

**North Dakota Department of Environmental Quality Public Notice
Reissue of an NDPDES Permit**

Public Notice Date: 11/19/2020

Public Notice Number: ND-2020-030

Purpose of Public Notice

The Department intends to reissue the following North Dakota Pollutant Discharge Elimination System (NDPDES) Discharge Permit under the authority of Section 61-28-04 of the North Dakota Century Code.

Permit Information

Application Date: 6/8/2020

Application Number: ND0026301

Applicant Name: South Central Regional Wat Dis

Mailing Address: PO Box 4182, Bismarck, ND 58501-4182

Telephone Number: 701.258.8710

Proposed Permit Expiration Date: 12/31/2025

Facility Description

The reapplication is for a water treatment plant which supplies drinking water to rural communities. Wastewater from the operation of pretreatment, microfiltration and reverse osmosis membranes discharges through diffusers placed in the Missouri River, a Class I stream. The discharge is located in the SE 1/4, Section 21, T140N, R81W.

Tentative Determinations

Proposed effluent limitations and other permit conditions have been made by the Department. They assure that State Water Quality Standards and applicable provisions of the FWPCA will be protected.

Information Requests and Public Comments

Copies of the application, draft permit, and related documents are available for review. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 918 East Divide Ave, Bismarck ND 58501-1947 or by calling 701.328.5210.

All comments received by December 21, 2020 will be considered prior to finalizing the permit. If there is significant interest, a public hearing will be scheduled. Otherwise, the Department will issue the final permit within sixty (60) days of this notice. If you require special facilities or assistance relating to a disability, call TDD at 1.800.366.6868.

**FACT SHEET FOR NDPDES PERMIT
ND0026301**

**SOUTH CENTRAL REGIONAL WATER DISTRICT –
NORTH BURLEIGH WATER TREATMENT PLANT
BISMARCK, ND**

FACT SHEET DATE – November 2020

INTRODUCTION

The Federal Clean Water Act (CWA, 1972, and later amendments in 1977, 1981, and 1987, etc.) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the CWA is the National Pollutant Discharge Elimination System (NPDES), which the US Environmental Protection Agency (EPA) oversees. In 1975, the State of North Dakota was delegated primacy of the NPDES program by EPA. The North Dakota Department of Environmental Quality, hereafter referred to as “department”, has been designated the state water pollution control agency for all purposes of the Federal Water Pollution Control Act, as amended [33 U.S.C. 1251, et seq.], and is authorized to take all action necessary or appropriate to secure to this state the benefits of the act and similar federal acts. The department’s authority and obligations for the wastewater discharge permit program is in the North Dakota Administrative Code (NDAC) 33.1-16 which was adopted under North Dakota Century Code (NDCC) chapter 61-28. In North Dakota, these permits are referred to as North Dakota Pollutant Discharge Elimination System (NDPDES) permits.

The following rules or regulations apply to NDPDES permits:

- Procedures the department follows for issuing NDPDES permits (NDAC chapter 33.1-16-01),
- Standards of Quality for Waters of the State (NDAC chapter 33.1-16-02.1).

These rules require any treatment facility operator to obtain an NDPDES permit before discharging wastewater to state waters. They also define the basis for limits on each discharge and for other requirements imposed by the permit.

According to NDAC section 33.1-16-01-08, the department must prepare a draft permit and accompanying fact sheet and make it available for public review. The department must also publish an announcement (public notice) during a period of thirty days, informing the public where a draft permit may be obtained and where comments regarding the draft permit may be sent (NDAC section 33.1-16-01-07). For more information regarding preparing and submitting comments about the fact sheet and permit, please see **Appendix A – Public Involvement**. Following the public comment period, the department may make changes to the draft NDPDES permit. The department will summarize the responses to comments and changes to the permit in **Appendix D – Response to Comments**.

TABLE OF CONTENTS

BACKGROUND INFORMATION..... 3

FACILITY DESCRIPTION..... 4

 Outfall Description 6

PERMIT STATUS 7

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED 7

 Past Discharge Data..... 7

PROPOSED PERMIT LIMITS..... 8

EFFLUENT LIMITATIONS..... 8

SELF-MONITORING REQUIREMENTS10

SURFACE WATER QUALITY-BASED EFFLUENT LIMITS.....11

 Numerical Criteria for the Protection of Aquatic Life and Recreation11

 Numerical Criteria for the Protection of Human Health11

 Narrative Criteria12

 Antidegradation.....12

 Mixing Zones12

EVALUATION OF WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA..... 12

 Sulfate13

 Chloride.....13

 Sodium14

 Total Residual Chlorine.....14

 Iron14

 Manganese.....14

 Biochemical Oxygen Demand (BOD₅).....15

 TSS15

 Fecal Coliform15

 pH15

 Aluminum.....15

 Monitoring Parameters.....15

HUMAN HEALTH16

OTHER PERMIT CONDITIONS..... 16

WATER TREATMENT ADDITIVES.....16

PERMIT ISSUANCE PROCEDURES17

PERMIT ACTIONS.....17

PROPOSED PERMIT ISSUANCE.....17

APPENDIX A – PUBLIC INVOLVEMENT INFORMATION..... 18

APPENDIX B – DEFINITIONS.....20

DEFINITIONS STANDARD PERMIT BP 2019.05.29.....20

APPENDIX C – DATA AND TECHNICAL CALCULATIONS22

APPENDIX D – RESPONSE TO COMMENTS.....27

BACKGROUND INFORMATION

Table 1 – General Facility Information

Applicant:	South Central Regional Water District
Facility Name and Address:	South Central Regional Water District North Burleigh Water Treatment Plant 10700 Highway 1804 North Bismarck, ND 58502-4182
Permit Number:	ND0026301
Permit Type:	Non POTW, Reissuance
Type of Treatment:	BMPs
SIC Code:	4941 – Water Supply
NAICS Code:	221310 – Water Supply/Water Treatment Plant
Discharge Location:	Missouri River, Class 1 Latitude: 46.923094 Longitude: -100.895522
Hydrologic Code:	10130101 – Painted Woods-Square Butte Creek



Figure 1 – Aerial photograph of South Central Regional Water District - North Burleigh Water Treatment Plant (Google Earth 5/30/2017). Image does not show new sludge pond.

FACILITY DESCRIPTION

South Central Regional Water District is a regional drinking water system that provides potable water to rural communities and rural users in Burleigh, Emmons, Kidder, Logan, and McIntosh counties in south central North Dakota.

The Burleigh County Water Treatment Plant is one of two water treatment plants owned and operated by South Central Regional Water District. The facility is located approximately 7 miles north of Bismarck, North Dakota and was constructed at the site of the former Burleigh Water Users Cooperative Treatment Plant which discontinued operation in 1996.

The source water for the plant is from horizontal wells bored below the bed of the Missouri River and screened at a depth ranging from about 15 to 35 feet. The discharge is wastewater generated in the pretreatment, water filtration, and treatment processes used in the production of drinking water for distribution. The wastewater discharge consists of sludge pond decant, backwash from microfiltration equipment, concentrate from reverse osmosis treatment and cleaning solutions required for routine maintenance of the treatment equipment.

The plant has the design capacity to produce approximately 3.6 million gallons per day (MGD) of finished water and averages approximately 1.5 MGD. The discharge monitoring reports

(DMRs) submitted to the department over the previous permit period show a maximum discharge rate of 0.262 MGD with a maximum discharge rate of 0.469 MGD. The wastewater flows from one discharge pipeline and utilizes two diffusers placed in the Missouri River, a Class 1 stream. The discharge of this facility includes concentrated dissolved minerals removed from the raw water by the Reverse Osmosis Softening System and intermittent discharges of neutralized cleaning water for the membrane equipment and decanted water from the holding pond that receives sludge from the pretreatment settling basin.

The facility employs an ozone oxidation basin, a flocculation basin, Membrane Filtration units, Reverse Osmosis softening, and a Disinfection Basin to produce a softened potable water supply.

The UF Membrane Filtration equipment require periodic cleaning. The frequency of these cleans are approximate due to the cleaning frequency being largely depended on the raw water quality but have been occurring approximately once per week. This is expected to change with the installation of the new pretreatment process. The pretreatment process is anticipated to lengthen the cleaning frequency to once per month.

The RO system equipment also requires periodic cleaning at a frequency dependent on the raw water quality. This system utilized hydrochloric acid for a low pH clean or sodium hydroxide for a high pH clean depending on the type of “scaling” experienced on the membranes. Each clean is followed by a rinse cycle. The cleaning chemical and rinse water are then sent to the neutralization tanks where pH adjustment occurs before discharging.

