

City of Maupin Water Quality Permit Renewal and Updated Biosolids Management Plan

DEQ invites the public to provide written comment on the conditions of the City of Maupin's proposed water quality permit, known officially as a National Pollutant Discharge Elimination System (NPDES) permit and updated Biosolids Management Plan.

Summary

Subject to public review and comment, DEQ intends to renew the NPDES permit, which allows Maupin to discharge treated wastewater to the Deschutes River.

Where can I get more information?

Go to page three of this notice for the draft permit, review report and biosolids management plan or contact Jackie Ray:

Phone: 541-278-4605 or 800-304-3513

Fax: 541-278-0168

Email: ray.jackie@deq.state.or.us

How do I participate?

You may submit your comments by mail, fax or email to:

Jackie Ray, Permit Coordinator
800 SE Emigrant, #330
Pendleton, OR 97801

Fax: 541-278-0168

Email: ray.jackie@deq.state.or.us

All comments are due by 5 p.m., Friday, September 2, 2016. All comments will become part of the public record.

About the facility and the receiving water

The City of Maupin has applied to renew their NPDES permit for the City's wastewater treatment facility located at 816 Riverside Maupin OR 97037. DEQ last renewed this permit on November 9, 2011.

The City of Maupin owns and operates an activated sludge wastewater treatment facility which discharges treated effluent into the Deschutes River at river mile 50.02. The plant was constructed in 1979 and serves a resident population of approximately 500 people. The dry weather design flow is 0.1 MGD.

The Deschutes River exceeds water quality standards at Maupin for some parameters and is therefore deemed to be water quality-limited for those parameters. The category 5 (needing a TMDL) parameters are listed in Table 1 below.

Table 1: Water Quality Limited Parameters

Waterbody Name	River Mile	Parameter	Season
Deschutes River	46.4 to 99.8	Temperature	OCT. 15- MAY 15
Deschutes River	46.4 to 99.8	pH	Fall Winter Spring

There is currently no TMDL for this section of the Deschutes River. A new permit limit for pH is proposed for this renewal based on the 303(d) listing.

The facility does not hold any other permits from DEQ.

DEQ has taken no complaint-based or other enforcement action against this facility during the last permit cycle.

What types of pollutants does the permit regulate?

This permit sets conditions for how the facility deals with the following pollutants: chlorine residual, pH, *E. coli*, BOD, TSS and biosolids.

The facility treats wastewater solids to produce biosolids for beneficial reuse on agricultural lands located in Wasco County. Treatment processes are described in the biosolids management plan. The locations of beneficial use sites are described in the land application plan.

DEQ proposes to approve the City's Biosolids Management Plan which was updated in May 2016 and is available for public comment concurrent with the permit renewal.

How would the draft permit change the amount of pollution the facility is allowed to release?

The draft permit includes a new permit limit for pH during the fall, winter, spring time period.



State of Oregon
Department of
Environmental
Quality

Eastern Region

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www.oregon.gov/DEQ

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Please include your full name and mailing address so that we can remove you from our print mailing list.

Issued: July 29, 2016
By: Jackie Ray

All other limitations in the proposed permit are the same as the existing permit.

How did DEQ determine the proposed permit requirements?

DEQ evaluates types and amounts of pollutants and the water quality of the surface water or groundwater where the pollutants are proposed to be discharged, and determines permit requirements to ensure the proposed discharges will meet applicable statutes, rules, regulations and effluent guidelines of Oregon and the U.S. Environmental Protection Agency.

For this permit action, DEQ evaluated the City’s biosolids land application program and re-authorized the current land application site.

How does DEQ monitor compliance with the permit requirements?

This permit will require the facility to monitor pollutants discharged using approved monitoring practices and standards. DEQ reviews the facility’s discharge monitoring reports to check for compliance with permit limits.

What happens after the public comment period closes?

DEQ will hold a public hearing if DEQ receives written requests for a hearing during the public comment period from at least 10 people or from an organization representing at least 10 people.

DEQ will consider and respond to all comments received and may modify the proposed permit based on comments. DEQ gives equal weight to written and oral comments.

Accessibility information

DEQ is committed to accommodating people with disabilities. Please notify DEQ of any special physical or language accommodations or if you need information in large print, Braille or another format.

To make these arrangements, contact DEQ Communications in Portland, at 503-229-5696 or call toll-free in Oregon at 800-452-4011, ext. 5696; fax to 503-229-6762; or email deqinfo@deq.state.or.us.

People with hearing impairments may call 711.





**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT**

Oregon Department of Environmental Quality
Eastern Region-Bend Office
475 NE Bellevue, Suite 110
Telephone: 866-863-6668

Issued pursuant to ORS 468B.050 and The Federal Clean Water Act (The Clean Water Act)

ISSUED TO:

City of Maupin
P.O. Box 308
Maupin, OR 97037

SOURCES COVERED BY THIS PERMIT:

Type of Waste	Outfall Number	Outfall Location
Treated Wastewater	001	Deschutes River 45.180987/-121.081713 River Mile-50.02
Biosolids	002	45.17498056/ -121.1133333

FACILITY LOCATION:

816 Riverside
Maupin, OR 97037

Treatment System Class: Level II
Collection System Class: Level I

RECEIVING STREAM INFORMATION:

WRD Basin: Deschutes
USGS Sub-Basin: Lower Deschutes
Receiving Stream name: Deschutes
LLID: 1209151456389-50.02 D

County: Wasco

EPA REFERENCE NO.: OR-002260-8

Issued in response to Application No. 957340 received March 16, 2016. This permit is issued based on the land use findings in the permit record.

Don Butcher, Water Quality Permit Manager
Eastern Region

Signature Date

Effective Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to: 1) operate a wastewater collection, treatment, control and disposal system; and 2) discharge treated wastewater to waters of the state only from the authorized discharge point or points in Schedule A in conformance with the requirements, limits, and conditions set forth in this permit.

Unless specifically authorized by this permit, by another NPDES permit, or by Oregon statute or administrative rule, any other direct or indirect discharge of pollutants to waters of the state is prohibited.

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SCHEDULE A: WASTE DISCHARGE LIMITS

1. Outfall 001 – Permit Limits

a. BOD₅ and TSS

i. May 1 – October 31. During this time period the permittee must comply with the limits in the following table:

Table A1: BOD₅ and TSS Limits

Parameter	Average Effluent Concentrations, mg/L		Monthly Average lbs/day	Weekly Average lbs/day	Daily Maximum lbs
	Monthly	Weekly			
BOD ₅	20	30	17	25	34
TSS	20	30	17	25	34

ii. November 1 – April 30: During this time period the permittee must comply with the limits in the following table:

Table A1: BOD₅ and TSS Limits

Parameter	Average Effluent Concentrations, mg/L		Monthly Average lbs/day	Weekly Average lbs/day	Daily Maximum lbs
	Monthly	Weekly			
BOD ₅	30	45	25	38	50
TSS	30	45	25	38	50

iii. Additional information for the limits in Tables A1 and A2 above.

(A) Average dry weather design flow to the facility equals 0.1 MGD. Mass load limits are based on 0.1 MGD.

b. Additional Parameters.

Permittee must comply with the limits in the following table (year-round except as noted):

Table A2: Limits for Additional Parameters

Year-round (except as noted)	Limits
BOD ₅ and TSS Removal Efficiency	May not be less than 85% monthly average for BOD ₅ and TSS.
<i>E. coli</i> Bacteria (see Note a.)	Monthly log mean (same as geometric mean) may not exceed 126 Most Probable Number (MPN) organisms per 100 ml. No single sample may exceed 406 organisms per 100 ml.
pH (Fall, Winter, Spring)	May not be outside the range of 6.5 to 8.5 S.U.
pH (Summer)	May not be outside the range 6.0 to 8.5 S.U.
Chlorine, Total Residual	The monthly average effluent concentration limit is 0.4 mg/L. The daily maximum effluent concentration limit is 0.6 mg/L.
Notes: a. No single <i>E. coli</i> sample may exceed 406 MPN organisms per 100 mL; however, DEQ will not cite a violation of this limit if the permittee takes at least 5 consecutive re-samples at 4 hour intervals beginning within 28 hours after the original sample was taken and the geometric mean of the 5 re-samples is less than or equal to 126 <i>E. coli</i> MPN organisms/100 mL.	

2. Regulatory Mixing Zone

Pursuant to OAR 340-041-0053, the permittee is granted a regulatory mixing zone as described below:

The allowable mixing zone is that portion of the Deschutes River within a radius of 50 feet from the point of discharge. An initial zone of dilution (ZID) shall consist of a volume of the river within 5 feet of the end of the discharge pipe. Within this ZID, the permittee may exceed acute toxicity levels for chlorine and ammonia-nitrogen.

3. Groundwater Protection

The permittee may not conduct any activities that could cause an adverse impact on existing or potential beneficial uses of groundwater. All wastewater and process related residuals must be managed and disposed of in a manner that will prevent a violation of the Groundwater Quality Protection Rules (OAR Chapter 340, Division 40).

4. Biosolids

The permittee may land apply biosolids or provide biosolids for sale or distribution, subject to the following conditions:

- a. The permittee must manage biosolids in accordance with its DEQ-approved Biosolids Management Plan and Land Application Plan.
- b. Except when used for land reclamation and approved by DEQ biosolids must be applied at or below the agronomic rate required for maximum crop yield.
- c. The permittee must obtain written site authorization from DEQ for each land application site prior to land application (see Schedule D, Condition 6) and follow the site-specific management conditions in the DEQ-issued site authorization letter.
- d. Biosolids must meet one of the pathogen reduction standards under 40 CFR §503.32 and one of the vector attraction reduction standards under 40 CFR §503.33.
- e. Pollutants in biosolids may not exceed the ceiling concentrations shown in Table A4 below. Biosolids exceeding the pollutant concentrations in Table A4 must be applied at a rate that does not exceed the corresponding cumulative pollutant loading rates.

Table A4: Biosolids Limits

Pollutant	Ceiling concentrations ¹ (mg/kg)	Pollutant concentrations ¹ (mg/kg)	Cumulative pollutant loading rates ¹ (kg/ha)
Arsenic	75	41	41
Cadmium	85	39	39
Copper	4300	1500	1500
Lead	840	300	300
Mercury	57	17	17
Molybdenum	75	N/A	N/A
Nickel	420	420	420
Selenium	100	100	100
Zinc	7500	2800	2800

Note:

1. Biosolids pollutant limits are described in 40 CFR Part 503.13, which uses the terms *ceiling concentrations*, *pollutant concentrations*, and *cumulative pollutant loading rates*. Biosolids containing pollutants in excess of the ceiling concentrations may not be applied to the land. Biosolids containing pollutants in excess of the pollutant concentrations, but below the ceiling concentrations, may be applied to the land; however, the total quantity of biosolids applied may not exceed the cumulative pollutant loading rates.

SCHEDULE B: MINIMUM MONITORING AND REPORTING REQUIREMENTS

1. Monitoring and Reporting Protocols

- a. Laboratory Quality Assurance and Quality Control
 - i. Laboratory Quality Assurance and Quality Control (QA/QC) – The permittee must develop and implement a written QA/QC program that conforms to the requirements of 40 CFR Part 136.7.
 - ii. If QA/QC requirements are not met for any analysis, the permittee must re-analyze the sample. If the sample cannot be re-analyzed, the permittee must re-sample and analyze at the earliest opportunity. If a sample does not meet QA/QC requirements, the permittee must include the result in the discharge monitoring report (DMR) along with a notation (data qualifier) explaining how it does not meet QA/QC requirements, but the permittee must not use the result in any calculation required by the permit unless authorized by the DEQ permit writer or inspector.
- b. Reporting Procedures
 - i. Significant Figures
Mass load limits all have two significant figures unless otherwise noted.
 - ii. Calculating Mass Loads
The permittee must calculate mass loads on each day the parameter is monitored using the following equation:
$$\text{Flow (in MGD)} \times \text{Concentration (in mg/L)} \times 8.34 = \text{Pounds per day}$$

2. Influent Monitoring and Reporting Requirements

The permittee must monitor influent just prior to the barscreen and grinder and report results as listed below.

Table B1: Influent Monitoring

Item or Parameter	Time Period	Minimum Frequency ^a	Sample Type/Required Action	Report
Total Flow (MGD)	Year-round	Daily	Measurement	1. Monthly max (MGD) 2. Monthly average (MGD) 3. Monthly min (MGD)
Flow Meter Calibration	Year-round	2/Annually	Verification	Report that calibration was completed.
BOD ₅ and TSS (mg/L)	Year-round	2/Month	24-hour composite	1. Daily values 2. Monthly average 3. Weekly averages 4. Max weekly average 5. Monthly max
pH (S.U.)	Year-round	2/Week	Grab	1. Daily values 2. Maximum daily value 3. Minimum daily value
Hauled Waste received (septage, chemical toilet, landfill leachate, etc., as described in Schedule D)	Year-round	Each Occurrence	Documentation	Quantity and type

3. Effluent Monitoring and Reporting Requirements

The permittee must monitor final effluent for Outfall 001 after the forth baffle in the chlorine contact basin 6 to 8 inches directly in front of final effluent discharge pipe and report results as listed below.

Table B2: Effluent Monitoring

Item or Parameter	Time Period	Minimum Frequency ^a	Sample Type/Required Action	Report
BOD ₅ and TSS (mg/L)	Year-round	1 per 2 Weeks	24- hr composite	1. Daily values 2. Monthly average 3. Weekly averages 4. Maximum weekly average 5. Maximum daily value
BOD ₅ and TSS Mass Load (lb/day)	Year-round	1 per 2 Weeks	Calculation	1. Daily values 2. Monthly average 3. Weekly averages 4. Maximum weekly average 5. Maximum daily value
BOD ₅ and TSS Percent Removal (%) (see Note a. for how to calculate)	Year-round	Monthly	Calculation	Monthly average minimum percent value
pH (S.U.)	Year-round	2/Week	Grab	1. Daily values 2. Maximum daily value 3. Minimum daily value
Temperature (°C)	Year-round	2/Week	Grab	Maximum daily value
<i>E. coli</i> #/100 mL	Year-round	1/Week	Grab	1. Daily values 2. Maximum daily value 3. Monthly geometric mean 4. Re-sample geometric mean
Chlorine Used (lbs/day)	Year-round	Daily	Measurement	Daily values
Chlorine, Total Residual (mg/L)	Year-round	Daily	Grab	1. Average Monthly value 2. Maximum Daily value
Ammonia (mg/L)	Year-round	Quarterly	Composite	Maximum value
Alkalinity	Year-round	1/Month	Grab	Maximum value
Hardness (for effluent characterization purposes)	Year-round	1/Month	Grab	Maximum value
Notes:				
a. Percent removal is to be calculated on a monthly basis. Percent removal = ((BOD _{inf} – BOD _{eff})/BOD _{inf}) x 100, where BOD _{inf} is the monthly average influent concentration in mg/L and BOD _{eff} is the monthly average effluent concentration in mg/L.				

4. Biosolids Monitoring Requirements

The permittee must monitor biosolids land applied or produced for sale or distribution as listed in the tables below. The samples must be representative of the quality and quantity of biosolids generated and must have undergone the same treatment process used to prepare the biosolids.

Table B3: Biosolids Monitoring

Item or Parameter	Minimum Frequency	Sample Type
Nutrient and conventional parameters (% dry weight unless otherwise specified): 1) Total Kjeldahl Nitrogen (TKN) 2) Nitrate-Nitrogen (NO ₃ -N) 3) Ammonium Nitrogen (NH ₄ -N) 4) Total Phosphorus (P) 5) Potassium (K) 6) pH (S.U.) 7) Total Solids 8) Volatile Solids	As described in the DEQ-approved Biosolids Management Plan, but not less than the frequency in Table B4	As described in the DEQ-approved Biosolids Management Plan
Pollutants: As, Cd, Cu, Hg, Mo, Pb, Ni, Se, Zn, mg/kg dry weight	As described in the DEQ-approved Biosolids Management Plan, but not less than the frequency in Table B4	As described in the DEQ-approved Biosolids Management Plan
Pathogen reduction	As described in the DEQ-approved Biosolids Management Plan, but not less than the frequency in Table B4	As described in the DEQ-approved Biosolids Management Plan
Vector attraction reduction	As described in the DEQ-approved Biosolids Management Plan, but not less than the frequency in Table B4	As described in the DEQ-approved Biosolids Management Plan
Record of biosolids land application: date, quantity, location.	Each event	Record the date, quantity, and location of biosolids land applied on site location map or equivalent electronic system, such as GIS.

Table B4: Biosolids Minimum Monitoring Frequency

Quantity of biosolids land applied or produced for sale or distribution per calendar year		Minimum Sampling Frequency
(dry metric tons)	(dry U.S. tons)	
Less than 290	Less than 320	Once per year
290 to 1,500	320 to 1,653	Once per quarter (4x/year)
1500 to 15,000	1,653 to 16,535	Once per 60 days (6x/year)
15,000 or more	16,535 or more	Once per month (12x/year)

5. Permit Application Monitoring Requirements

The renewal application for this permit requires 3 scans for the parameters listed in the table below. This data may be collected up to 4.5 years in advance of submittal of the renewal application. DEQ recognizes that some facilities may find it difficult to collect 3 scans that are representative of the seasonal variation in the discharge from each outfall within the permit renewal timeframe, and is therefore requiring that this monitoring be completed as part of compliance with this permit.

Table B5: Effluent Monitoring Required for NPDES Permit Application

(a minimum of 3 scans required)

Parameter
Dissolved Oxygen
Total Kjeldahl Nitrogen (TKN)
Nitrate Plus Nitrite Nitrogen
Oil and Grease

6. Outfall Inspection

During the year 2019 (3rd year of permit issuance), the permittee must inspect outfall 001 and submit a written report to DEQ within the same year regarding the integrity of the outfall. The report should include a description of the outfall as originally constructed, the current condition of the outfall and a discussion of any repairs that are necessary to return the outfall to its originally designed condition.

7. Minimum Reporting Requirements

The permittee must report monitoring results as listed below:

Table B6: Reporting Requirements and Due Dates

Reporting Requirement	Frequency	Due Date (see note a.)	Report Form (unless otherwise specified in writing)	Submit To:
1. Table B1: Influent Monitoring 2. Table B2: Effluent Monitoring	Monthly	15 th day of the month following data collection	DEQ-approved discharge monitoring report (DMR) form, electronic and hardcopy . (See Notes b.through d.)	DEQ Regional Office
1. Biosolids land application annual report describing solids handling activities for the previous year and includes the information described in OAR 340-050-0035(6)(a)-(e). 2. Table B5: Biosolids Monitoring	Annually	February 19	2 hard copies, electronic copy	One each to: <ul style="list-style-type: none"> • DEQ Regional Office • DEQ Biosolids Program Coordinator
Inflow and infiltration report (see Schedule D, Section 1 for description)	Annually	February 1	1 hard copy and electronic copy in DEQ-approved format	DEQ Regional Office
Significant Industrial User Survey (see Schedule D, Section 10 for description)	Every 5 years	October 30, 2017	1 hard copy and electronic copy in DEQ-approved format	DEQ Pretreatment Coordinator
Outfall Inspection Report (see Schedule B, Section 6 for description)	Every 5 years	Within 36 months of permit effective date	1 hard copy and electronic copy in DEQ-approved format	DEQ Regional Office
Notes: a. For submittals that are provided to DEQ by mail, the postmarked date must not be later than the due date. b. Name, certificate classification, and grade level of each responsible principal operator as well as identification of each system classification must be included on DMRs. Font size must not be less than 10 pt. c. Equipment breakdowns and bypass events must be noted on DMRs. d. DEQ anticipates implementing an electronic reporting system for DMRs. Once the electronic reporting system is in place, the permittee is required to submit DMRs electronically. Until the electronic reporting system is in place, the permittee must submit a hard copy of the DMR.				

SCHEDULE C: COMPLIANCE SCHEDULE

No compliance schedule is included in this permit.

DRAFT

SCHEDULE D: SPECIAL CONDITIONS

1. Inflow and Infiltration

The permittee must submit to DEQ an annual inflow and infiltration report as directed in Schedule B. The report must include the following:

- a. An assessment of the facility's I/I issues based on a comparison of summer and winter flows to the plant.
- b. Details of activities performed in the previous year to identify and reduce inflow and infiltration.
- c. Details of activities planned for the following year to identify and reduce inflow and infiltration.
- d. A summary of sanitary sewer overflows that occurred during the previous year. This should include the following: date of the SSO, location, estimated volume, cause, followup actions and if performed, the results of ambient monitoring.

2. Emergency Response and Public Notification Plan

The permittee must develop and maintain an Emergency Response and Public Notification Plan (the Plan) per Schedule F, Section B, and Conditions 7 & 8. The permittee must develop the plan within six months of permit issuance and update the Plan annually to ensure that telephone and email contact information for applicable public agencies (permit writer should include specific contacts here as needed) are current and accurate. An updated copy of the plan must be kept on file at the wastewater treatment facility for DEQ review. The latest plan revision date must be listed on the Plan cover along with the reviewer's initials or signature.

3. Exempt Wastewater Reuse at the Treatment System

The permittee is exempt from the recycled water use requirements in OAR 340-055 when recycled water is used for landscape irrigation or in-plant processes at the wastewater treatment system and all of the following conditions are met:

- a. The recycled water is an oxidized and disinfected wastewater.
- b. The recycled water is used at the wastewater treatment system site where it is generated or at an auxiliary wastewater or sludge treatment facility that is subject to the same NPDES or WPCF permit as the wastewater treatment system. Land that is contiguous to the property upon which the treatment system is located is considered to be part of the wastewater treatment system site if under the same ownership.
- c. Spray or drift or both from the use does not occur off the site.
- d. Public access to the site is restricted.

4. Biosolids Management Plan

The permittee must maintain a Biosolids Management Plan meeting the requirements in OAR 340-050-0031(5). The permittee must keep the plan updated and submit substantial modifications to an existing plan to DEQ for approval at least 60 days prior to making the proposed changes. Conditions in the plan are enforceable requirements under this permit.

5. Land Application Plan

a. Plan Contents

The permittee must maintain a land application plan that contains the information listed below. The land application plan may be incorporated into the Biosolids Management Plan.

