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

Public Notice Date: 11/15/2021 Public Notice Number: ND-2021-035

### 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: 10/27/2021

Application Number: ND0022462

Applicant Name: Enderlin City Of Mailing Address: PO Box 65, Enderlin, ND 58027-0065 Telephone Number: 701.437.3476

Proposed Permit Expiration Date: 12/31/2026

### Facility Description

The reapplication is for a series of wastewater stabilization ponds. The system services the City of Enderlin and an oil seed processing plant. The facility is located in the SW1/4 of the SE1/4 of Section 3, Township 136N, Range 55W, and the N1/2 of the NW1/4 of Section 11, Township 136N, Range 55W. Any discharges would be to the Maple River, a Class II stream via outfalls 001 and 003.

### 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 December 16, 2021 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.

Permit No:ND0022462Effective Date:January 1, 2022Expiration Date:December 31, 2026

## AUTHORIZATION TO DISCHARGE UNDER THE

# NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Chapter 33.2-16-01 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,

the City of Enderlin

is authorized to discharge from the outfall structures identified in this permit

to the Maple River a Class II stream

provided all the conditions of this permit are met.

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

December 31, 2026.

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**

DE	FIN	ITIONS	4
I. L	IMI	TATIONS AND MONITORING REQUIREMENTS	8
	Α.	Discharge Authorization	8
	Β.	Effluent Limitations and Monitoring	8
	C.	Whole Effluent Toxicity (WET) Requirements	14
II.	MC	DNITORING, RECORDING, AND REPORTING REQUIREMENTS	16
	Α.	Representative Sampling (Routine and Non-Routine Discharges)	16
	Β.	Test Procedures	17
	C.	Recording of Results	17
	D.	Additional Monitoring	17
	Ε.	Reporting of Monitoring Results	17
	F.	Records Retention	18
III.	CC	MPLIANCE RESPONSIBILITIES	18
	Α.	Duty to Comply	18
	В.	Proper Operation and Maintenance	19
	C.	Planned Changes	19
	D.	Duty to Provide Information	19
	Ε.	Signatory Requirements	19
	F.	Twenty-four Hour Notice of Noncompliance Reporting	20
	G.	Bypass of Treatment Facilities	20
	Н.	Upset Conditions	21
	I.	Duty to Mitigate	21
	J.	Removed Materials	21
	K.	Duty to Reapply	21
IV.	GE	NERAL PROVISIONS	21
	Α.	Inspection and Entry	21
	В.	Availability of Reports	22
	C.	Transfers	22
	D.	New Limitations or Prohibitions	22
	Ε.	Permit Actions	22
	F.	Need to Halt or Reduce Activity Not a Defense	22
	G.	State Laws	22
	Η.	Oil and Hazardous Substance Liability	22
	I.	Property Rights	22
	J.	Severability	22
V.	INE	DUSTRIAL WASTE MANAGEMENT	22

## 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<sup>th</sup> 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.

### DEFINITIONS Whole Effluent Toxicity (WET) BP 2017.04.06

- "Acute toxic unit" ("TUa") is a measure of acute toxicity. TUa is the reciprocal of the effluent concentration that causes 50 percent of the organisms to die by the end on the acute exposure period (i.e., 100/"LC50").
- 21. "Chronic toxic unit" ("TUc") is a measure of chronic toxicity. TUc is the reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period (i.e., 100/"IC25").
- 22. "Inhibition concentration", ("IC"), is a point estimate of the toxicant concentration that causes a given percent reduction (p) in a non-quantal biological measurement (e.g., reproduction or growth) calculated from a continuous model (e.g., Interpolation Method).
- 23. "**LC50**" means the concentration of toxicant (e.g., effluent) which is lethal to 50 percent of the organisms exposed in the time period prescribed by the test.
- 24. "**No observed effect concentration**", ("NOEC"), is the highest concentration of toxicant (e.g., effluent) to which organisms are exposed in a chronic toxicity test [full life-cycle or partial life-cycle (short term) test], that causes no observable adverse effects on the test organisms (i.e., the highest concentration of effluent in which the values for the observed responses are not statistically significantly different from the controls).

