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

Public Notice Date: 2/13/2025 Public Notice Number: ND-2025-008

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: 9/23/2024 Application Number: ND0026344

Applicant Name: South Central WTP-Emmons Co

Mailing Address: PO Box 4182, Bismarck, ND 58502-4182

Telephone Number: 701.258.8710

Proposed Permit Expiration Date: 3/31/2030

Facility Description

The application is for a water treatment plant that supplies drinking water to rural communities. Wastewater from the operation of the microfiltration and reverse osmosis membranes discharges through diffusers placed in the Missouri River / Lake Oahe via outfall 001. The discharge is located in the SE 1/4, Section 35, T133N, R79W. The Missouri River / Lake Oahe is subject to Class I water quality standards.

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. For further information on making public comments/public comment tips please visit: https://deq.nd.gov/PublicCommentTips.aspx. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 4201 Normandy Street, Bismarck ND 58503-1324 or by calling 701.328.5210.

All comments received by March 16, 2025 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.

The NDDEQ will consider every request for reasonable accommodation to provide an accessible meeting facility or other accommodation for people with disabilities, language interpretation for people with limited English proficiency (LEP), and translations of written material necessary to access programs and information. Language assistance services are available free of charge to you. To request accommodations, contact the NDDEQ Non-discrimination Coordinator at 701-328-5210 or deqEJ@nd.gov. TTY users may use Relay North Dakota at 711 or 1-800-366-6888.

FACT SHEET FOR NDPDES PERMIT ND0026344

SOUTH CENTRAL REGIONAL WATER DISTRICT EMMONS COUNTY WATER TREATMENT PLANT

DATE OF THE FACT SHEET – DECEMBER 2024

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.

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BACKGROUND INFORMATION

Table 1: General Facility Information

Permittee:	South Central Regional Water District – Emmons County Water Treatment Plant P.O. Box 4182 Bismarck, ND 58502
Facility Name and Address:	South Central Regional Water District - Emmons County Water Treatment Plant 801 79th St. SW Linton, ND 58552
Permit Number:	ND0026344
Permit Type:	Minor, Non POTW – Reissue
Type of Treatment:	Direct discharge
SIC Code:	4941 – Water Supply
NAICS Code:	221310 – Water Supply and Irrigation Systems
Discharge Location:	Outfall 001: Lake Oahe, Class 1 Reservoir • North diffuser: Lat. 46.287606, Long. -100.572325 • South diffuser: Lat. 46.286964, Long. -100.572675
Hydrologic Code:	10130102 - Upper Lake Oahe

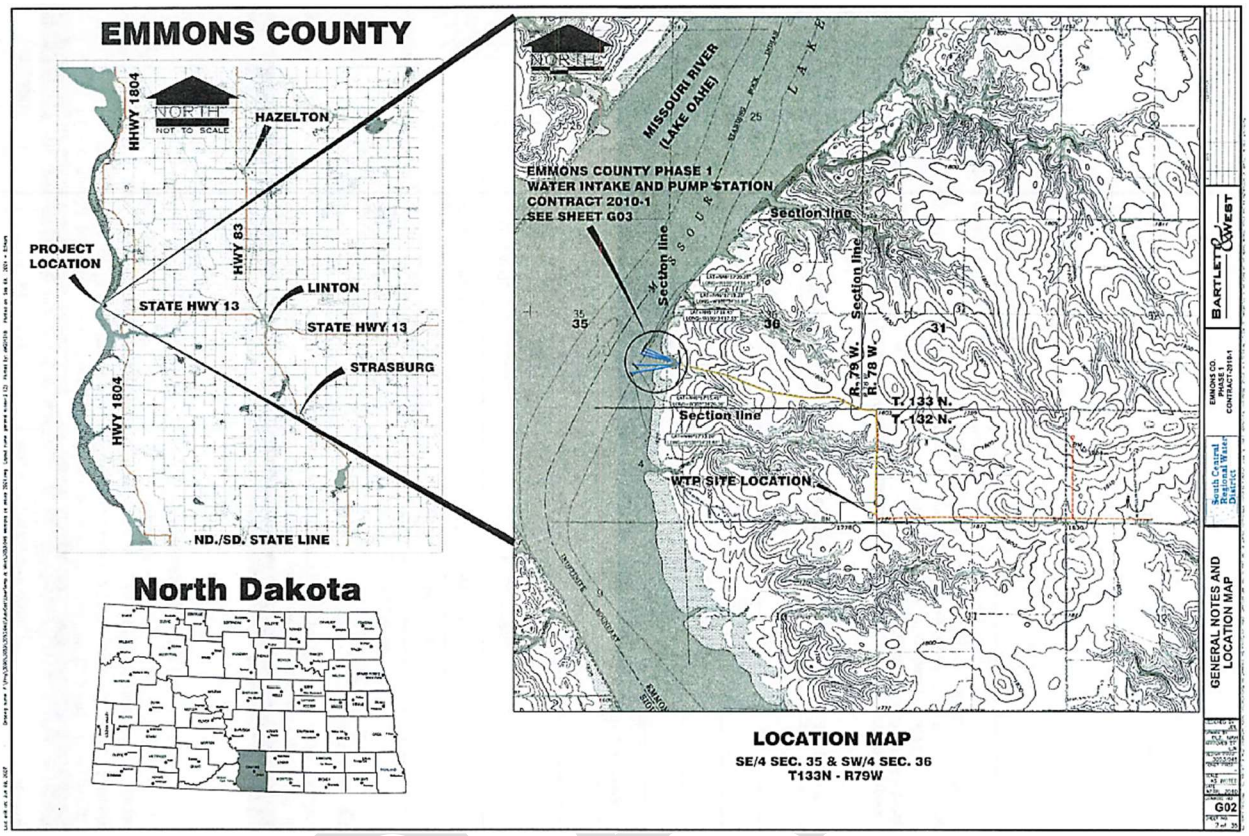

Figure 1 – Overview of South Central Regional Water District – Emmons County Water Treatment Plant (image supplied by permittee on 09/23/2024)

FACILITY DESCRIPTION

The South Central Regional Water District – Emmons County Water Treatment Plant (Emmons WTP) is located approximately sixteen miles west of Linton, North Dakota. The plant is part of a regional water supply plan that provides safe drinking water to rural communities and rural users in Burleigh, Emmons, Kidder, Logan, and McIntosh counties in south central North Dakota. Rural communities include Braddock, Hague, Kintyre, Linton, Strasburg, and Temvik. The total population served is approximately 3650 people with approximately 1890 of those as rural customers. The plant has the capacity to produce approximately 2083 gallons per minute (gpm) of finished water and in the process generates a wastewater discharge of approximately 315 gpm.

