, G, FP	2.5 L	Cool, 4ºC	48 Hours
TSS	I-3765-85	P, G, FP	---4	Cool, 4ºC	7 days
E. Coli	SM9223 B.2.b/Collilert-18	Sterile Plastic, G	500 ml	Cool, 4ºC, $Na_2S_2O_3$[5]	6 Hours
pH		P, G, FP	NA	NA	Analyze immediately
Temperature		P, G, FP	NA	NA	Analyze immediately
Total Ammonia	350.1	P, G, FP	500 ml	Cool, 4ºC, H_2SO_4 to pH<2	28 days
TKN	351.2				
Nitrate	SM4500-NO3 F				

Notes:

1. Polyethylene (P) or Glass (G). Samples are normally collected in polyethylene containers to prevent breakage. (FP) is fluoropolymer (polyfluorotetraethylene (PTFE; Teflon))
2. Sample preservation should be performed immediately upon collection. For composite chemical samples, each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then chemical samples may be preserved by maintaining at 4ºC until composite sample splitting is completed.
3. Sample should be analyzed as soon as possible after collection. The times listed are maximum times that samples may be held before analysis and still be considered valid. The term “analyze immediately” usually means within 15 minutes or less of sample collection.
4. BOD5 and TSS are tested on the same sample. 2500 mL is sufficient for both tests.
5. Should only be used in presence of residual chlorine.

2.5 Quality Control Requirements (EPA QA/R-5 B5)

2.5.1 Field Sampling Quality Control

Field sampling QC consists of collecting field QC samples to perform data quality checks. WSPU has the equipment to perform BOD and TSS tests on-site and can be used to compare with the laboratory test results.

2.5.2 Field Measurement/Analysis Quality Control

Field measurement QC consists of measuring field QC samples to perform data quality checks. The WSPU On-Call Engineer/QA Officer is responsible to ensure that Quality Assurance sample analyses are performed in accordance with **Table 1-6**.

2.5.3 Laboratory Analysis Quality Control

Laboratory sampling QC will be performed by the laboratory. The laboratory manager is responsible to ensure the laboratory analyses are performed in accordance with **Table 1-4** and **Table 1-5**.

2.6 Instrument/Equipment Testing, Inspection, and Maintenance (EPA QA/R-5 B6)

2.6.1 Field Measurement Instruments/Equipment

Sampling equipment under the care of the WUSP will be maintained according to the manufacturer's instructions. Maintenance logs will be kept in the WUSP office. Each piece of equipment will have its own maintenance log.

Table 2-4 shows the summary of Field Equipment/Instrument Calibration, Maintenance, Testing, and Inspection.

Table 2-4. Field Equipment/Instrument Calibration, Maintenance, Testing, and Inspection.

Analytical Parameter	Field Equipment/ Instrument	Calibration Activity	Maintenance Activity	Frequency	Acceptance Criteria	Corrective Action
Temperature	Multimeter, Hach Model	Annual check of endpoints of desired temperature range (0°C to 40°C) versus NIST thermometer	See manufacturer's manual	Annually		Remove from use if doesn't pass calibration criteria.
pH	Multimeter, Hach Model	Initial: two-point calibration bracketing expected field sample range (using 7.0 and either 4.0 or 10.0 pH buffer, depending on field conditions); followed by one-point check with 7.0 pH buffer Post: single-point check with 7.0 pH buffer	See manufacturer's manual	Initial: beginning of each day Post: end of each day	Initial: two-point calibration done electronically; one-point check (using 7.0 pH buffer) ± 0.1 pH units of true value Post: ±0.5 pH units of true value with both 7.0 pH and other "bracketing" (either 4.0 of 10.0 pH) buffer	Recalibrate Qualify data

2.6.2 Laboratory Analysis Instruments/Equipment (Off-Site)

The laboratory will be responsible to inspect and maintain the laboratory equipment.

2.7 Instrument/Equipment Calibration and Frequency (EPA QA/R-5 B7)

2.7.1 Field Measurement Instruments/Equipment

Calibration of field equipment/instruments will be performed by the WSPU Field Sampler according to the Standard Operation Procedure. The calibration and maintenance records are recorded in an instrument/equipment logbook. The calibration criteria are provided in **Table 2-4**.

2.7.2 Laboratory Analysis Instruments/Equipment (Off-Site)

The laboratory will be responsible to verify and calibrate its own analysis instrument and equipment according to the appropriate analytical methods.

2.8 Inspection/Acceptance Requirements for Supplies and Consumables (EPA QA/R-5 B8)

2.8.1 Field Measurement/Analyses (Screening and Definitive) Supplies and Consumables

All equipment, meters, kits, and supplies will be checked upon receipt by the WSPU On-Call Engineer / QA Officer or his/her designee to ensure that they are within technical specifications before use.

2.8.2 Laboratory Analyses (Off-Site) Supplies and Consumables

The laboratory will be responsible to verify its own supplies and consumables.

2.9 Data Acquisition Requirements (Non-Direct Measurements) (EPA QA/R-5 B9)

To supplement the surface water monitoring report of Shitke Creek, other potential "external" data sources will be researched. These sources may include, but are not limited to, the U.S. Geological Survey, the U.S. Environmental Protection Agency, and the Bureau of Reclamation. The primary use of this external data is to verify the flow rate of Shitike Creek.

These external data are used for QA/QC information only and may be included as an Appendix to the monitoring report.