# **OUTFALL DESCRIPTIONS**

Outfall 001. Active. Final Outfall. Sanitary/Industrial Wastewater.							
Latitude: 46.6235519700 Longitude: -97.5876438100 County: Ransom							
Township: 136	Range: 55	Section: 3	QQ: CAA				
Receiving Stream: Maple River	Classification: II						
Outfall Description: This is the outfall from Cells 1, 2, and 3 of the waste stabilization pond system.							

Outfall 003. Active. Final Outfall. Sanitary/Industrial Wastewater.							
Latitude: 46.6151889300	County: Ransom						
Township: 136	Range: 55	Section: 11	QQ: B				
Receiving Stream: Maple River	Classification: II						
Outfall Description: This is the outfall from Cells 5-3, 5-4, and 6 of the waste stabilization pond system.							

# PERMIT SUBMITTALS SUMMARY

Coverage Point	Submittal	Frequency	Submittal	First Submittal Date
001A	Discharge Monitoring Report	Quarterly	Quarterly	04/30/2022
002A	Discharge Monitoring Report	Annual	Annual	01/31/2023
003A	Discharge Monitoring Report	Monthly	Monthly	02/28/2022
001G	Discharge Monitoring Report	Quarterly	Quarterly	04/30/2022
003G	Discharge Monitoring Report	Quarterly	Quarterly	04/30/2022
001M	Discharge Monitoring Report	Quarterly	Quarterly	04/30/2022
003M	Discharge Monitoring Report	Quarterly	Quarterly	04/30/2022
001W	Discharge Monitoring Report	Quarterly	Quarterly	04/30/2022
003W	Discharge Monitoring Report	Quarterly	Quarterly	04/30/2022
Application Renewal	NPDES Application Renewal	1/Permit cycle	N/A	07/01/2024

### **SPECIAL CONDITIONS**

Outfall 002 has been identified in this permit as an emergency use only outlet, no discharge shall occur from this outfall during normal operating conditions. This outfall is not a permitted outfall. Any discharge from outfall 002 is considered an un-authorized discharge which must be monitored for the parameters specified for outfall 002. Any discharge must be reported to the department in accordance with 40 CFR 122.41(6) and Part III(G) of this permit.

Outfall 002. Active. Emergency Outfall. Industrial Wastewater.							
Latitude: 46.6184705900	Longitude: -97.5856287900	County: Ransom					
Township: 136	Range: 55	Section: 3	QQ: DC				
Receiving Stream: Maple River		Classification: II					
Outfall Description: This is the outfall from the Cell 4 Cooling Pond. This outfall shall not have discharges							
under normal operating conditions. Any discharge which occurs from this point is un-authorized.							

If an un-permitted discharge occurs from outfall 002, the following parameters must be monitored and reported to the department on the DMR for outfall 002:

Effluent Limitations and Monitoring Requirements Outfall 002								
	E	Effluent Limitation	Monitoring Re	equirements				
Parameter	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit	Sample Frequency	Sample Type			
Total Suspended Solids (TSS)	*	*	*	Daily	Grab			
рН	*	*	*	Daily	Grab			
Ammonia	*	*	*	Daily	Grab			
Sulfate	*	*	*	Daily	Grab			
Chloride	*	*	*	Daily	Grab			
Oil & Grease a/	*	*	*	Weekly	Grab			
Oil & Grease Visual a/	*	*	*	Daily	Visual			
Free Available Chlorine	*	*	*	Daily	Grab			
Chromium, Total b/	*	*	*	Daily	Grab			
Zinc, Total c/ * *		*	*	Daily	Grab			
Temperature	*	*	*	Daily	Grab			
Effluent Flow, mgd	Report Avg. Value	*	Report Max. Daily Value	1/Day	Instantaneous			
Total Drain, mgal	*	*	Report Total	1/Month	Calculated			
*. This item for the stated based on sample history a	parameter is no and to protect the	t limited. How	ever, the departmeters.	ent may impos	e limitations			
a/ 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 oily wastes that produce a visible sheen on the surface of the receiving water.								
b/ The sample for chromium shall be analyzed using an EPA approved method with an analytical method detection limit of <=10 ug/l or 0.01 mg/l.								
c/ The sample for zinc shall be analyzed using an EPA approved method with an analytical method detection limit of <=50 ug/l or 0.05 mg/l.								
Stipulations:								