The treatment plant (Figure 2) is located approximately 1.5 miles south and east of the intake structure and discharge point. The source water for the plant is from a screened intake located near the bottom of Lake Oahe reservoir. The wastewater discharge is comprised of concentrate from reverse osmosis (RO) treatment and cleaning solutions required for routine maintenance of the treatment equipment.

Figure 2: Google Earth imagery (dated 10/26/2024) for South Central Regional Water District – Emmons County Water Treatment Plant and Evaporation Ponds.

History

The Emmons WTP was first permitted effective April 1, 2010 and went into operation on July 1, 2012.

Treatment System

The treatment plant employs an ozone oxidation basin, flocculation basins, membrane filtration units, RO softening, and a disinfection basin to produce a softened potable water supply. The ozone oxidation basin is employed for Taste and Odor control and pre-treatment for the flocculation basins. The flocculation basins then settle out suspended solids reducing the feed water turbidity for the membrane filtration units. The membrane filtration units are used to remove Cryptosporidium and Giardia as required by the long-term enhanced surface water treatment rule. A portion of the filtrated water is then run through the RO Softening System to produce a blended finished water supply. The typical breakdown of processed water is a blend of 50% filtrated plus RO softened water and 50% filtrated water.

The overall water processing is as follows: raw water, sourced from the Missouri River/Lake Oahe, is pumped from the Emmons intake outbuilding to the ozone oxidation basin in the water treatment plant. The water then travels to the flocculation basins, through plate settlers, and then to the filtration feed buffer tank. Next is membrane filtration which is to clarify the water and remove particulates and organisms. After filtration there are two separate paths for the water to travel.

One path leads to backwash recover basins as the membranes need to be backwashed periodically to clean and maintain them. Backwash from the filtration is sent to the recovery basins where settling occurs, and the clean water is recycled back to the head of the plant. Sludge from the recover basins is pushed to one of two evaporation ponds (North and South) which do not discharge (Figure 2). A switch valve, directing the flow to the ponds, is located in a manhole between them.

Water on the second path travels from the membrane filtration to the RO feed buffer tank. Here water is sent either directly to the disinfection contact basin/wet well or is sent through the RO before going to the same location. Finished water is then sent to distribution. The RO system is also periodically cleaned. The cleaning chemical and rinse water (RO concentrate) are then sent to the neutralization tanks for pH adjustment prior to discharging. The wastewater discharge is routed to the Outfall 001 diffusers, downstream of the intake, in Lake Oahe reservoir in the SE ¼, Section 35, T133N, R79W.

System Cleanings

Both the ultrafiltration (UF) and RO skids need to be periodically cleaned and timelines for both are dependent on the raw water quality. UF cleaning has historically been approximately every three weeks while RO has historically been approximately every four months.

The UF system utilizes sodium hypochlorite or citric acid for removing "scaling" or "bio-fouling" from the membrane surface. The system utilizes citric acid for a low pH clean (target pH of 2.0 s.u.) or sodium hypochlorite for a high pH (target pH of 11.0 s.u.) clean. Each clean utilizes 1900 gallons of cleaning chemical per skid (5 skids installed) which totals 9,500 gallons of cleaning chemical for all UF skids. Each clean is followed up by a rinse cycle. The Clean in Place (CIP) and rinse water are sent to the neutralization tanks where pH adjustment occurs before discharge.

The RO system utilizes hydrochloric acid for a low pH clean (target pH of 2.0 s.u.) or sodium hydroxide (caustic) for a high pH (target pH of 11.5 s.u.) depending on the type of scaling experienced on the membranes. The cleaning chemical volume is 1900 gallons of cleaning chemical for each clean. 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.

Sludge

The sludge at the water treatment plant, which is produced from the flocculation basins and the backwash water from the membrane filtration units is discharged to evaporation ponds. The sludge from the flocculation basins is discharged directly to the evaporation ponds. The sludge from the membrane filtration backwash water is sent to recovery basin where settling occurs,

and the clean water is recycled back to the head of the plant. The sludge from the recovery basins is then discharged to the same evaporation ponds as the flocculation basins.

The amount of solids generated from the plant is largely dependent on the plant production and the raw water TSS. The evaporation ponds are designed to receive 22,000 Gal/day of waste.

Table 2 outlines the wastewater sources and flows.

Table 2: Wastewater sources and flows.

Wastewater Source	Process	Nature of waste	Average Flow
Ultrafiltration (UF)	Remove particulates	Filter backwash	95,000 gal/day Recycled water and 22,000 gal/day Sludge to evaporation ponds
Reverse Osmosis (RO)	Remove dissolved minerals & provide softening	Concentrate or RO reject	0.25 mgd
Membrane Cleaning	Clean and condition UF & RO membranes	Neutralized acid & caustic, disinfectant and cleaning solutions	0.0432 mgd

Table 3 displays the plant capacity.

Table 3: Plant Flow Rates.

	Finished Water	**Projected Wastewater Flow at *Design Capacity***
Plant Capacity	2083 gpm	315 gpm
Operated 16 hours/day	2.0 million gallons per day (mgd)	0.3 mgd