- i. All known DEQ-approved sites that will receive biosolids while the permit is effective.
- ii. The geographic location, identified by county or smaller unit, of new sites which are not specifically listed at the time of permit application.
- iii. Criteria that will be used in the selection of new sites.
- iv. Management practices that will be implemented at new sites authorized by the DEQ.
- v. Procedures for notifying property owners adjacent to proposed sites of the proposed activity prior to the start of application.

b. Site Authorization

The permittee must obtain written authorization from DEQ for each land application site prior to its use. Conditions in site authorizations are enforceable requirements under this permit. The permittee may land apply biosolids to a DEQ-approved site only as described in the site authorization, while this permit is effective and with the written approval of the property owner. DEQ may modify or revoke a site authorization following the procedures for a permit modification described in OAR 340-045-0055.

c. Public Participation

- i. No DEQ-initiated public notice is required for continued use of sites identified in the DEQ-approved land application plan.
- ii. For new sites that fail to meet the site selection criteria in the land application plan or that are deemed by DEQ to be sensitive with respect to residential housing, runoff potential, or threat to groundwater, DEQ will provide an opportunity for public comment as directed by OAR 340-050-0015(10).
- iii. For all other new sites, the permittee must provide for public participation following procedures in its DEQ-approved land application plan.

6. Wastewater Solids Transfers

- a. *Within state.* The permittee may transfer wastewater solids including Class A and Class B biosolids, to another facility permitted to process or dispose of wastewater solids, including but not limited to: another wastewater treatment facility, landfill, or incinerator. The permittee must monitor, report, and dispose of solids as required under the permit of the receiving facility.
- b. *Out of state.* If wastewater solids, including Class A and Class B biosolids, are transferred out of state for use or disposal, the permittee must obtain written authorization from DEQ, meet Oregon requirements for the use or disposal of wastewater solids, notify in writing the receiving state of the proposed use or disposal of wastewater solids, and satisfy the requirements of the receiving state.

7. Hauled Waste Control

The permittee may accept hauled wastes at discharge points designated by the POTW after receiving written DEQ approval of a hauled waste control plan. Hauled wastes may include wastewater solids from another wastewater treatment facility, septage, grease trap wastes, portable and chemical toilet wastes, landfill leachate, groundwater remediation wastewaters and commercial/industrial wastewaters.

8. Operator Certification

- a. Definitions
 - i. "Supervise" means to have full and active responsibility for the daily on site technical operation of a wastewater treatment system or wastewater collection system.
 - ii. "Supervisor" or "designated operator", means the operator delegated authority by the permittee for establishing and executing the specific practice and procedures for operating the wastewater treatment system or wastewater collection system in accordance with the policies of the owner of the system and any permit requirements.
 - iii. "Shift Supervisor" means the operator delegated authority by the permittee for executing the specific practice and procedures for operating the wastewater treatment system or wastewater collection system when the system is operated on more than one daily shift.
 - iv. "System" includes both the collection system and the treatment systems.

- b. The permittee must comply with OAR Chapter 340, Division 49, "Regulations Pertaining to Certification of Wastewater System Operator Personnel" and designate a supervisor whose certification corresponds with the classification of the collection and/or treatment system as specified on p. 1 of this permit.
- c. The permittee must have its system supervised full-time by one or more operators who hold a valid certificate for the type of wastewater treatment or wastewater collection system, and at a grade equal to or greater than the wastewater system's classification as specified on p. 1 one of this permit.
- d. The permittee's wastewater system may not be without the designated supervisor for more than 30 days. During this period, there must be another person available to supervise who is certified at no more than one grade lower than the classification of the wastewater system. The permittee must delegate authority to this operator to supervise the operation of the system.
- e. If the wastewater system has more than one daily shift, the permittee must have another properly certified operator available to supervise operation of the system. Each shift supervisor must be certified at no more than one grade lower than the system classification.
- f. The permittee is not required to have a supervisor on site at all times; however, the supervisor must be available to the permittee and operator at all times.
- g. The permittee must notify DEQ in writing of the name of the system supervisor. The permittee may replace or re-designate the system supervisor with another properly certified operator at any time and must notify DEQ in writing within 30 days of replacement or re-designation of operator in charge. As of this writing, the notice of replacement or re-designation must be sent to Water Quality Division, Operator Certification Program, 700 NE Multnomah St, Suite 600, Portland, OR 97232-4100. This address may be updated in writing by DEQ during the term of this permit.
- h. When compliance with item (e) of this section is not possible or practicable because the system supervisor is not available or the position is vacated unexpectedly, and another certified operator is not qualified to assume supervisory responsibility, the Director may grant a time extension for compliance with the requirements in response to a written request from the system owner. The Director will not grant an extension longer than 120 days unless the system owner documents the existence of extraordinary circumstances.

9. Industrial User Survey

The permittee must conduct an industrial user survey to determine the presence of any industrial users discharging wastewaters subject to pretreatment and submit a report on the findings to DEQ within 24 months of the permit effective date. The purpose of the survey is to identify whether there are any categorical industrial users discharging to the POTW, and ensure regulatory oversight of these discharges to state waters. If the POTW has already completed a baseline IU Survey the results of this survey are to be provided to DEQ within two months of the permit effective date.

Guidance on conducting IU Surveys can be found at
<http://www.deq.state.or.us/wq/pretreatment/docs/guidance/IUSurveyGuidance.pdf>

Once an initial baseline IU Survey is conducted it is to be maintained by the POTW and made available for inspection by DEQ. Every 5 years from the effective date of the permit, the permittee must submit an updated IU survey.

SCHEDULE F
NPDES GENERAL CONDITIONS – DOMESTIC FACILITIES
October 1, 2015 Version

SECTION A. STANDARD CONDITIONS

A1. Duty to Comply with Permit

The permittee must comply with all conditions of this permit. Failure to comply with any permit condition is a violation of Oregon Revised Statutes (ORS) 468B.025 and the federal Clean Water Act and is grounds for an enforcement action. Failure to comply is also grounds for DEQ to terminate, modify and reissue, revoke, or deny renewal of a permit.

A2. Penalties for Water Pollution and Permit Condition Violations

The permit is enforceable by DEQ or EPA, and in some circumstances also by third-parties under the citizen suit provisions of 33 USC § 1365. DEQ enforcement is generally based on provisions of state statutes and Environmental Quality Commission (EQC) rules, and EPA enforcement is generally based on provisions of federal statutes and EPA regulations.

ORS 468.140 allows DEQ to impose civil penalties up to \$25,000 per day for violation of a term, condition, or requirement of a permit. The federal Clean Water Act provides for civil penalties not to exceed \$37,500 and administrative penalties not to exceed \$16,000 per day for each violation of any condition or limitation of this permit.

Under ORS 468.943, unlawful water pollution in the second degree, is a Class A misdemeanor and is punishable by a fine of up to \$25,000, imprisonment for not more than one year, or both. Each day on which a violation occurs or continues is a separately punishable offense. The federal Clean Water Act provides for criminal penalties of not more than \$50,000 per day of violation, or imprisonment of not more than 2 years, or both for second or subsequent negligent violations of this permit.

Under ORS 468.946, unlawful water pollution in the first degree is a Class B felony and is punishable by a fine of up to \$250,000, imprisonment for not more than 10 years, or both. The federal Clean Water Act provides for criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment of not more than 3 years, or both for knowing violations of the permit. In the case of a second or subsequent conviction for knowing violation, a person is subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than 6 years, or both.

A3. Duty to Mitigate

The permittee must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit. In addition, upon request of DEQ, the permittee must correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

A4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application must be submitted at least 180 days before the expiration date of this permit.

DEQ may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

A5. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

- a. Violation of any term, condition, or requirement of this permit, a rule, or a statute.
- b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts.
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- d. The permittee is identified as a Designated Management Agency or allocated a wasteload under a total maximum daily load (TMDL).
- e. New information or regulations.
- f. Modification of compliance schedules.
- g. Requirements of permit reopener conditions
- h. Correction of technical mistakes made in determining permit conditions.
- i. Determination that the permitted activity endangers human health or the environment.
- j. Other causes as specified in 40 CFR §§ 122.62, 122.64, and 124.5.
- k. For communities with combined sewer overflows (CSOs):
 - (1) To comply with any state or federal law regulation for CSOs that is adopted or promulgated subsequent to the effective date of this permit.
 - (2) If new information that was not available at the time of permit issuance indicates that CSO controls imposed under this permit have failed to ensure attainment of water quality standards, including protection of designated uses.
 - (3) Resulting from implementation of the permittee's long-term control plan and/or permit conditions related to CSOs.

The filing of a request by the permittee for a permit modification, revocation or reissuance, termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

A6. Toxic Pollutants

The permittee must comply with any applicable effluent standards or prohibitions established under Oregon Administrative Rule (OAR) 340-041-0033 and section 307(a) of the federal Clean Water Act for toxic pollutants, and with standards for sewage sludge use or disposal established under section 405(d) of the federal Clean Water Act, within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

A7. Property Rights and Other Legal Requirements

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege, or authorize any injury to persons or property or invasion of any other private rights, or any infringement of federal, tribal, state, or local laws or regulations.

A8. Permit References

Except for effluent standards or prohibitions established under section 307(a) of the federal Clean Water Act and OAR 340-041-0033 for toxic pollutants, and standards for sewage sludge use or disposal established under section 405(d) of the federal Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

A9. Permit Fees

The permittee must pay the fees required by OAR.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

B1. Proper Operation and Maintenance

The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that 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 that are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

B2. Need to Halt or Reduce Activity Not a Defense

For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permittee must, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It is not a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

B3. Bypass of Treatment Facilities

a. Definitions

- (1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs b and c of this section.
- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Prohibition of bypass.

- (1) Bypass is prohibited and DEQ may take enforcement action against a permittee for bypass unless:
 - i. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - ii. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventative maintenance; and
 - iii. The permittee submitted notices and requests as required under General Condition B3.c.
- (2) DEQ may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, if DEQ determines that it will meet the three conditions listed above in General Condition B3.b.(1).

c. Notice and request for bypass.

- (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, a written notice must be submitted to DEQ at least ten days before the date of the bypass.
- (2) Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required in General Condition D5.

B4. Upset

- a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of General Condition B4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (1) An upset occurred and that the permittee can identify the causes(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The permittee submitted notice of the upset as required in General Condition D5, hereof (24-hour notice); and
 - (4) The permittee complied with any remedial measures required under General Condition A3 hereof.
- d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

B5. Treatment of Single Operational Upset

For purposes of this permit, a single operational upset that leads to simultaneous violations of more than one pollutant parameter will be treated as a single violation. A single operational upset is an exceptional incident that causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one federal Clean Water Act effluent discharge pollutant parameter. A single operational upset does not include federal Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational upset is a violation.

B6. Overflows from Wastewater Conveyance Systems and Associated Pump Stations

- a. Definition. "Overflow" means any spill, release or diversion of sewage including:
 - (1) An overflow that results in a discharge to waters of the United States; and
 - (2) 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), even if that overflow does not reach waters of the United States.
- b. Reporting required. All overflows must be reported orally to DEQ within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D5.

B7. Public Notification of Effluent Violation or Overflow

If effluent limitations specified in this permit are exceeded or an overflow occurs that threatens public health, the permittee must take such steps as are necessary to alert the public, health agencies and other affected entities (for example, public water systems) about the extent and nature of the discharge in accordance with the notification procedures developed under General Condition B8. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

B8. Emergency Response and Public Notification Plan

The permittee must develop and implement an emergency response and public notification plan that identifies measures to protect public health from overflows, bypasses, or upsets that may endanger public health. At a minimum the plan must include mechanisms to:

- a. Ensure that the permittee is aware (to the greatest extent possible) of such events;
- b. Ensure notification of appropriate personnel and ensure that they are immediately dispatched for investigation and response;
- c. Ensure immediate notification to the public, health agencies, and other affected public entities (including public water systems). The overflow response plan must identify the public health and other officials who will receive immediate notification;
- d. Ensure that appropriate personnel are aware of and follow the plan and are appropriately trained;
- e. Provide emergency operations; and
- f. Ensure that DEQ is notified of the public notification steps taken.

B9. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must be disposed of in such a manner as to prevent any pollutant from such materials from entering waters of the state, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

C1. Representative Sampling

Sampling and measurements taken as required herein must be representative of the volume and nature of the monitored discharge. All samples must be taken at the monitoring points specified in this permit, and must be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points must not be changed without notification to and the approval of DEQ. Samples must be collected in accordance with requirements in 40 CFR part 122.21 and 40 CFR part 403 Appendix E.

C2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices must be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices must be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected must be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.

C3. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR part 136 or, in the case of sludge (biosolids) use and disposal, approved under 40 CFR part 503 unless other test procedures have been specified in this permit.

For monitoring of recycled water with no discharge to waters of the state, monitoring must be conducted according to test procedures approved under 40 CFR part 136 or as specified in the most recent edition of Standard Methods for the Examination of Water and Wastewater unless other test procedures have been specified in this permit or approved in writing by DEQ.

C4. Penalties for Tampering

The federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit may, upon conviction,

be punished by a fine of not more than \$10,000 per violation, imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or both.

C5. Reporting of Monitoring Results

Monitoring results must be summarized each month on a discharge monitoring report form approved by DEQ. The reports must be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

C6. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR part 136 or, in the case of sludge (biosolids) use and disposal, approved under 40 CFR part 503, or as specified in this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the discharge monitoring report. Such increased frequency must also be indicated. For a pollutant parameter that may be sampled more than once per day (for example, total residual chlorine), only the average daily value must be recorded unless otherwise specified in this permit.

C7. Averaging of Measurements

Calculations for all limitations that require averaging of measurements must utilize an arithmetic mean, except for bacteria which must be averaged as specified in this permit.

C8. Retention of Records

Records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities must be retained for a period of at least 5 years (or longer as required by 40 CFR part 503). Records of all monitoring information including all calibration and maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit and records of all data used to complete the application for this permit must be retained for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of DEQ at any time.

C9. Records Contents

Records of monitoring information must include:

- a. The date, exact place, time, and methods of sampling or measurements;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such analyses.

C10. Inspection and Entry

The permittee must allow DEQ or EPA upon the presentation of credentials to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

- d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

C11. Confidentiality of Information

Any information relating to this permit that is submitted to or obtained by DEQ is available to the public unless classified as confidential by the Director of DEQ under ORS 468.095. The permittee may request that information be classified as confidential if it is a trade secret as defined by that statute. The name and address of the permittee, permit applications, permits, effluent data, and information required by NPDES application forms under 40 CFR § 122.21 are not classified as confidential [40 CFR § 122.7(b)].

SECTION D. REPORTING REQUIREMENTS

D1. Planned Changes

The permittee must comply with OAR 340-052, "Review of Plans and Specifications" and 40 CFR § 122.41(l)(1). Except where exempted under OAR 340-052, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers may be commenced until the plans and specifications are submitted to and approved by DEQ. The permittee must give notice to DEQ as soon as possible of any planned physical alternations or additions to the permitted facility.

D2. Anticipated Noncompliance

The permittee must give advance notice to DEQ of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

D3. Transfers

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and EQC rules. No permit may be transferred to a third party without prior written approval from DEQ. DEQ may require modification, revocation, and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under 40 CFR § 122.61. The permittee must notify DEQ when a transfer of property interest takes place.

D4. Compliance Schedule

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date. Any reports of noncompliance must include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

D5. Twenty-Four Hour Reporting

The permittee must report any noncompliance that may endanger health or the environment. Any information must be provided orally (by telephone) to the DEQ regional office or Oregon Emergency Response System (1-800-452-0311) as specified below within 24 hours from the time the permittee becomes aware of the circumstances.

a. Overflows.

(1) Oral Reporting within 24 hours.

- i. For overflows other than basement backups, the following information must be reported to the Oregon Emergency Response System (OERS) at 1-800-452-0311. For basement backups, this information should be reported directly to the DEQ regional office.
 - (a) The location of the overflow;
 - (b) The receiving water (if there is one);
 - (c) An estimate of the volume of the overflow;

- (d) A description of the sewer system component from which the release occurred (for example, manhole, constructed overflow pipe, crack in pipe); and
 - (e) The estimated date and time when the overflow began and stopped or will be stopped.
 - ii. The following information must be reported to the DEQ regional office within 24 hours, or during normal business hours, whichever is earlier:
 - (a) The OERS incident number (if applicable); and
 - (b) A brief description of the event.
 - (2) Written reporting postmarked within 5 days.
 - i. The following information must be provided in writing to the DEQ regional office within 5 days of the time the permittee becomes aware of the overflow:
 - (a) The OERS incident number (if applicable);
 - (b) The cause or suspected cause of the overflow;
 - (c) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;
 - (d) Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps; and
 - (e) For storm-related overflows, the rainfall intensity (inches/hour) and duration of the storm associated with the overflow.
 - DEQ may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.
 - b. Other instances of noncompliance.
 - (1) The following instances of noncompliance must be reported:
 - i. Any unanticipated bypass that exceeds any effluent limitation in this permit;
 - ii. Any upset that exceeds any effluent limitation in this permit;
 - iii. Violation of maximum daily discharge limitation for any of the pollutants listed by DEQ in this permit; and
 - iv. Any noncompliance that may endanger human health or the environment.
 - (2) During normal business hours, the DEQ regional office must be called. Outside of normal business hours, DEQ must be contacted at 1-800-452-0311 (Oregon Emergency Response System).
 - (3) A written submission must be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission must contain:
 - i. A description of the noncompliance and its cause;
 - ii. The period of noncompliance, including exact dates and times;
 - iii. The estimated time noncompliance is expected to continue if it has not been corrected;
 - iv. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
 - v. Public notification steps taken, pursuant to General Condition B7.
 - (4) DEQ may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

D6. Other Noncompliance

The permittee must report all instances of noncompliance not reported under General Condition D4 or D5 at the time monitoring reports are submitted. The reports 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 reoccurrence of the noncompliance.

D7. Duty to Provide Information

The permittee must furnish to DEQ within a reasonable time any information that DEQ may request to determine compliance with the permit or to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit. The permittee must also furnish to DEQ, upon request, copies of records required to be kept by this permit.

Other Information: When the permittee becomes aware that it has failed to submit any relevant facts or has submitted incorrect information in a permit application or any report to DEQ, it must promptly submit such facts or information.

D8. Signatory Requirements

All applications, reports or information submitted to DEQ must be signed and certified in accordance with 40 CFR § 122.22.

D9. Falsification of Information

Under ORS 468.953, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, is subject to a Class C felony punishable by a fine not to exceed \$125,000 per violation and up to 5 years in prison per ORS chapter 161. Additionally, according to 40 CFR § 122.41(k)(2), any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit including monitoring reports or reports of compliance or non-compliance will, upon conviction, be punished by a federal civil penalty not to exceed \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

D10. Changes to Indirect Dischargers

The permittee must provide adequate notice to DEQ of the following:

- a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the federal Clean Water Act if it were directly discharging those pollutants and;
- b. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
- c. For the purposes of this paragraph, adequate notice must include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

SECTION E. DEFINITIONS

- E1. *BOD* or *BOD*₅ means five-day biochemical oxygen demand.
- E2. *CBOD* or *CBOD*₅ means five-day carbonaceous biochemical oxygen demand.
- E3. *TSS* means total suspended solids.
- E4. *Bacteria* means but is not limited to fecal coliform bacteria, total coliform bacteria, *Escherichia coli* (*E. coli*) bacteria, and *Enterococcus* bacteria.
- E5. *FC* means fecal coliform bacteria.
- E6. *Total residual chlorine* means combined chlorine forms plus free residual chlorine
- E7. *Technology based permit effluent limitations* means technology-based treatment requirements as defined in 40 CFR § 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-041.
- E8. *mg/l* means milligrams per liter.
- E9. *µg/l* means microgram per liter.
- E10. *kg* means kilograms.

- E11. m^3/d means cubic meters per day.
- E12. *MGD* means million gallons per day.
- E13. *Average monthly effluent limitation* as defined at 40 CFR § 122.2 means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
- E14. *Average weekly effluent limitation* as defined at 40 CFR § 122.2 means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.
- E15. *Daily discharge* as defined at 40 CFR § 122.2 means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge must be calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge must be calculated as the average measurement of the pollutant over the day.
- E16. *24-hour composite sample* means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.
- E17. *Grab sample* means an individual discrete sample collected over a period of time not to exceed 15 minutes.
- E18. *Quarter* means January through March, April through June, July through September, or October through December.
- E19. *Month* means calendar month.
- E20. *Week* means a calendar week of Sunday through Saturday.
- E21. *POTW* means a publicly-owned treatment works.



State of Oregon
Department of
Environmental
Quality

Permit Evaluation Report

Oregon Department of Environmental Quality
Eastern Region Office
475 NE Bellevue Dr. Suite 110
Bend, OR 97701

Contact: Jayne West

Permittee:	City of Maupin P.O. Box 308 Maupin, OR 97037
Existing Permit Information:	File Number: 53633 Permit Number: 102274 Expiration Date: 10/31/16 EPA Reference Number: OR-002260-8
Source Contact:	Joy Ramirez, 541-395-2684 Wastewater Operator
Facility Location:	816 Riverside Maupin, OR 97037 Wasco County
LLID:	1209151456389
Receiving Stream/Basin:	Deschutes River/ Lower Deschutes
Proposed Action:	Renew Permit Application Number: 957340 Date Received: 3/16/16
Source Category:	NPDES Minor – Domestic
Sources Covered:	Domestic Wastewater
Permit Type:	NPDES Domestic
Permit Writer:	Jayne West Water Quality Permit Specialist/Eastern Region/Bend 3/16/2016

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1.0 Introduction

The Department of Environmental Quality (DEQ) proposes to renew the National Pollutant Discharge Elimination System (NPDES) wastewater permit for City of Maupin located at 816 Riverside Maupin, OR 97037. This permit allows and regulates the discharge of treated wastewater to the Deschutes River. Lastly, the permit allows the City of Maupin to beneficially reuse wastewater solids.

The purpose of this permit evaluation report is to explain and provide justification for the permit.

The Federal Water Pollution Control Act of 1972 (also known as the Clean Water Act) and its subsequent amendments, as well as Oregon Revised Statutes (ORS 468B.050), require a NPDES permit for the discharge of wastewater to surface waters. This proposed permit action by DEQ complies with both federal and state requirements.