The decanted water from the holding pond will be periodically discharged throughout the year to increase the storage capacity of the pond. The holding pond will receive blowdown sludge from the pretreatment settling basins that will remove suspended solids in the raw water from the Missouri River, along with removing precipitated iron, manganese, sodium, calcium, and aluminum chlorohydrate (ACH) which will be added as a coagulant during this pretreatment process. The decanted water will be pumped from the pond to the neutralization tanks where pH adjustment will occur to ensure the discharge water is within permit limits.

As part of the initial permitting process the permittee provided a mixing zone analysis and diffuser design to demonstrate that the effluent would have complete mixing within the mixing zone allowed in the state’s water quality standards. The analysis and diffuser design are still representative of the facility.

The wastewater discharge from the facility will be a combined waste stream from all processes that are listed in the flow diagram below:

SCWD NORTH BURLEIGH WTP SCHEMATIC

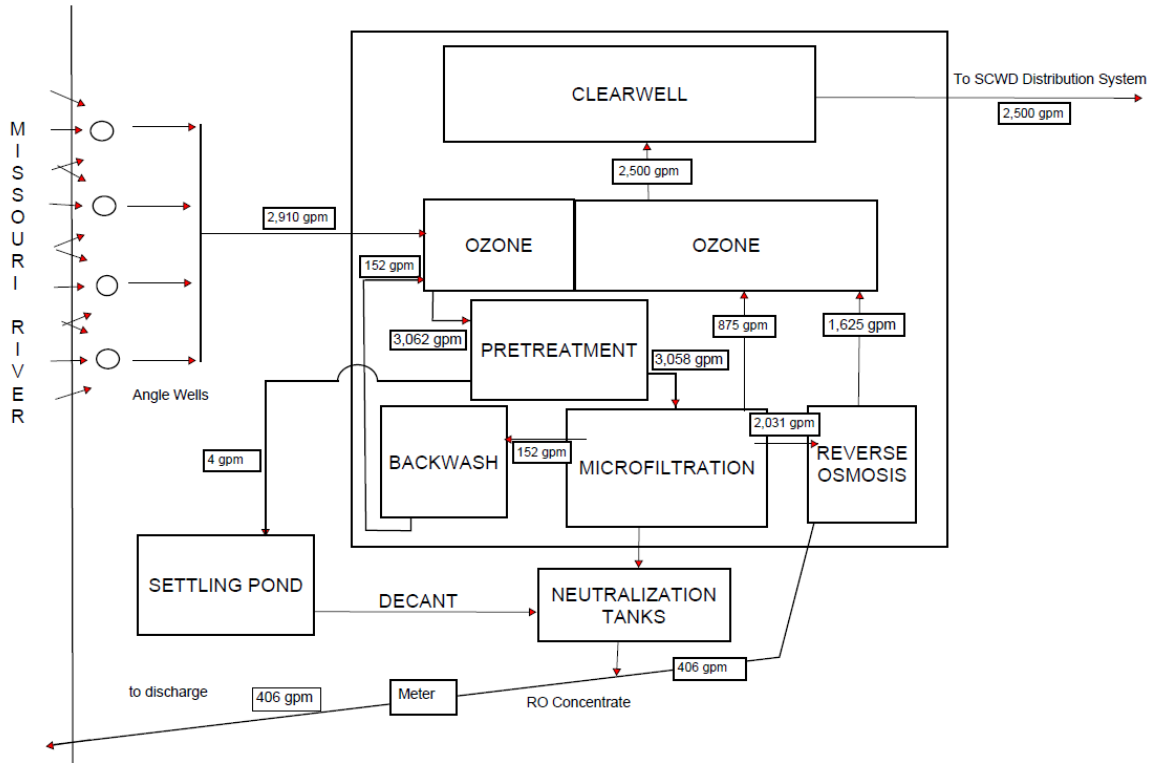


Figure 2 – Flow Diagram

Outfall Description

Outfall 001. Active. Final Outfall. Process Wastewater.			
Latitude: 46.923094	Longitude: -100.895522	County: Burleigh	
Township: 140N	Range: 81W	Section: 28	QQ: AA
Receiving Stream: Missouri River		Classification: Class I	
Outfall Description: The discharge is a combination of all process wastewater streams generated during the production of finished potable water which includes reverse osmosis concentrate, microfiltration backwash, membrane cleaning solutions, and sludge settling basin decant water. The wastewater discharges to two diffusers.			

PERMIT STATUS

The department issued the previous permit for this facility on July 1, 2017. The previous permit placed limits on Total Suspended Solids (TSS), pH, 5-Day Biochemical Oxygen Demand (BOD₅), Total Residual Chlorine, Total Manganese, and Iron, as well as monitoring requirements on Conductivity, Sulfate (Total as SO₄), Chloride (Total), Sodium (Total), Fecal Coliform, Turbidity, Silica, and Total Phosphorus.

South Central Regional Water District submitted an application (EPA Form 1 and EPA Form 2C) for permit modification due to the new pretreatment process on June 8, 2020. The application was not accepted as it was not signed. A completed application was submitted on June 22, 2020 and was accepted as complete by the department on June 22, 2020.

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED

Department staff last conducted a non-sampling compliance inspection on April 19, 2017. At the time of inspection, the department noted some discrepancies between the actual sample results and the reported sample results. These discrepancies have been corrected and the facility was determined to be in compliance. The department’s assessment of the compliance is based on review of the facility’s Discharge Monitoring Reports (DMRs) and inspections conducted by department staff.

Past Discharge Data

The concentration of pollutants in the discharge was reported in DMR forms. The effluent is characterized as shown in the below table:

Table 2 – Summary of DMR data for Outfall 001 (July 1, 2017 to September 30, 2020).

Parameter, Units	Range	Average	Permit Limit	# of Excursions
BOD ₅ , mg/l	<5 – 208	1.34	30 30 Day Avg. 45 Daily Max.	1
Chlorides, mg/l	22.8 – 277	42.49	N/A	N/A
Chlorine Tot Res, mg/l	0 – 0.57	0.061	2.7	0
Conductivity, µmhos/cm	1420 – 4634	2930	N/A	N/A
Fecal, #/100 ml	0 - 1	0	N/A	N/A
Iron Total, mg/l	<0.1 – 0.88	0.158	1 30 Day Avg. 1.5 Daily Max.	0
Manganese Total, mg/l	<0.05 – 0.31	0.117	1 30 Day Avg. 1.5 Daily Max.	0
pH, S.U.	6.81 – 8.9	N/A	7.0 – 9.0	6
Phosphorus Total, mg/l	0 – 1	0.503	N/A	N/A

Parameter, Units	Range	Average	Permit Limit	# of Excursions
Silica, mg/l	21.1 – 59.7	36.06	N/A	N/A
Sodium, mg/l	194 – 434	277.3	N/A	N/A
Sulfates, mg/l	630 – 1290	864.8	N/A	N/A
Total Suspended Solids, mg/l	0 – 5	1.56	90 Daily Max.	0
Turbidity, NTU	0 – 2	0.621	N/A	N/A
Drain/Qtr, MG	17.91 – 31.03	23.62	N/A	N/A
Flow, MGD	0.196 – 0.469	0.262	N/A	N/A
Notes:				
The North Burleigh WTP discharged for a total of 1096 days over 12 discharge events during the previous permit cycle.				

PROPOSED PERMIT LIMITS

EFFLUENT LIMITATIONS

The discharge of wastewater generated in the production of drinking water is not regulated by national effluent guidelines, which establish technology-based effluent limitations for various industries. In the absence of a federal standard, limitations may be determined using “best professional judgment” (BPJ) and “water quality standards” (WQS) to ensure reasonable control technologies are used to prevent potential harmful effects of the discharge. In addition, the department must consider and include limitations necessary to protect water quality standards applicable to the receiving waters. In the initial application, the applicant provided a mixing zone analysis and diffuser design to demonstrate that the effluent would have complete mixing within the mixing zone allowed in the state’s water quality standards.