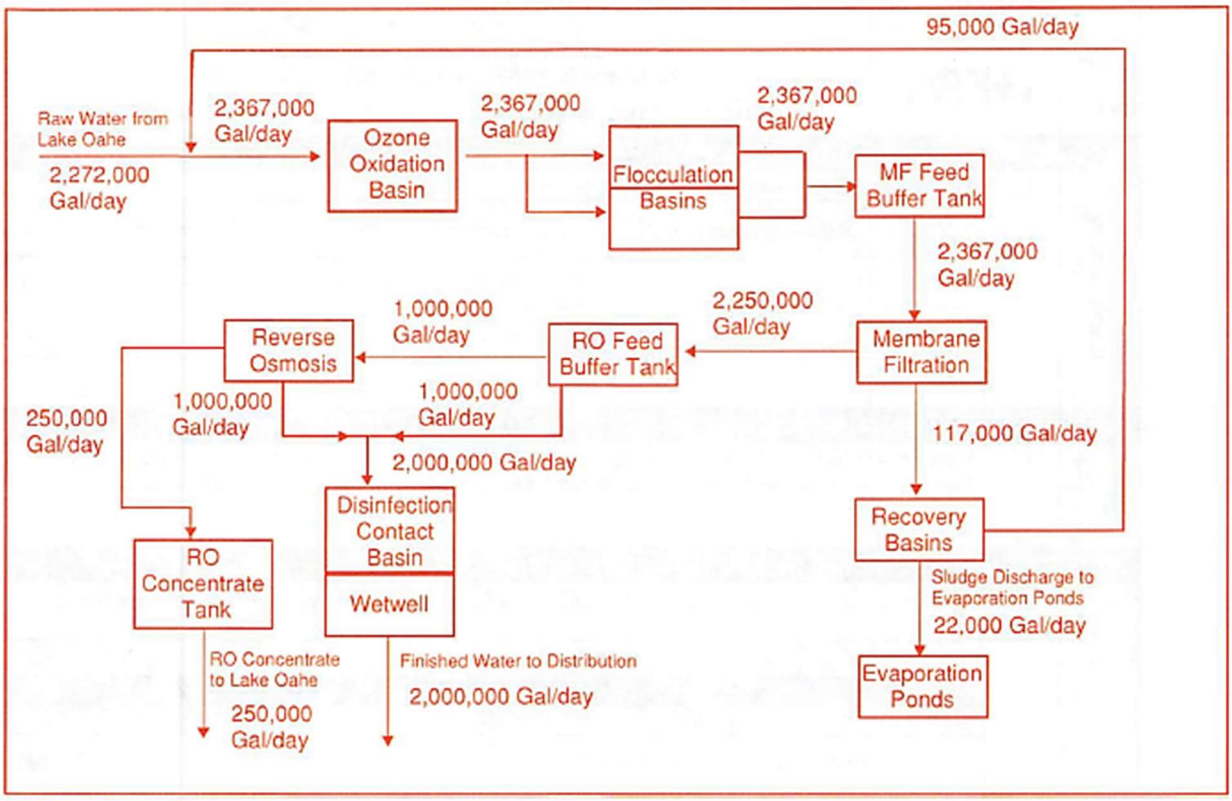

Figure 3 – South Central Regional Water District – Emmons County Water Treatment Plant Schematic (image supplied by permittee on 09/23/2024)

Planned Updates/Projects

The facility is not currently planning any changes or improvements within the next five years.

Outfall Description

There is one active discharge outfall associated with the facility – Outfall 001.

Outfall 001 consists of one discharge pipeline from the Emmons County Water Treatment Plant that utilizes two diffusers in Lake Oahe on the Missouri River System. The discharge of this facility includes both the concentrated dissolved minerals removed from the raw water by the RO softening system and neutralized cleaning water for the membrane equipment. The design flow rate for the RO concentrate discharge stream is 250,000 gallons per day. The historical average discharge rates have been lower due to lower demands from customers than the plant design rates.

Outfall 001. Active. Final Outfall.			
Latitude (North diffuser): 46.287606	Longitude (North diffuser): -100.572325	County: Emmons	
Latitude (South diffuser): 46.286964	Longitude (South diffuser): -100.572675		
Township: 133 North	Range: 79 West	Section: 35	QQ: D
Receiving Stream: Lake Oahe Reservoir		Classification: Class I Lake	
Outfall Description: When the plant is running, Outfall 001 continuously discharges through two diffusers (North and South) after traveling through a discharge pipeline from the water treatment plant. The compliance point for the discharge is a sampling tap near the basins in the facility.			

PERMIT STATUS

The department issued the current permit for this facility on April 1, 2020. The current permit has effluent limits and monitoring requirements for:

- Biochemical Oxygen Demand (BOD_5)
- Total Suspended Solids (TSS)
- pH
- Total Residual Chlorine (TRC)
- Conductivity
- Total Sulfate
- Total Chloride
- Effluent Flow, MGD
- Total Drain, MGAL

The department has been in contact with South Central Water to obtain information to reissue the permit. The department received EPA applications Form 1 and Form 2C on September 23, 2024. Additional information was requested to complete the application, and the application was accepted as complete by the department on January 28, 2025. Effluent sample data has been provided to the department through official laboratory reports, discharge monitoring reports (DMRs), and the permit application Form 2C.

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED

Three (3) inspections have been conducted at the facility since April 2020. The department's assessment of compliance is based on review of the facility's Discharge Monitoring Report (DMR) data and inspections conducted by department staff.

Past Discharge Data

The concentration of pollutants in any discharge was reported in Discharge Monitoring Reports (DMRs). Some discrepancies were noted between the DMR data and the lab results. Zeros were placed instead of the detect limit with a below detect discharge indicator. The department is working with the facility to rectify the DRM data. Effluent information for outfall 001, from April 01, 2020 through September 30, 2024, is characterized as shown in Table 4. There were four excursions within this timeframe.

Table 4: South Central Regional Water District – Emmons DMR Data Summary

Parameter	Units	Range	Average	Permit Limit	Number of Exceedances
Biochemical Oxygen Demand (BOD_5)	mg/l	< 2 – 12.9	1.72	30 (Monthly ave.) 45 (Daily max.)	0
Total Suspended Solids (TSS)	mg/l	< 2 – 105	19.44	90	1
pH	S.U.	6.1 – 9.09	N/A	7 - 9	3
Total Residual Chlorine (TRC)	mg/l	< 0.01 – 0.04	0.01	1.2	0
Conductivity	uS/cm	1428 – 4262	2610.28	N/A	N/A
Total Sulfate	mg/l	664 – 1090	866.85	N/A	N/A
Total Chloride	mg/l	41 – 211	56.02	N/A	N/A
Effluent Flow	MGD	0.073 – 0.3	0.101	N/A	N/A
Total Drain	MGAL	6.74 – 13.65	9.27	N/A	N/A

PROPOSED PERMIT LIMITS AND SELF MONITORING REQUIREMENTS

The discharge of wastewater generated in the production of drinking water is not regulated by national effluent limitation guidelines, which establish technology-based effluent limitations for various industries. In the absence of a federal standard, limitations may be determined using Water Quality Standards (WQS), Best Professional Judgment (BPJ), and similar permitted facilities to ensure reasonable control technologies are used in reducing any environmental impacts from the discharge. In addition, the department must consider and include limitations necessary to protect water quality standards applicable to the receiving waters. In the consideration of permit requirements for this proposed discharge, the department based all evaluations on the operation of the plant at its planned full capacity.