2.0 Permit History

2.1 Issuance, Renewal and Modifications

The current NPDES Permit will expired on 10/31/16. DEQ received renewal application number 957340 from the City of Maupin on 3/16/16. Because the permittee submitted a renewal application to DEQ in a timely manner, the current permit will not expire until DEQ takes final action on the renewal application as per OAR 340-045-0040.

2.2 Compliance History

This facility was last inspected February 24, 2016, and was found to be operating in compliance. The monitoring reports for this facility were reviewed for the period since the current permit was issued, including any actions taken relating to effluent violations. The permit compliance conditions were reviewed and all inspection reports for the same period were reviewed. No Warning Letters or Pre-Enforcement Notices were issued to the permittee during the term of the existing permit.

3.0 Proposed Revisions to Permit

The proposed permit contains the following substantive changes from the 2010 permit:

- Schedule A – seasonal limits for pH have been included in the proposed permit.
- Schedule B – new monitoring requirements have been added to this proposed permit.
- Schedule C – there is no compliance schedule in this permit.
- Schedule D – several new conditions have been included in this section.

4.0 Facility description

4.1 Wastewater Facilities Description

The City of Maupin owns and operates an activated sludge wastewater treatment facility which discharges treated effluent into the Deschutes River at river mile 50.02 (see Figure 1). The plant was constructed in 1979 and serves a resident population of approximately 500 residents. The dry weather design flow is 0.1 MGD. Summertime monthly average flows are approximately 0.08 MGD. Wintertime flows are approximately 0.06 MGD. Higher summer flows are caused by a high influx of

river rafters. Effluent is discharged via an 8 inch pipe which is oriented approximately 90° to the flow of the river and extends out into the river about 12-15 feet. The depth of the river at the outfall locations is approximately 3 feet.

Raw sewage enters the plant at the headworks structure which is equipped with a grit chamber and comminutor. A bypass channel equipped with a bar screen, passes through a Parshall flume and into the aeration basin where it is continuously mixed with air supplied by two 10 hp rotary positive displacement blowers. Total aeration volume is 99,908 gallons and has an average detention time of 28 hours in the summer and 43 hours in the winter. The BOD loading is approximately 90-120 lbs per day. After aeration the wastewater flows into the clarifier with a volume of 18,700 gallons and a detention time of 8 hours. The effluent overflows from the clarifier and gravity flows to the chlorine contact basin. Waste sludge is treated in an aerobic digester. The aerobically digested sludge is discharged to drying beds for final treatment in preparation for land application. Biosolids are land applied once every two to three years.



Figure 1: Facility Location-River Mile 50.02

4.2 Outfalls

Treated wastewater from the City of Maupin is discharged to the Deschutes River at river mile 50.02 from Outfall 001 as shown in Figure 1. The City's outfall consists of an 8 inch pipe discharging 90° to the flow of the river and located about 12 feet from the shore in about 3 feet of water.

4.3 Sewage Collection System

Sewage collection systems are designed to collect and transport raw sewage from residences and businesses to the municipality's wastewater treatment facility. The City of Maupin has a collection system that consists of 8.1 miles of pipe, 1 pump station and serves 425 people. The average age of the system is 37 years old. Some of the pipes in the system are more than 60 years old.

As collection systems age, the pipes develop cracks, allowing the infiltration of groundwater. Stormwater may also enter the system. Though no longer allowed under current plumbing codes, in the past it was common to connect stormwater drains directly to sewers. The entry of groundwater and stormwater into the collection system is known as infiltration and inflow, or I/I for short.

When a collection system experiences excessive I/I, most of the flow that makes it to the treatment plant may in fact be stormwater or groundwater that by itself does not require treatment. This can result in the following:

- Overflows from the sanitary sewer system when it rains. These are referred to as SSOs (sanitary sewer overflows).
- The release of untreated or partially treated sewage from all or a portion of the treatment plant. Such a release is termed a bypass. Bypasses may be necessary to avoid damaging the plant.
- Increased operation and maintenance costs.

The ratio of wet weather to dry weather flows measured at the treatment plant is an indication of how much I/I is occurring in the collection system. This information is summarized below.

Table 1: Average and Peak Flow Statistics for City of Maupin

Flow Statistic	Millions of Gallons/Day (MGD)	Ratio to Average Dry Weather Design Flow (ADWDF)
Average Dry Weather Design Flow (ADWDF)	0.1	1
Average Wet Weather Flow over last 3 years	0.055	0.55
Peak Daily Flow over last 3 years (Jan. 2012)	0.141	1.41

As can be seen from this table, the collection system and treatment plant do exhibit some I/I. DEQ recognizes that it is not practical to attempt to build and operate treatment plants and collection systems so as to eliminate any and all bypasses or overflows, and that at some point, attempts to do so represent a poor investment of public funds. Therefore, DEQ is interested in encouraging communities to reduce the rate at which SSOs and bypasses occur. To this end, the permit requires the following:

- The municipality must develop a program to reduce I/I and submit a progress report on an annual basis (see Schedule D, Condition 1)
- The municipality must develop and maintain an emergency response and public notification plan to cover bypass and SSO events (Schedule F, sections B.7 and B.8)
- The municipality must report all SSOs and bypasses (Schedule F, sections B.6, B.7 and B.8).

4.4 Recycled Water

The permit holder does not currently operate a recycled water program and does not intend to do so during the term of this permit.

4.5 Wastewater Solids

The purpose of this section is to describe and document how wastewater solids are handled in the treatment plant. The term wastewater solid includes sewage sludge and biosolids. Sewage sludge refers to solids from primary, secondary, or advanced treatment of domestic wastewater that have not been treated or determined to be suitable for land application as fertilizer or soil amendment. The term biosolids refers to domestic wastewater treatment facility solids that have undergone adequate treatment and are suitable for application to the land as a fertilizer or soil amendment.

Effluent from the clarifiers enters an aerobic digester with a capacity of 112,200 gallons. Approximately 9,600 gallons of sludge is drained to 3 drying beds once or twice a month. Each drying bed has a capacity of about 9,000 gallons or 1,200 ft.³. The City produces approximately 60 lbs. of dry primary biosolids per day. In 2015, 4,449 lbs of biosolids was generated at the plant. The City finished the year with 15,671 lbs of biosolids in the drying beds. No biosolids were land applied in 2015, however, the City does have plans to land apply in 2016.

The City's Biosolids Management Plan was updated on February 18, 2016. Biosolids are land applied in August and September on dry land wheat. The drying beds and aerobic digester are quite large such that land disposal only is needed about once every two to three years. Biosolids are land applied on 670 acres of farm land near Maupin located in T4S, R13/14E, Sections 31 and 36 currently owned by Jerry Duling. Biosolids are hauled to the land application site using a 5-yard dump truck with a loader. The farmer harrows within 14 days of application. The crop is removed once every other year and is mechanically harvested.

The headworks of the treatment facility collects some rags and other solids. Most of this material is shredded by the comminuter. This material is collected and picked up by the local garbage collector and transported to the North Wasco County Landfill near The Dalles.

Annually, the permit holder produces approximately 4,449 lbs. (2015) of sewage sludge from primary and secondary wastewater treatment for beneficial land application and/or disposal.

More detail on how the permittee has chosen to handle wastewater solids is provided in the sections below.

4.5.1 *Storage of Sewage Sludge*

The permit holder stores dewatered sewage sludge at the treatment facility in drying beds for up to 3 years.

4.5.2 *Transfer and Disposal*

The permit holder does not transfer or dispose sewage sludge at another facility.

4.5.3 Land Application

The permit holder currently land applies biosolids, and anticipates continuing to do so. Biosolids are only land applied every 2-3 years. The biosolids management plan and land application plan are available for public review and comment with the permit.

4.5.4 Other Beneficial Reuse

The permit holder does not currently practice other types of beneficial reuse, such as energy recovery.

4.6 Storm Water

Stormwater is not addressed in this permit. General NPDES permits for stormwater are not required for facilities with a design flow of less than 1 MGD.

4.7 Groundwater

There are no potential impacts to groundwater from this facility.

4.8 Industrial Pretreatment

Municipalities that receive wastewater from certain categories of industries must have in place approved pretreatment programs. These programs are designed to reduce the discharge of pollutants from identified industries that the treatment plant is not able to treat. These pollutants can interfere with treatment plant operation, reduce the value of wastewater and biosolids for reuse, cause worker health or safety concerns, and pose a risk to the public or the environment.

The permittee does not have a DEQ-approved industrial pretreatment program. Based on current information, no industrial pretreatment program is needed.

5.0 Receiving Water

5.1 Flows

The flow gage nearest to the Maupin outfall is located at USGS14092500 which is below Pelton Dam and above Maupin's outfall. A flow statistical tool called DFlow was used to determine the flow statistics for the Deschutes above Maupin using the USGS data. The timeframe used spanned from 1925 to 2015.

The impact of Maupin's discharge on the Deschutes River is likely to be the greatest in the late summer and early fall when flows in the Deschutes are lowest. This period is sometimes referred to as the critical period.

The impact of a discharge on the receiving stream is evaluated with respect to the flows likely to occur during the critical period. To standardize this analysis, DEQ makes use of four different flow statistics. Each is designed to work with a different type of water quality impact and associated water quality criteria. These flow statistics and their application are summarized below.

Table 2: Summary of Flow Statistics

Streamflow Statistic	What It Is	Potential Impacts¹ Statistic is Used to Analyze	Value for Deschutes River (cfs)
1Q10	The lowest one day average flow with a recurrence frequency of once in 10 years.	Acute toxicity to aquatic life	3040
7Q10	The lowest seven day average flow with a recurrence frequency of once in 10 years.	Chronic toxicity to aquatic life	3289
30Q5	The lowest 30 day average flow with a recurrence frequency of once in 5 years.	Impacts to human health from toxics classified as non-carcinogens	3300
Harmonic mean	<p>Long term mean flow value calculated by dividing the number of daily flows by the sum of the reciprocals of those daily flows. The equation is:</p> $\frac{n}{\sum 1/Q_{i-n}}$ <p>where n = number of daily flows and Q = flow</p>	Impacts to human health from toxics classified as carcinogens	4370

¹Impacts are evaluated with respect to pollutants for which DEQ has developed water quality criteria. More information may be found at <http://www.deq.state.or.us/wq/standards/toxics.htm#>

5.2 Designated Uses

Under the Clean Water Act, DEQ is required to identify the beneficial uses of every waterbody in Oregon. The intent of this requirement is to insure that the water quality standards DEQ develops are consistent with how the waterbody is used. Permits issued by DEQ must in turn reflect the water quality standards that apply to the basin in which permits are issued.

The City of Maupin discharges to the Deschutes River. The following beneficial uses have been identified for the Deschutes.

- public and private domestic water supply,
- industrial water supply,
- irrigation and livestock watering,
- fish and aquatic life (including salmonid rearing, migration and spawning),
- wildlife and hunting,
- fishing,
- boating,
- water contact recreation,
- aesthetic quality.

The water quality standards for the Deschutes Basin developed to protect these beneficial uses can be found in Oregon Administrative Rules 340-041-0130.

5.3 Receiving Stream Water Quality

The Deschutes River exceeds water quality standards at Maupin for some parameters and is therefore deemed to be water quality-limited for those parameters. The category 5 (needing a TMDL) parameters are listed in Table 3 below.

Table 3: Water Quality Limited Parameters (303d list)

Waterbody Name	River Mile	Parameter	Season
Deschutes River	46.4 to 99.8	Temperature	OCT. 15-MAY 15
Deschutes River	46.4 to 99.8	pH	Fall/Winter/Spring

5.4 Mixing Zone Analysis

Permits issued by DEQ sometimes specify mixing zones. Also known as “allocated impact zones” or “regulatory mixing zones”, mixing zones are allowed under both state and federal regulation. They are areas in the vicinity of outfalls in which all or some of Oregon’s water quality standards can be suspended. DEQ allows mixing zones when the overall impact, evaluated with respect to Oregon’s Mixing Zone Rule (OAR 340-041-0053) appears to be negligible.

Two mixing zones can be developed for each discharge: 1) The acute mixing zone, also known as the “zone of initial dilution” (ZID), and 2) the chronic mixing zone, usually referred to as “the mixing zone.” The ZID is a small area where acute criteria can be exceeded as long as it does not cause acute toxicity to organisms drifting through it. The mixing zone is an area where acute criteria must be met but chronic criteria can be exceeded. It must be designed to protect the integrity of the entire water body.

The permit for Maupin specifies a mixing zone as follows:

The allowable mixing zone is that portion of the Deschutes River within a radius of 50 feet from the point of discharge. An initial zone of dilution (ZID) shall consist of a volume of the river within 5 feet of the end of the discharge pipe. Within this ZID, the permittee may exceed acute toxicity levels for chlorine and ammonia-nitrogen.

In 2001, the Department used Cormix which is a mixing zone computer model to determine the mixing characteristics of the discharge. The City’s outfall consists of an 8 inch pipe discharging 90° to the flow of the river and located about 12 feet from the shore in approximately 3 feet of water. The Department assumed a discharge flow of 0.12 MGD which is about the maximum daily flow through the plant on a summer weekend day.

The allowable mixing zone in the existing permit is 50 feet downstream from the outfall. At 50 feet, Cormix predicts a dilution of 530. Assuming that the dilution varies linearly from the near field range (NFR) to the edge of the mixing zone, the dilution at the ZID is modeled at 54. The Department reviewed the study to determine its relevancy to current conditions and has determined that the study is still relevant. A mixing zone evaluation was conducted and it was determined that the requirements of both OAR 340-041-0053 and the Mixing Zone IMD Part1 and Part 2 are satisfied. The RMZ Evaluation Report Checklist is attached in Appendix E.

Environmental mapping reveals that there are no critical resource areas within the vicinity of the mixing zone. The nearest drinking water intake is ½ mile upstream and the mixing zone does not overlap with

any other mixing zones. Also, the mixing zone does not impinge on public beaches, boat ramps or docks. The effluent discharges through the flapper valve and rapidly mixes with the receiving water. According to Rod French, biologist with the Oregon Department of Fish and Wildlife (ODFW), the vicinity of the Maupin outfall is not suitable spawning habitat. In addition, the ODFW has never recorded a salmonid spawning redd near the vicinity of this outfall. No adverse impacts to the receiving water are expected from the discharge and no beneficial uses are impaired.



Figure 2. Public access areas on the Deschutes and location relative to outfall 001.

6.0 Overview of permit development

6.1 Types of Permit Limits

Effluent limitations serve as the primary mechanism in NPDES permits for controlling discharges of pollutants to receiving waters. Effluent limitations can be based on either the technology available to control the pollutants or limits that are protective of the water quality standards for the receiving water. These two types of permit limits are referred to as technology-based effluent limitations (TBELs) and water quality-based effluent limits (WQBELs) respectively. When a TBEL is not restrictive enough to protect the receiving stream, a WQBEL must be placed in the permit. More explanation of each is provided below.

- TBELs:
 - The intent of TBELs is to require a minimum level of treatment of pollutants based on available treatment technologies, while allowing the discharger to use any available control technique to meet the limits
 - TBELs for municipal treatment plants, also known as federal secondary treatment standards have been developed for the following parameters: biochemical oxygen demand measured over 5 days (BOD₅), total suspended solids (TSS) and pH. These are found in the Code of Federal of Federal Regulations (CFR) and are known as secondary treatment standards. The CFR also allows special considerations and exceptions to these standards for certain circumstances and types of treatment facilities such as lagoons.
- WQBELs:
 - The intent of WQBELs is to ensure the water quality standards of a receiving stream are met. The water quality standards are developed to protect the beneficial uses of the receiving stream such as swimming and fishing. In many cases TBELs are not restrictive enough to ensure the receiving stream meets water quality standards. In these cases, WQBELs need to be established to protect the receiving stream.
 - Oregon is unique in that it has minimum design criteria for BOD₅ and TSS that are only applicable to sewage treatment plants. These design criteria vary by watershed basin and were developed to protect water quality in their respective basins. These are often times more stringent than the federal secondary treatment standards. When this is the case, the basin standards supersede the federal standards.

TBELs are likely to be the most stringent if the receiving stream is large relative to the discharge, and WQBELs are likely to be the most stringent when the receiving stream is small or does not meet water quality standards.

In some cases, both a TBEL and a WQBEL will be developed for a particular parameter. Permit writers must include the more stringent of the two in the permit.

Permit limits for bacteria are WQBELs when they are derived from the water quality standards found in OAR 340-041-0009 for freshwater, marine, and estuarine waters or 40 CFR § 131.41 for coastal recreation waters. Bacteria limits are designed to protect human health when swimming or eating shellfish. Note: When enforcing permit limits, the department categorizes bacteria exceedances in OAR 340-012 as technology-based effluent limitation violations because bacteria violations are typically due to the failure of disinfection equipment.

Each time a permit is renewed, the permit writer evaluates the existing limits to see if they need to be modified as a result of changes to technology based standards or water quality standards that may have occurred during the permit term. Anti-backsliding provisions (described in CFR 122.44(l)) generally do not allow relaxation of effluent limits in renewed/reissued permits. The more stringent of the existing or new limits must be included in the renewal permit.

6.2 Existing Permit Limits

The existing permit limits are as follows:

- (1) May 1 - October 31:

	<u>Average Effluent Concentration</u>	<u>Average Effluent Concentration</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
<u>Parameter</u>	<u>Monthly</u>	<u>Weekly</u>	<u>lb/day</u>	<u>lb/day</u>	<u>lbs</u>
BOD ⁵	20 mg/l	30 mg/l	17	25	33
TSS	20 mg/l	30 mg/l	17	25	33

- (2) November 1 - April 30:

	<u>Average Effluent Concentration</u>	<u>Average Effluent Concentration</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
<u>Parameter</u>	<u>Monthly</u>	<u>Weekly</u>	<u>lb/day</u>	<u>lb/day</u>	<u>lbs</u>
BOD ⁵	30 mg/l	45 mg/l	25	38	50
TSS	30 mg/l	45 mg/l	25	38	50

* Based on the average dry weather design flow to the facility equaling 0.1 MGD.

- (3)

<u>Other parameters (year-round)</u>	<u>Limitations</u>
<i>E. coli</i> bacteria	Shall not exceed a monthly log mean of 126 organisms (MPN) per 100 mls and no single sample shall exceed 406 organisms per 100 mls ^{1/}
pH	Shall be within the range 6.0 – 8.4
BOD ₅ and TSS percent removal efficiency average	Shall not be less than 85% monthly
Total Chlorine Residual	Monthly average of 0.4 mg/l Daily maximum of 0.6 mg/l
Temperature - Effluent	Shall not exceed a daily median of 77° F

^{1/} If a single sample exceeds 406 organisms per 100 ml, then five consecutive re-samples may be taken at two hour intervals beginning within 48 hours after the original sample was taken. If the log mean of the five re-samples is less than or equal to 126 organisms per 100 ml, the bacteria limitation is not exceeded.

As part of this renewal, fall, winter, spring pH limits have been added because of the listing on the 303(d) list.

6.3 Biosolids

Biosolids may be used as a soil amendment and fertilizer on agricultural land. For this beneficial use to be allowed, wastewater solids must meet federal criteria for pathogen reduction (Class A or Class B biosolids), vector attraction reduction for sludge stability, nutrients and pollutant concentrations (40 CFR Part 503).

6.3.1 *Biosolids Production*

Historically, the treatment facility generates an average of 13.2 dry tons of biosolids per year as summarized in the following table.

Table 4: Annual Biosolids Production and Use (2015)

Type of Biosolids	Use	Quantity (dry tons)
Class B	Land applied in bulk.	13.2

6.3.2 *Beneficial Reuse of Biosolids*

OAR 340-050-0031 requires facilities that reuse biosolids through land application to maintain a biosolids management plan and land application plan. The biosolids management plan describes how the facility will generate biosolids that are suitable for beneficial use as a fertilizer or soil amendment via land application. The land application plan identifies and describes the management of current and potential biosolids land application sites. Conditions in the biosolids management plan and land application plan are enforceable permit conditions. The permit holder’s biosolids management plan and land application plan were last updated in February 2016.

6.3.3 *Pollutant Limits*

Pollutant concentrations from the facility’s most recent year of biosolids production are given in the following table.

Table 5: Biosolids Pollutant Concentrations in mg/kg Dry Weight

	As	Cd	Cu	Pb	Hg	Mo	Ni	Se	Zn
2011 concentration	2.26	2.77	266	59.6	3.09	5.19	19.8	6.60	1080
Pollutant limit	41	39	1500	300	17	N/A	420	100	2800
Ceiling concentration	75	85	4300	840	57	75	420	100	7500

6.3.4 *Agronomic Limits*

Biosolids must be land applied at or below the agronomic loading rate needed for maximum crop production, based on the nitrogen requirement of the crop being grown. Nutrient concentrations from the facility’s most recent year of biosolids production are given in the following table.

Table 6: Biosolids Nutrient Conventional Parameters in % Dry Solids (pH in S.U.)

Year	TKN	NO ₃ -N	NH ₄ -N	K	P	Total Solids	Volatile Solids	pH
------	-----	--------------------	--------------------	---	---	--------------	-----------------	----

2011	3.8	.059	0.0080	1.6	0.145	54.2	33.4	5.13
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6.3.5 Pathogen Reduction

The permit holder meets the pathogen reduction requirements of 40 CFR Part 503.15(a) and OAR 340-050-0026(2)(b) using the alternative(s) identified below.

Table 7: Class B Pathogen Requirements

- Alternative 1: The geometric mean of the density of fecal coliform of seven representative samples shall be less than either 2 million Most Probable Number (MPN) or 2 million Colony Forming Units (CFU) per gram of total solids (dry weight basis).
- Alternative 2: Biosolids shall be treated in one of the Processes to Significantly Reduce Pathogens (PSRP) described in the table below.
- Alternative 3: Biosolids shall be treated in a process that is equivalent to a PSRP, as determined by the permitting authority.