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

#### 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: **Maple River a Class II stream.** 

Predischarge samples shall be taken for BOD<sub>5</sub>, total suspended solids, pH, *E. coli*, and ammonia. No discharge shall occur from the lagoons until all pre-discharge parameters have been reviewed by the department.

#### Sampling of the Discharge

An effluent sample shall be collected after the seventh day of the discharge and every seven days thereafter.

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:

Effluent Limitations and Monitoring Requirements Outfalls 001							
Effluent Limitations Monitoring R						Requirements	
	Qı	lantity		Concentrati	on		
Parameter	Avg. Monthly Limit	Daily Maximum Limit	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit	Sample Frequency	Sample Type
Biological Oxygen Demand (BOD₅)	*	*	25.0 mg/l	45.0 mg/l	*	1/Week	Grab
Total Suspended Solids (TSS)	*	*	30.0 mg/l	45.0 mg/l	*	1/Week	Grab
pH a/		Shall be b	petween 6.0	to 9.0 s.u.		1/Week	Grab
E. coli b/	*	5.87 BCFUs/day	126 /100 ml	*	409 /100 ml	1/Week	Grab
Ammonia		Refer	to Ammonia	a Table		1/Week	Grab
Total Phosphorus			*	*	*	1/Month	Grab
Total Nitrogen	*	*	*	*	*	1/Month	Grab
Sulfate	*	*	614 mg/l	*	614 mg/l	1/Week	Grab
Chloride	*	*	354 mg/l	*	354 mg/l	1/Week	Grab
Potassium mg/l	*	*	*	*	*	1/Quarter	Grab
Chromium, Total mg/l c/	*	*	0.1 mg/l	*	0.2 mg/l	1/Quarter	Grab
Zinc, Total mg/l d/	*	*	0.5 mg/l	*	1.0 mg/l	1/Quarter	Grab
Free Available Chlorine	*	*	0.2 mg/l	*	0.5 mg/l	1/Week	Grab
126 Priority Pollutants d/		No De	etectable Ar	nounts		1/Quarter	Grab
Total Residual Chlorine mg/l	*	*	*	*	*	1/Quarter	Grab
Oil & Grease f/	*	*	*	*	10.0 mg/l	Conditional 1/Week	Grab
Oil & Grease visual f/	*	*	*	*	Report Yes/No	Daily	Visual
Whole Effluent Toxicity (WET)	See	"Whole Effluer	nt Toxicity (N	VET) Requir	rements	1/Quarter	Grab
General Chemistry g/	*	*	*	*	*	1/Quarter	Grab
Flow, Receiving Stream			Report Avg. Monthly Value	*	Report Max. Daily Value	1/Day	Instantaneous
Flow Effluent, mgd			Report Avg. Monthly Value	*	Report Max. Daily Value	1/Day	Calculated
Total Drain, mgal			*	*	Report Monthly Total	1/Month	Calculated
* This item for the stated parameter is not limited. However, the department may impose limitations based on							