Effluent Limitations

Table 5 – Proposed Effluent Limits for Outfall 001

Effluent Parameter	30-Day Average	Daily Maximum	Basis [a]
Biological Oxygen Demand (BOD_5), mg/l [b]	30	45	BPJ; Previous Permit
Total Suspended Solids (TSS), mg/l	*	90	BPJ; Previous Permit
pH, SU [c]	Shall remain between 6.5 to 9.0		WQS
Dissolved Oxygen (DO), mg/l [d]	*	5 (minimum)	WQS
Total Residual Chlorine (TRC), mg/l [e, f, g]	*	1.2	WQS; Previous Permit

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: "WQS" refers to effluent limitations based on North Dakota's "Standards of Quality for Waters of the State", NDAC Chapter 33.1-16-02.1. "Previous Permit" refers to limitations in the previous permit. The NPDES regulations 40 CFR Part 122.44(l)(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. "BPJ" refers to best professional judgment.
b.	BOD_5 shall be sampled on days when treatment unit cleaning/conditioning wastes are discharged. The grab sample should be proportioned to reflect the approximate time cleaning/conditioning waste containing organic chemicals (such as citric acid) are discharged.
c.	The pH, an instantaneous limitation, shall be between 6.5 s.u. and 9.0 s.u. Any single analysis and or measurement beyond this limitation shall be considered a violation of the conditions of the permit.
d.	Dissolved Oxygen limitation is a 5 mg/l Daily Minimum.
e.	Total Residual Chlorine (TRC) testing is only required during periods of chlorine use and subsequent discharge within the waste stream at the water treatment plant.
f.	The permittee may use dechlorination techniques to achieve the applicable TRC limitations, using sodium thiosulfate, sodium sulfite, sodium bisulfate, or other dechlorinating reagents after review by the department.

Stipulations:	
	Best Management Practices (BMPs) are to be utilized so that there shall be no discharge of floating debris, oil, scum, and other floating materials in sufficient amounts to be unsightly or deleterious, or oil wastes that produce a visible sheen on the surface of the receiving water.
	Samples taken in compliance with the monitoring requirements specified in this permit shall be taken prior to leaving the facility property or mixing with the receiving stream.
	The department may require the permittee to provide additional sampling and monitoring as deemed necessary to assure adequate operation of the treatment system(s) and that the Standards of Quality for Waters of the State (Chapter 33-16-02.1) are met during the period of discharge.

Effluent Monitoring

All effluent samples shall be collected at a point following the addition of all process waste streams and prior to entering the Lake Oahe reservoir. Monitoring requirements for effluent parameters in the current permit will be continued in the proposed permit.

Table 6: Self-Monitoring Requirements

Outfall 001		
Parameter	**Sample Frequency**	**Sample Type** [a]
BOD_5, mg/L	Conditional/Monthly	Grab
TSS, mg/L	Monthly	Grab
pH, SU	Continuous	Recorder
DO, mg/l	Monthly	Grab
TRC, mg/l	Conditional/Monthly	Grab
Conductivity, µmho/cm	Continuous	Recorder
Total Sulfate, mg/l	Monthly	Grab
Total Chloride, mg/l	Monthly	Grab
Bromide, mg/l	Yearly	Grab
General Chemistry [b]	Yearly	Grab
Metals [c]	Yearly	Grab
Flow Effluent, MGD	Continuous	Recorder
Total Drain, MGAL	Quarterly	Calculated
Upstream Monitoring		
Parameter	**Sample Frequency**	**Sample Type**
Hardness, Total as ($CaCO_3$) [c]	Yearly	Grab

Notes:

a. Refer to Appendix B for definitions.

b. The analysis shall include the following parameters:

Sodium	Sulfate	Hardness, Total as (CaCO3)	Nitrate and Nitrite
Calcium	Carbonate	Total Dissolved Solids (TDS)	Phosphorus, Total
Magnesium	Bicarbonate	Sodium Adsorption Ratio (SAR)	Fluoride
Potassium	Hydroxide	Percent Sodium	pH
Silica	Alkalinity	Turbidity	Iron
Chloride	Conductivity	TSS	Manganese

c. The analysis shall include the following parameters as (total recoverable):

Arsenic	Copper	Nickel	Zinc
Cadmium	Lead	Selenium	

A total hardness as (CaCO3) of the receiving stream shall be determined and reported every time the above parameters are tested. The hardness is used to calculate parameter criterion(s) according to the North Dakota State Water Quality Standards. This sample shall be collected upstream of the outfall.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITS

The North Dakota Standards of Quality for Waters of the State (NDAC Chapter 33.1-16-02.1), or Water Quality Standards (WQS), 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.

Lake Oahe is designated as a Class I Reservoir under 33.1-16-02.1. Class I lakes and reservoirs must meet the physical and chemical criteria for Class I streams. The quality of the 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 processes, the water quality shall meet the bacteriological, physical and chemical requirements of the department for municipal or domestic use.

Lake Oahe is not listed as impaired in the *North Dakota 2020-2022 Integrated Section 305(b) Water Quality Assessment Report and Section 303(d) List of Waters Needing Total Maximum Daily Loads.* There currently are no TMDLs for this Class I Reservoir.

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 Water Quality Standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (NDAC Chapter 33.1-16-02.1-08) limits 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.

The department's 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 WQS 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 in 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.

The permittee provided a CORMIX 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 model analyzed one diffuser, and final design and installation included two identical diffusers for 100% redundancy.

<u>Mixing Zone Modeling</u>

The details on the proposed diffuser design and the mixing zone modeling results were provided with a previous permit application. The following is a summary of the mixing zone modeling conditions evaluated for the proposed discharge:

Diffuser (Proposed): 30-foot multi-port (16 ports)
Model program: CORMIX (Cornell Mixing Zone Model)
Mix Zone considered: Near instantaneous and Complete (WQS App. III, Step 5); Dilution at mixing zone boundary
Criteria to meet: Less than 10% difference in concentration; Concentration (dilution) at mixing zone boundary
Distance allowed: 200 feet (Lake allowance; WQS App. III)

The mixing zone modeling completed for the planned diffuser demonstrated that near instantaneous and complete mixing can be expected. The report provided mixing zone model results for several cases using the expected discharge sulfate concentration of 770 mg/L and an ambient concentration of 100-150 mg/L. The model provided the distance the effluent plume would travel before dilution to a concentration equal to 10 mg/L above background (a 10 percent difference between plume and ambient concentration). The following summarizes the CORMIX modeling results for the described conditions:

Table 7: Emmons Water Treatment Plant – CORMIX Modeling Results
From report titled: Missouri River Discharge Facility Mixing Zone Modeling Results
Bartlett & West Engineers

Case No.	Discharge Configuration	Rate of Effluent Discharge (gpm)	Water Depth (ft)	Stream Velocity (fps)	Density, (Kg/m^3)		Distance to Complete Mixing (ft)
					Ambient	Discharge	
1	30’ Multiport	221	13	2.5	1000.368	1002.486	8.2
2	30’ Multiport	350	13	2.5	1000.368	1002.486	20.6
3	30’ Multiport	100	13	2.5	1000.368	1002.486	1.4
4	30’ Multiport	221	30	0.38	997.604*	999.380	24.8
5	30’ Multiport	350	30	0.38	997.604*	999.380	28.7
6	30’ Multiport	100	30	0.38	997.604*	999.380	35.5

* Bottom

The distance to complete mixing determined by the model corresponds to a dilution factor of 1/67th for the difference between the discharge and ambient concentrations. The dilution factor can be used to determine the resulting concentration at the indicated distance for any constituent and concentration. The output from the CORMIX model provides a tabulation of plume dimensions and concentrations for progressive distances from the discharge source. The dilutions for select distances from the discharge source for the 30-foot diffuser at 221 gpm (Case 4) are provided below.

Distance from Discharge (ft)	Modeled Dilution Factor
24.8	67
50	104
200	179

To ensure that the operation of the discharge reflects the proposed design capabilities and the information from the CORMIX model, the permit will include a statement that the conditions and

monitoring requirements are based on the use of a diffuser. A new mixing zone analysis and verification of the mixing zone may be required if the discharge rate or pollutant concentrations change substantially from those provided in the application.

EVALUATION OF SURFACE WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA

The NDPDES discharge permit must assure that the proposed wastewater discharge will comply with the state's water quality standards. In addition to the numeric standards, the discharge must conform to supplementary policies and procedures included in the standards such as anti-degradation criteria and the mixing zone and dilution policy. Discharge limits must be considered for pollutants that would have a reasonable potential to exceed a water quality standard.

Biochemical Oxygen Demand (BOD_5)

The BOD_5 limits are standard limitations applied to domestic wastewater and similar organic wastewater discharges. BOD_5 is required for other similar facilities and for membrane filtration water treatment plants in the water treatment plants and potable distribution systems general permit (Table 3 of NDG520000 Part II(B)).

The facility uses clean in place (CIP) solutions to clean the membranes, and the solution is discharged. Some of the cleaning chemicals for use in membrane filtration and RO maintenance may include organic acid (citric acid) which may present a BOD_5 load when discharged. BOD_5 is only required to be tested when a CIP discharge takes place.

The department proposes to continue a BOD_5 limitation of 30 mg/l (monthly average) and 45 mg/l (daily maximum). The department proposes to continue with a sampling frequency of conditional/monthly.

Total Suspended Solids (TSS)

Total Suspended Solids (TSS) limits are standard limitations applied to domestic wastewater and similar organic wastewater discharges. TSS is required for other similar facilities and for membrane filtration water treatment plants in the water treatment plants and potable distribution systems general permit (Table 3 of NDG52000 Part II(B)). The department has reviewed the TSS data. One exceedance was reported.

The department proposes to continue with a TSS limitation of 90 mg/l (daily maximum) and a sampling frequency of monthly.

pH

The limitations for pH are based on the state water quality standards (NDAC 33.1-16-02.1-09 Table 1) applicable to this water body. All classifications of lakes and reservoirs shall have the same limit as the corresponding class streams. The previous permit contained pH limitations of shall remain between 7.0 and 9.0. The department has reviewed the pH data. Three exceedances were reported.

The department proposes pH limitations of between 6.5 and 9.0 based upon the updated WQS for Class I streams as outlined in NDAC 33.1-16-02.1.

Dissolved Oxygen

DO is required for other similar facilities and for membrane filtration water treatment plants in the water treatment plants and potable distribution systems general permit (Table 3 of NDG52000 Part II(B)).

The department proposes to begin monthly dissolved oxygen (DO) monitoring. This monitoring requirement is based on NDAC 33.1-16-02.1 and like permits.

Total Residual Chlorine (TRC)

The department has reviewed the TRC data and sampling frequency. No exceedances occurred for this parameter.

A limitation for Total Residual Chlorine (TRC) has been applied since there is the potential for the discharge to contain TRC from the anticipated membrane filtration unit disinfection procedures as part of routine cleaning. Although the disinfection process would be infrequent, a reasonable potential analysis was performed on TRC. The maximum daily concentration provided in the DMR data was utilized for the analysis. The calculation determined no reasonable potential to violate the water quality standards (**Appendix C**).

The department proposes to continue a maximum daily limitation of 1.2 mg/l with a sampling frequency of monthly. A monthly average limit has not been proposed since the chlorination will only be practiced on an infrequent basis, approximately monthly, as provided in the application.

Total Sulfate

The department has reviewed the sulfate data. Currently, there is no effluent limitation for this parameter.

The department conducted a reasonable potential analysis for sulfate. Ambient data utilized for the calculation is the same data utilized for the current permit's calculation as no additional samples have been collected at ND Station ID 385032 (see Appendix C, Reasonable Potential for additional information). The calculation determined no reasonable potential to violate the water quality standards (**Appendix C**).

The department proposes to continue monitoring for effluent sulfate with a sampling frequency of monthly.

Total Chloride

The department has reviewed the chloride data. Currently, there is no effluent limitation for this parameter.

The department conducted a reasonable potential analysis for chloride. Ambient data utilized for the calculation is the same data utilized for the current permit's calculation as no additional samples have been collected at ND Station ID 385032 (see Appendix C, Reasonable Potential for additional information). The calculation determined no reasonable potential to violate the water quality standards (**Appendix C**).

The department proposes to continue monitoring for effluent chloride with a sampling frequency of monthly.

Bromide

The department proposes to begin annual bromide monitoring. This monitoring requirement is based on the constituent believed present in the facility's waste stream. Inclusion and frequency of this parameter will be re-evaluated during the next permit cycle based on data received.

General Chemistry

General Chemistry is required for other similar facilities and for membrane filtration water treatment plants in the water treatment plants and potable distribution systems general permit (Table 3 of NDG52000 Part II(B)).