Table 8: Processes to Significantly Reduce Pathogens (PSRP) Listed in Appendix B of 40 CFR Part 503

<input checked="" type="checkbox"/>	Aerobic Digestion	Sewage sludge is agitated with air or oxygen to maintain aerobic conditions for a specific mean cell residence time (i.e., solids retention time) at a specific temperature. Values for the mean cell residence time and temperature shall be between 40 days at 20°C (68°F) and 60 days at 15°C (59°F).
<input type="checkbox"/>	Air Drying	Sewage sludge is dried on sand beds or on paved or unpaved basins. The sewage sludge dries for a minimum of 3 months. During 2 of the 3 months, the ambient average daily temperature is above 0°C (23°F).
<input type="checkbox"/>	Anaerobic Digestion	Sewage sludge is treated in the absence of air for a specific mean cell residence time (i.e., solids retention time) at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35°C to 55°C (131°F) and 60 days at 20°C (68°F).
<input type="checkbox"/>	Composting	Using either the within-vessel, static aerated pile, or windrow composting methods, the temperature of the sewage sludge is raised to 40°C (104°F) or higher and remains at 40°C (104°F) or higher for 5 days. For 4 hours during the 5-day period, the temperature in the compost pile exceeds 55°C (131°).
<input type="checkbox"/>	Lime Stabilization	Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 for ≥ 2 hours of contact.

6.3.6 Vector Attraction Reduction

The permit holder satisfies the vector attraction reduction (VAR) requirements of 40 CFR Part 503.15(c) and OAR 340-050-0026(2)(c) using the option(s) identified below.

Table 9: Vector Attraction Reduction Options

40 CFR Part 503 Requirement	What is Required?	Most Appropriate For
<input checked="" type="checkbox"/> Option 1	At least 38% reduction in volatile solids	Sewage sludge processed by:

	503.33(b)(1)	during sewage sludge treatment	Anaerobic biological treatment Aerobic biological treatment
<input type="checkbox"/>	Option 2 503.33(b)(2)	Less than 17% additional volatile solids loss during bench-scale anaerobic batch digestion of the sewage sludge for 40 additional days at 30°C to 37°C (86°F to 99°F)	Only for anaerobically digested sewage sludge that cannot meet the requirements of Option 1

6.3.7 Management practices

All biosolids used for beneficial reuse by application to land must meet the management practices described under 40 CFR §503.14. Class B biosolids must be land applied following the site restrictions described under 40 CFR §503.32(b)(5). In addition, biosolids land applied in bulk must follow the best management practices for site selection and the use and application of biosolids described under OAR 340-050-0060, -0065, -0070, and -0080. The specific site management practices followed by the facility are described in their Biosolids Management Plan, Land Application Plan and site authorization letters. All site management practices followed by the permit holder must meet or exceed the referenced standards.

6.3.8 Current DEQ-authorized land application sites

The permit holder proposes to use the sites identified below for biosolids land application.

Table 10: Currently Identified Biosolids Land Application Sites

Site Identifier	Latitude/ Longitude	Location (Legal Description)	Sub-basin	Spreadable Area (acres)	Owner name	Date of DEQ-approval
Dulings Natural Pasture LLC	45°10'29.93"N 121° 6'48.00"W	T4S, R13/14E, Sections 31 and 36	Lower Deschutes	670	Jerry Duling	May 13, 2016 (re-authorization)

The permit holder may add new biosolids land application sites during the term of the permit. New sites must meet the site selection criteria described in the land application plan. The permit holder will notify the public of newly added sites as describes in the land application plan.

6.4 Anti-degradation

As part of renewing a permit, DEQ must demonstrate that the discharge does not lower water quality from the existing condition. DEQ is required to make this demonstration under Oregon's Anti-Degradation Policy for Surface Waters found in OAR 340-041-0004.

DEQ has performed an antidegradation review for this discharge. The proposed permit contains the same discharge loadings as the existing permit. Permit renewals with the same discharge loadings as the previous permit are not considered to lower water quality from the existing condition. DEQ is not aware of any information that existing limits are not protective of the designated beneficial uses listed in Section 5.2. These uses are very broad and include fish and aquatic life (including cold water species,

salmonid migration, spawning and rearing), fishing, boating, and water contact recreation. DEQ is also not aware of any existing uses present within the waterbody that are not currently protected by standards developed to protect the designated uses. Therefore, DEQ has determined that the proposed discharge complies with DEQ’s antidegradation policy (see Antidegradation Review Worksheet in Appendix D).

7.0 Permit Draft Discussion

7.1 Face Page

The face page provides information about the permittee, description of the wastewater, outfall locations, receiving stream information, permit approval authority, and a description of permitted activities. The permit allows discharge to the Deschutes River within limits set by Schedule A and the following schedules. It prohibits all other discharges.

In accordance with state and federal law, NPDES permits will be effective for a fixed term not to exceed 5 years. Upon issuance, this permit will be effective for no more than 5 years expiring in 2021.

DEQ evaluated the classifications for the treatment and collection systems (see Attachment C). The treatment system is considered a Class II system and the collection system is considered a Class I system. DEQ is not proposing any changes to the system classifications.

7.2 Permit Limit Derivation

7.2.1 Technology-Based Effluent Limits (TBELs)

TBELs must be met at the outfall. The applicable TBELs for this facility are the most stringent of the federal secondary treatment standards and the Oregon basin standards, adjusted as necessary for the type of treatment system.

The table below shows a comparison of the federal secondary treatment standards and Oregon basin standards and also lists bacteria standards. Basin standards and bacteria standards are not strictly speaking TBELs; however they function as such when they have to be met at the end of the pipe.

Table 11: Comparison of Federal Secondary Treatment and Basin Standards

Parameter	Federal Secondary Treatment Standards		Applicable Deschutes Basin Standards (OAR 340-041-130)
	30-Day Average	7-Day Average	30-Day Average
5-Day BOD	30 mg/L	45 mg/L	20 mg/L April 1-October 31 and 30 mg/L during winter
TSS	30 mg/L	45 mg/L	
pH	6.0 – 9.0. (instantaneous)		6.5 – 8.5 Basin standards for pH do not have to be met at the outfall and can instead be met at the edge of the mixing zone.
% Removal	85% BOD5 and TSS		Not specified

To summarize, the TBELs and applicable basin standards for Maupin are as follows:

Table 12: Summary of Permit Limits for Maupin

Effluent Parameter	Concentration		Percent Removal	Comments
	Monthly	Weekly		
BOD5 and TSS	20 mg/L	30 mg/L	85%	These are equal to the basin standard from April 1 to October 31
pH	-Must not be outside the range of 6.5 to 8.5 Fall, Winter, Spring -6.0 to 8.5 Summer			-303 (d) listing for pH-met at end of pipe -Summer limit allows a mixing zone
Bacteria	Monthly log mean (same as geometric mean) may not exceed 126 organisms (MPN) per 100 ml. No single sample may exceed 406 organisms per 100 ml.			

The limits for BOD₅ and TSS shown in this table are concentration-based limits.

The following equation is used to develop the monthly average mass load:

$$\text{Monthly Avg. Mass Load} = \text{Publically Owned Treatment Works (POTW) design flow} \times \text{Conc.-based limit} \times \text{Conversion factor}$$

The weekly average and maximum daily mass loads are developed from the monthly average by multiplying by 1.5 and 2 respectively.

Maupin’s summer mass load limits for BOD₅ and TSS are based on the flow of 0.1 MGD and a concentration of 20 mg/L. The summer calculations are:

$$\text{Monthly Average: } 0.1 \text{ MGD} \times 20 \text{ mg/L} \times 8.34 = 16.68 \text{ lbs/day rounded off to } 17 \text{ lbs/day}$$

$$\text{Weekly Average: } 17 \text{ lbs/day monthly average} \times 1.5 = 25 \text{ lbs/day}$$

$$\text{Daily Maximum: } 17 \text{ lbs/day monthly} \times 2 = 34 \text{ lbs/day}$$

The facility’s winter mass limits (monthly and weekly average and daily maximum) for BOD₅ and TSS are based on the flow of 0.1 MGD and a concentration of 30 mg/L. The winter calculations are:

$$\text{Monthly Average: } 0.1 \text{ MGD} \times 30 \text{ mg/L} \times 8.34 = 25 \text{ lbs/day}$$

$$\text{Weekly Average: } 25 \text{ lbs/day} \times 1.5 = 37.5 \text{ lbs/day rounded off to } 38 \text{ lbs/day}$$

$$\text{Daily Maximum: } 25 \text{ lbs/day monthly} \times 2 = 50 \text{ lbs/day}$$

All mass load limitations are again rounded to two significant figures, consistent with the number of significant figures associated with flow measurements with this facility, and with the accuracy of BOD measurements of 10 or greater.

7.2.2 Water Quality-Based Effluent Limits

Once TBELs and applicable basin standards have been established for the treatment facility, WQBELs must be developed. DEQ has developed several tools for calculating WQBELs. The table below provides a summary of these tools.

Table 13: Summary of Tools to Calculate WQBELs

Parameter	Link to Analytical Tool/Description	Application
BOD	Streeter-Phelps D.O. Spreadsheet Use to perform a Streeter-Phelps analysis to see if discharge will result in a DO sag and/or violation of DO standard.	<ul style="list-style-type: none"> For new dischargers. For dischargers seeking a mass load increase.
pH	pH RPA Spreadsheet Use to perform a Reasonable Potential Analysis to see if the discharge has a reasonable potential to cause or contribute to violations of basin standards of pH.	<ul style="list-style-type: none"> For facilities that have a mixing zone, to see if basin standards will be met at the edge of the mixing zone.
Temperature	Temperature RPA Spreadsheet XLSX Use to perform a Reasonable Potential Analysis to see if the discharge has a reasonable potential to cause or contribute to water quality standards violations for temperature.	<ul style="list-style-type: none"> Use when facility does not already have a WLA for temperature.
Ammonia	For ammonia, chlorine and other toxics listed in tables 20, 33A, 33B and 40: Reasonable Potential Analysis Calculation Workbook, Domestic; Revision 3.1 (January 2013)	Ammonia: <ul style="list-style-type: none"> Use for facilities that discharge over 0.1 MGD, to insure no toxicity. Use for facilities that have an ammonia limit when conditions have changed.
Chlorine	Use to perform a Reasonable Potential Analysis to see if the discharge has a reasonable potential to cause or contribute to water quality standards violations for toxics.	Chlorine: <ul style="list-style-type: none"> Use for new facilities that do not have a limit for chlorine. If a facility already has a limit, and conditions have changed, use limits tab of spreadsheet to re-calculate.

Parameter	Link to Analytical Tool/Description	Application
Other toxics listed in Tables 20, 33A, 33B and 40 of OAR 340-041		Other toxics: <ul style="list-style-type: none"> • Use for facilities that discharge over 1 MGD • Use for facilities where pollutant is known to be present.

As can be seen from the above table, WQBELs are generally developed as a result of a Reasonable Potential Analysis (described in more detail later in subsequent sections). An exception to this is when DEQ has developed a TMDL for the receiving stream. When there is a TMDL, the permit limit(s) must be developed based on the wasteload allocation (WLA) developed for the facility as part of the TMDL.

7.2.2.1 General Discussion of Reasonable Potential Analysis

EPA has developed a methodology called Reasonable Potential Analysis (RPA) for determining if there is a reasonable potential for a discharge to cause or contribute to violations of water quality standards for a particular parameter. It takes into account effluent variability, available dilution (if applicable), receiving stream water quality and water quality standards for the protection of aquatic life and human health. If the RPA results indicate that there is a potential for the discharge to cause or contribute to exceedances of water quality standards, the methodology is then used to establish permit limits that will not cause or contribute to violations of water quality standards.

DEQ has adopted EPA’s methodology for RPA, and has developed spreadsheets that incorporate this analysis.

The parameters for which a RPA must be performed will vary with the size and type of discharge. They are listed in the NPDES Permit Testing Requirements for Publicly Owned Treatment Works contained in Appendix J of 40 CFR Part 122. The relevant sections are reproduced below.

Table 14: Testing Requirements for Publicly-Owned Treatment Works

Pollutant List	Parameters for which RPA Needed
Table 1A – Effluent Parameters for All POTWs	pH, Temperature
Table 1 – Effluent Parameters for All POTWs w. Flow \geq 0.1 MGD	Ammonia, Chlorine

7.2.2.2 Reasonable Potential Analysis for pH

The pH of water is a measure of how acidic or basic a solution is. At a pH of 7.0, the solution is considered neutral. Most aquatic organisms can tolerate a fairly narrow range around 7.0.

As indicated in the last section, the applicable basin standard for the Deschutes River is 6.5 to 8.5. The Deschutes is water quality limited for pH, and therefore, the receiving waters cannot be used to dilute the discharge. Maupin must meet the pH standard at the end of the pipe during the fall, winter, and spring months. During the summer a mixing zone is allowed and the limit is 6.0 to 8.5 (refer to Appendix E). Even though the RPA shows that Maupin’s discharge does not violate the pH standard in the summer the limit in this permit is the same as the existing permit for continuity (6.0 to 8.4 s.u.).

7.2.2.3 Reasonable Potential Analysis for Temperature

Water temperatures affect the life cycles of aquatic species and are a critical factor in maintaining and restoring healthy salmonid populations. The purpose of the temperature criteria in OAR 340-041-0028 is to protect designated, temperature-sensitive beneficial uses (including salmonid life cycle stages) from adverse warming caused by human activities.

The Department's temperature standard provides that salmon and steelhead spawning occurs between October 15 and May 15. During periods when spawning is not occurring, the river at Maupin and below is designated trout and salmon rearing and migration. On January 17, 2006, a Mid-Columbia District Fish Biologist with the Oregon Department of Fish and Wildlife (ODFW) informed the Department that the vicinity of the Maupin outfall is not suitable spawning habitat. In addition, the ODFW has never recorded a redd near the vicinity of this outfall. During the last permit cycle Maupin collected effluent temperature data on a daily basis so a more robust analysis could be performed. The maximum temperature recorded in the last 3 years is 24.4 deg. C.

The results of the RPA indicate that there is no potential for exceedance of the temperature standard at the edge of the mixing zone. Based on this result, the permit does not contain a permit limit for temperature. RPA results are included in Attachment B.

7.2.2.4 Reasonable Potential Analysis for Ammonia

Water quality criteria for ammonia vary with pH and temperature, and with the presence of salmonids. The RPA for ammonia was performed assuming an upstream pH of 8.5 and temperature of 19.5 deg. C. Upstream data comes from the Laboratory Analytical Storage and Retrieval (LASAR) database collected at the *Deschutes River @ Maupin Station #10682*. Effluent data is from DMRs.

The results of the RPA for ammonia indicate that there is no reasonable potential for the discharge to cause or contribute to exceedances of the water quality criteria for ammonia. Based on these results, the permit will not contain a permit limit for ammonia.

RPA results are included in Attachment B.

7.2.2.5 Reasonable Potential Analysis for Chlorine

The fresh water criteria for chlorine were used to calculate permit limitations. According to OAR 340-041, Table 33A, chlorine concentrations of 11 µg /L for freshwater can result in chronic toxicity while 19 µg/L can result in acute chlorine toxicity in fresh water. Compliance with acute toxicity criteria is required at the edge of the ZID and compliance with chronic toxicity criteria is required at the edge of the mixing zone.

Since nothing has changed since the existing permit was issued the chlorine residual limits in the proposed permit are the same as the existing permit.

7.3 Schedule A. Waste Discharge Limits

The proposed permit limits for Maupin are included in Schedule A of the permit. The numeric limits in Schedule A are reproduced below. These limits are the result of the analyses described in Section 7.2.

Schedule A of the permit also contains conditions relating to the mixing zone, groundwater protection, biosolids, septage, and chlorine.

Schedule A – Waste Discharge Limits

The proposed effluent limits for Outfall 001 are as follows:

1. Outfall 001 - Treated Effluent

a. BOD₅, and TSS

- i. May 1 – October 31: During this time period the permittee must comply with the limits in the following table:

Table A1: BOD₅ and TSS Limits

Parameter	Average Effluent Concentrations, mg/L		Monthly Average lbs/day	Weekly Average lbs/day	Daily Maximum lbs
	Monthly	Weekly			
BOD ₅	20	30	17	25	34
TSS	20	30	17	25	34

- ii. November 1 – April 30: During this time period the permittee must comply with the limits in the following table:

Table A2: BOD₅ and TSS Limits

Parameter	Average Effluent Concentrations, mg/L		Monthly Average lbs/day	Weekly Average lbs/day	Daily Maximum Lbs
	Monthly	Weekly			
BOD ₅	30	45	25	38	50
TSS	30	45	25	38	50

- b. Additional Parameters. Permittee must comply with the limits in the following table (year round except as noted):

Table A3: Limits for Additional Parameters

Year-round (except as noted)	Limits
BOD ₅ and TSS Removal Efficiency	May not be less than 85% monthly average for BOD ₅ and TSS
Chlorine, Total Residual	The monthly average effluent concentration limit is 0.4 mg/L. The daily maximum effluent concentration limit is 0.6 mg/L.
<i>E. coli</i> Bacteria (see Note a.)	Monthly log mean may not exceed 126 organisms per 100 ml. No single sample may exceed 406 organisms per 100 ml.
pH (Fall, Winter, Spring)	May not be outside the range of 6.5 to 8.5 S.U.
pH (Summer)	May not be outside the range 6.0 to 8.5 S.U.
Notes	
a. No single <i>E. coli</i> sample may exceed 406 organisms (MPN) per 100 mL; however, DEQ will not cite a violation of this limit if the permittee takes at least 5 consecutive re-samples at 4 hour intervals beginning within 28 hours after the original sample was taken and the log	

Year-round (except as noted)	Limits
mean of the 5 re-samples is less than or equal to 126 <i>E. coli</i> organisms/100 mL.	

The time periods included in Tables A1 and A2 are the same as the existing permit and vary from the basin standard in OAR 340-041-0135. The basin standard includes April as a low stream flow month which is not the case for the Deschutes River at Maupin.

7.3.1 Discussion of Permit Limits in Tables A1, A2 and A3

The limits in Tables A1, A2 and A3 are discussed in detail below, in the following order:

- a. BOD₅ and TSS
- b. Bacteria
- c. pH
- d. Total Residual Chlorine

Discussion of permit limits and requirements pertaining to the mixing zone, groundwater protection, and biosolids follow the discussions of individual permit limits in Section 7.3.2.

a. BOD₅ and TSS Concentration, Mass Load and Percent Removal Limits

BOD₅ and TSS can be thought of as indicators of the “strength” of the effluent. The development of concentration and mass limits for BOD₅ and TSS was described in Section 7.2.1.

The removal efficiency required by the permit is 85%.

The derivation of this removal efficiency was described in Section 7.2.1; and is consistent with the Code of Federal Regulations (40 CFR part 133) for any type of activated sludge system.

The limits described above for BOD₅ and TSS are all TBELs.

b. Bacteria

Limits for bacteria are considered to be WQBELs. Since the Maupin discharges to freshwater, the permit limit for bacteria is based on *E. coli*.

Escherichia coli (*E. coli*)

The proposed permit limits are based on the *E. coli* standard contained in OAR 340-041-0009(5). The proposed limits are a monthly geometric mean of 126 MPN per 100 mL, with no single sample exceeding 406 MPN per 100 mL. If a single sample exceeds 406 MPN per 100 mL, then the permittee may take five consecutive re-samples. If the log mean of the five re-samples is less than or equal to 126 MPN, a violation is not triggered. The re-sampling must be taken at four hour intervals beginning within 28 hours after the original sample was taken.

c. pH

The derivation of pH limits is described in Section 7.2.2.2.

- The limits of 6.5 to 8.5 fall, winter, and spring are equivalent to basin standards and 303(d) listing and must be met at the end of the pipe and are therefore TBELs.
- The limits of 6.0 to 8.5 in the summer months were developed with respect to the basin standards adjusted for dilution at edge of the mixing zone and are therefore WQBELs.

d. Total Residual Chlorine

The City of Maupin uses chlorine to disinfect the effluent before discharging to the Deschutes River. Along with being an effective disinfectant, chlorine is toxic to many aquatic organisms. To insure that the potential for toxicity is minimized the current permit contains a limit for chlorine, where it is referred to as Total Residual Chlorine.

The Department reviewed the RPA for chlorine that was developed during the last permit renewal. No changes have been made to the sewage treatment facility since the current permit was issued, and therefore, no changes to the RPA were necessary and the current permit limitations for chlorine will remain the same in the proposed permit. The RPA analysis for chlorine resulted in permit limits of 0.4 mg/L as a monthly average and 0.6 mg/L as a daily maximum.

The permit does not contain a mass load limit for chlorine. The primary purpose for mass limits is to prevent water quality violations from cumulative effects of conservative pollutants. Mass-based limits are particularly important for control of bioaccumulative pollutants. Chlorine is neither a conservative nor a bioaccumulative pollutant since chlorine rapidly reacts with organic matter. Therefore, cumulative effects outside of the regulatory mixing zone are not a concern. Also, the Maupin's mixing zone does not overlap any other mixing zones. Additionally, effluent limit calculations are based on critical low flow conditions without any allowance for degradation in the mixing zone. Under these conditions, mass-based limits in addition to concentration-based limits under these conditions are unnecessary for protection on water quality.

7.3.2 Discussion of Other Schedule A Requirements

In addition to permit limits for specific parameters, Schedule A also contains requirements pertaining to the mixing zone, groundwater protection, and biosolids. These are discussed in more detail below, in the following order:

- a. Mixing Zone
- b. Groundwater Protection
- c. Biosolids

a. Mixing Zone

The current permit provides for a mixing zone defined as:

The allowable mixing zone is that portion of the Deschutes River within a radius of 50 feet from the point of discharge. An initial ZID shall consist of a volume of the river within 5 feet of the end of the discharge pipe. Within this ZID, the permittee may exceed acute toxicity levels for chlorine and ammonia-nitrogen.

b. Groundwater Protection

The permit requires that Maupin may not conduct any activities that could cause an adverse impact on existing or potential beneficial uses of groundwater.

c. Biosolids

The permit describes what discharge limits and management practices Maupin must satisfy to beneficially reuse biosolids as a soil amendment or fertilizer. The requirements in Schedule A of the permit contain limits for biosolids and are derived from OAR 340-050.