Effluent Limitations and Monitoring Requirements <b>Outfalls 001</b>									
Effluent Limitations Monitoring Requireme						Requirements			
	Qu	antity		Concentratio	on				
	Avg.	Daily	Avg.	Avg.	Daily	Sample			
Parameter	Monthly	Maximum	Monthly	Weekly	Maximum	Frequency	Sample Type		
	Limit	Limit	Limit	Limit	Limit	Trequency			
sample history and	d to protect	the receiving v	waters.			<u> </u>			
a/ The pH, an insta	antaneous l	imitation, shal	l be betweei	n 6.0 s.u. an	d 9.0 s.u. Any	single analysi	s and or		
measurement bey	ond this lim	itation shall be		l a violation o	of the condition	ns of this perm	<u>nit.</u>		
b/ E. coli limits sha	all be effecti	ve from April ?	I through Oo	ctober 31. Th	ne daily maxim	um loading to	r <i>E. coli</i> shall		
be calculated utiliz	ing the folio	owing formula:							
		( 1)	7			<u> </u>	<b>F</b> 11		
E. coli. B	CFU = Flow	$v\left(\frac{gal}{d}\right) \times 3.78$	$354 \xrightarrow{L} \times E$	. <i>coli</i> concen	tration $\left( \frac{CFU}{-} \right)$	$-) \times \frac{1 BC}{1 BC}$	FU		
210000,2	010 1101	(day)	gal		(100 n	$1 \times 10^{\circ}$	P CFU		
			Wh	ere:					
	Flow = flow	w at the time w	when the <i>E</i> .	<i>coli</i> sample v	vas taken in g	allons/day			
/ // · · · ·					1 1 1 1				
c/ the sample for c		nall be analyze	ed using an	EPA approve	ed method with	n an analytical	method		
detection limit of <	= 10 ug/1 or	0.01 mg/l.			41				
limit of <=50 ug/l c	or 0.05 mg/l	e analyzed usil	ng an EPA a	approved me	thod with an a	nalytical meth	od detection		
e/ Sampling requir	ements are	waived, exce	pt for chrom	ium and zind	c. Should any	new chemical	s be used for		
cooling tower mair	ntenance, th	ne permittee sl	nall immedia	ately contact	the departmer	nt, and will hav	e six months		
to provide adequa	te verificatio	on that these r	iew chemica	als will not ca	use any of the	e 126 Priority F	Pollutants		
(excluding chromit	um and zind	c) to be preser	it. Should the	ne demonstra	ation prove ad	equate, samp	ing will be		
waived. If the den	nonstration	is not provided	d within this	time, or the	demonstration	shows that ar	ny of the 126		
Priority Pollutants	is present,	the sampling r	equirements	s identified w	ill become effe	ective.			
f/ The permittee m	ust not disc	harge any floa	ating solids,	visible foam	in other than t	race amounts	, or oily wastes		
that produce a she	en or floati	ng oil in the ef	fluent or on	the surface of	of the receiving	g water. The d	ischarge shall		
be visibly inspecte	d for sheen	or floating oil.	If present,	grab sample	s shall be anal	yzed for oil ar	id grease.		
g/ The following pa	arameters s	hall be sample	e and analyz	zed for:					
A 11 12 - 24	Discut		Oslaines		0	<b>4</b> .			
Alkalinity	Bicarb	onate	Calcium		Car		0.000		
Conductivity	Dissolv	ed Oxygen	Fluoride		Har	dness Total as	s CaCO3		
Hydroxide Damaant Oadiana	Iron		Magnesi	um Nata a mati a m	Mar Tata	iganese	- 11 - 1 -		
Percent Sodium	рн		Soaium A	Adsorption R	atio i ota	al Dissolved S	olias		
Stinulationa									
Datas of discharge	and numb	or of oveureiou	as shall be i	neluded on t	ha Dischargo I		porto		
Dates of discharge and number of excursions shall be included on the Discharge Monitoring Reports.									
PMDs are to be utilized as that there aball he as discharge of floating debuic ail as we and other floating									
materials in sufficient amounts to be unsightly or deleterious, or oily wastes that produce a visible shoop on the									
materials in sufficient amounts to be unsignity or deletenous, or only wastes that produce a visible sheen on the									
surface of the receiving water.									
Samples taken in	Samples taken in compliance with the monitoring requirements enseified in this normit shall be taken prior to								
Samples taken in compliance with the monitoring requirements specified in this permit shall be taken prior to leaving the facility property and entering the receiving stream									
	leaving the facility property and entering the receiving stream.								