The department proposes to begin annual General Chemistry monitoring. This monitoring requirement is based on multiple constituents of the General Chemistry group believed present in the facility's waste stream and like permits.

Metals

Metals are required for other similar facilities and for membrane filtration water treatment plants in the water treatment plants and potable distribution systems general permit (Table 3 of NDG52000 Part II(B)).

The department proposes to begin annual metals monitoring. This monitoring requirement is based on NDAC 33.1-16-02.1 and like permits.

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 re-evaluate 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 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 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.

Discharge Monitoring Report (DMR) Requirements

The proposed permit requires the permittee to monitor discharges and submit DMRs to the department. DMRs summarize monitoring results obtained during specified monitoring periods.

If no discharge occurs during a monitoring period, “no discharge” must be reported.

The proposed permit includes specified intervals for submitting quarterly and yearly DMRs. DMRs must be submitted electronically to the department in accordance with 40 CFR 127, unless otherwise waived, and in compliance with 40 CFR 3. The requirement to submit the ‘A’ reports monthly and ‘G’ and ‘M’ reports yearly is similar to other water treatment plants.

Table 8 - DMR Submittal Requirements

Outfall	Report Designator	Report Type	Report Interval
001	A	Conventional and Non-conventional Pollutants, Flow and Volume Information	Quarterly
001	G	General Chemistry Pollutants	Yearly
001	M	Metals	Yearly

OTHER PERMIT CONDITIONS

Water Treatment Additives

The membrane filtration equipment requires routine cleaning and conditioning as part of the normal operation. A description of the periodic cleaning procedures and chemical solutions required for the facility’s membrane filtration units was provided with the initial permit application and is summarized above in the System Cleanings subsection of the Facility Description section.

Care should be used in the selection and management of the chemicals used in routine cleaning and conditioning, such as the control of scaling, coagulants, flocculants, and biofouling. To ensure selection and management of chemicals minimize the potential for harmful effects in the discharge, the permittee will be required to provide (upon request) the following information on all chemical additives which do not fall under American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 60:

- Safety Data Sheet (SDS)
- Proposed water treatment additive discharge concentration
- Discharge frequency (i.e. number of hours per day and number of days per year)
- Monitoring point from which the product is to be discharged
- 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 (*Ceriodaphnia* sp., *Daphnia* sp. or *Simocephalus* sp.)
- The results for a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean)

Water treatment additives which are approved under ANSI/NSF Standard 60 “Drinking Water Treatment Chemicals” are recognized for use for this facility. Any chemical changes the permittee proposes shall be submitted to the department for review prior to implementation.

Beneficial Reuse

The permittee must consult with the department before beneficially reusing wastewater for irrigation, construction, or any other purposes.

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 INVOVLEMENT INFORMATION

The department proposes to reissue a permit to the **South Central Regional Water District – Emmons**. 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 **February 13, 2025** in the **Emmons County Record** and 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 facility will be provided a copy of the public notice and draft permit at the beginning of the public comment period.

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 calling 701.328.5210, or by writing to the address listed below.

North Dakota Department of Environmental Quality
Division of Water Quality – NDPDES Program
4201 Normandy Street – 3rd Floor
Bismarck, ND 58503-1324

The primary permit and fact sheet writer is A.J. Delzer.

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

Public Notice Date: 2/13/2025 Public Notice Number: ND-2025-008

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: 9/23/2024 Application Number: ND0026344

Applicant Name: South Central WTP-Emmons Co
Mailing Address: PO Box 4182, Bismarck, ND 58502-4182
Telephone Number: 701.258.8710

Proposed Permit Expiration Date: 3/31/2030

Facility Description
The application is for a water treatment plant that supplies drinking water to rural communities. Wastewater from the operation of the microfiltration and reverse osmosis membranes discharges through diffusers placed in the Missouri River / Lake Oahe via outfall 001. The discharge is located in the SE 1/4, Section 35, T133N, R79W. The Missouri River / Lake Oahe is subject to Class I water quality standards.

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. For further information on making public comments/public comment tips please visit: https://deq.nd.gov/PublicCommentTips.aspx. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 4201 Normandy Street, Bismarck ND 58503-1324 or by calling 701.328.5210.

All comments received by March 16, 2025 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.

The NDDEQ will consider every request for reasonable accommodation to provide an accessible meeting facility or other accommodation for people with disabilities, language interpretation for people with limited English proficiency (LEP), and translations of written material necessary to access programs and information. Language assistance services are available free of charge to you. To request accommodations, contact the NDDEQ Non-discrimination Coordinator at 701-328-5210 or deqEJ@nd.gov. TTY users may use Relay North Dakota at 711 or 1-800-366-6888.

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

FLOW

Due to Lake Oahe having a residence time of greater than 20 days at critical conditions (Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991)), the mixing zone criteria described in Appendix III of NDAC 33.1-16-02.1 was utilized. No critical low flows were determined.

Reasonable Potential

Ambient data was collected from the ND Station ID 385032 from 6/7/1999 – 8/1/2011. This water monitoring station is located approximately 30 miles upstream of the facility's outfall. It should be noted that the previous statement of basis had a typo related to the date range of the same Station (8/1/2011 – 6/7/2019). The same data was available to calculate reasonable potential – no additional samples have been taken. As no significant developments have occurred or are anticipated in the near future along the stretch of the Missouri River between the ND Station ID 385032 and the facility, there is no expected change in ambient conditions.

Sulfate

The department conducted a reasonable potential analysis for Sulfate. The reasonable potential for sulfate was determined using the worst-case scenario. To calculate the reasonable potential the mass balance equation: $Cp = \frac{Ca + (Ce - C)}{S}$ (where: S = Dilution (volumetric), Ca = ambient concentration, Ce = Concentration of effluent and Cp = Concentration in the waste plume), and the Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991) were used. No reasonable potential was determined.

The NDDEQ has developed the following tool to evaluate the dilution of a single sample result to the North Dakota Standards of Quality for Waters of the State. Facilities which can demonstrate the criteria outlined in ch 33.1-16-02.1, Appendix III are allowed a dilution allowance.

The tool below calculates the diluted concentration of a specific parameter at the end of the determined mixing zone using the dilution factor as determined by modeling and compares the parameter value to the WQS.

The tool also calculates the concentration at which a parameter may be discharged at so that it meets the WQS at the boundary of the mixing zone given the dilution factor as determined by modeling.

Parameter concentrations which are highlighted indicate concentrations which exceed the applicable WQS and require further evaluation.