7.4 Schedule B – Minimum Monitoring and Reporting Requirements

Section 1 of Schedule B describes monitoring and reporting protocols for the permit and includes the following:

- a. Quality Assurance and Quality Control (QA/QC)
- b. Re-analysis and Re-sampling if QA/QC Requirements Not Met
- c. Reporting Procedures

Schedule B also describes the minimum monitoring and reporting necessary to demonstrate compliance with the conditions of this permit. The authority to require periodic reporting by permittees is included in ORS 468.065(5). Self-monitoring requirements are the primary means of ensuring that permit limits are being met. Other parameters may also need to be monitored when insufficient data exist to establish a limit, but where there is a potential for a water quality concern.

DEQ has developed monitoring and reporting matrices that establish monitoring and reporting frequencies based on the size and complexity of the facility. These matrices maybe found at:

<http://www.deq.state.or.us/wq/wqpermit/docs/TemplateGuidance/MonMatrix.pdf>

<http://www.deq.state.or.us/wq/wqpermit/docs/ReportingMatrix.pdf>

These matrices were used to establish the monitoring and reporting requirements for Maupin.

In addition to monitoring and reporting requirements, Schedule B includes the following:

- Requirements to develop and implement a Quality Assurance/Quality Control (QA/QC) program
- What to do if QA/QC requirements are not met.
- Requirements pertaining to reporting procedures. These include:
 - The correct use of significant figures
 - Calculating and reporting mass loads.

Monitoring requirements are found in the following tables:

Table B1: Influent Monitoring

Table B2: Effluent Monitoring

Table B3: Biosolids Monitoring

Table B4: Biosolids Minimum Monitoring Frequency

Table B5: Effluent Monitoring Required for NPDES Permit Application

Table B6: Reporting Requirements and Due Dates

Each of these tables is discussed in more detail below.

Tables B1 and B2: Influent and Effluent Monitoring

These tables specify the parameters to be monitored on a regular basis in the influent and effluent, along with associated monitoring frequencies, sample types and related reporting requirements.

Tables B3 and B4: Biosolids Monitoring Requirements and Monitoring Frequency

This table lists the monitoring requirements that pertain to biosolids, consistent with OAR 340-050-0035. Specific details on how and where biosolids monitoring will be conducted provided in the Biosolids Management Plan.

In addition to biosolids monitoring at the treatment facility, the facility is required to maintain records on the land application of biosolids. Records must be sufficient to demonstrate that biosolids were applied within agronomic loading rates and following required site management practices. The permit requires the permittee to record the date, quantity, and location of biosolids applied to the land on a site map or electronic GIS system.

Table B5: Effluent Monitoring Required for NPDES Permit Application

This table lists parameters for which monitoring data is required for the renewal of this permit.

Table B6: Reporting Requirements and Due Dates

This table summarizes, for the convenience of the permit holder, the information contained in the previously-listed tables.

7.5 Schedule C, Compliance Schedules and Conditions

No schedule C is included in this proposed permit.

7.6 Schedule D - Special Conditions

7.6.1 *Inflow and Infiltration*

As described in Section 4.3 on the sewage collection system, it is important for the permit holder to assess and take steps to reduce the rate of infiltration and inflow of stormwater and groundwater into the sewer system. Consistent with this, Schedule D of the permit requires the permit holder to undertake activities to track and reduce I/I in the sewer system.

7.6.2 *Emergency Response and Public Notification Plan*

Municipal wastewater treatment facilities are required, under General Condition B.8. in Schedule F, to have an Emergency Response and Public Notification Plan.

7.6.3 *Exempt Wastewater Reuse at the Treatment System*

Schedule D exempts the permit holder from the recycled water requirements in OAR 340-055, when recycled water is used for landscape irrigation at the treatment facility or for in-plant processes, such as in plant maintenance activities. Landscape irrigation includes water applied to small-scale irrigation such as supplying supplemental irrigation to turf grass, shrubs, and ornamental trees. Landscape irrigation may include the irrigation of native vegetation along dikes, banks, and earthen impounds around wastewater lagoons—especially as needed to reduce erosion and maintain structural integrity. Landscape irrigation does not include large-scale of pasture, hayfields, or native vegetation adjacent to wastewater treatment facility (i.e., these activities are subject to OAR 340-055 and require development of a recycled water use plan). All of the conditions listed in (6)(i) through (6)(iv), Schedule D of the permit must be satisfied for an exempt use to be valid.

7.6.4 *Biosolids Management Plan and Land Application Plan*

Conditions requiring the permit holder to develop and maintain a biosolids management plan and land application plan are provided in Schedule D. The biosolids management plan and the land application plan must meet the requirements in OAR 340-050-0031 and describe where and how the land application of biosolids is managed to protect public health and the environment.

The land application plan includes all sites authorized by DEQ for land application of Class B biosolids and described in individual, DEQ-issued site authorization letters. During permit renewal, all previously authorized biosolids land application sites are available for public comment with the biosolids management plan and land application plan. During the term of the permit, DEQ-initiated public notice of previously authorized sites identified in the land application plan is not required.

When the permit holder needs a new land application site, the permit holder is responsible for getting authorization from DEQ as well as notifying neighbors and providing them with an opportunity to comment. Any proposed new site must meet the site selection and site management criteria described in the land application plan. DEQ-initiated public notice will be provided for any new site that does not meet these criteria and/or that DEQ considers sensitive with respect to residential housing, runoff potential, and/or threat to groundwater.

The permit holder's biosolids management plan and land application plan were last updated in February 2016.

7.6.5 Wastewater Solids Transfers

The permit allows the facility to transfer treated or untreated wastewater solids to other in-state or out-of-state facilities that are permitted to accept the wastewater solids. The permittee is required to monitor, report, and dispose of solids as required by the permit of the receiving facility. Wastewater solids that are transferred out-of-state must meet all requirements for the use of disposal or wastewater solids as required by both Oregon and the receiving state.

7.6.6 Operator Certification

The permit holder is required to have a certified operator consistent with the size and type of treatment plant covered by the permit. The language in this section of the permit describes the requirements relating to operator certification. An updated copy of the wastewater classification worksheet for Maupin is attached as Appendix C.

7.6.7 Industrial User Survey

The permit holder is required to conduct an industrial user survey every five years. The purpose of the survey is to identify whether there are any categorical industrial users discharging to the POTW, and ensure regulatory oversight of these discharges to state waters.

7.7 Schedule F - NPDES General Conditions

These conditions are standard to all domestic NPDES permits and include language regarding operation and maintenance of facilities, monitoring and record keeping, and reporting requirements. The General Conditions for all individual permits issued by DEQ were substantially revised in August 2009. Minor modifications have been made since then. A summary of the changes is as follows:

- There are additional citations to the federal Clean Water Act and CFR, including references to standards for sewage sludge use or disposal.
- There is additional language regarding federal penalties.
- Bypass language has been made consistent with the Code of Federal Regulations and with other EPA Region 10 states.
- Reporting requirements regarding overflows have been made more explicit.

- Requirements regarding emergency response and public notification plans have been made more explicit.
- Language pertaining to duty to provide information has been made more explicit.
- Confidentiality of information is addressed.

8.0 Next Steps

8.1 Public Comment Period

The proposed NPDES permit will be made available for public comment for 35 days. Public notice and links to the proposed permit will be posted on DEQ's website, and sent to subscribers to DEQ's pertinent public notice e-mail lists. A Public Hearing will be scheduled if requested by 10 or more people, or by an authorized person representing an organization of at least 10 people. If a public hearing is to be held, then an additional public notice would be published to advertise the public hearing.

8.2 Response to Comments

DEQ will respond to comments received during the comment period. All those providing comment will receive a copy of DEQ's response. Interested parties may also request a copy of DEQ's response. Once comments are received and evaluated, DEQ will decide whether to issue the permit as proposed, to make changes to the permit, or to deny the permit. DEQ will notify the permittee of DEQ's decision.

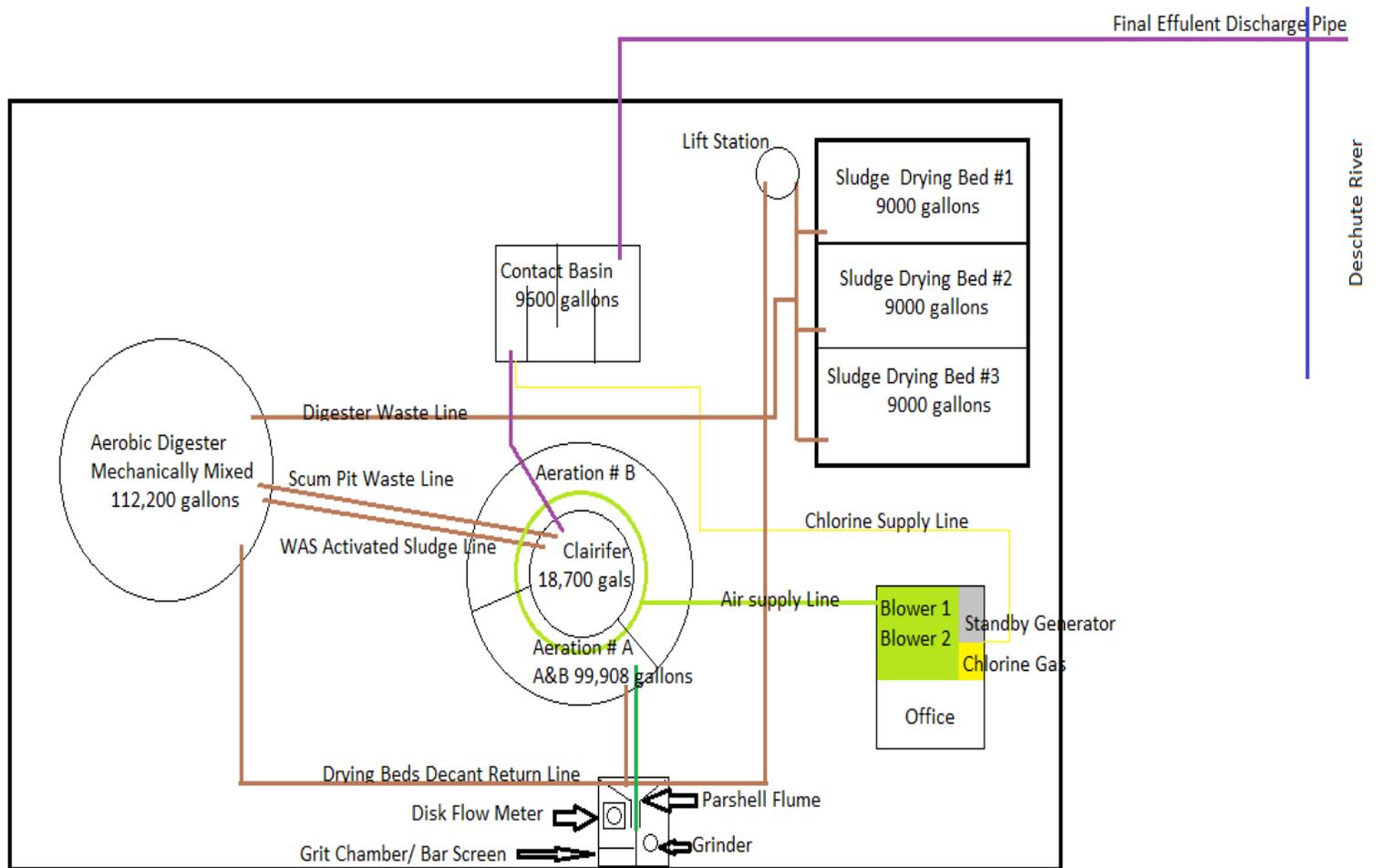
8.3 Modifications to Permit Evaluation Report and Fact Sheet

Depending on the nature of the comments and any changes made to the permit as result of comments, DEQ may modify this permit evaluation report and fact sheet. DEQ may also choose to update the permit evaluation report and fact sheet through memorandum or addendum. If substantive changes are made to the permit, then an additional round of public comment may occur.

8.4 Issuance

The DEQ mails the finalized, signed permit to the permittee. The permit is effective 20 days from the mailing date.

APPENDIX A: WASTEWATER TREATMENT SCHEMATIC



APPENDIX B: REASONABLE POTENTIAL ANALYSIS

(Ammonia, and Temperature)

Ammonia RPA Calculation (2013 Criteria) Revision 1.3																		
RPA Run Information				Please complete the following General Facility Information														
Facility Name:	Maupin			1. Enter Facility Design Flow (MGD)			0.1			4. If answered "Yes" to Question 2, then fill in dilution factors from mixing zone study								
DEQ File Number:	53633			2. Do I have dilution values from a mixing zone study?			Yes			Dilution @ ZID (from study)		54						
Permit Writer Name:	Jayne West			3. If answered "No" to Question 2, then fill in the following table						Dilution @ M2 7Q10 (from study)		530						
Outfall Number:	1			Stream Flow: 7Q10	CFS	no	Stream Flow: 30Q5	CFS	no	Dilution @ M2 30Q5 (from study)		530						
Date of RPA Run:	6/23/2016			% dilution at ZID	%	10%	Stream Flow: 1Q10	CFS	no	5. Is the receiving waterbody fresh or salt water?								
RPA Run Notes:				% dilution at M2	%	25%	Calculated Dilution Value		6. If answered "Salt" to Question 4, then enter									
KEY:	-- Intermediate calc.						Dilution @ ZID	#VALUE!	Ambient Salinity		ppt		no					
	* Enter data here -- Calculated result						Dilution @ M2 (7Q10)	#VALUE!	Effluent Salinity		ppt		no					
							Dilution @ M2 (30Q5)	#VALUE!	7. Are Salmonid present? (Yes/No) (Mussels presumed present)									
									8. Please enter statistical Confidence and Probability values (note: defaults already entered)		Confidence Level		%ile	99%				
									Probability Basis		%ile		95%					
Dilution Calculations																		
Inputs				Outputs														
Dilution Factors				ZID	MZ (7Q10)	MZ (30Q5)	Upstream			ZID	MZ (7Q10)	MZ (30Q5)	Effluent					
				54.0	520.0	530.0	pKa		6.4	6.4	6.4	pKa		6.4	6.4	6.4		
Upstream Characterization				Mixing Zone														
Temperature	deg. C	13.5		Temperature	deg. C	12.7	13.5	13.5	Alkalinity	mg/L CaCO ₃	74.5	74.9	74.9	Total Inorganic Carbon	mg/L CaCO ₃	75.4	75.6	75.6
pH		8.5		pKa		6.4	6.4	6.4	Total Inorganic Carbon	mg/L CaCO ₃	64.3	64.3	64.3	pKa		6.4	6.4	6.4
Alkalinity	mg/L CaCO ₃	75	30%	pH		8.3	8.5	8.5	pH		8.3	8.5	8.5	Salinity	ppt	--	--	--
Effluent Characterization																		
Temperature	deg. C	22.5		*Calculation of pH of a mixture of two flows based on the procedure in EPA's DESCON program (EPA, 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of														
pH		6.8		** Selection of alkalinity %ile is based on pH of effluent vs ambient.														
Alkalinity	mg/L CaCO ₃	47	10%															
Reasonable Potential Analysis																		
Pollutant Parameter	Identify Pollutants of Concern				Determine In-Stream Conc.				VQ CRITERIA									
	# of Sampler	Highest Effluent Conc.	Coefficient of Variation	Ext. Maximum Effluent Conc.	RP at end of pipe?	Ambient Conc.	Max Total Conc. at	Max Total Conc. at RMZ	Max Total Conc. at RMZ	Acute CMC	Chronic Calc. (4-day avg.)	Chronic Calc. (7Q10)	Chronic Calc. (30 day)					
Ammonia (Freshwater Salmonids)	147	0.35	0.36	0.4	No	0.38	0.38	0.38	0.38	3.00	1.37		0.5					
Ammonia (Freshwater Salmonids absent)	no	no	no	--	--	no	--	--	--	--	--	--	--					
Ammonia (Salt Water)	no	no	no	--	--	no	--	--	--	--	--	--	--					
Pollutant Parameter	Det. Reasonable Potential																	
	Is there Reasonable Potential to Exceed? (Yes/No)																	
Ammonia (Freshwater Salmonids)	Acute	Chronic (4 day)	Chronic (7Q10)	Chronic (30 day avg.)														
Ammonia (Freshwater Salmonids)	NO	NO		NO														
Ammonia (Freshwater Salmonids absent)	--	--		--														
Ammonia (Salt Water)	--	--		--														

Temperature-Analysis at Edge of Mixing Zone & 25% Stream Flow

Facility Name: Maupin

Date: 1/25/2016

Enter data into white cells below:

Mixing Zone Dilution = 530

7Q10 = 3140 cfs

Effluent Flow = 0.1 mgd

Applicable Temperature Criterion = 12.8 °C

Effluent Temperature = 24 °C

Allowable increase = 0.3 °C

Dilution at 25% Stream Flow = 5075

ΔT at edge of MZ= 0.02 °C

ΔT at 25% Stream Flow= 0.00 °C

No Reasonable Potential

Thermal Load Limit = N/A Million Kcals

Equation used to calculate ΔT at edge of MZ

$$\Delta T_{mz} = \frac{T_e + (S - 1)T_a}{S} - T_a$$

Equation used to calculate thermal load limit

$$TLL = 3.78541 Q_e S \Delta T_{all} C_p \rho$$

Where:

Q_e = Effluent Flow in mgd

S = Dilution

ΔT_{all} = Allowable temperature increase at edge of MZ (°C)

C_p = Specific Heat of Water (1 cal/g °C)

ρ = Density of Water (1 g/cm³)

3785.41 = Flow conversion from mgd to m³/day

Appendix C: System Classification



Oregon Department of Environmental Quality Wastewater System Classification Worksheet for Operator Certification

STEP 1: Criteria for Classifying Wastewater Treatment Systems (OAR 340-049-0025)

Wastewater System Common Name:		City of Maupin			
Location:	N. 2nd St. Maupin Oregon	Region:	ER		
County:	Wasco	Date:	4/7/2016		
Facility ID:	102274	Classified by:	Jayne West		
Design ADWF (Influent MDG):	0.1	WWC Class:	I		
Design Population*:	425	WWT Class:	II		
Design BOD (Influent lbs/day):	90-120	or SWWS:			
		If SWWS, connections:			
Is this a change from a prior classification?	No	Total Points:	54.5		
1. Design Population	425	or Population Equivalent			
Based on:	Flow (gallons/person/day)	App. 150	BOD (pounds/person/day)		
Less than 750			0.5	0.5	
751 to 2,000			1.0		
2,001 to 5,000			1.5		
5,001 to 10,000			2.0		
Greater than 10,000			3.0	(3 + 1 for each additional 10 K)	
2. Average Dry Weather Flow (Design Capacity)					
Less than 0.075 MGD			0.5		
Greater than 0.075 MGD to 0.1 MGD			1.0	1.0	
Greater than 0.1 to 0.5 MGD			1.5		
Greater than 0.5 to 1.0 MGD			2.0		
Greater than 1.0 MGD			3.0	(3 + 1 for each additional 1.0 MGD)	

3. Unit Processes

Preliminary Treatment and Plant Hydraulics

Comminution (cutter, shredder, grinder, barminutor, etc.)	1.0	1.0
Grit Removal (gravity)	1.0	1.0
Grit Removal (mechanical)	2.0	
Screen(s) (in-situ or mechanical, coarse solids only)	1.0	1.0
Pump/Lift Station(s) (pumping of main flow)	2.0	2.0
Flow Equalization (any type)	1.0	

Primary Treatment

Community Septic Tank(s) (STEP, STEG, etc.)	2.0	
Clarifier(s)	5.0	5.0
Flotation Clarifier(s)	7.0	
Chemical Addition System	2.0	
Imhoff Tanks (large septic tank or similar sedimentation & digestion)	3.0	

Secondary, Advanced, and Tertiary Treatment

Low Rate Trickling Filter(s) (no recirculation)	7.0	
High Rate Trickling Filter(s) (recirculating)	10.0	
Trickling Filter - Solids Contact System	12.0	
Activated Sludge (includes SBR & basic MBR process)	15.0	15.0
Pure Oxygen Activated Sludge	20.0	
Activated Bio Filter Tower (less than 0.1 MGD)	6.0	
Activated Bio Filter Tower (greater than 0.1 MGD)	12.0	
Rotating Biological Contactors (1 to 4 shafts)	7.0	
Rotating Biological Contactors (5 or more shafts)	12.0	
Stabilization Lagoons (1 to 3 cells without aeration)	5.0	
Stabilization Lagoons (1 or more cells with primary aeration)	7.0	
Stabilization Lagoons (2 or more cells with full aeration)	9.0	
Recirculating Gravel Filter (or recirculating textile filters)	7.0	
Chemical Precipitation Unit(s)	3.0	
Gravity Filtration Unit(s)	2.0	
Pressure Filtration Unit(s)	4.0	
Nitrogen Removal (Biological (BNR) or Chemical/Biological System)	4.0	

Nitrogen Removal (Design Extended Aeration Only - Nitrification)	2.0	2.0
Phosphorous Removal Unit(s)	4.0	
Effluent Microscreen(s)	2.0	
Chemical Flocculation Unit(s)	3.0	
Ultra Filtration Membrane(s)	15.0	
Chemical Addition System <i>Description:</i> <input type="text"/>	2.0	
<i>Solids Handling (excludes long-term storage in treatment lagoons above)</i>		
Anaerobic Primary Sludge Digester(s) w/o Mixing and Heating	5.0	
Anaerobic Primary Sludge Digester(s) with Mixing and Heating	7.0	
Anaerobic Primary and Secondary Sludge Digesters	10.0	
Sludge Digester Gas Reuse	3.0	
Aerobic Sludge Digester(s)	8.0	8.0
Sludge Storage Lagoon(s) (List Basin(s) or Tank(s) in Step 2)	2.0	
Sludge Lagoon(s) with Aeration	3.0	
Sludge Drying Bed(s)	1.0	
Sludge Air or Gravity Thickening	3.0	
Sludge Composting (in Vessel)	12.0	
Sludge Belt(s) or Vacuum Press/Dewatering	5.0	
Sludge Centrifuge(s)	5.0	
Sludge Incineration	12.0	
Sludge Chemical Addition Unit(s) (alum, polymer, alkaline stab, etc.)	2.0	
Non-Beneficial Sludge Disposal (landfill or burial)	1.0	
Beneficial Sludge Utilization (see also Step 2)	3.0	3.0
Solids Reduction Processing	4.0	
<i>Disinfection</i>		
Liquid Chlorine Disinfection	2.0	
Gas Chlorine Disinfection	5.0	5.0
Dechlorination System	4.0	
Other Disinfection System including Ultraviolet and Ozonation	5.0	
On-Site Chlorine Generation of Disinfectants	5.0	
4. Effluent Permit Requirements		
Minimum of Secondary Effluent Limitation for BOD and/or TSS	2.0	
Minimum of 20 mg/L BOD and/or Total Suspended Solids	3.0	3.0

Minimum of 10 mg/L and/or Total Suspended Solids	4.0	
Minimum of 5 mg/L BOD and/or Total Suspended Solids	5.0	
Effluent Limitations for Effluent Oxygen	1.0	
Other Limits (see Step 2)		

5. Variation in Raw Waste

Points in this category will be awarded only when conditions are extreme to the extent that operation and handling procedure changes are needed to adequately treat waste due to variation of raw waste (strength or flow).