Effluent Limitations and Monitoring Requirements Outfalls 003							
Effluent Limitations					Monitoring	Requirements	
	Qu	lantity		Concentrati	on		
	Avg.	Daily	Avg.	Avg.	Daily	Sampla	
Parameter	Monthly	Maximum	Monthly	Weekly	Maximum	Sample	Sample Type
	Limit	Limit	Limit	Limit	Limit	Frequency	-
Biological							
Oxygen	*	*	25.0 mg/l	45.0 mg/l	*	1/Week	Grab
Demand (BOD <sub>5</sub> )			-	-			
Total							
Suspended	*	*	30.0 mg/l	45.0 mg/l	*	1/Week	Grab
Solids (TSS)			_	-			
pH a/		Shall be b	between 6.0	to 9.0 s.u.		1/Week	Grab
E coli h/	*	8.108	126 /100	*	100 /100 ml	1/Mook	Crob
		BCFUs/day	ml		409/100 mi	1/vveek	Grap
Ammonia		Refer	to Ammonia	a Table		1/Week	Grab
Total			*	*	*	1/Month	Crah
Phosphorus						1/IVIONIIN	Grap
Total Nitrogen	*	*	*	*	*	1/Month	Grab
Sulfate	*	*	343 mg/l	*	615 mg/l	1/Week	Grab
Chloride	*	*	213 mg/l	*	333 mg/l	1/Week	Grab
Potassium mg/l	*	*	*	*	*	1/Quarter	Grab
Chromium, Total	*	*	0.4	*	0.0	1/0	Oneh
mg/l c/			0.1 mg/i	, i i i i i i i i i i i i i i i i i i i	0.2 mg/i	1/Quarter	Grap
Zinc, Total mg/l	*	*	0.00	*	0.00 mm m/l	1/0	Oneh
d/			0.09 mg/i		0.09 mg/i	1/Quarter	Grab
Free Available	*	*	0.0 mm.m/l	*		1/1/00/	Orah
Chlorine			0.2 mg/i		0.5 mg/i	1/vveek	Grab
126 Priority		No D	otootoblo Ar	nounto		1/Querter	Crah
Pollutants d/		No Delectable Amounts					Glab
Total Residual	*	*	*	*	*	1/Ouarter	Grah
Chlorine mg/I							Glab
Oil & Grosse f/	*	*	*	*	10.0 mg/l	Conditional	Grah
					10.0 mg/i	1/Week	Glab
Oil & Grease	*	*	*	*	Report	Daily	Vieual
visual f/					Yes/No	Daily	Visual
Whole Effluent	See	"Whole Efflue	at Toxicity ()		remente	1/Ouarter	Grah
Toxicity (WET)	566			//LT) Requi			Glab
General	*	*	*	*	*	1/Ouarter	Grah
Chemistry g/							Olab
			Report		Report		
Flow, Receiving			Avg.	*	Max Daily		Instantaneous
Stream			Monthly			1/Day	mstantaneous
			Value		value		
			Report		Report		
Flow Effluent,			Avg.	*	Max Daily	1/Dav	Calculated
mgd			Monthly		Value	., Day	
			Value				
Total Drain			J.	J.	Report		
mgal			*	*	Monthly	1/Month	Calculated
.3					lotal		