Lake Mixing - Resonable Potential Calculation		
Lake Oahe		
Parameter: Sulfate		
Maximum Ambient Concentration	218.000	**mg/l**
Water Quality Standard Acute	NA	**mg/l**
Water Quality Standard Chronic	250.000	**mg/l**
Ce-Effluent Concentration	1090.000	mg/l
Ca-Ambient Concentration	218.000	mg/l
S-Dilution (volumetric) (Provided by model or calculated)	67.0	to 1
Cp-Concentration in the waste plume, where: $Cp = \frac{Ca + (Ce - Ca)}{S}$	231.01	mg/l
Resonable Potential Acute	**No**	
Resonable Potential Chronic	**No**	

Where C_e is the maximum effluent concentration, C_a is the maximum ambient concentration, and S is the dilution ratio from the Cormix modeling.

Chloride

The department conducted a reasonable potential analysis for Chloride. The reasonable potential for TRC was determined using the worst-case scenario. To calculate the reasonable potential the mass balance equation: $Cp = \frac{Ca + (Ce - Ca)}{S}$ (where: S = Dilution (volumetric), Ca = ambient concentration, Ce = Concentration of effluent and Cp = Concentration in the waste plume), and the Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991) were used. No reasonable potential was determined.

The NDDEQ has developed the following tool to evaluate the dilution of a single sample result to the North Dakota Standards of Quality for Waters of the State. Facilities which can demonstrate the criteria outlined in ch 33.1-16-02.1, Appendix III are allowed a dilution allowance.

The tool below calculates the diluted concentration of a specific parameter at the end of the determined mixing zone using the dilution factor as determined by modeling and compares the parameter value to the WQS.

The tool also calculates the concentration at which a parameter may be discharged at so that it meets the WQS at the boundary of the mixing zone given the dilution factor as determined by modeling.

Parameter concentrations which are highlighted indicate concentrations which exceed the applicable WQS and require further evaluation.

Lake Mixing - Resonable Potential Calculation		
Lake Oahe		
Parameter: Chloride		
Maximum Ambient Concentration	10.800	**mg/l**
Water Quality Standard Acute	NA	**mg/l**
Water Quality Standard Chronic	100.000	**mg/l**
Ce-Effluent Concentration	211.000	mg/l
Ca-Ambient Concentration	10.800	mg/l
S-Dilution (volumetric) (Provided by model or calculated)	67.0	to 1
Cp-Concentration in the waste plume, where: $Cp = \frac{Ca + (Ce - Ca)}{S}$	13.79	mg/l
Resonable Potential Acute	**No**	
Resonable Potential Chronic	**No**	

Where C_e is the maximum effluent concentration, C_a is the maximum ambient concentration, and S is the dilution ratio from the Cormix modeling.

TOTAL RESIDUAL CHLORIDE (TRC)

The department conducted a reasonable potential analysis for TRC. The reasonable potential for TRC was determined using the worst-case scenario. To calculate the reasonable potential the mass balance equation: $Cp = \frac{Ca + (Ce - \quad)}{S}$ (where: S = Dilution (volumetric), Ca = ambient concentration, Ce = Concentration of effluent and Cp = Concentration in the waste plume), and the Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991) were used. The coefficient of variance was 0.4.

The NDDEQ has developed the following tool to evaluate the dilution of a single sample result to the North Dakota Standards of Quality for Waters of the State. Facilities which can demonstrate the criteria outlined in ch 33.1-16-02.1, Appendix III are allowed a dilution allowance.

The tool below calculates the diluted concentration of a specific parameter at the end of the determined mixing zone using the dilution factor as determined by modeling and compares the parameter value to the WQS.

The tool also calculates the WLA at for the parameter may be discharged at so that it meets the WQS at the boundary of the mixing zone given the dilution factor as determined by modeling.

Parameter concentrations which are highlighted indicate concentrations which exceed the applicable WQS and require further evaluation.

Lake Mixing - Resonable Potential Calculation		
Lake Oahe		
Parameter: Total Residual Chloride (TRC)		
Maximum Ambient Concentration	0.000	**mg/l**
Water Quality Standard Acute	0.019	**mg/l**
Water Quality Standard Chronic	0.011	**mg/l**
Ce-Effluent Concentration	0.040	mg/l
Ca-Ambient Concentration	0.000	mg/l
S-Dilution (volumetric) (Provided by model or calculated)	67.000	to 1
Cp-Concentration in the waste plume, where: $Cp = \frac{Ca + (Ce - Ca)}{S}$	0.001	mg/l
Resonable Potential Acute	**No**	
Resonable Potential Chronic	**No**	

Where C_e is the maximum effluent concentration, C_a is the maximum ambient concentration, and S is the dilution ratio from the Cormix modeling.

APPENDIX D – RESPONSE TO COMMENTS

Comments received during the public comment period will be addressed and placed here.

Permit No: ND0026344
Effective Date: April 1, 2025
Expiration Date: March 31, 2030

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 Emmons County Water Treatment Plant

to Lake Oahe / Missouri River

provided all the conditions of this permit are met.

This permit and the authorization to discharge shall expire at midnight,

March 31, 2030.

Signed this _____ day of _____, _____.

_____

Marty Haroldson
Director
Division of Water Quality

BP 2025.02.05

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DEFINITIONS Standard Permit BP 2019.05.29

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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.

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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.

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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.

OUTFALL DESCRIPTION

Outfall 001. Active. Final Outfall.			
Latitude (North diffuser): 46.287606	Longitude (North diffuser): -100.572325	County: Emmons	
Latitude (South diffuser): 46.286964	Longitude (South diffuser): -100.572675		
Township: 133 North	Range: 79 West	Section: 35	QQ: D
Receiving Stream: Lake Oahe Reservoir		Classification: Class I Lake	
Outfall Description: When the plant is running, Outfall 001 continuously discharges through two diffusers (North and South) after traveling through a discharge pipeline from the water treatment plant. The compliance point for the discharge is a sampling tap near the basins in the facility.			

PERMIT SUBMITTALS SUMMARY

Coverage Point	Submittal	Frequency	First Submittal Date
001A	Discharge Monitoring Report	Quarterly	July 31, 2025
001G	Discharge Monitoring Report	Yearly	July 31, 2026
001M	Discharge Monitoring Report	Yearly	July 31, 2026
Application Renewal	NPDES Application Renewal	1/permit cycle	September 30, 2029
‘A’ refers to conventional and non-conventional pollutants, flow, and volume information. ‘G’ refers to general chemistry pollutants. ‘M’ refers to metals.			