Recurring deviations or excessive variations (100 - 200 %)	2.0	
Recurring deviations or excessive variations of more than 200 %, or conveyance and treatment of industrial wastes covered by the pretreatment program.	4.0	
Septage or truck-hauled waste	2.0	

6. Sampling and Laboratory Testing

Sample for BOD, Total Suspended Solids (performed by outside lab)	2.0	
BOD or Total Suspended Solids analysis (performed at treatment plant)	4.0	4.0
Bacteriological analysis (performed by outside lab)	1.0	1.0
Bacteriological analysis (performed at wastewater treatment plant lab)	2.0	
Nutrient, Heavy Metals, or Organic analysis (performed by outside lab)	*3.0	1.0
Nutrient, Heavy Metals or Organic analysis (performed at wastewater treatment plant)	5.0	

**≤ 1 per month = 1 point*

STEP 2: Complexity Reflected in OAR 340-049 0020(4)

Note: This step may justify a higher classification. Points shown are given as guidance.

Fine Screen Preliminary Treatment (includes washing & compaction)	2.0	
SCADA or similar instrumentation providing data/w process op.	2.0 - 4.0	
Post-aeration (includes mechanical and diffused aeration - not cascade)	1.0	
Class A recycled water (storage, distribution & monitoring)	6.0	
Class B, C, D and Non-disinfected Recycle (surface & subsurface)	3.0	
Sludge dewatering using bag or tube system	1.0	
Solids Composting (ASP or windrow)	6.0	
Land application of biosolids by system operator	5.0	1.0
Odor or corrosion control (separate or combined)	2.0	
Chemical/physical advanced waste treatment	10 - 15.0	

Reverse Osmosis, Electro-dialysis, Membrane Filtration	15.0	
Standby power	1.0 - 3.0	
Digester Gas Recovery Systems	1.0 - 3.0	
Other Effluent Limitations (describe below)	1.0	
Description:		
	Total	54.5

APPENDIX D: ANTIDegradation REVIEW SHEET

ANTIDegradation REVIEW SHEET FOR A PROPOSED INDIVIDUAL NPDES DISCHARGE

Applicant: City of Maupin

1. What is the name of the surface water that receives the discharge? Deschutes River

Briefly describe the proposed activity: Treatment and disposal of sewage

This review is for a: Renewal New

[Go to Step 2.](#)

2. Are there any existing uses associated with the water body that are not included in the list of designated uses? Example: DEQ's Fish Use Designation Maps identify the waterbody as supporting salmonid migration; however ODFW has determined that it also supports salmonid spawning.

Yes. Identify additional use(s), the basis for conclusion, and the applicable criteria: . Go to [Step 3.](#)

No. Go to [Step 3.](#)

3. Was the analysis of the impact of the proposed activity performed relative to criteria applicable to the most sensitive beneficial use?

Yes. Go to [Step 4.](#)

No. Re-do analysis to develop permit limits using correct criteria, and modify permit as necessary. Go to [Step 4.](#)

4. Is this surface water an **Outstanding Resource Water** or **upstream** from an **Outstanding Resource Water**? Note: No waters in Oregon have been designated as Outstanding Resource Waters. OAR 340-041-0004(8)(a) contains criteria for designating such waters. Example: they are found in State or National parks.

Yes. [Go to Step 7.](#) No. [Go to Step 5.](#)

5. Is this surface water a **High Quality Water**? A High Quality Water is one for which none of the pollutants are Water Quality Limited. To determine, go to the database at <http://www.deq.state.or.us/wq/assessment/rpt2010/search.asp> and under Listing Status, select "Water Quality Limited – All (Categories 4 and 5)".

Yes. [Go to Step 10.](#) No. [Go to Step 6.](#)

6. Is this surface water a **Water Quality Limited Water**? To determine, use the same database query as Step 5.

Yes. [Go to Step 16.](#) No. [Go to Step 4](#) (you must answer "yes" to either question 4, 5, or 6)

Note: The surface water must fall into one of 3 categories: Outstanding Resource Water ([Step 4](#)), High Quality Water ([Step 5](#)), or Water Quality Limited Water ([Step 6](#)).

7. Will the proposed activity result in a permanent new or expanded source of pollutants directly to or affecting the **Outstanding Resource Water**? [see OAR 340-041-0004(3)-(5) for a description in rule of discharges that do not result in lowering of water quality or do not constitute a new and/or increased discharge or are otherwise exempt from anti-degradation review; otherwise see “Is an Activity Likely to Lower Water Quality?” in *Anti-degradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications*.]
- Yes, Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23](#).
- No. Please provide basis for conclusion: [Go to Step 8](#).
8. Will the proposed activity result in a lowering of water quality in the **Outstanding Resource Water**? [see OAR 340-041-0004(3)-(5) for a description in rule of discharges that do not result in lowering of water quality or do not constitute a new and/or increased discharge or are otherwise exempt from antidegradation review; otherwise see “Is an Activity Likely to Lower Water Quality?” in *Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications*.]
- Yes. Provide basis for conclusion: [Go to Step 9](#).
- No. Provide basis for conclusion: [Go to Step 20](#).
9. If the proposed activity results in a non-permanent new or expanded source of pollutants directly to or affecting an **Outstanding Resource Water**, will the lowering of water quality in the **Outstanding Resource Water** be on a short-term basis in response to an emergency or to protect human health and welfare?
- Yes. Proceed with Application Process to Interagency Coordination and Public Comment. [Go to Step 23](#).
- No. Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 20](#).
10. Will the proposed activity result in a Lowering of Water Quality in the **High Quality Water**[see OAR 340-041-0004(3)-(5) for a description in rule of discharges that do not result in lowering of water quality or do not constitute a new and/or increased discharge or are otherwise exempt from antidegradation review; otherwise see “Is an Activity Likely to Lower Water Quality?” in *Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications*.]
- Yes. [Go to Step 11](#).
- No. Proceed with Permit Application. Applicant should provide basis for conclusion: [Go to Step 23](#).
11. OAR 340-041-0004(6)(c) of the *High Quality Waters Policy* requires that the Department evaluate the application to determine that all water quality standards will be met and beneficial uses protected after allowing discharge to **High Quality Waters**. Will all water quality standards be met and beneficial uses protected?
- Yes. Provide basis for conclusion: Proceed with Application Process to Interagency Coordination and Public Comment. [Go to Step 12](#).

No. Provide basis for conclusion. Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

12. OAR 340-041-0004(6)(a) of the High Quality Waters Policy requires that the Department evaluate the application to determine if no other reasonable alternatives exist except to discharge to High Quality Waters. At a minimum, the following list must be considered:

- Improved operation and maintenance of existing treatment system
- Recycling or reuse with no discharge
- Discharge to on-site system
- Seasonal or controlled discharges to avoid critical water quality periods
- Discharge to sanitary sewer
- Land application

Were any of the alternatives feasible?

Yes. Provide basis for conclusion (see below for information requirements): Recommend
Preliminary Decision that applicant use alternative. [Go to Step 10.](#)

No. Provide basis for conclusion (see below for information requirements): [Go to Step 13.](#)

In a separate statement to this application, please explain the *technical feasibility* of the alternative, explain the *economic feasibility* of the alternative, and provide an *estimated cost* of NPDES permit alternative for a five-year period from start-up.

13. OAR 340-041-0004(6)(b) of the *High Quality Waters Policy* requires that the Department evaluate the application to determine if there are social and economic benefits that outweigh the environmental costs of allowing discharge to High Quality Waters. Do the social and economic benefits outweigh the environmental costs of lowering the water quality?

Yes. Provide basis for conclusion (see below for information requirements): [Go to Step 14.](#)

No. Provide basis for conclusion (see below for information requirements): [Go to Step 23.](#)

The basis for conclusion should include a discussion of whether the lowering of water quality is necessary and important. “Necessary” means that the same social and economic benefits cannot be achieved with some other approach. “Important” means that the value of the social and economic benefits due to lowering water quality is greater than the environmental costs of lowering water quality.

Benefits can be created from measures such as:

- Creating or expanding employment (provide current/expected number of employees, type & relative amount of each type)
- Increasing median family income
- Increasing community tax base (provide current/expected annual sales, tax info)
- Providing necessary social services

- Enhancing environmental attributes

Environmental Costs can include:

- Losing assimilative capacity otherwise used for other industries/development
- Impacting fishing, recreation, and tourism industries negatively
- Impacting health protection negatively
- Impacting societal value for environmental quality negatively

14. OAR 340-041-0004(6)(d) of the *High Quality Waters Policy* requires that DEQ prevent federal threatened and endangered aquatic species from being adversely affected. Will lowering the water quality likely result in adverse effects on federal threatened and endangered aquatic species?

Yes, please provide basis for conclusion (see below for information requirements): [Go to Step 23.](#)

No, please provide basis for conclusion (see below for information requirements): [Go to Step 15.](#)

15. Will lowering water quality in the **High Quality Water** be on a short-term basis in response to an emergency or to protect human health and welfare?

Yes, [go to Step 20.](#)

No, recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23](#)

16. Will the proposed activity result in a lowering water quality in the **Water Quality Limited Water**? [see OAR 340-041-0004(3)-(5) for a description in rule of discharges that do not result in lowering of water quality or do not constitute a new and/or increased discharge or are otherwise exempt from anti-degradation review; otherwise see “Is an Activity Likely to Lower Water Quality?” in *Anti-degradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications.*]

Yes, [go to Step 17.](#)

No, proceed with Permit Application. Permit writer should provide basis for determination in permit evaluation report: [Go to Step 23.](#)

17. OAR 340-041-0004(9)(a)(A) of the *Water Quality Limited Waters Policy* requires that the Department evaluate the application to determine that all water quality standards will be met. Will all water quality standards be met?

Yes, please provide basis for conclusion: [Go to Step 18.](#)

No, please provide basis for conclusion. Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

18. OAR 340-041-0004(9)(a)(C) of the *Water Quality Limited Waters Policy* requires that the Department evaluate the application to determine that all recognized beneficial uses will be met and that threatened or endangered species will not be adversely affected. Will all beneficial uses be met and will threatened or endangered species be protected from adverse effects?

Yes, please provide basis for conclusion: [Go to Step 19.](#)

No, please provide basis for conclusion: Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

19. OAR 340-041-0004(9)(a)(D)(i-iv) of the *Water Quality Limited Waters Policy* requires that the Department evaluate the application for ***one of the following***:

- 19A. Will the discharge be associated (directly or indirectly) with the pollution parameter(s) causing the waterbody to be designated a Water Quality Limited Water?

Yes, please provide basis for conclusion: . Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

No, please provide basis for conclusion: [Go to Step 20.](#)

- 19B. Have TMDLs, WLAs, LAs, and reserve capacity been established, compliance plans been established, and is there sufficient reserve capacity to assimilate the increased load under the established TMDL?

Yes, please provide basis for conclusion: [Go to Step 20.](#)

No, please provide basis for conclusion: Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

- 19C. Will the proposed activity meet the requirements, as specified under OAR 340-041-0004(9)(a)(D)(iii) of the *Water Quality Limited Waters Policy*, for dissolved oxygen?

Yes, please provide basis for conclusion: [Go to Step 20.](#)

No, please provide basis for conclusion: Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

- 19D. Will the activity solve an existing, immediate, and critical environmental problem?

Yes, please provide basis for conclusion: [Go to Step 20.](#)

No, please provide basis for conclusion: Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

20. Is the proposed activity consistent with local land use plans?

Yes, [go to Step 21.](#)

No, please provide basis for conclusion: Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

21. OAR 340-041-0004(9)(c)(A) requires the Department to consider alternatives to lowering water quality. At a minimum, the following list must be considered:

- Improved operation and maintenance of existing treatment system
- Recycling or reuse with no discharge
- Discharge to on-site system
- Seasonal or controlled discharges to avoid critical water quality periods
- Discharge to sanitary sewer
- Land application

Were any of the alternatives feasible?

Yes, please provide basis for conclusion (see below for information requirements): Recommend Preliminary Decision that applicant use alternative. [Go to Step 16.](#)

No, please provide basis for conclusion (see below for information requirements): [Go to Step 22.](#)

In a separate statement to this application, please explain the *technical feasibility* of the alternative, explain the *economic feasibility* of the alternative, and provide an *estimated cost* of NPDES permit alternative for a five-year period from start-up.

22. OAR 340-041-0004(9)(c)(B) of the *Water Quality Limited Waters Policy* requires the Department to consider the economic effects of the proposed activity, which in this context consists of determining if the social and economic benefits of the activity outweigh the environmental costs of allowing a lowering of water quality. Do the social and economic benefits outweigh the environmental costs of lowering the water quality?

Yes. Provide basis for conclusion: Proceed with Application Process to Interagency Coordination and Public Comment. [Go to Step 23.](#)

No. Provide basis for conclusion: Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

The basis for conclusion should include a discussion of whether the lowering of water quality is necessary and important. “Necessary” means that the same social and economic benefits cannot be achieved with some other approach. “Important” means that the value of the social and economic benefits due to lowering water quality is greater than the environmental costs of lowering water quality.

Benefits can be created from measures such as:

- Creating or expanding employment (provide current/expected number of employees, type & relative amount of each type)
- Increasing median family income
- Increasing community tax base (provide current/expected annual sales, tax info)
- Providing necessary social services
- Enhancing environmental attributes

Environmental Costs can include:

- Losing assimilative capacity otherwise used for other industries/development
- Impacting fishing, recreation, and tourism industries negatively
- Impacting health protection negatively
- Impacting societal value for environmental quality negatively

23. On the basis of the Anti-degradation Review, the following is recommended:

Proceed with Application to Interagency Coordination and Public Comment Phase.

Deny Application; return to applicant and provide public notice

ACTION APPROVED

Review prepared by DEQ, [go to DEQ info](#) Other, [go to Other info](#)

DEQ info

Name: Jayne West

Phone: 541-633-2028

Date Prepared: 4/8/2016

Appendix E: pH RPA

INPUT	RPA for pH	
	Lower pH	Upper pH
	Criteria	Criteria
1. DILUTION FACTOR AT MZ BOUNDARY - $(Q_e+Q_r)/Q_e$	530	530
2. UPSTREAM/BACKGROUND CHARACTERISTICS		
Temperature (deg C):	19.5	19.5
pH:	8.5	8.5
Alkalinity (mg CaCO ₃ /L):	75.0	75.0
3. EFFLUENT CHARACTERISTICS		
Temperature (deg C):	25.0	25.0
pH:	6.0	8.5
Alkalinity (mg CaCO ₃ /L):	47.0	47.0
4. APPLICABLE PH CRITERIA	6.5	8.5
OUTPUT		
1. IONIZATION CONSTANTS		
Upstream/Background pKa:	6.39	6.39
Effluent pKa:	6.35	6.35
2. IONIZATION FRACTIONS		
Upstream/Background Ionization Fraction:	0.99	0.99
Effluent Ionization Fraction:	0.31	0.99
3. TOTAL INORGANIC CARBON		
Upstream/Background Total Inorganic Carbon (mg CaCO ₃ /L):	75.58	75.58
Effluent Total Inorganic Carbon (mg CaCO ₃ /L):	152.22	47.33
4. CONDITIONS AT MIXING ZONE BOUNDARY		
Temperature (deg C):	19.51	19.51
Alkalinity (mg CaCO ₃ /L):	74.95	74.95
Total Inorganic Carbon (mg CaCO ₃ /L):	75.72	75.52
pKa:	6.39	6.39
pH at Mixing Zone Boundary:	8.4	8.5
Is there Reasonable Potential?	No	No



CITY OF MAUPIN
NPDES PERMIT NO. 102274
FILE NO. 53633
Joy Ramirez 541-395-2237

CITY OF MAUPIN

Biosolids Management Plan May 01, 2016

Table of Contents

City of Maupin Biosolids Management Plan 2016.....pages 1-12

ATTACHMENTS

Land Application Authorization

Land Application Site Map Information

Biosolids Worksheet 2016

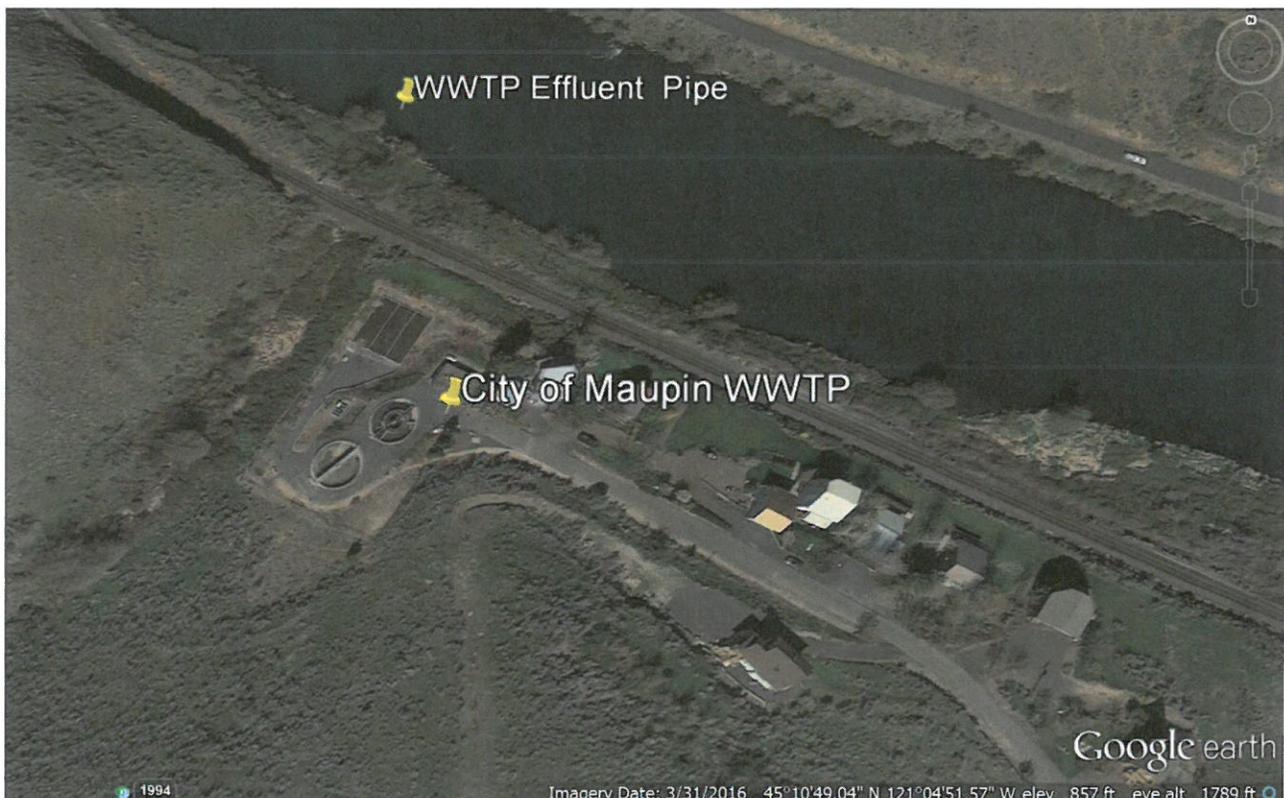
Drying Beds Testing Results 2011

**Biosolids Management Plan
for
City of Maupin
NPDES Permit No. 102274
File No. 53633
Joy Ramirez
541-395-2237**

INTRODUCTION

The City of Maupin owns and operates a municipal wastewater collection and treatment system, and manages a biosolids land application program. Wastewater processed by the treatment works is primarily of domestic origin, and no formal pretreatment program is required to be implemented under our NPDES permit. This biosolids management plan, as required by the NPDES permit, outlines the liquids and solids processes at the facility, how biosolids are managed to meet federal and state requirements, and how the biosolids land application program is operated. The City of Maupin's biosolids management plan was originally approved by the Oregon Department of Environmental Quality on December, 30 2005 and is being updated at this time to address additional state and federal regulations.

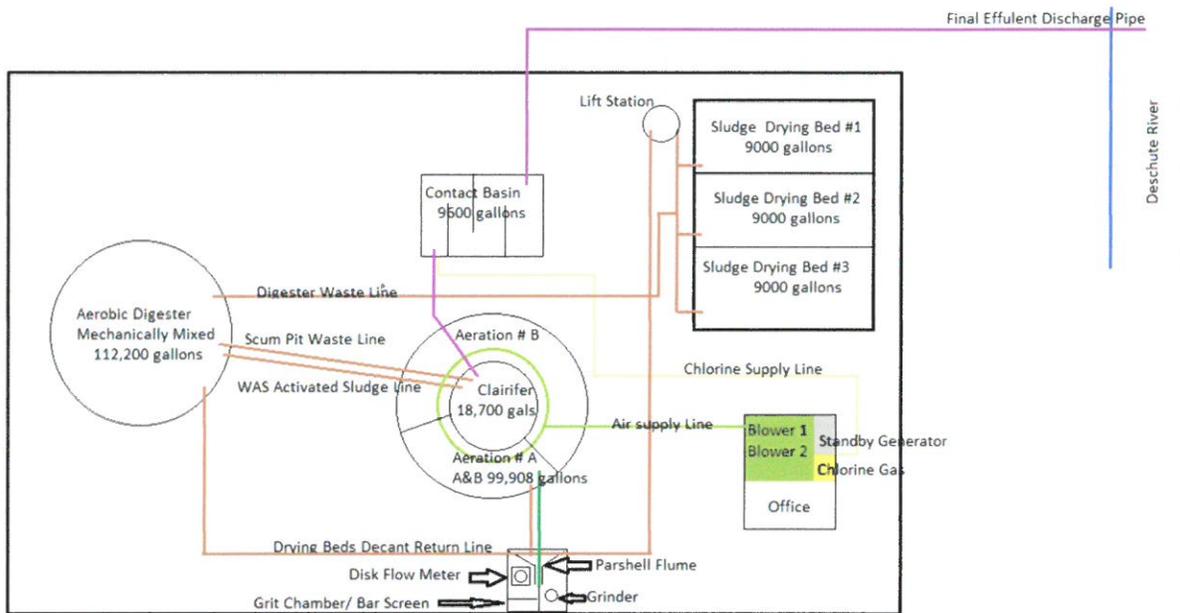
A 1: Satellite View of City of Maupin Wastewater Treatment Facility



Liquids Processing

City of Maupin operates an Activated Sludge Treatment Plant located at 816 Riverside in Wasco County. Treated effluent is discharged year around to the Deschutes River at river mile 50.02. The designed average dry weather flow is 0.1 million gallons per day (MGD). Actual flows during the 2015 dry season averaged 0.08 MGD and during the wet season averaged 0.06 MGD. The peak flow design capacity is .01 MGD. The origin of the wastewater processed is 100 percent domestic in nature. No industrial facilities are hooked up to the system at this time. No septage is accepted at this time.