Effluent Limitations and Monitoring Requirements Outfalls 003								
	Effluent Limitations						Requirements	
	Qu	antity		Concentratio	on			
Parameter	Avg. Monthly Limit	Daily Maximum Limit	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit	Sample Frequency	Sample Type	
* This item for the	e stated par	ameter is not	limited. Hov	vever, the de	epartment may	<sup>,</sup> impose limita	tions based on	
sample history and	d to protect	the receiving v	waters.		•			
a/ The pH, an insta measurement bey	antaneous l ond this lim	imitation, shal itation shall be	l be betweer considered	n 6.0 s.u. and a violation o	d 9.0 s.u. Any of the conditior	single analysis	s and or iit.	
b/ E. coli limits sha	all be effecti	ve from April 1	I through Oc	tober 31. Th	ne daily maxim	um loading fo	r <i>E. coli</i> shall	
be calculated utiliz	ing the follo	owing formula:	-			-		
E.coli,B	CFU = Flow	$w\left(\frac{gal}{day}\right) \times 3.78$	$354 \ \frac{L}{gal} \times E$	. <i>coli</i> concen	tration $\left(\frac{CFU}{100 \ m}\right)$	$\left(\frac{1}{nl}\right) \times \frac{1}{1 \times 10^9}$	FU P CFU	
			Wh	ere:				
	Flow = flov	w at the time v	when the <i>E.</i> o	c <i>oli</i> sample v	vas taken in ga	allons/day		
c/ the sample for c detection limit of <	hromium sl =10 ug/l or	hall be analyze 0.01 mg/l.	ed using an	EPA approve	ed method with	n an analytical	method	
d/ the sample for z limit of <=50 ug/l c	zinc shall be or 0.05 mg/l	e analyzed usi	ng an EPA a	pproved me	thod with an a	nalytical meth	od detection	
e/ Sampling requir cooling tower mair to provide adequa (excluding chromit waived. If the den Priority Pollutants	ements are ntenance, th te verificatio um and zino nonstration is present,	waived, exce ne permittee sl on that these r c) to be preser is not provideo the sampling r	pt for chrom nall immedia new chemica it. Should th d within this equirements	ium and zind ately contact als will not ca be demonstra time, or the s identified w	c. Should any the department tuse any of the ation prove add demonstration rill become effection	new chemical nt, and will hav 26 Priority F equate, sampl shows that ar ective.	s be used for ve six months Pollutants ing will be ny of the 126	
f/ The permittee m that produce a she be visibly inspecte	ust not disc en or floati d for sheer	charge any floa ng oil in the ef or floating oil.	ating solids, fluent or on If present, g	visible foam the surface o grab sample	in other than t of the receiving s shall be anal	race amounts g water. The d yzed for oil ar	, or oily wastes ischarge shall id grease.	
g/ The following pa	arameters s	hall be sample	e and analyz	ed for:				
Alkalinity Conductivity Hydroxide Percent Sodium	Bicarb Dissolv Iron pH	onate ved Oxygen	Calcium Fluoride Magnesiu Sodium A	um Adsorption R	Carl Har Mar atio Tota	bonate dness Total as nganese al Dissolved S	s CaCO3 olids	
Stipulations:	Stipulations:							
Dates of discharge and number of excursions shall be included on the Discharge Monitoring Reports.								
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 oily wastes that produce a visible sheen on the surface of the receiving water.								
Samples taken in leaving the facility	Samples taken in compliance with the monitoring requirements specified in this permit shall be taken prior to leaving the facility property and entering the receiving stream.							

Ammonia Effluent Limitations and Monitoring Requirements Outfalls 001 and 003								
	Effluent Limitations							
Parameter	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit					
Ammonia 1/	+	*	‡					
Stream flow upstream, cfs 2/	*	*	*					
Temperature upstream, ° C 2/,	*	*	*					
3/								
pH upstream S U 2/ 3/	*	*	*					

1/ Calculations must be performed for each discharge sample. If an exceedance is detected on any single sample, the exceedance must be reported on the DMR.

2/ Sample must be collected/ recorded the same day as the ammonia sample. The upstream flow, temperature, and pH may be obtained from the USGS gauging station at Enderlin, North Dakota.

3/ If the upstream values are not collected then following minimum values base on the 90<sup>th</sup> percentile upstream STORET and USGS data are to be used: pH: 8.2 S.U., Temperature 23.24 ° C, and ammonia 0.48 mg/l. If the upstream flow is not available then, the 30B10 critical low flow of 2.0 cfs shall be used. The maximum mixing factor is 10.0%.