The proposed effluent limitations shall take effect once the permit becomes active. The effluent limitations and the basis for the limitations are provided in the table below:

Table 3 – Effluent Limits for Outfall 001

Effluent Parameter	30-Day Average	Daily Maximum	Basis ^a
Total Suspended Solids (TSS), mg/l	*	90	Previous Permit, BPJ
Conductivity, µmhos/cm	*	*	Previous Permit, BPJ
pH, SU	Shall remain between 7.0 to 9.0		Previous Permit, WQS
Sulfate (Total as SO ₄), mg/l	*	*	Previous Permit, WQS, BPJ
Chloride (Total), mg/l	*	*	Previous Permit, WQS, BPJ
Sodium (Total), mg/l	*	*	Previous Permit, BPJ

Table 3 – Effluent Limits for Outfall 001

Effluent Parameter	30-Day Average	Daily Maximum	Basis ^a
Phosphorus (Total), mg/l	*	*	Previous Permit, BPJ, WQS
Nitrogen (Total), mg/l	*	*	BPJ, WQS
Iron (Total), mg/l	1	1.5	Previous Permit, BPJ
Manganese (Total), mg/l	1	1.5	Previous Permit, BPJ
Total Residual Chlorine, mg/l ^b	*	2.7	Previous Permit, BPJ
BOD ₅ , mg/l ^c	30	45	Previous Permit, BPJ
Fecal Coliform (incl. <i>E.coli</i>), #/100/ml ^d	*	*	Previous Permit, BPJ
Aluminum (Total), µg/l ^e	*	*	BPJ
Flow, MGD	*	*	Previous Permit, BPJ
Total Drain, MGAL	Report	Report Max. Daily Value	Previous Permit, BPJ
Missouri River Parameter			
Hardness (Total) as CaCO ₃ , mg/l ^f	*	*	BPJ, WQS
Notes:			
* This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.			
a.	The basis of the effluent limitations is given below: “Previous Permit” refers to limitations in the previous permit. The NPDES regulations 40 CFR Part 122.44(1)(1) Reissued permits require that when a permit is renewed or reissued, interim limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit unless the circumstances on which the previous permit was issued have materially and substantially changed since the previous permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR Part 122.62. “WQS” refers to effluent limitations based on the State of North Dakota’s Standards of Quality for Waters of the State, NDAC Chapter 33.1-16-02.1. “BPJ” refers to limits based on the departments “best professional judgement” which considers the technology available at the facility for controlling the discharge.		
b.	Total Residual Chlorine monitoring is required only during periods when chlorinated waste streams are discharged (such as from the microfiltration unit “bio-fouling” control)		

Table 3 – Effluent Limits for Outfall 001

	Effluent Parameter	30-Day Average	Daily Maximum	Basis^a
c.	The samples for BOD ₅ shall be collected on days when treatment unit cleaning/conditioning wastes are discharged. The composite sample should be proportioned to reflect the approximate time cleaning/conditioning waste containing organic chemicals (such as citric acid) are discharged.			
d.	The monitoring requirements for fecal coliform (including <i>E. coli</i>) shall be in effect for discharges which may occur from April 1 through October 31.			
e.	The monitoring requirement for Aluminum is required only during periods when the pretreatment decant water is included in the waste stream and is being discharged.			
f.	A total hardness of the receiving stream needs to be determined every time sodium is tested. The hardness is used to calculate parameter criterion according to the North Dakota State Water Quality Standards.			

SELF-MONITORING REQUIREMENTS

All effluent samples shall be collected at a point following the addition of all process waste streams and prior to entering the Missouri River.

Table 4. Self-Monitoring Requirements for Outfall 001

Effluent Parameter	Frequency	Sample Type
Conductivity, µmhos/cm	Continuous	Recorder
pH, SU	Continuous	Recorder
TSS mg/l	Quarterly	Composite
Sulfate (Total as SO ₄), mg/l	Monthly	Composite
Chloride (Total), mg/L	Monthly	Composite
Sodium (Total), mg/L	Monthly	Composite
Iron (Total), mg/L	Monthly	Composite
Manganese (Total), mg/L	Monthly	Composite
Phosphorus (Total), mg/l	Quarterly	Composite
Nitrogen (Total), mg/l	Quarterly	Composite
Total Residual Chlorine, mg/L	Conditional/Monthly	Grab
BOD ₅ , mg/L	Conditional/Monthly	Composite
Fecal Coliform (incl. <i>E.coli</i>), #/100/ml	Conditional/Monthly	Grab
Aluminum (Total), µg/l	Conditional/Monthly	Grab
Flow, MGD	Continuous	Recorder
Total Drain, MG	Monthly	Calculated
Missouri River Parameter		
Hardness (Total) as CaCO ₃ , mg/l	Monthly	Grab
Notes:		
In addition to the discharge monitoring results, information on the dates of discharge, frequency of monitoring and number of exceedances must be included in the electronic reporting of DMRs.		

Table 4. Self-Monitoring Requirements for Outfall 001

Effluent Parameter	Frequency	Sample Type
Electronic reporting of DMRs shall be submitted for every three-month period, with reporting period from January 1 through March 31, April 1 through June 30, etc.		

SURFACE WATER QUALITY-BASED EFFLUENT LIMITS

The North Dakota State Water Quality Standards (NDAC Chapter 33.1-16-02.1) are designed to protect existing water quality and preserve the beneficial uses of North Dakota’s surface waters. Wastewater discharge permits must include conditions that ensure the discharge will meet the surface water quality standards. Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load (TMDL) study. TMDLs result from a scientific study of the water body and are developed in order to reduce pollution from all sources.

The Missouri River is classified as a Class I stream. The quality of waters in this class shall be suitable for the propagation or protection, or both, of resident fish species and other aquatic biota and for swimming, boating, and other water recreation. The quality of the waters shall be suitable for irrigation, stock watering, and wildlife without injurious effects. After treatment consisting of coagulation, settling, filtration, and chlorination, or equivalent treatment processes, the water quality shall meet the bacteriological, physical, and chemical requirements of the department for municipal or domestic use.

This segment of the Missouri River does not have a TMDL and was not listed as impaired in the 2018 North Dakota Section 303(d) List of Waters Needing Total Maximum Daily Loads.

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are listed in the water quality standards for surface waters (NDAC Chapter 33.1-16-02.1). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. The department uses numerical criteria, along with chemical and physical data for the wastewater and receiving water, to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published numeric water quality criteria for the protection of human health that are applicable to dischargers. These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The state water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (NDAC Section 33.1-16-02.1-08) limit concentrations of pollutants from exceeding applicable standards of the receiving waters. The department adopted a narrative biological goal solely to provide an additional assessment method that can be used to identify impaired surface waters.

Antidegradation

The purpose of North Dakota’s Antidegradation Policy (NDAC Chapter 33.1-16-02.1 Appendix IV) is to:

- Provide all waters of the state one of three levels of antidegradation protection.
- Determine whether authorizing the proposed regulated activity is consistent with antidegradation requirements.

This fact sheet demonstrates that the existing and designated uses of the receiving water will be protected under the conditions of the proposed permit.

Mixing Zones

The department’s water quality standards contain a Mixing Zone and Dilution Policy and Implementation Procedure, NDAC Chapter 33.1-16-02.1 (Appendix III). This policy addresses how mixing and dilution of point source discharges with receiving waters will be addressed in developing chemical-specific and whole effluent toxicity discharge limitations for point source discharges. Depending upon site-specific mixing patterns and environmental concerns, some pollutants/criteria may be allowed a mixing zone or dilution while others may not. In all cases, mixing zone and dilution allowances shall be limited, as necessary, to protect the integrity of the receiving water’s ecosystem and designated uses.

EVALUATION OF WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA

Discussion of Limited Parameters and Receiving Stream Conditions

Upstream dams regulate the flow of the Missouri River. During the initial permit review, the 7Q10 flow value was used as the critical design stream flow for evaluating impacts on the water body. As the critical low flows have not statistically changed from the initial permit review, this mixing zone analysis is considered accurate. For the consideration of potential water quality-based limits as well as the state’s mixing zone and dilution policy, the below river conditions were used in the initial permit:

Critical Low Flow	Flow	Stream width	Velocity	Depth
7Q10	9870 cfs	570 feet	1.5 to 3.0 ft/s	3 feet
Typical	15,000 cfs	700 feet	1.5 to 3.0 ft/s	6 feet

From: Mixing Zone Modeling Results; Bartlett & West Engineers

There are no other discharges in the vicinity of the outfall, which could result in an overlapping mixing zone. A mixing zone and dilution analysis were completed for the proposed discharge using the CORMIX model. The details of the model inputs and results were provided with the permit application. A summary of the mixing zone considerations and model results are as follows:

Diffuser (Proposed):	10-foot multi-port placed flush with streambed
Model program:	CORMIX (Cornell Mixing Zone Model)
Mix Zone considered:	Near instantaneous and Complete (WQS App. III, Step 5)
Criteria to meet:	Less than 10% difference in concentration
Distance allowed:	1140 feet (2 x stream width)
Distance modeled:	165 feet (worst case, 7Q10 with 1.5 fps velocity)

The results of the model indicate that the proposed diffuser would provide near instantaneous mixing well within the dimensions outlined in the water quality standards. Near instantaneous and complete mixing is defined as no more than a 10% difference in bank-to-bank concentrations within a longitudinal distance not greater than two stream widths (WQS App. III).