A2: City of Maupin Wastewater Treatment Facility Diagram.

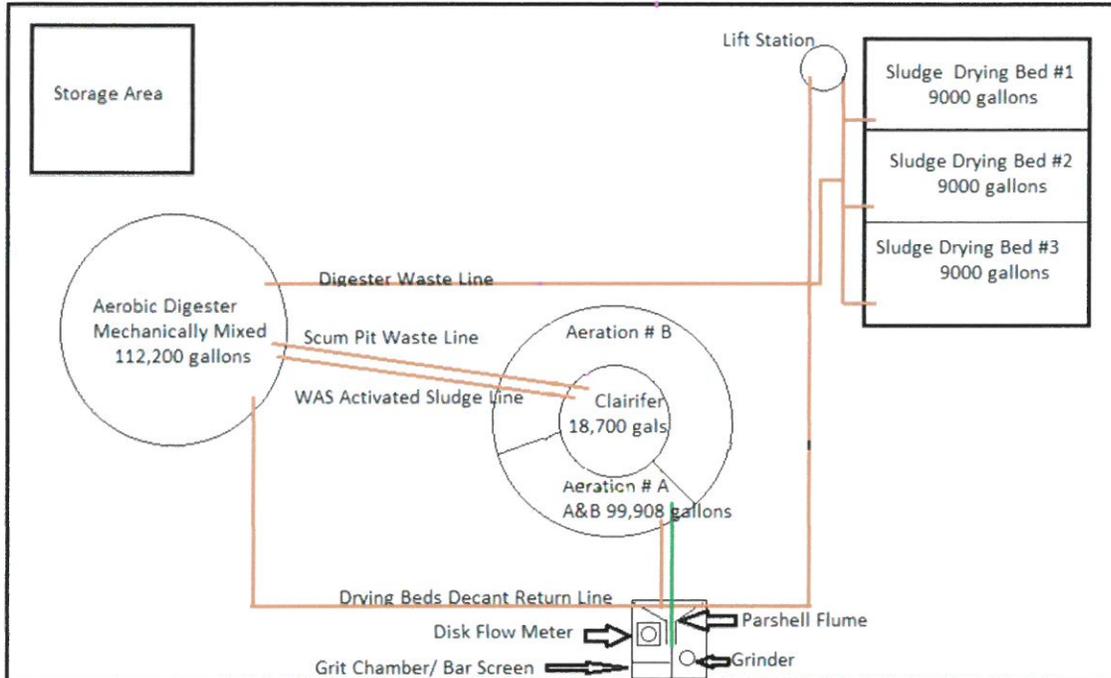


- Raw sewage enters the plant headworks structure which is equipped with a grit chamber and comminutor. A bypass channel is equipped with a barscreen, passes through a Parshall flume and into the aerations basin where it is continuously mix with air supplied by two 10 hp rotary positive displacements blowers. Total aeration tank volume is 99,908 gallons and has an average detention time of 28 hours in the summer and 43 hours in the winter. The BOD loading is approximately 90-120 lbs. per day. After aeration the wastewater flows into the clarifier with a volume of 18,700 gallons and a detention time of 8 hours. The effluent overflows from the clarifier and gravity flows to the chlorine contact basin with a volume of 9,600 gallons with a detention time of approximately 2 hours in the summer and 4 hours in the winter. Waste sludge is treated in an aerobic digester with a volume of 112,200 gallons. The aerobic digested sludge is discharged to drying beds for final treatment in preparation for land application. Biosolids are land applied once every two to three years.
- There has been no upgrades or modifications made to the process since the facility's previously approved biosolids management plan.
- Fluctuations in flow are impacted by a high influx of tourist for summer recreational usage.
- No significate changes in mode of operation during seasonal conditions or fluctuations in flow.
- Biosolids removal is accomplished by a mechanical biosolids collector. The sludge blanket is held between 3- 6 feet and the pounds of biosolids in the clarifier is approximately 900-1100 lbs.

- Process monitoring units include a disk flowmeter located at the headworks and NIST thermometer located at contact chamber effluent outfall.

Solids Processing

A3: Maupin Wastewater Treatment Facility- Existing Layout, Biosolids Process



- Solid Processing components include; One Aerobic Digester with a volume of 112,200. Three gravel and sand drying beds have a capacity of 9000 gallons when empty or 1200 feet³. The gravel and sand beds have an under drain to collect solids super-nanant which is drained to a lift station and returned back to the headworks. There is a stockpile area for 19 yards of biosolids.
- There is approximately 60 lbs. of dry primary biosolids produced per day $(.070)(1.0)(8.34)$. Normally 238 lbs. per week is wasted to the digester, 80 minutes of wasting and $(11,000)(0.0012)(8.34)$. Plus the solids from the scum pit. The operating temperature runs 6°C - 8°C in winter, and 17°C - 21°C in the summer. Solids detention in Aerobic Digester is over 6 months. Biosolids air dry in Drying Beds for approximately 3 + years.
- Odor minimization is controlled by thorough mixing of the digester by means of a 50 hp surface aerator 2 times a day for 2 hours in winter months and 8 hours a day in summer months.
- The average dry pounds of biosolids in drying beds is approximately 3,400 lbs. The facility applies biosolids once every 2-3 years.
- No upgrades or modifications have been made to the process.
- Solids processing operational changes during seasonal conditions or fluctuations in flow (e.g., during the months when field access is limited for application, biosolids are air dried on the drying pad or stored in the sludge storage tank which serves as a secondary digester).
- Solids process monitoring includes temperature and pH twice a week from aerobic digester, TSS every two weeks, Volatile solids when dumping to drying beds.

Septage Processing

The facility does not accept any septage at this time.

Pretreatment Program

The City of Maupin is not required at this time to implement an industrial wastewater pretreatment program as one is not required at this time based on current information. Pollutant monitoring requirements as stated in the permit will ensure land application of biosolids occurs within federal and state limitations.

BIOSOLIDS TREATMENT PROCESSES

Under 40 CFR Part 503 and Oregon Administrative Rules Chapter 340, Division 50, pathogen reduction and vector attraction reduction for biosolids must be met prior to land application. Vector attraction reduction requirements can also be met at the time of land application if biosolids are injected below the surface of the land or incorporated into the soil within 6 hours after application to the land. Biosolids are categorized as Class A or Class B depending on the method used to determine pathogen reduction. Biosolids may also be classified as exceptional quality (EQ) if the product meets: pollutant concentration limits in 40 CFR Part 503, one of the Class A pathogen reduction alternatives in 40 CFR §503.32(a), and one of the vector attraction reduction options in 40 CFR §503.33(b)(1) through (8). To meet regulatory requirements, pathogen reduction must be met before or at the same time that vector attraction reduction is achieved.

The City of Maupin will certify in writing that Class B pathogen requirements and vector attraction reduction requirements are met. The City of Maupin will also notify the Department in writing and obtain written approval prior to any process change that would use a pathogen reduction or vector attraction reduction method other than what is specified in this biosolids management plan.

Pathogen Reduction

Pathogen reduction requirements of 40 CFR Part 503 and OAR 340-050 are met through Class B biosolids. Alternative 2 is met through Aerobic digestion. Sewage sludge is agitated with air to maintain aerobic conditions. Sewage sludge is dried on sand beds or on paved or unpaved basins. The sewage sludge dries for a minimum of 3 months. During 2 of the 3 months, the ambient average daily temperature is above 0°C (23°F).

Class B Pathogen Requirements

**Note: Must meet one of the following alternatives. Check applicable alternative.*

- Alternative 1: The geometric mean of the density of fecal coliform of seven representative samples shall be less than either 2 million Most Probable Number (MPN) or 2 million Colony Forming Units (CFU) per gram of total solids (dry weight basis).
- Alternative 2: Biosolids shall be treated in one of the Processes to Significantly Reduce Pathogens (PSRP) described in the table below.
- Alternative 3: Biosolids shall be treated in a process that is equivalent to a PSRP, as determined by the permitting authority.

Processes to Significantly Reduce Pathogens (PSRP) Listed in Appendix B of 40 CFR Part 503

<input type="checkbox"/>	Aerobic Digestion	Sewage sludge is agitated with air or oxygen to maintain aerobic conditions for a specific mean cell residence time (i.e., solids retention time) at a specific temperature. Values for the mean cell residence time and temperature shall be between 40 days at 20°C (68°F) and 60 days at 15°C (59°F).
<input checked="" type="checkbox"/>	Air Drying	Sewage sludge is dried on sand beds or on paved or unpaved basins. The sewage sludge dries for a minimum of 3 months. During 2 of the 3 months, the ambient average daily temperature is above 0°C (23°F).
<input type="checkbox"/>	Anaerobic Digestion	Sewage sludge is treated in the absence of air for a specific mean cell residence time (i.e., solids retention time) at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35°C to 55°C (131°F) and 60 days at 20°C (68°F).
<input type="checkbox"/>	Composting	Using either the within-vessel, static aerated pile, or windrow composting methods, the temperature of the sewage sludge is raised to 40°C (104°F) or higher and remains at 40°C (104°F) or higher for 5 days. For 4 hours during the 5-day period, the temperature in the compost pile exceeds 55°C (131°).
<input type="checkbox"/>	Lime Stabilization	Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 for ≥2 hours of contact.

Vector Attraction Reduction

Vector attraction reduction requirements of 40 CFR Part 503 are met through At least 38% reduction in volatile solids during sewage sludge treatment.

Vector Attraction Reduction Options

40 CFR Part 503 Requirement		What is Required?	Most Appropriate For:
<input checked="" type="checkbox"/>	Option 1 503.33(b)(1)	At least 38% reduction in volatile solids during sewage sludge treatment	Sewage sludge processed by: Anaerobic biological treatment Aerobic biological treatment
<input type="checkbox"/>	Option 2 503.33(b)(2)	Less than 17% additional volatile solids loss during bench-scale anaerobic batch digestion of the sewage sludge for 40 additional days at 30°C to 37°C (86°F to 99°F)	Only for anaerobically digested sewage sludge that cannot meet the requirements of Option 1
<input type="checkbox"/>	Option 3 503.33(b)(3)	Less than 15% additional volatile solids reduction during bench-scale aerobic batch digestion for 30 additional days at 20°C (68°F)	Only for aerobically digested liquid sewage sludge with 2% or less solids that cannot meet the requirements of Option 1 – e.g., sewage sludges treated in extended aeration plants. Sludges with 2% or greater solids must be diluted
<input type="checkbox"/>	Option 4 503.33(b)(4)	SOUR at 20°C (68°F) is ≤ 1.5 mg oxygen/hr/g total sewage sludge solids	Liquid sewage sludges (2% or less solids) from aerobic processes run at temperatures between 10 to 30°C (should not be used for composted sewage sludges)
<input type="checkbox"/>	Option 5 503.33(b)(5)	Aerobic treatment of the sewage sludge for at least 14 days at over 40°C (104°F) with an average temperature of over 45°C (113°F)	Composted sewage sludge (For sewage sludges from other aerobic processes, it will likely be easier to meet option 3 or 4)

<input type="checkbox"/>	Option 6 503.33(b)(6)	Addition of sufficient alkali to raise the pH to at least 12 at 25°C (77°F) and maintain a pH \geq 12 for 2 hours and a pH \geq 11.5 for 22 more hours	Alkali-treated sewage sludge (alkaline materials include lime, fly ash, kiln dust, and wood ash)
<input type="checkbox"/>	Option 7 503.33(b)(7)	Percent solids \geq 75% prior to mixing with other materials	Sewage sludges treated by an aerobic or anaerobic process (i.e., sewage sludges that do not contain unstabilized solids generated in primary wastewater treatment)
<input type="checkbox"/>	Option 8 503.33(b)(8)	Percent solids \geq 90% prior to mixing with other materials	Sewage sludges that contain unstabilized solids generated in primary wastewater treatment (e.g., heat-dried sewage sludges)
<input type="checkbox"/>	Option 9 503.33(b)(9)	Sewage sludge is injected into soil so that no significant amount of sewage sludge is present on the land surface 1 hour after injection, except Class A sewage sludge which must be injected within 8 hours after the pathogen reduction process	Sewage sludge applied to the land or placed on a surface disposal site. Domestic septage applied to agricultural land, a forest, or a reclamation site, or placed on a surface disposal site
<input type="checkbox"/>	Option 10 503.33(b)(10)	Sewage sludge is incorporated into the soil within 6 hours after application to land or placement on a surface disposal site, except Class A sewage sludge which must be applied to or placed on the land surface within 8 hours after the pathogen reduction process	Sewage sludge applied to the land or placed on a surface disposal site. Domestic septage applied to agricultural land, forest, or a reclamation site, or placed on a surface disposal site

BIOSOLIDS STORAGE

Treatment Facility

From the treatment facility Class B biosolids can be transferred into a truck for land application.

Staging

The unloading and placement of biosolids in one area at a land application site may occur on a limited time basis. If staging of biosolids occurs, the requirements outlined in the site authorization letters for each site will be followed.

Field Storage

Field storage is not authorized by the Department at this time.

TRANSPORTATION

The City of Maupin owned equipment to transport biosolids from the wastewater treatment facility to authorized land application sites. City owned equipment is operated by city employees. The City of Maupin is able to handle the volume of biosolids produced through these transportation practices.

Class B dry biosolids are loaded from drying beds into 5 yard dump truck for land application. Biosolids are transferred to the vehicle, using a backhoe. The dump truck is parked on tarped and asphalted driveway

located in front of drying beds to catch any loose or spilt dried biosolids which can be sweep up and returned to drying beds. Wash down hoses, squeegees, brooms, shovels, and disinfection solution are located on dump truck in case of a spill on facility site.

REMEDIAL PROCEDURES

All spills into waters of the state or spills on the ground surface that are likely to enter waters of the state will be reported immediately to Oregon Emergency Response System (OERS) at 1-800-452-0311 and the Department's regional biosolids specialist at 1-503-229-5472. All spills of 5 gallons or more on the ground surface will be reported to the Department's regional biosolids specialist within 24 hour(s) of the spill incident.

Spill During Transportation of Biosolids

The City of Maupin is responsible for cleanup of any biosolids spills that occur while transporting to land application sites. If a spill occurs during the transport of biosolids between the wastewater treatment facility and the land application site, the City of Maupin will:

- Contain the spill.
- Post the area and set up temporary fencing if there is a potential for public exposure.
- Remove spilled biosolids with a front end loader or shovel.
- Cover the area with dry lime if needed.
- Apply absorbent (e.g., sand) if needed.
- Transport spilled product to a Department authorized biosolids land application or disposal site.

Solids Treatment Process Failure or Modification

If a mechanical problem occurs with Surface Aerator and replacement parts are not in stock at the treatment facility, an emergency parts order will be placed. During this period, 4 mobile air-compressors with coarse air diffusers will be used to provide air to Aerobic digester.

If maintenance is needed on a treatment process component that will affect compliance with pathogen reduction or vector attraction reduction requirements, the City of Maupin will notify the Department and get approval prior to the maintenance activity.

MONITORING AND REPORTING

Monitoring and Sampling Program

The City of Maupin has developed and implemented a biosolids monitoring and sampling plan. Samples collected and analyzed will be representative of the biosolids to be land applied. Quality control measures and procedures will be implemented for microbiological tests to verify precision and accuracy. Sampling location(s) stated will demonstrate how vector attraction reduction Option 1 are met.

The plan includes:

- The sampling location (must be representative),
- How samples will be collected, preserved and transported, and
- The analytical method for each analysis.

All monitoring and reporting will be conducted in accordance with the City of Maupin NPDES permit. The monitoring frequency is based on the amount of biosolids generated that is land applied, or marketed to be sold or given away. Based on 40 CFR §503.16, Table 1 the City of Maupin is required to sample biosolids annually when land applied.

Recordkeeping and Reporting Procedures

The City of Maupin as the preparer and land applier of biosolids is required to maintain records to demonstrate that federal and state biosolids requirements are met. Records will be kept on file by the City of Maupin and will be available upon request by the Department. Monitoring and sampling records will be retained for a period no less than 5 years, unless otherwise required by the NPDES permit or a site authorization letter. The minimum required records include the following information:

- Pollutant concentrations of each parameter stated in the permit,
- Pathogen requirements as stated in the permit for Class B,
- Description of how one of the vector attraction reduction requirements in 40 CFR §503.33(b)(1) through (8) are met,
- Description of how the management practices in 40 CFR §503.14 and site restrictions in 40 CFR §503.32(b)(5) are met for each biosolids land application site, and
- Certification that the information submitted is accurate to determine compliance with pathogen and vector attraction reduction requirements, and site restriction/management requirements.

Annual Reporting

A biosolids annual report is required to be submitted to the Department each year by February 19th or as required by the permit if bulk biosolids have been land applied, or biosolids derived products were sold or given away the previous year. The report will include information on biosolids handling activities and data (i.e., monitoring results, nutrient loading rates) from the previous calendar year. Some of the information required with the annual report includes:

- Daily site logs or records, including date, time, and quantity (gallon, pounds) of nitrogen/acre land applied.
- Map, including scale, showing the site and the land application location that coincides with the daily site application method (e.g., truck spreader bar, irrigation cannon).
- Signed copy of the certification statement (see next section on Certification Statement).

Certification Statement

The City of Maupin is capable of meeting Class B pathogen reduction and vector attraction reduction requirements. As required under 40 CFR §503.17, the City of Maupin must retain a certification statement indicating whether compliance with pathogen reduction, vector attraction reduction, and certain site restrictions have been met. The certification statement must be retained for a period of five years, and must be submitted with the annual report that is due February 19th or as required by the permit. The City of Maupin will retain the following certification statement and it will be signed by a principal executive officer or ranking elected official or their duly authorized representative (e.g., individual or position having responsibility for the overall operation of the system, such as the position of plant manager, supervisor, superintendent or equivalent responsibility).

“I certify, under penalty of law, that the information that will be used to determine compliance with the Class B pathogen requirements in 40 CFR §503.32(b) Alternative 2 the vector attraction reduction requirement in 40 CFR §503.33(b) Option 1 and the site restrictions in 40 CFR §503.32(b)(5) for each site on which Class B sewage sludge was applied, was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment.”

Signature  Date 01 May 2016

The City of Maupin is also required as the land applier to certify that the management practices in 40 CFR §503.14 are being met. This certification includes that biosolids are being land applied at approved agronomic loading rates as specified in department issued site authorization letters.

“I certify, under penalty of law that the management practices in 40 CFR §503.14 have been met for each site on which bulk biosolids is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment.”

Signature  Date 01 May 2016

BIOSOLIDS CHARACTERISTICS

Pollutant Characteristics

The following table is a representative biosolids analysis for pollutant characteristics. This data and all previous data indicate that pollutant concentrations for all regulated pollutants have been met.

Parameter	Biosolids Analytical Result (mg/kg)	Sample Date	40 CFR §503.13(b)(3) Pollutant Concentration Limits (mg/kg)
Arsenic (As)	2.26	Jan 2012	41
Cadmium (Cd)	2.77	Jun 2011	39
Chromium (Cr)	2.9	Jun 2011	-
Copper (Cu)	266	Jun 2011	1500
Lead (Pb)	59.6	Jun 2011	300
Mercury (Hg)	3.09	Jun 2011	17
Molybdenum (Mo)	5.19	Jun 2011	-
Nickel (Ni)	19.8	Jun 2011	420
Selenium (Se)	6.60	Jan 2012	100
Zinc (Zn)	1080	Jun 2011	2800

Nutrient Characteristics and Other Parameters

The following table is a representative biosolids analysis for nutrient characteristics and other parameters.

Parameter/measurement unit	Biosolids Analytical Result	Sample Date
Total solids, percent	54.2	June 2011
Volatile solids, percent	33.4	June 2011
TKN, percent	3.8	June 2011
NO ₃ -N, percent	.059	June 2011
NH ₄ -N, percent	.00802	June 2011
Phosphorus (P), percent	.145	June 2011
Potassium (K), percent	1.59	June 2011
pH, standard unit	5.3	June 2011

BIOSOLIDS UTILIZATION PROGRAM

100 percent of biosolids generated by the City of Maupin is beneficially used through land application. The following biosolids land application plan outlines agronomic application rate and site crops, where biosolids are land applied, site selection criteria for a new site, and site and crop management practices.

BIOSOLIDS LAND APPLICATION PLAN

Agronomic Application Rate and Site Crops

Class B biosolids are required to be land applied to a site at a rate that is equal to or less than the agronomic rate for the site. An agronomic rate is the whole biosolids application rate (dry weight basis) designed to provide the annual total amount of nitrogen needed by a crop and to minimize the amount of nitrogen passing below the root zone of the crop or vegetation to groundwater.