+ Chronic Standard (Average Monthly Limit)

The 30-day average concentration of total ammonia (expressed as N in mg/L) does not exceed, more often than once every three years on the average, the numerical value given by the following formula; and the highest 4-day average concentration of total ammonia within the 30-day averaging period does not exceed 2.5 times the numerical value given by the following formula:

 $0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) \times \left(2.126 \times 10^{0.028 \times (20 - MAX(T,7))}\right)$ 

Receiving stream pH and Temperature is used for the calculation

‡ Acute Standard (Daily Maximum Limit)

The one-hour average concentration of total ammonia (expressed as N in mg/l) does not exceed, more often than once every three years on the average, the numerical value given by the following formula:

$$0.7249 \times \left(\frac{0.0114}{1+10^{7.204-pH}} + \frac{1.6181}{1+10^{pH-7.204}}\right) \times MIN(51.93,23.12 \times 10^{0.036 \times (20-T)})$$

Receiving stream pH and Temperature is used for the calculation

### **Upstream and Downstream Sampling Requirements**

<u>Upstream sample point for outfalls 001 and 003</u>. This is the upstream sampling point for discharges occurring from 001 and 003. It is located at the bridge 0.25 miles east of the Enderlin baseball park on highway 46. This point is about 1.2 river miles upstream of outfall 001 and 2.5 river miles upstream of outfall 003. This shall also be the location of where the dilution water for WET testing is collected.

<u>Downstream sample point for outfalls 001 and 003</u>. This is the downstream sampling point for discharges occurring from 001 and 003. It is located at the bridge 3 miles east of the Enderlin baseball park on highway 46. This point is about 6.25 river miles downstream of outfall 001 and about 5 river miles downstream of outfall 003.

Maple River	Maple River Upstream and Downstream Monitoring Requirements Outfalls 001 and 003								
Parameter	Limit	ations	Sample Frequency	Sample Type					
Chromium, Total a/		*	1/Quarter	Grab					
Zinc, Total b/		*	1/Quarter	Grab					
General Chemistry c/		*	1/Quarter	Grab					
Sulfate, mg/l		*	1/Week	Grab					
Chloride, mg/l		*	1/Week	Grab					
* This item for the sta	ated parameter is not	limited. Howeve	er, the department may imp	ose limitations					
based on sample histe	ory and to protect the	receiving waters	S.						
a/ The sample for chromium shall be analyzed using an EPA approved method with an analytical method detection limit of <=10 ug/l or 0.01 mg/l.									
b/ The sample for zinc shall be analyzed using an EPA approved method with an analytical method detection limit of <=50 ug/l or 0.05 mg/l.									
c/ The following parar	neters shall be sampl	ed and analyzed	:						
AlkalinityBicarbonateCalciumCarbonateConductivityDissolved OxygenFluorideHardness Total as CaCO3HydroxideIronMagnesiumMagnesiumPercent SodiumpHPotassiumSodium Adsorption RatioTotal DissolvedSolidsSolidsSolids									
Stipulations: Upstream and downstream sampling shall be collected on the same day as the effluent samples are collected.									
When dangerous conditions exist for personnel (i.e. thin ice melting ice flooding etc.) the scheduled									

river sampling may be suspended until conditions are deemed suitable.

### C. Whole Effluent Toxicity (WET) Requirements BP 2021.01.26

### 1. Acute Toxicity Testing

Acute toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of <u>"Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine</u> <u>Organisms</u>," EPA-821-R-02-012 (Fifth Ed., October 2002). The permittee shall conduct an acute 48-hour static renewal toxicity test using freshwater fleas, *Ceriodaphnia dubia* and an acute 96-hour static renewal toxicity test using fathead minnows, *Pimephales promelas*.

WET tests shall be performed on the first discharge made each calendar year, unless specifically waived by the department. Thereafter, tests shall be performed at least once every calendar quarter in which there is a discharge.