The limit considerations for this permit have been made based on the amount of dilution and extent of mixing zone predicted by the model rather than the full extent of the allowable mixing zone. The additional dilution that may be afforded by the full extent of the mixing zone versus the modeled endpoint (10% difference) represents a substantial margin of safety.

The concentration of dissolved minerals in the waste stream from the reverse osmosis process has the potential to diminish beneficial uses of a water body and adversely affect water quality. The State's Water Quality Standards do not include numeric criteria for total dissolved solids (TDS), a combined measure of dissolved minerals. However, the standards do include criteria for sulfate, chloride and sodium; which are constituents of TDS. The expected sulfate concentration in the discharge represents the most limiting of the mineral constituents in regard to the water quality standards. Accordingly, the model simulations were run using the sulfate values for the waste stream and the river to evaluate the mixing afforded by the diffuser options.

Sulfate

The maximum sulfate concentration reported during the previous permit was 1290 mg/l. The department ran a reasonable potential analysis (Appendix C), using a twenty-year average upstream concentration from USGS gage station 063425000. Based on the submitted DMR data, there is no reasonable potential for the discharge, as reported, to cause a violation of the applicable water quality standard of 250 mg/l for sulfate (30-day average). The department proposes to continue with monthly monitoring for this parameter.

Chloride

The maximum chloride concentration reported during the previous permit was 277 mg/l. The department ran a reasonable potential analysis (Appendix C), using a twenty-year average upstream concentration from USGS gage station 063425000. Based on the submitted DMR data, there is no reasonable potential for the discharge, as reported, to cause a violation of the

applicable water quality standard of 100 mg/l for chlorides (30-day average). The department proposes to continue with monthly monitoring for this parameter.

Sodium

The maximum sodium concentration reported during the previous permit was 434 mg/l. The department ran a reasonable potential analysis (Appendix C), using a twenty-year average upstream concentration from USGS gage station 063425000. Based on the submitted DMR data, there is no reasonable potential for the discharge, as reported, to cause a violation of the applicable water quality standard of 50% of total cations as mEq/l (30-day average). The department proposes to continue with monthly monitoring for this parameter.

Total Residual Chlorine

The limitation for Total Residual Chlorine (TRC) was proposed since there is the potential for the discharge to contain TRC from the anticipated MF unit disinfection procedures. Although the disinfection process would be infrequent and the application indicates that dechlorination would be provided, the acute standard for TRC is 0.019 mg/L. Thus, it is appropriate to consider a limit for TRC. The proposed maximum limit (2.7 mg/L) was determined using the initial dilution determined for the diffuser (approximately 140:1). Unlike the mineral parameters where additional mixing zone could be considered, the acute criteria for TRC is only afforded the dilution provided by near instantaneous and complete mixing. The application indicated that the use of chlorination will be infrequent, therefore the department has determined that a monthly average limit is not required at this time.

The department did run a reasonable potential analysis for TRC, with the analysis showing no reasonable potential for the facility to exceed the WQS (Appendix C), however, the department proposes to continue with the TRC limitation of 2.7 mg/l daily max as there is the potential for the discharge to contain TRC from the anticipated microfiltration unit disinfection procedures.

Iron

The limitation for iron is a typical limit assigned to other water treatment plants in the state. The previous permit application for this facility indicated that iron will be removed through the treatment process and that anticipated concentrations in the discharge will be well below the proposed limitations. The limits have been included to assure the plant is operated to control the parameters as planned and to prevent the possibility of objectionable deposits of iron in the vicinity of the discharge. The WQS do not include numeric criteria for iron.

The department proposes to continue with the limitations of 1.0 mg/l 30-day average and a 1.5 mg/l daily max for iron.

Manganese

The limitation for manganese is typical of limits assigned to other water treatment plants in the state. The application indicates that manganese will be removed in the process and the anticipated concentrations in the discharge will be well below the proposed limitations. The limits have been included to assure the plant is operated to control the parameters as planned and to prevent the possibility of objectionable deposits of manganese in the vicinity of the discharge. The WQS do not include numeric criteria for manganese.

The department proposes to continue with the limitations of 1.0 mg/l 30-day average and a 1.5 mg/l daily max for manganese.

Biochemical Oxygen Demand (BOD₅)

The BOD limits are standard limitations applied to domestic wastewater and similar organic wastewater discharges. While during most times of operation an appreciable BOD load is not expected, some of the cleaning chemicals proposed for use in MF and RO maintenance may include organic acid that may present a BOD load when discharged. The proposed limits will provide criteria for the plant operators to consider when planning the use of organic based chemicals and discharge rate from the neutralization tank after such use.

The department proposes to continue with BOD₅ limits of 35 mg/l 30-day average and a 45 mg/l daily max limitation.

TSS

Other water treatment plants in the state have been afforded a limit of 90 mg/l for TSS and so the department proposes to continue with the same limit here by using BPJ.

Fecal Coliform

Testing for fecal coliform (including E. coli.) has been included for diagnostic purposes. Fecal coliform serves as an indicator for microorganisms and potential pathogens. Based on the source water for the plant, the discharge is not expected to contain sufficient fecal coliform to cause a water quality standard violation -- even in the immediate vicinity of the discharge diffuser. However, there is some uncertainty on the numbers of microbes that may be concentrated in the filters and the rate such organisms could multiply within the system. The sampling will allow the further evaluation of the potential water quality impacts and risk to the general public using the river in the vicinity of the discharge.

The fecal coliform limit is continued from the previous permit.

pH

The limitation for pH is based on the state water quality standard applicable to this water body. For Class I and IA streams, the pH limitation is from 7.0 to 9.0.

DMR forms reported 6 exceedances of the pH limit, all on the lower end of the limit. The pH limits are continued from the previous permit.

Aluminum

The renewal application indicated that the facility believed that aluminum was present in the discharge. This is due to the coagulant that is being introduced in the pretreatment process. This is a new pollutant that will periodically be introduced to the waste stream. Therefore, the department proposes to implement monthly monitoring for aluminum. This sampling will allow for further evaluation of the potential water quality impacts during the permit cycle.

Monitoring Parameters

The previous permit removed the quarterly general chemistry analysis monitoring requirement and only required monitoring to continue for the following parameters: Turbidity, Phosphorus, and Silica. There are no numeric criteria for turbidity, phosphorus, or silica in the WQS, but there is a narrative standard for nutrients, which would include phosphorus. The department proposes to remove quarterly monitoring for turbidity and silica. The department proposes to continue quarterly phosphorus monitoring, in addition to quarterly total nitrogen monitoring.

According to the North Dakota Nutrient Reduction Strategy for Surface Waters, North Burleigh WTP is classified as a Category I facility. The first step in implementing the nutrient reduction strategy for Category I facilities is to include effluent monitoring for Total Nitrogen and Total Phosphorus. Total Nitrogen is a combination of Nitrite, Nitrate, and Total Kjeldahl Nitrogen. The renewal application indicated that the discharge may include nitrate and nitrite. Because total nitrogen includes nitrate and nitrite, the department determined that total nitrogen monitoring is sufficient.

The renewal application also indicated that the discharge may include bromide, fluoride, and magnesium. However, North Dakota does not have any water quality standards for these parameters, therefore, the department will not include limits or monitoring for these parameters.

HUMAN HEALTH

North Dakota's water quality standards include numeric, human health-based criteria that the department must consider when writing NDPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria. The department determined the applicant's discharge is unlikely to contain chemicals regulated to protect human health. The department will reevaluate this discharge for impacts to human health at the next permit reissuance.

TEST PROCEDURES

The collection and transportation of all samples shall conform to EPA preservation techniques and holding times. All laboratory tests shall be performed by a North Dakota certified laboratory in conformance with test procedures pursuant to 40 CFR 136, unless other test procedures have been specified or approved by EPA as an alternate test procedure under 40 CFR 136.5. The method of determining the total amount of water discharged shall provide results within 10 percent of the actual amount.