2.10 Data Management (EPA QA/R-5 B10)

All data collected by the WSPU will be maintained in appropriate bound notebooks and electronic databases. The following is a list of data information records that are kept available at the WSPU office for EPA Region 10 review upon request:

- Training Records
- Field equipment and chemicals maintenance, cleaning, and calibration records
- Field logbooks and/or field data sheets
- Chain-Of-Custody and/or Transmission forms
- Records of QA/QC problems and corrective actions (field and/or laboratory)
- Laboratory data QC records
- Records of Data review sheets

- Duplicate, split sample, performance evaluation records and other QA/QC control records (field and laboratory)
- Assessment records
- Data review, verification and validation records

3. ASSESSMENT AND OVERSIGHT

3.1 Assessments/Oversight and Response Actions (EPA QA/R-5 C1)

The WSPU On-Call Engineer / QA Officer will ensure that the field and laboratory forms are complete when he checks for any errors. He will compare all data sheets or logbook entries with the DMR entries. If any errors are found, the WSPU On-Call Engineer / QA Officer will verify and correct the entries.

Should the sampling staff, laboratory personnel or WSPU On-Call Engineer / QA Officer find errors in sampling or analysis, the WSPU On-Call Engineer / QA Officer will notify the WSPU General Manager and the party responsible for the error or deficiency, and will recommend methods of correcting the deficiency. The responsible party will then take action to correct the problem and will report corrections to the WSPU On-Call Engineer / QA Officer and General Manager.

The WSPU On-Call Engineer / QA Officer will monitor the quarterly duplicate sampling and analysis activities and will review these results.

The WSPU On-Call Engineer / QA Officer will keep these assessment records available for review by EPA Region 10. WSPU will be notified whether it meets accuracy and precision requirements. Records of these performance evaluations will be available for EPA Region 10 review upon request.

Additionally, the WWTP is inspected and/or audited regularly by EPA Regional 10.

3.2 Reports to Management (EPA QA/R-5 C2)

Monitoring results are summarized on the monthly DMR, included in the permit, and are submitted to EPA Region 10 each month. In addition, a Surface Water Monitoring Report (SWMRP) will be submitted with the next NPDES permit application.

Quarterly and Annual Assessment Reports will be submitted by the WSPU On-Call Engineer / Project QA Officer to the WSPU General Manager. Any improvements to Quality Assurance and/or Quality Control will be implemented as necessary. Records of changes will be available for EPA Region 10 review. EPA Region 10 will be notified if changes/improvements require an amended QAP.

4. DATA REVIEW AND USABILITY

Prior to utilizing the data for documentation and reporting, the quality of the data needs to be reviewed and evaluated to determine whether the data satisfy the project's objectives.

4.1 Data Review, Verification, and Validation Requirements (EPA QA/R-5 D1)

4.1.1 Field Sampling and Measurement Data

The WSPU field sampler is responsible to ensure the field sampling and measurement information is documented in field logbooks, photographs, and chain of custody forms. The records will be stored at the WSPU office and to be reviewed by the WSPU On-Call Engineer/QA Officer.

4.1.2 Laboratory Data

The laboratory is responsible for its own internal data review and verification prior to submitting the associated data results package to the WSPU. Once the laboratory data are received by the WSPU, the WSPU On-Call Engineer/QA Officer is responsible for further review and validation of each data package, including the narrative report, summary tables, and QC reports. The data will be recorded in the Dashboard and reported along with the monthly monitoring report. The WSPU On-Call Engineer/QA Officer is responsible for "flagging" any sample results based on poor or questionable data quality and evaluating whether the appropriate corrective action is needed. Questions to be considered during these quality checks include:

- Were correct methods used?
- Were holding times met?
- Were accuracy and precision within data quality objectives?
- Were reporting limits correct?
- Were lab qualifiers provided and explanations and corrective actions taken if there were anomalies in the data?
- Were records for each sampling event complete?

4.2 Verification and Validation Methods (EPA QA/R-5 D2)

The verification and validation methods are documented above in Section 4.1.

4.3 Reconciliation with User Requirements (EPA QA/R-5 D3)

The WSPU General Manager and On-Call Engineer/QA Officer will review the permit monitoring requirements on an annual basis. Problems with quality sampling and analysis will be discussed with EPA Region 10 Permitting Section Manager / Water Division Manager to ensure that permit requirements and QAP data quality objectives are met. Modifications to monitoring required by permit will require modifications to the approved QAP.

5. REFERENCES

U.S. Environmental Protection Agency, 1991. Office of Emergency and Remedial Response (OERR) Directive 9345.302, May.

U.S. Environmental Protection Agency, 2000. EPA Guidance for the Data Quality Objectives Process, EPA QA/G-4, EPA/600/R-96/005, August.

U.S. Environmental Protection Agency, 2001. EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5, EPA/240/B-01/003, March.

U.S. Environmental Protection Agency, 2002, EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5, EPA/240/R-02/009, December.

U.S. Environmental Protection Agency, 2002. EPA Guidance on Choosing a Sampling Design for Environmental Data Collection for Use in Developing a Quality Assurance Project Plan, QA/G-5sS, EPA/240/R-02/005, December.

U.S. Environmental Protection Agency, 2002. Guidance on Environmental Data Verification and Data Validation, EPA QA/G-8, EPA/240/R-02/004, November.