SPECIAL CONDITIONS

Water Treatment Additives

The membrane filtration equipment requires routine cleaning and conditioning as part of normal operation. A description of the periodic cleaning procedures and chemical solutions required for the facility’s membrane filtration units was provided with the permit application and reviewed for this permit reissuance. In the event the permittee proposes to update or change the water additives, the permittee shall notify the department. Care should be used in the selection and management of the chemicals used in routine cleaning and conditioning, such as the control of scaling, coagulants, flocculants, and biofouling. To ensure selection and management of chemicals minimize the potential for harmful effects in the discharge, the permittee will be required to provide (upon request) the following information on all chemical additives which do not fall under American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 60:

- Safety Data Sheet (SDS)
- Proposed water treatment additive discharge concentration
- Discharge frequency (i.e. number of hours per day and number of days per year)
- Monitoring point from which the product is to be discharged
- 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 (*Ceriodaphnia* sp., *Daphnia* sp. or *Simocephalus* sp.)
- The results for a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean)

Water treatment additives which are approved under ANSI/NSF Standard 60 “Drinking Water Treatment Chemicals” are recognized for use for this facility. Any chemical changes not approved under ANSI/NSF Standard 60 “Drinking Water Treatment Chemicals” shall be submitted to the department for review prior to implementation.

I. LIMITATIONS AND MONITORING REQUIREMENTS

A. Discharge Authorization

During the effective period of this permit, the permittee is authorized to discharge pollutants from the outfalls as specified to the following: **Lake Oahe, a Class I Lake**.

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

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

Table 1: Effluent Limitations and Monitoring Requirements Outfall 001

Parameter	Effluent Limitations					Monitoring Requirements	
	Quantity		Concentration				
	Avg. Monthly Limit	Daily Maximum Limit	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit	Sample Frequency	Sample Type
Biochemical Oxygen Demand (BOD_5) [a]	*	*	30 mg/l	*	45 mg/l	Conditional / Monthly	Grab
Total Suspended Solids (TSS), mg/l	*	*	*	*	90 mg/l	Monthly	Grab
pH [b]	Shall remain between 6.5 to 9.0 S.U.					Continuous	Recorder
Dissolved Oxygen (DO), mg/l	Shall not be less than 5.0 mg/l as a daily minimum					Monthly	Grab
Total Residual Chlorine (TRC), mg/l [c, d]	*	*	*	*	1.2 mg/l	Conditional / Monthly	Grab

Conductivity, µmho/cm	*	*	*	*	*	Continuous	Recorder
Total Sulfate, mg/l	*	*	*	*	*	Monthly	Grab
Total Chloride, mg/l	*	*	*	*	*	Monthly	Grab
Bromide, mg/l	*	*	*	*	*	Yearly	Grab
General Chemistry [e]	*	*	*	*	*	Yearly	Grab
Metals [f]	*	*	*	*	*	Yearly	Grab
Flow Effluent, MGD	Report Avg. Monthly Value	Report Max. Daily Value	*	*	*	Continuous	Recorder
Total Drain, MGAL	*	Report Quarterly Total	*	*	*	Quarterly	Calculated
Upstream Monitoring							
Hardness, Total as ($CaCO_3$)	Report Maximum					Yearly	Grab

Notes:

* This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.

a. BOD_5 shall be sampled on days when treatment unit cleaning/conditioning wastes are discharged. The grab sample should be proportioned to reflect the approximate time cleaning/conditioning waste containing organic chemicals (such as citric acid) are discharged.

b. The pH, an instantaneous limitation, shall be between 6.5 s.u. and 9.0 s.u. Any single analysis and or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

c. Total Residual Chlorine (TRC) testing is only required during periods of chlorine use and subsequent discharge within the waste stream at the water treatment plant.

Sampling for this parameter can be at the point of discharge from the water treatment plant, or at the point just before the waste stream enters the receiving stream, or any point in between.

d. The permittee may use dechlorination techniques to achieve the applicable TRC limitations, using sodium thiosulfate, sodium sulfite, sodium bisulfate, or other dechlorinating reagents after review by the department.

e. The analysis shall include the following parameters:

Sodium	Sulfate	Hardness, Total as (CaCO3)	Nitrate and Nitrite
Calcium	Carbonate	Total Dissolved Solids (TDS)	Phosphorus, Total
Magnesium	Bicarbonate	Sodium Adsorption Ratio (SAR)	Fluoride
Potassium	Hydroxide	Percent Sodium	pH
Silica	Alkalinity	Turbidity	Iron
Chloride	Conductivity	TSS	Manganese

f. The analysis shall include the following parameters:

Arsenic	Copper	Nickel	Zinc
Cadmium	Lead	Selenium	

A total hardness as (CaCO3) of the receiving stream shall be determined and reported every time the above parameters are tested. The hardness is used to calculate parameter criterion(s) according to the North Dakota State Water Quality Standards. This sample shall be collected upstream of the outfall.

Stipulations:

Best Management Practices (BMPs) are to be utilized so that there shall be no discharge of floating debris, oil, scum, and other floating materials in sufficient amounts to be unsightly or deleterious, or oil wastes that produce a visible sheen on the surface of the receiving water.

Samples taken in compliance with the monitoring requirements specified in this permit shall be taken prior to leaving the facility property or mixing with the receiving stream.

The department may require the permittee to provide additional sampling and monitoring as deemed necessary to assure adequate operation of the treatment system(s) and that the Standards of Quality for Waters of the State (Chapter 33-16-02.1) are met during the period of discharge.

The monitoring and discharge conditions are based on the facility's use of a diffuser. A new mixing zone analysis and verification of the mixing zone may be required if the discharge rate or pollutant concentrations change substantially.

II. MONITORING, RECORDING, AND REPORTING REQUIREMENTS BP 2021.09.09

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
   4201 Normandy Street
   Bismarck ND 58503-1324

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. Upset Conditions

An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of the following paragraph 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.

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and the permittee can identify its cause(s);

2. The permitted facility was, at the time being, properly operated;

3. The permittee submitted notice of the upset as required under F. Twenty-four Hour Notice of Noncompliance Reporting and

4. The permittee complied with any remedial measures required under I. Duty to Mitigate.

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

I. 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.

J. 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.

K. 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.

V. BENEFICIAL REUSE

The permittee must consult with the department before beneficially reusing wastewater for irrigation, construction, or any other purposes.