OTHER PERMIT CONDITIONS

WATER TREATMENT ADDITIVES

The membrane filtration equipment requires routine cleaning and conditioning as part of the normal operation. While using these chemicals in routine cleaning and conditioning, such as the control of scaling and bio-fouling, care should be used in the selection and management of these chemicals. To ensure selection and management of chemicals used in this facility

minimize the potential for harmful effects in the discharge or sewerage, the permittee will be required to provide the following information on chemical additives. The information on the chemical additives shall include the following usage and discharge information:

- Material Safety Data Sheet (MSDS);
- The proposed water additive discharge concentration;
- The discharge frequency (i.e. number of hours per day and number of days per year);
- The monitoring point from which the product is to be discharged;
- The type of removal treatment, if any, that the water additive receives prior to discharge;
- Product function (i.e. microbiocide, flocculant, etc.);
- A 48-hour LC₅₀ or EC₅₀ for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp. Or *Simocephalus* sp.); and
- The results for a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean).

PERMIT ISSUANCE PROCEDURES

PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause. This includes the establishment of limitations or prohibitions based on changes to Water Quality Standards, the development and approval of waste load allocation plans, the development or revision to water quality management plans, changes in sewage sludge practices, or the establishment of prohibitions or more stringent limitations for toxic or conventional pollutants and/or sewage sludges. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

PROPOSED PERMIT ISSUANCE

This proposed permit meets all statutory requirements for the department to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the State of North Dakota. The department proposes to issue this permit for a term of five (5) years.

APPENDIX A – PUBLIC INVOLVEMENT INFORMATION

The department proposes to issue a permit to the **South Central Regional Water District – North Burleigh Water Treatment Plant**, Burleigh County, North Dakota. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and the department's reasons for requiring permit conditions.

The department will place a Public Notice of Draft on **November 19, 2020** in the **Bismarck Tribune** to inform the public and to invite comment on the proposed draft North Dakota Pollutant Discharge Elimination System permit and fact sheet.

The Notice:

- Indicates where copies of the draft Permit and Fact Sheet are available for public evaluation.
- Offers to provide assistance to accommodate special needs.
- Urges individuals to submit their comments before the end of the comment period.
- Informs the public that if there is significant interest, a public hearing will be scheduled.

You may obtain further information from the department by telephone, 701.328.5210, or by writing to the address listed below.

North Dakota Department of Environmental Quality
Division of Water Quality
918 East Divide Avenue, 4th Floor
Bismarck, ND 58501

The primary author for this permit and fact sheet is Sarah Waldron Feld.

**North Dakota Department of Environmental Quality Public Notice
Reissue of an NDPDES Permit**

Public Notice Date: 11/19/2020

Public Notice Number: ND-2020-030

Purpose of Public Notice

The Department intends to reissue the following North Dakota Pollutant Discharge Elimination System (NDPDES) Discharge Permit under the authority of Section 61-28-04 of the North Dakota Century Code.

Permit Information

Application Date: 6/8/2020

Application Number: ND0026301

Applicant Name: South Central Regional Wat Dis

Mailing Address: PO Box 4182, Bismarck, ND 58501-4182

Telephone Number: 701.258.8710

Proposed Permit Expiration Date: 12/31/2025

Facility Description

The reapplication is for a water treatment plant which supplies drinking water to rural communities. Wastewater from the operation of pretreatment, microfiltration and reverse osmosis membranes discharges through diffusers placed in the Missouri River, a Class I stream. The discharge is located in the SE 1/4, Section 21, T140N, R81W.

Tentative Determinations

Proposed effluent limitations and other permit conditions have been made by the Department. They assure that State Water Quality Standards and applicable provisions of the FWPCAA will be protected.

Information Requests and Public Comments

Copies of the application, draft permit, and related documents are available for review. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 918 East Divide Ave, Bismarck ND 58501-1947 or by calling 701.328.5210.

All comments received by December 21, 2020 will be considered prior to finalizing the permit. If there is significant interest, a public hearing will be scheduled. Otherwise, the Department will issue the final permit within sixty (60) days of this notice. If you require special facilities or assistance relating to a disability, call TDD at 1.800.366.6868.

APPENDIX B – DEFINITIONS

DEFINITIONS Standard Permit BP 2019.05.29

1. “**Act**” means the Clean Water Act.
2. “**Average monthly discharge limitation**” 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.
3. “**Average weekly discharge limitation**” 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.
4. “**Best management practices**” (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.
5. “**Bypass**” means the intentional diversion of waste streams from any portion of a treatment facility.
6. “**Composite**” sample means a combination of at least 4 discrete sample aliquots, collected over periodic intervals from the same location, during the operating hours of a facility not to exceed a 24 hour period. The sample aliquots must be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater.
7. “**Daily discharge**” 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” is 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” is calculated as the average measurement of the pollutant over the day.
8. “**Department**” means the North Dakota Department of Environmental Quality, Division of Water Quality.
9. “**DMR**” means discharge monitoring report.
10. “**EPA**” means the United States Environmental Protection Agency.
11. “**Geometric mean**” means the n^{th} root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.

12. **“Grab”** for monitoring requirements, means a single "dip and take" sample collected at a representative point in the discharge stream.

13. **“Instantaneous”** for monitoring requirements, means a single reading, observation, or measurement. If more than one sample is taken during any calendar day, each result obtained shall be considered.

14. **“Maximum daily discharge limitation”** means the highest allowable “daily discharge.”

15. **“Salmonid”** means of, belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish.

16. **“Sanitary Sewer Overflows (SSO)”** means untreated or partially treated sewage overflows from a sanitary sewer collection system.

17. **“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 which 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.

18. **“Total drain”** means the total volume of effluent discharged.

19. **“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 operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

APPENDIX C – DATA AND TECHNICAL CALCULATIONS

DFLOW

USGS gage station 06342500 on the Missouri River by Bismarck, ND was used to determine critical low flows using the DFLOW (3.1b) program. Data used for these calculations ranged from years 2000 through 2020.

DFLOW 1B3 (ACUTE)	9670	CFS	DFLOW 1Q10 (ACUTE)	9520	CFS
DFLOW 4B3 (CHRONIC)	9890	CFS	DFLOW 7Q10 (CHRONIC)	9810	CFS
DFLOW 30B10 (AMMONIA)	11100	CFS			

REASONABLE POTENTIAL ANALYSES

Sulfate

**Receiving Water Concentration (RWC)
 Reasonable Potential (RP)
 Determination**

**Technical Support Document (TSD) For Water Quality-based Toxics Control
 EPA/505/2-90-001; March 1991**

Facility Name:	North Burleigh WTP	Receiving Stream:	Missouri River
NDPDES Permit:	ND0026301	1Q10 Acute	9520 cfs
Daily Maximum Flow (mgd):	0.47	1B3 Acute	9670 cfs
Daily Average Flow (mgd):	0.26	7Q10 Chronic	9810 cfs
Stream Design Mixing:	100.0%	4B3 Chronic	9890 cfs
Statistical Multiplier:	1.2		
Upstream Concentration:	189.0000 mg/l		Parameter:
Effluent Concentration (max):	1290.0000 mg/l		Sulfate
			Outfall:
RWC	$\frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$		001

RWC = Receiving water concentration, the resultant magnitude of concentration in the receiving water after effluent discharge concentration (also known as the in-stream waste concentration)

Stat = Statistical multiplier for effluent parameter (Table 3-1 and 3-2; page 57 of the TSD)

Qe = Effluent Design Flow

Ce = Highest effluent concentration reported.

pmf = Partial mix factor, percent of Qs allowed for mixing by State authority.

Qs = Receiving Water Flow (1Q10 or 1B3 for acute and 7Q10 or 4B3 for chronic)

Cs = Background concentration of the receiving water.

Qe - Acute	0.47	mgd	Qs - 1Q10	6149.92	mgd
Qe - Chronic	0.26	mgd	Qs - 1B3	6246.82	mgd
Ce	1290.0000	mg/l	Qs - 7Q10	6337.26	mgd
Cs	189.0000	mg/l	Qs - 4B3	6388.94	mgd
Stat	1.20				
pmf	100.0%				

Acute RP		Chronic RP	
RWC - 1Q10	189.1036 mg/l	RWC - 7Q10	189.0562 mg/l
RWC - 1B3	189.1020 mg/l	RWC - 4B3	189.0557 mg/l

Criterion Maximum Concentration (CMC)		Criterion Continuous Concentration (CCC)	
Acute Criterion	250 mg/l	Chronic Criterion	250.0000 mg/l

If the calculated RWC is greater than its respective criterion then there is RP and if RWC is less than the criterion then there is no RP.