Biosolids application rates for the City of Maupin sites were developed based on Oregon State University (OSU) Extension Service Fertilizer Guide: Wasco County Extension Service. The annual application rate for dry land wheat is 40 lbs. available nitrogen (N) per acre, unless the application site demonstrates additional nitrogen is required to match crop uptake rates. The land application sites authorized for use can assimilate the total plant available nitrogen the biosolids provide on an annual basis. Specific site agronomic loading rates are stated in the Department issued site authorization letters.

Site Inventory of Existing and Potential Sites

The City of Maupin currently land applies Class B biosolids to the Department authorized sites listed in the Appendix letter. Surface application of biosolids is performed by farmer harrows biosolids into soil. Site maps with the general location and size of existing authorized sites are included as Appendix of this biosolids management plan. The land application site currently has 670 acres that are authorized for land application. This is an adequate land base for current and future operations, based on current biosolids generation rates.

Biosolids Land Application Site Inventory

Site Name/Identifier	Type of Crop/Acreage	lb. N/acre	lb. N/site	Time of year applied (month)	Harvest Cycle	Department Authorized?
Jerry Duling	670 dry wheat	40		Aug- Sep	Every other yr	DEQ

Site Selection Criteria for a New Site

If necessary, the City of Maupin will locate additional sites for land applying biosolids. Prior to using any site for land application, the City of Maupin is required to receive a written site authorization letter from the Department. The following site conditions will be considered when determining the suitability of a site for land application:

- All sites will be located on agricultural land in Wasco County.
- A site should be on a stable geologic formation not subject to flooding or excessive run-off from adjacent land.
- Minimum depth to permanent groundwater should be four feet and the minimum depth to temporary groundwater should be one foot at the time when application of liquid biosolids occurs.

- Topography should be suitable for normal agricultural operations. Liquid biosolids should not be land applied on bare soils when the slope exceeds 12 percent. / Dewatered or dried biosolids may be land applied on well vegetated slopes up to 30 percent.
- Soil should have a minimum rooting depth of 24 inches.

Public Notification

The City of Maupin is required to notify the public of the proposed land application activity. Each year prior to land application of biosolids, the City of Maupin should verify for those sites to be used for the year that the property owners who received prior notification have not changed. If a property owner has changed, notification of the land application activity should be made to the new property owner and documented.

Site Management Practices

Site access restrictions and setbacks will be followed as outlined in the Department's site authorization letters. The City of Maupin will ensure that access is restricted by appropriate means as necessary, such as fencing or posting of signs at the land application site. Biosolids land application will not occur in those areas designated as buffer strips and will be achieved through accurate measurement of the buffer area prior to commencing land application.

Crop Management Practices

As listed in the Biosolids Land Application Site Inventory table on page 11 biosolids are applied to dry wheat crops. Timing of application and the harvest cycle of the crop are also listed. Soil conditions must be favorable for application such that runoff, leaching, or soil compaction does not occur. The timing of land application will take into consideration tilling and irrigation practices that may occur on an authorized site.

The overall management of nutrients at the land application sites takes into account the amount of biosolids land applied, the amount of commercial fertilizers used and the amount of residual nutrients in the soil. When additional sources of nitrogen (e.g., commercial fertilizer) are applied to a site, then the application of biosolids should be reduced to compensate for the additional nitrogen loading.

Prior to the initiation of biosolids application to a site, a representative soil sample is collected across the entire site, and analyzed by an independent commercial laboratory. Existing nitrogen levels in the soil profile are subtracted from the OSU Extension Service recommended nitrogen application rates for the crop and the biosolids application rate is adjusted. Soil testing is conducted at site locations on a state frequency basis. In the event of annual biosolids application to the same field for 3 consecutive years, annual sampling and testing of application site soils for nitrate and ammonia nitrogen will be conducted prior to biosolids application. Application rates must be adjusted to account for available nitrogen carried over from previous applications. If crop removal of nitrogen exceeds the calculated agronomic rate, additional nitrogen may be required to sustain crop production.

ATTACHMENTS

Land Application Authorization

Land Application Site Map Information

Biosolids Worksheet 2016

Drying Beds Testing Results 2011

Land Application Authorization

May 3, 2016

**IMPORTANT DOCUMENT
LAND APPLICATION AUTHORIZATION**

Joy Ramirez
City of Maupin
P.O. Box 308
Maupin, OR 97037

Re: Biosolids Land Application Authorization
Duling Fields
Permit No. 102274 ; File No. 53633
WQ-Wasco County

Dear Ms. Ramirez:

The City of Maupin land applies biosolids on fields located in Wasco County, Oregon. The fields are owned by Dulings Natural Pasture LLC 54909 N. US Highway 197 Maupin, Oregon 97037. The original site authorization for this site is quite old and DEQ approvals have been lost over time. Therefore, this re-authorization letter is to confirm that DEQ continues to approve this site for land application of aerobically treated biosolids which have been dried in drying beds for approximately 2-3 years.

The field is identified in Table 1.

Table 1. Field reviewed for biosolids land application. The field is located in Wasco County, Oregon and owned by Jerry Duling

Field ID	Township, Range, Section	Tax Lot	Area (acres)	Spreadable Area (acres)
Duling	T4S R13 & 14E Section 31 & 36	4400	670	30

Recent information provided to DEQ includes the results of biosolids characterization testing that occurred on June 10, 2011.

Soils at the site appear to be predominately composed of Bakeoven-Maupin complex and Maupin loam, according to NRCS soil maps for the area. Hydrologic features, landscape position, and parent geologic features were reviewed to determine the suitability of the site. The locations of residences, wells, roads, and other sensitive features were identified. Finally, setbacks and site restrictions for biosolids land application was reviewed.

Based upon the site information provided by the City, the fields referenced in Table 1 are approved for the land application of aerobically digested, and dried biosolids provided the following conditions are satisfied:

1. **Regulations, Rules, and Permit Requirements.** Biosolids processing and handling will comply with:
 - a. Oregon biosolids and septage rules and guidelines (OAR 340-050);
 - b. federal biosolids and septage regulations (40 CFR Part 503);
 - c. the ODEQ issued permit to the City of Maupin (NPDES Permit No. 102274);
 - d. the ODEQ approved Biosolids Management Plan, including all subsequent amendments; and
 - e. all other applicable federal and state statutes and rules.
2. **Treatment Processes.**
 - a. Biosolids volatile solids shall be reduced by 38% or more via aerobic digestion prior to land application.
3. **Transportation.**
 - a. **Transportation of the biosolids to the land application site shall be done in accordance with the Biosolids Management Plan.**
4. **Land Application Activities.**
 - a. Biosolids are loaded in a 5-yard dump truck with a loader and transported to the site. Biosolids are then distributed by adjustment of chains on the tailgate of the truck. The farmer harrows within 14 days of application.
 - b. Biosolids shall be applied evenly and thinly in a manner that will prevent ponding and runoff from precipitation events.
 - c. Biosolids may be stored in the fields for no more than 14 days prior to spreading. The quantity of biosolids stored may not exceed the agronomic loading rate for the field.
 - d. Immediately following land application, the biosolids equipment operator shall clean off (at the application site) any equipment coated with biosolids to prevent biosolids from spilling onto public roadways.
5. **Application Rates and Timing.**
 - a. The fields are approved for the year around land application of biosolids. Land application timing must be appropriate to the sites' land management practices and must be managed to provide maximum benefit to crops grown on the site and minimize potential adverse environmental impacts.
 - b. Biosolids shall be applied at rates up to, but not exceeding, an agronomic loading limit appropriate to the crop being grown on the field, after accounting for supplemental sources of nitrogen and losses. Plant Available Nitrogen as well as first year loading rates¹ are provided in Table 2 and are based upon the following assumptions:



- i. Fields will be planted in dry land wheat.
- ii. All fields use wheel line irrigation. Some fields may be farmed without irrigation if drought conditions exist.
- iii. Conventional tillage is used. Hay fields that are renovated will be plowed, disked and harrowed using conventional farm equipment. Annual crops will be farmed conventionally.
- iv. Residual soil nitrate concentrations in the top 24” are accounted for in calculating biosolids application rates.
- v. Biosolids composition was derived from nutrient data collected from June 10, 2011 sample. Agronomic rates will be derived using a five year average of the data collected prior to each application;
- vi. No supplemental N fertilizer is supplied at time of planting;
- vii. Biosolids are air dried, resulting in 100% ammonia-nitrogen retention following land application; and
- viii. 35% of the organic nitrogen is mineralized during the first year following application.

Table 2. Crops, Plant Available Nitrogen (PAN), and estimated biosolids application rates for the Duling site.

Field	Irrigated Crop	Yield Goal (bu or tons/ac)	OSU nitrogen recommendation (lbs/bu or ton/ac)	PAN (lbs/ac/yr)	Estimated Biosolids application in year 1 (dry ton/ac)
All fields	Dry land wheat	1.1 Tons/ac	40 lbs/ac	30	13

- c. If the site is used for routine annual applications at agronomic rates, the site will be evaluated annually for carry over nitrate-nitrogen (NO₃-N) before the next application. Agronomic application rates are to be adjusted for residual NO₃-N in the top 24”.
- d. Additional biosolids applications will credit nitrogen for any biosolids applications made during the previous 3 years.
- e. Changes in biosolids characteristics, cropping practices, or general land management will necessitate appropriate adjustments in the application rate to maintain nitrogen applications consistent with crop demands. Major changes in any of the above will be communicated to the ODEQ’s Eastern Region in writing.

6. Site Restrictions.

¹ Biosolids application rate estimates are based upon “Worksheet for Calculating Biosolids Application Rates in Agriculture” (Publication No. PNW0511e) published by Oregon State University Extension Service, March 2007. Actual application rates may vary slightly based upon assumptions used in the calculations. Assumptions outside of the ranges provided in the OSU publication should be pre-approved by the ODEQ.



- a. **Wet Soils.** Care should be taken to avoid wet soil conditions at the time of application, particularly in concave areas.
 - b. **Precipitation.** Biosolids land application shall cease when precipitation exceeds ¼ inch per hour or when one inch or more of precipitation occurs in a 24-hour period. Land application shall be withheld from the site for at least one day for every consecutive day of precipitation where a ¼ inch or one-inch per 24-hour precipitation event occurs.
 - c. **General Public Access.** Access to the site by the general public shall be restricted for at least 12 months after biosolids land application has ceased.
 - d. **Grazing.** A 30-day interval shall follow the application of biosolids prior to grazing livestock on any field or prior to the harvesting of crops that are to be fed to animals.
 - e. **Wind.** Land application shall cease if wind speed is such that biosolids cannot be applied uniformly or would be thrown into buffer strips, waterways, roads, trails, or onto the application vehicle itself. Application may resume after wind speeds have decreased such that no significant blowing or drifting occurs.
 - f. **Slopes.** Dewatered or dried biosolids shall not be applied to sites with slopes greater than 30 percent. Sites with slopes between 12 and 30 percent must be well-vegetated to receive biosolids application.
 - g. **Nuisance Conditions.** Biosolids land application shall cease when the potential exists for nuisance conditions or runoff beyond the approved areas.
7. **Setbacks and Buffers.** Setbacks and buffers on the sites are listed in Table 3 and have also been identified in the site map(s).

Table 3. Site-specific setbacks for biosolids land application.

Feature	Setback[†] (ft.)
Property boundaries & private, unpaved roadways	10
Paved or graveled roadways & wind turbines	25
Residences	50
Wells	200
Intermittent waterways & drainage swales	50

[†]The setback is determined from the edge of the feature.

8. **Remedial Procedures.**

- a. The Maupin biosolids hauler shall clean up any spillage of biosolids. Maupin personnel shall consult with the ODEQ for appropriate methods of protecting public health and the environment for spills that cannot be completely cleaned up.
- b. In the event an odor problem is reported to the City of Maupin, its representative, or the ODEQ after biosolids has been land applied at the site, the city and the ODEQ will jointly determine the best method to mitigate the odor concern.
- c. The ODEQ shall be notified within one hour, through the Oregon Emergency Response System (OERS), of any spills of more than ¼ cubic yard (0.19 cubic meters) or other threats to the environment that may occur. All spills adjacent to drainage ditches or drainage ways should be reported. Failure to provide prompt notification may be



considered cause for taking enforcement action. The telephone number for OERS is 1.800.452.0311 (24-hr service).

9. Monitoring and Reporting.

- a. **Soil Testing.** Annual soil testing for residual nitrate-nitrogen (NO₃-N) will occur under the conditions described in Item 5.c. If biosolids are not applied annually then soil testing should occur prior to when biosolids are applied. The ODEQ recommends routine soil testing for soil nutrients as well as the trace pollutants listed in Table 1 of 40 CFR §503.13 for fields receiving annual biosolids applications. The Department may require soil testing if adverse environmental impacts are suspected at the site.
- b. **Site Records.** Daily site records of accumulated land applied biosolids will be maintained. Site records shall be recorded on field grid map or other readable system. Records shall indicate the date, location and quantity of biosolids applied; segments of each field that received biosolids; pounds of nutrients applied to each area receiving biosolids; and the type of crop grown. These records must be available to the ODEQ for review upon request. Regardless of the format in which written and mapped records are kept, they must be readily available in hardcopy format.
- c. **Annual Report.** By 19 February of each year, the City shall provide the DEQ with an annual report of the previous year's biosolids processing and application activities, as required under the DEQ rules (OAR 340-050-0035(6)). An annual report must also be submitted to the United States Environmental Protection Agency (USEPA) Region 10.

10. Notification.

- a. The City of Maupin or its representatives shall promptly notify ODEQ of any major changes it intends to make to its biosolids processing activities which could influence biosolids quality or quantity before anticipated modifications are initiated. Any variations from the Department approved biosolids management plan and this authorization letter must receive prior written approval from the ODEQ.

11. Additional Conditions.

- a. The ODEQ shall have the right: (i) to enter (at reasonable times) Maupin's (or its representatives) place of biosolids land application and record keeping to review biosolids management operations and records; (ii) to obtain copies of any records required under the terms of the authorization and the biosolids management plan; (iii) to inspect any monitoring equipment required under this authorization; (iv) to inspect any collection transport, or land application vehicle; and, (v) to obtain any photographic documentation or evidence deemed appropriate.
- b. This authorization is subject to revocation should health hazards, environmental degradation, or nuisance conditions develop as a result of inadequate biosolids treatment or site management.
- c. Any variations from Maupin's approved biosolids management plan and this authorization letter must receive prior written approval from the ODEQ Eastern Region Office.
- d. The ODEQ may amend this Site Authorization and impose any additional restrictions or conditions deemed necessary to protect environmental and human health.



This authorization is considered to be part of your approved biosolids management plan and is enforceable as part of your NPDES permit. Therefore, if operations are not conducted in accordance with terms specified under this authorization, the Department will initiate an enforcement action, which may lead to the assessment of a civil penalty. If you have any questions regarding the issues in this letter please call me at 541-633-2028 or contact me via email at west.jayne@deq.state.or.us.

Sincerely,

Jayne West
Water Quality Permit Specialist
Eastern Region Bend



Land Application Site Map Information

Biosolids Worksheet 2016

NOTE: This is adapted from Pacific Northwest Extension publication number, PNW0511e.

Enter information in these cells as applicable

You must enter information in these cells to determine an application rate

Cells of this color are calculations for your use

Version 20-Dec-07

GENERAL INFORMATION

Biosolids Source	WWTP
Field Number/ID	
Dry tons biosolids available (= wet tons x % solids)	13 dry tons
Acres available	670 acres

BIOSOLIDS DATA

Ammonia/ammonium-N	80 mg/kg	0 #/dry ton
Nitrate-N	590 mg/kg	1 #/dry ton
Total Kjeldahl N	37,700 mg/kg	75 #/dry ton
Percent solids	54%	
Organic nitrogen	37,620 mg/kg	75 #/dry ton

NITROGEN (N) CREDITS

PREVIOUS BIOSOLIDS APPLICATIONS

	Last Year	2 Years Ago	3 Years Ago	5 Years Ago
Dry tons applied/acre to site				13
Organic N concentration (mg/kg)				37,620
N credit (#/dry ton)	0	0	0	1
N credit (#/acre)	0	0	0	10

OTHER CREDITS NOT ACCOUNTED FOR

Nitrate-N applied in irrigation water	#/acre				
N applied at seeding (starter fertilizer)	#/acre				
Preplant nitrate-N in root zone (east of Cascades)	#/acre				NOTE: not required if accounted for in the nitrogen recommendation in Cell B30
Plowdown of cover or green manure crop	#/acre				NOTE: not required if accounted for in the nitrogen recommendation in Cell B30
Previous manure applications	#/acre				NOTE: not required if accounted for in the nitrogen recommendation in Cell B30
Total N credit	10 #/acre				

NITROGEN FERTILIZER RECOMMENDATION

Nitrogen recommendation (via guidelines, agronomist, etc.)	40 # N/acre/yr
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ESTIMATED BIOSOLIDS PLANT-AVAILABLE NITROGEN

Percent of ammonium-N retained after application (see Table 1)	100%
----------------------------------------------------------------	------

NOTE: This is adapted from Pacific Northwest Extension publication number, PNW0511e.

Enter information in these cells as applicable

You must enter information in these cells to determine an application rate

Cells of this color are calculations for your use

Version 20-Dec-07

Percent of organic N mineralized in Year 1 (see Table 2)	35%
Estimated plant-available N in biosolids	28
Amount of plant-available N needed from biosolids	30
AGRONOMIC BIOSOLIDS APPLICATION RATE	
Dry tons per acre =	1.1
Wet tons per acre =	2.0
Cubic yards per acre =	2.4
Cubic feet per acre =	64.4
Gallons per acre =	481.6
Acre-inches per acre	0.02

ACREAGE NEEDED

Acreage needed	12.2	acres
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Conversion Factors

1.19 yd³ / ton (based on 1,682 pounds / yd³ [the weight of water])

27 ft³ / yd³

201.97 gallons / yd³

27,000 gallons / acre-inch

Formulas

pounds / dry ton = milligrams/kilogram * 0.002

organic nitrogen = total Kjeldahl nitrogen - ammonia/ammonium nitrogen

organic nitrogen = total nitrogen - ammonia/ammonium nitrogen - nitrate/nitrite nitrogen

wet tons = dry tons / percent solids

cubic yards = wet tons * 1.19

cubic feet = cubic yards * 27

gallons = cubic yards * 201.97

acre-inches = gallons / 27,000

Drying Beds Testing Results 2011

Client Sample Results

Client: City of Maupin
Project/Site: 53633

TestAmerica Job ID: PUF0365



Client Sample ID: Drying Beds Biosolids

Lab Sample ID: PUF0365-01

Date Collected: 06/08/11 09:04

Matrix: Other dry

Date Received: 06/09/11 11:35

Percent Solids: 54.2

Method: EPA 6010B - Total Metals per EPA 6000/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	15900		448		mg/kg dry	☒	06/10/11 06:44	06/12/11 14:15	5.00
Potassium	1450		89.6		mg/kg dry	☒	06/10/11 06:44	06/12/11 11:51	1.00

Method: EPA 6020 - Total Metals per EPA 6000/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	2.77		0.913		mg/kg dry	☒	06/10/11 06:49	06/13/11 16:23	10.0
Chromium	37.4		1.83		mg/kg dry	☒	06/10/11 06:49	06/13/11 16:23	10.0
Copper	266		1.83		mg/kg dry	☒	06/10/11 06:49	06/13/11 16:23	10.0
Lead	59.6		0.913		mg/kg dry	☒	06/10/11 06:49	06/13/11 16:23	10.0
Nickel	19.8		1.83		mg/kg dry	☒	06/10/11 06:49	06/13/11 16:23	10.0
Zinc	1080		45.7		mg/kg dry	☒	06/10/11 06:49	06/14/11 23:09	50.0

Method: ASTM D2216-80 - Percent Dry Weight (Solids) per ASTM D2216-80

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	54.2		0.0100		% by Weight		06/16/11 14:13	06/16/11 14:13	1.00

Method: EPA 160.4 - Conventional Chemistry Parameters per APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Volatile Solids	334000		99.9		mg/kg		06/14/11 16:45	06/14/11 18:22	1.00

Method: EPA 300.0 - Ammonia per EPA Method 300.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia-Nitrogen			37.1		mg/kg dry	☒	06/20/11 09:02	06/20/11 16:35	10.0

Method: EPA 350.1 - Conventional Chemistry Parameters per APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia-Nitrogen	80.2		0.931		mg/kg dry	☒	06/15/11 08:23	06/15/11 15:29	1.00

Method: EPA 351.2 - Conventional Chemistry Parameters per APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	37700		8840		mg/kg dry	☒	06/21/11 14:56	06/22/11 10:48	100

Method: EPA 9045C - Conventional Chemistry Parameters per APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.13				pH Units		06/10/11 10:05	06/10/11 10:55	1.00

Method: SM 2540B - Conventional Chemistry Parameters per Standard Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Solids	542000		999		mg/kg		06/13/11 16:55	06/13/11 18:22	1.00

Client Sample Results

Client: City of Maupin
Project/Site: Sludge Sampling

TestAmerica Job ID: PVA0479

Client Sample ID: Sludge

Lab Sample ID: PVA0479-01

Date Collected: 01/17/12 07:00

Matrix: Other dry

Date Received: 01/18/12 10:25

Percent Solids: 55.3

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Method: EPA 6020 - Total Metals per EPA 6000/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.26		0.895		mg/kg dry	☼	01/19/12 13:14	01/20/12 17:30	10.0
Molybdenum	5.19		1.79		mg/kg dry	☼	01/19/12 13:14	01/20/12 17:30	10.0
Selenium	6.60		0.895		mg/kg dry	☼	01/19/12 13:14	01/20/12 17:30	10.0

Method: EPA 7471A - Total Mercury per EPA Method 7471A

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	3.09		0.340		mg/kg dry	☼	01/18/12 15:29	01/19/12 13:44	2.00

Method: ASTM D2216-80 - Percent Dry Weight (Solids) per ASTM D2216-80

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	55.3		0.0100		% by Weight		01/20/12 17:20	01/20/12 17:20	1.00

Method: EPA 351.2 - Conventional Chemistry Parameters per APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	32800	P7	4560		mg/kg dry	☼	01/24/12 13:37	01/25/12 11:46	50.0

Method: SM 2540B - Conventional Chemistry Parameters per Standard Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Solids	553000		99.6		mg/kg		01/19/12 11:12	01/19/12 17:52	1.00