CMC RP Present:		CCC RP Present:	
1Q10 Acute OR	NO	7Q10 Chronic OR	NO
1B3 Acute	NO	4B3 Chronic	NO

The North Dakota State Water Quality Standards (WQS) Chapter 33-16-02.1 use biologically based design and harmonic mean flows to determine Water Quality Based Effluent Limits (WQBELs) and Whole Effluent Toxicity (WET) limits.

Chloride

**Receiving Water Concentration (RWC)
 Reasonable Potential (RP)
 Determination**

**Technical Support Document (TSD) For Water Quality-based Toxics Control
 EPA/505/2-90-001; March 1991**

Facility Name:	North Burleigh WTP	Receiving Stream:	Missouri River
NDPDES Permit:	ND0026301	1Q10 Acute	9520 cfs
Daily Maximum Flow (mgd):	0.47	1B3 Acute	9670 cfs
Daily Average Flow (mgd):	0.26	7Q10 Chronic	9810 cfs
Stream Design Mixing:	100.0%	4B3 Chronic	9890 cfs
Statistical Multiplier:	2.4		
Upstream Concentration:	10.0000	mg/l	Parameter:
Effluent Concentration (max):	277.0000	mg/l	Chloride
			Outfall:
RWC	$\frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$		001

RWC = Receiving water concentration, the resultant magnitude of concentration in the receiving water after effluent discharge concentration (also known as the in-stream waste concentration)
 Stat = Statistical multiplier for effluent parameter (Table 3-1 and 3-2; page 57 of the TSD)
 Qe = Effluent Design Flow
 Ce = Highest effluent concentration reported.
 pmf = Partial mix factor, percent of Qs allowed for mixing by State authority.
 Qs = Receiving Water Flow (1Q10 or 1B3 for acute and 7Q10 or 4B3 for chronic)
 Cs = Background concentration of the receiving water.

Qe - Acute	0.47	mgd	Qs - 1Q10	6149.92	mgd
Qe - Chronic	0.26	mgd	Qs - 1B3	6246.82	mgd
Ce	277.0000	mg/l	Qs - 7Q10	6337.26	mgd
Cs	10.0000	mg/l	Qs - 4B3	6388.94	mgd
Stat	2.40				
pmf	100.0%				

Acute RP			Chronic RP		
RWC - 1Q10	10.0499	mg/l	RWC - 7Q10	10.0271	mg/l
RWC - 1B3	10.0492	mg/l	RWC - 4B3	10.0269	mg/l

Criterion Maximum Concentration (CMC)		Criterion Continuous Concentration (CCC)			
Acute Criterion	100	mg/l	Chronic Criterion	100.0000	mg/l

If the calculated RWC is greater than its respective criterion then there is RP and if RWC is less than the criterion then there is no RP.

CMC RP Present:		CCC RP Present:	
1Q10 Acute OR	NO	7Q10 Chronic OR	NO
1B3 Acute	NO	4B3 Chronic	NO

The North Dakota State Water Quality Standards (WQS) Chapter 33-16-02.1 use biologically based design and harmonic mean flows to determine Water Quality Based Effluent Limits (WQBELs) and Whole Effluent Toxicity (WET) limits.

Sodium

**Receiving Water Concentration (RWC)
 Reasonable Potential (RP)
 Determination**

**Technical Support Document (TSD) For Water Quality-based Toxics Control
 EPA/505/2-90-001; March 1991**

Facility Name:	North Burleigh WTP	Receiving Stream:	Missouri River
NDPDES Permit:	ND0026301	1Q10 Acute	9520 cfs
Daily Maximum Flow (mgd):	0.47	1B3 Acute	9670 cfs
Daily Average Flow (mgd):	0.26	7Q10 Chronic	9810 cfs
Stream Design Mixing:	100.0%	4B3 Chronic	9890 cfs
Statistical Multiplier:	1.4		
Upstream Concentration:	66.0000	mg/l	Parameter:
Effluent Concentration (max):	434.0000	mg/l	Sodium
			Outfall:
RWC	$\frac{(\text{StatQeCe})+(\text{Cs}(\text{pmf})\text{Qs})}{\text{Qe}+(\text{pmf})\text{Qs}}$		001

RWC = Receiving water concentration, the resultant magnitude of concentration in the receiving water after effluent discharge concentration (also known as the in-stream waste concentration)

Stat = Statistical multiplier for effluent parameter (Table 3-1 and 3-2; page 57 of the TSD)

Qe = Effluent Design Flow

Ce = Highest effluent concentration reported.

pmf = Partial mix factor, percent of Qs allowed for mixing by State authority.

Qs = Receiving Water Flow (1Q10 or 1B3 for acute and 7Q10 or 4B3 for chronic)

Cs = Background concentration of the receiving water.

Qe - Acute	0.47	mgd	Qs - 1Q10	6149.92	mgd
Qe - Chronic	0.26	mgd	Qs - 1B3	6246.82	mgd
Ce	434.0000	mg/l	Qs - 7Q10	6337.26	mgd
Cs	66.0000	mg/l	Qs - 4B3	6388.94	mgd
Stat	1.40				
pmf	100.0%				

Acute RP		Chronic RP	
RWC - 1Q10	66.0413 mg/l	RWC - 7Q10	66.0224 mg/l
RWC - 1B3	66.0407 mg/l	RWC - 4B3	66.0222 mg/l

Criterion Maximum Concentration (CMC)		Criterion Continuous Concentration (CCC)	
Acute Criterion	70 mg/l	Chronic Criterion	70.0000 mg/l

If the calculated RWC is greater than its respective criterion then there is RP and if RWC is less than the criterion then there is no RP.

CMC RP Present:		CCC RP Present:	
1Q10 Acute OR	NO	7Q10 Chronic OR	NO
1B3 Acute	NO	4B3 Chronic	NO

The North Dakota State Water Quality Standards (WQS) Chapter 33-16-02.1 use biologically based design and harmonic mean flows to determine Water Quality Based Effluent Limits (WQBELs) and Whole Effluent Toxicity (WET) limits.

Total Residual Chlorine (TRC)

**Receiving Water Concentration (RWC)
 Reasonable Potential (RP)
 Determination**

**Technical Support Document (TSD) For Water Quality-based Toxics Control
 EPA/505/2-90-001; March 1991**

Facility Name:	North Burleigh WTP	Receiving Stream:	Missouri River
NDPDES Permit:	ND0026301	1Q10 Acute	9520 cfs
Daily Maximum Flow (mgd):	0.47	1B3 Acute	9670 cfs
Daily Average Flow (mgd):	0.26	7Q10 Chronic	9810 cfs
Stream Design Mixing:	1.0%	4B3 Chronic	9890 cfs
Statistical Multiplier:	2.4		
Upstream Concentration:	0.0000	mg/l	Parameter:
Effluent Concentration (max):	0.5700	mg/l	Total Residual Chlorine
			Outfall:
			001

RWC = Receiving water concentration, the resultant magnitude of concentration in the receiving water after effluent discharge concentration (also known as the in-stream waste concentration)
 Stat = Statistical multiplier for effluent parameter (Table 3-1 and 3-2; page 57 of the TSD)
 Qe = Effluent Design Flow
 Ce = Highest effluent concentration reported.
 pmf = Partial mix factor, percent of Qs allowed for mixing by State authority.
 Qs = Receiving Water Flow (1Q10 or 1B3 for acute and 7Q10 or 4B3 for chronic)
 Cs = Background concentration of the receiving water.

Qe - Acute	0.47	mgd	Qs - 1Q10	6149.92	mgd
Qe - Chronic	0.26	mgd	Qs - 1B3	6246.82	mgd
Ce	0.5700	mg/l	Qs - 7Q10	6337.26	mgd
Cs	0.0000	mg/l	Qs - 4B3	6388.94	mgd
Stat	2.40				
pmf	1.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0104	mg/l	RWC - 7Q10	0.0056	mg/l
RWC - 1B3	0.0102	mg/l	RWC - 4B3	0.0056	mg/l

Criterion Maximum Concentration (CMC)		Criterion Continuous Concentration (CCC)			
Acute Criterion	0.019	mg/l	Chronic Criterion	0.0110	mg/l

If the calculated RWC is greater than its respective criterion then there is RP and if RWC is less than the criterion then there is no RP.

CMC RP Present:		CCC RP Present:	
1Q10 Acute OR	NO	7Q10 Chronic OR	NO
1B3 Acute	NO	4B3 Chronic	NO

The North Dakota State Water Quality Standards (WQS) Chapter 33-16-02.1 use biologically based design and harmonic mean flows to determine Water Quality Based Effluent Limits (WQBELs) and Whole Effluent Toxicity (WET) limits.

APPENDIX D – RESPONSE TO COMMENTS

Any comments received during the public comment period will be addressed here.

DRAFT

Permit No: ND0026301
Effective Date: January 1, 2021
Expiration Date: December 31, 2025

AUTHORIZATION TO DISCHARGE UNDER THE
NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Chapter 33.1-16-01 of the North Dakota Department of Environmental Quality rules as promulgated under Chapter 61-28 (North Dakota Water Pollution Control Act) of the North Dakota Century Code,

South Central Regional Water District

is authorized to discharge from the North Burleigh Water Treatment Plant

to the Missouri River, a Class I stream

provided all the conditions of this permit are met.

This permit and the authorization to discharge shall expire at midnight,
December 31, 2025.

Signed this _____ day of _____, _____.

Karl H. Rockeman, P.E.
Director
Division of Water Quality

BP 2019.05.29

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TABLE OF CONTENTS

DEFINITIONS Standard Permit BP 2019.05.29	4
PERMIT SUBMITTALS SUMMARY	6
I. LIMITATIONS AND MONITORING REQUIREMENTS	7
A. Discharge Authorization	7
B. Effluent Limitations and Monitoring	7
II. MONITORING, RECORDING, AND REPORTING REQUIREMENTS BP 2020.10.19	9
A. Representative Sampling (Routine and Non-Routine Discharges).....	9
B. Test Procedures	10
C. Recording of Results	10
D. Additional Monitoring	10
E. Reporting of Monitoring Results.....	11
III. COMPLIANCE RESPONSIBILITIES	12
A. Duty to Comply	12
B. Proper Operation and Maintenance	12
C. Planned Changes	12
D. Duty to Provide Information	12
E. Signatory Requirements	12
F. Twenty-four Hour Notice of Noncompliance Reporting	13
G. Bypass of Treatment Facilities.....	13
H. Duty to Mitigate	14
I. Removed Materials	14
J. Duty to Reapply.....	14
IV. GENERAL PROVISIONS	14
A. Inspection and Entry.....	14
B. Availability of Reports	14
C. Transfers	14
D. New Limitations or Prohibitions	15
E. Permit Actions.....	15
F. Need to Halt or Reduce Activity Not a Defense.....	15
G. State Laws	15
H. Oil and Hazardous Substance Liability	15
I. Property Rights	15
J. Severability.....	15

DEFINITIONS Standard Permit BP 2019.05.29

1. “**Act**” means the Clean Water Act.
2. “**Average monthly discharge limitation**” 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.
3. “**Average weekly discharge limitation**” 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.
4. “**Best management practices**” (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.
5. “**Bypass**” means the intentional diversion of waste streams from any portion of a treatment facility.
6. “**Composite**” sample means a combination of at least 4 discrete sample aliquots, collected over periodic intervals from the same location, during the operating hours of a facility not to exceed a 24-hour period. The sample aliquots must be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater.
7. “**Daily discharge**” 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” is 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” is calculated as the average measurement of the pollutant over the day.
8. “**Department**” means the North Dakota Department of Environmental Quality, Division of Water Quality.
9. “**DMR**” means discharge monitoring report.
10. “**EPA**” means the United States Environmental Protection Agency.
11. “**Geometric mean**” means the n^{th} root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.
12. “**Grab**” for monitoring requirements, means a single "dip and take" sample collected at a representative point in the discharge stream.
13. “**Instantaneous**” for monitoring requirements, means a single reading, observation, or measurement. If more than one sample is taken during any calendar day, each result obtained shall be considered.
14. “**Maximum daily discharge limitation**” means the highest allowable “daily discharge.”
15. “**Salmonid**” means of, belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish.

16. "**Sanitary Sewer Overflows (SSO)**" means untreated or partially treated sewage overflows from a sanitary sewer collection system.
17. "**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 which 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.
18. "**Total drain**" means the total volume of effluent discharged.
19. "**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 operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

DRAFT

OUTFALL DESCRIPTION

Outfall 001 – Active. Final Outfall. The discharge will be conveyed via a pipeline from the WTP to the Missouri River, a Class I water body. The outfall consists of two submerged diffusers in the stream bed. The installed location of the outfall is at Latitude: 46.923094; Longitude: -100.895522, in Burleigh County. All discharge water is generated from the pretreatment and water treatment process.

PERMIT SUBMITTALS SUMMARY

Coverage Point	Submittal	Frequency	First Submittal Date
001A	Discharge Monitoring Report	Quarterly	April 30, 2021
Application Renewal	NPDES Application Renewal	1/permit cycle	July 1, 2025

SPECIAL CONDITIONS

Water Treatment Additive Information

To ensure selection and management of chemicals used in this facility minimize the potential for harmful effects in the discharge, the permittee may be required to provide, upon request, the following information on chemical additives. The information on the chemical additives shall include the following usage and discharge information:

- a. Material Safety Data Sheet (MSDS);
- b. The proposed water additive discharge concentration;
- c. The discharge frequency (i.e., number of hours per day and number of days per year);
- d. The monitoring point from which the product is to be discharged;
- e. The type of removal treatment, if any, that the water additive receives prior to discharge;
- f. Product function (i.e., microbiocide, flocculant, etc.);
- g. A 48-hour LC_{50} or EC_{50} for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp. or *Simocephalus* sp.); and
- h. The results for a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean).

I. LIMITATIONS AND MONITORING REQUIREMENTS

A. Discharge Authorization

During the effective period of this permit, the permittee is authorized to discharge pollutants from the outfall as specified to the following: **Missouri River, a Class I stream.**

This permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams, and operations that have been clearly identified in the permit application process.

B. Effluent Limitations and Monitoring

The permittee must limit and monitor all discharges as specified below:

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Table 1: Effluent Limitations and Monitoring Requirements Outfall 001				
Parameter	Effluent Limitations		Monitoring Requirements	
	Avg. Monthly Limit	Daily Maximum Limit	Sample Frequency	Sample Type
Total Suspended Solids (TSS), mg/l	*	90	Quarterly	Composite
pH, SU	Shall remain between 7.0 to 9.0 SU		Continuous	Recorder
Biochemical Oxygen Demand (BOD ₅), mg/l ^a	30	45	Conditional/ Monthly	Composite
Fecal Coliform (incl. <i>E.coli</i>), #/100 ml ^b	*	*	Conditional/ Monthly	Grab
Conductivity, µmhos/cm	*	*	Continuous	Recorder
Total Residual Chlorine, mg/l ^c	*	2.7	Conditional/ Monthly	Grab
Aluminum (Total), µg/l ^d	*	*	Conditional/ Monthly	Grab
Sulfate (Total as SO ₄), mg/l	*	*	Monthly	Composite
Manganese (Total), mg/l	1	1.5	Monthly	Composite
Sodium (Total), mg/l	*	*	Monthly	Composite
Chloride (Total), mg/l	*	*	Monthly	Composite
Iron (Total), mg/l	1	1.5	Monthly	Composite
Phosphorus (Total), mg/l	*	*	Quarterly	Composite
Nitrogen (Total), mg/l	*	*	Quarterly	Composite
Effluent Flow, MGD	Report	Report Max. Daily Value	Continuous	Recorder
Total Flow, MGAL	Report Total Discharged		Monthly	Calculated
Missouri River Parameter				
Hardness (Total) as CaCO ₃ , mg/l ^e	*	*	Monthly	Grab
Notes:				
*. This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.				

Table 1: Effluent Limitations and Monitoring Requirements Outfall 001				
Parameter	Effluent Limitations		Monitoring Requirements	
	Avg. Monthly Limit	Daily Maximum Limit	Sample Frequency	Sample Type
<p>a. The samples for BOD5 shall be collected on days when treatment unit cleaning/conditioning wastes are discharged. The composite sample shall be proportioned to reflect the approximate time cleaning/conditioning waste containing organic chemicals (such as citric acid) are discharged</p> <p>b. The monitoring requirements for fecal coliform (including <i>E. coli</i>) shall be in effect for discharges which may occur from April 1 through October 31.</p> <p>c. Total Residual Chlorine monitoring is required only during periods when chlorinated waste streams are discharged (such as from the microfiltration unit “bio-fouling” control).</p> <p>d. The monitoring requirement for Aluminum is required only during periods when the pretreatment decant water is included in the waste stream and is being discharged.</p> <p>e. A total hardness of the receiving stream needs to be determined every time sodium is tested. The hardness is used to calculate parameter criterion according to the North Dakota State Water Quality Standards.</p> <p>Stipulations:</p> <p>The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.</p> <p>Samples taken in compliance with the monitoring requirements specified in this permit shall be taken prior to leaving company property or entering the receiving stream.</p> <p>In addition to the discharge monitoring results, information on the dates of discharge, frequency of monitoring, and number of exceedances must be included in the electronic reporting of Discharge Monitoring Reports (DMRs). Electronic reporting of DMRs shall be submitted for every three-month period, with reporting period from January 1 through March 31, April 1 through June 30, etc.</p>				

II. MONITORING, RECORDING, AND REPORTING REQUIREMENTS BP 2020.10.19

A. Representative Sampling (Routine and Non-Routine Discharges)

All samples and measurements taken shall be representative of the monitored discharge.

In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited under **Part I Effluent Limitations and Monitoring** requirements of this permit that are likely to be affected by the discharge.

The permittee must collect such additional samples as soon as the spill, discharge, or bypassed effluent reaches the outfall. The samples must be analyzed in accordance with **B. Test Procedures**. The permittee must report all additional monitoring in accordance with **D. Additional Monitoring**.

B. Test Procedures

The collection and transportation of all samples shall conform with EPA preservation techniques and holding times found in 40 CFR 136. All laboratory tests shall be performed by a North Dakota certified laboratory in conformance with test procedures pursuant to 40 CFR 136, unless other test procedures have been specified in this permit or approved by EPA as an alternate test procedure under 40 CFR 136.5. The method of determining the total amount of water discharged shall provide results within 10 percent of the actual amount.

C. Recording of Results

Records of monitoring information shall include:

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

D. Additional Monitoring

If the discharge is monitored more frequently than this permit requires, all additional results, if in compliance with B. Test Procedures, shall be included in the summary on the Discharge Monitoring Report.

E. Reporting of Monitoring Results

1. Monitoring results shall be summarized and reported to the department using Discharge Monitoring Reports (DMRs). If no discharge occurs during a reporting period, "No Discharge" shall be reported. The permittee must submit DMRs electronically using the electronic information reporting system unless requirements in subsection 3 are met.
2. Prior to December 21, 2025, the permittee may elect to electronically submit the following compliance monitoring data and reports instead of mailing paper forms. Beginning December 21, 2025, the permittee must report the following using the electronic reporting system:
 - a. General permit reports [e.g., notices of intent (NOI); notices of termination (NOT); no exposure certifications (NOE)];
 - b. Municipal separate storm sewer system program reports;
 - c. Pretreatment program reports;
 - d. Sewer overflow/bypass event reports; and
 - e. Clean Water Act 316(b) annual reports
3. The permittee may seek a waiver from electronic reporting. To obtain a waiver, the permittee must complete and submit an Application for Temporary Electronic Reporting Waiver form (SFN 60992) to the department. The department will have 120 days to approve or deny the waiver request. Once the waiver is approved, the permittee may submit paper versions of monitoring data and reports to the department.
 - a. One of the following criteria must be met in order to obtain a waiver. The department reserves the right to deny any waiver request, even if they meet one of the criteria below.
 1. No internet access,
 2. No computer access,
 3. Annual DMRs (upon approval of the department),
 4. Employee turnover (3-month periods only), or
 5. Short duration permits (upon approval of the department)

All reports must be postmarked by the last day of the month following the end of each reporting period. All original documents and reports required herein shall be signed and submitted to the department at the following address:

ND Department of Environmental Quality
Division of Water Quality
918 East Divide Ave
Bismarck ND 58501-1947

F. Records Retention

All records and information (including calibration and maintenance) required by this permit shall be kept for at least three years or longer if requested by the department or EPA.

III. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

B. Proper Operation and Maintenance

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. If necessary, to achieve compliance with the conditions of this permit, this shall include the operation and maintenance of backup or auxiliary systems.

C. Planned Changes

The department shall be given advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance. Any anticipated facility expansions, production increase, or process modifications which might result in new, different, or increased discharges of pollutants shall be reported to the department as soon as possible. Changes which may result in a facility being designated a "new source" as determined in 40 CFR 122.29(b) shall also be reported.

D. Duty to Provide Information

The permittee shall furnish to the department, within a reasonable time, any information which the department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the department, upon request, copies of records required to be kept by this permit. When a permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or any report, it shall promptly submit such facts or information.

E. Signatory Requirements

All applications, reports, or information submitted to the department shall be signed and certified.

All permit applications shall be signed by a responsible corporate officer, a general partner, or a principal executive officer or ranking elected official.

All reports required by the permit and other information requested by the department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

The authorization is made in writing by a person described above and submitted to the department; and

The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

If an authorization under E. Signatory Requirements is no longer accurate for any reason, a new authorization satisfying the above requirements must be submitted to the department prior to or together with any reports, information, or applications to be signed by an authorized representative.

Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information,

the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. Twenty-four Hour Notice of Noncompliance Reporting

1. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The following occurrences of noncompliance shall be included in the oral report to the department at 701.328.5210:
 - a. Any lagoon cell overflow or any unanticipated bypass which exceeds any effluent limitation in the permit under G. Bypass of Treatment Facilities;
 - b. Any upset which exceeds any effluent limitation in the permit under H. Upset Conditions; or
 - c. Violation of any daily maximum effluent or instantaneous discharge limitation for any of the pollutants listed in the permit.
2. A written submission shall also be provided within five days of the time that the permittee became aware of the circumstances. The written submission shall 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 recurrence of the noncompliance.

Reports shall be submitted to the address in **Part II.E. Reporting of Monitoring Results.** The department may waive the written report on a case by case basis if the oral report has been received within 24 hours by the department at 701.328.5210 as identified above.

All other instances of noncompliance shall be reported no later than at the time of the next Discharge Monitoring Report submittal. The report shall include the four items listed in this subsection.

G. Bypass of Treatment Facilities

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to any of the following provisions in this section.
2. Bypass exceeding limitations-notification requirements.
 - a. Anticipated Bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten (10) days before the date of bypass.
 - b. Unanticipated Bypass. The permittee shall submit notice of an unanticipated bypass as required under F. Twenty-four Hour Notice of Noncompliance Reporting.
3. Prohibition of Bypass. Bypass is prohibited, and the department may take enforcement action against a permittee for bypass, unless:

- a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- b. 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 back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- c. The permittee submitted notices as required under the 1. Anticipated Bypass subsection of this section.

The department may approve an anticipated bypass, after considering its adverse effects, if the department determines that it will meet the three (3) conditions listed above.

H. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. The permittee, at the department's request, shall provide accelerated or additional monitoring as necessary to determine the nature and impact of any discharge.

I. Removed Materials

Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not be directly blended with or enter either the final plant discharge and/or waters of the state. The permit issuing authority shall be contacted prior to the disposal of any sewage sludges. At that time, concentration limitations and/or self-monitoring requirements may be established.

J. Duty to Reapply

Any request to have this permit renewed should be made six months prior to its expiration date.

IV. GENERAL PROVISIONS

A. Inspection and Entry

The permittee shall allow department and EPA representatives, at reasonable times and upon the presentation of credentials if requested, to enter the permittee's premises to inspect the wastewater treatment facilities and monitoring equipment, to sample any discharges, and to have access to and copy any records required to be kept by this permit.

B. Availability of Reports

Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the department and EPA. As required by the Act, permit applications, permits, and effluent data shall not be considered confidential.

C. Transfers

This permit is not transferable except upon the filing of a Statement of Acceptance by the new party and subsequent department approval. The current permit holder should inform the new controller, operator, or owner of the existence of this permit and also notify the department of the possible change.

D. New Limitations or Prohibitions

The permittee shall comply with any effluent standards or prohibitions established under Section 306(a), Section 307(a), or Section 405 of the Act for any pollutant (toxic or conventional) present in the discharge or removed substances within the time identified in the regulations even if the permit has not yet been modified to incorporate the requirements.

E. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. This includes the establishment of limitations or prohibitions based on changes to Water Quality Standards, the development and approval of waste load allocation plans, the development or revision to water quality management plans, changes in sewage sludge practices, or the establishment of prohibitions or more stringent limitations for toxic or conventional pollutants and/or sewage sludges. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

F. Need to Halt or Reduce Activity Not a Defense

It shall not be 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.

G. State Laws

Nothing in this permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation preserved under Section 510 of the Act.

H. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

J. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.