### Toxicity is defined as:

Acute test failure is defined as lethality to 50% or more of the test organisms exposed to 100% effluent or >1.0 TUa for *Ceriodaphnia dubia* 48 hour and fathead minnow 96 hour test. The 48 hour and 96 hour effluent value must be <1.0 TUa to indicate a passing test. Any 48 hour or 96 hour effluent value of >1.0 TUa will constitute a failure. Tests in which the control survival is less than 90% are invalid and must be repeated.

Acute WET requirements for Outfalls 001, 002, and 003						
Effluent Dilution	0%(Control)	12.5%	25%	50%	75%	100%
Dilution Water	Maple River					
One size and Test Turns	Ceriodaphnia dubia - 48 Hour Acute - Static Renewal - 20°C					
Species and rest type	ad minnow - 96 Hour Acute - Static Renewal - 20°C					
Endpoint	TUa					
Compliance Point	End-of-pipe	or In-strear	n			

If toxicity occurs in a routine test, an additional test shall be initiated within 14 days from the date of the initial toxicity findings. Should there be no discharge during a specified sampling time frame; sampling shall be performed as soon as there is a discharge. Should toxicity occur in the second test, testing shall be conducted at a frequency of once a month and the implementation of a <u>5.Toxicity Reduction Evaluation (TRE)</u> shall be determined by the department. If no toxicity is found in the second test, testing shall occur as outlined in the permit.

The permittee shall report the following results of each toxicity test on the DMR for that reporting period:

### Pimephales promelas (Fathead Minnow)

a. Report the highest TUa for Fathead minnow, Parameter No. TSN6C.

#### Ceriodaphnia dubia (Water Flea)

a. Report the highest TUa for Ceriodaphnia dubia, Parameter No. TSM3B.

### 2. Chronic Toxicity Testing

No chronic toxicity limits are imposed on this permit. Therefore, the permittee is not required to monitor or test for chronic toxicity.

The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of "<u>Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving</u> <u>Waters to Freshwater Organisms</u>," EPA-821-R-02-013 (Fourth Ed., October 2002). Test species shall consist of freshwater fleas, *Ceriodaphnia dubia* and fathead minnows, *Pimephales promelas*.

### 3. Reduced Monitoring for Toxicity Testing

#### a. Alternating Species

If the results of a minimum of four consecutive samples taken over at least a 12 month period indicate no toxicity, the permittee may request the Department for a test reduction. This reduction would only be testing one species per sampling frequency. If fathead minnows are used first then the next test would be *C. dubia* or vice versa and continue alternating. The department may approve or deny the request, based on the biomonitoring results and other available information. If the request is approved, the test procedures are to be the same as outlined in <u>1. Acute Toxicity Testing</u> and/or <u>2. Chronic Toxicity Testing</u>.

This provision is revoked at the time of permit reissuance/renewal. Permittees may request alternating species after the conditions of this section are met under the reissued permit.

If toxicity occurs in any single species test the provision for alternating species shall be immediately revoked and <u>1. Acute Toxicity Testing</u> and/or <u>2. Chronic Toxicity Testing</u> shall be followed in whole.

b. Monthly Testing

If the results of <u>5</u>. Toxicity Reduction Evaluation (TRE) have been accepted by the department or a period of time has indicated no toxicity, the permittee may request the department to allow a reduction from monthly to quarterly toxicity testing for both species. The department may approve or deny the request, based on the bio-monitoring results and other available information. If the request is approved, the test procedures are to be the same as outlined in <u>1</u>. Acute Toxicity <u>Testing</u> and/or <u>2</u>. Chronic Toxicity Testing.

## 4. Reporting Requirements

Test results shall be submitted with the Discharge Monitoring Report (DMR) form for each reporting period. The format for the report shall be consistent with the above reference manual(s) as outlined in the section "Report Preparation and Test Review." Each lab generated report shall document the findings for each species reference toxicity testing chart.

### 5. Toxicity Reduction Evaluation (TRE)

If toxicity is detected, and it is determined by the department that a TRE is necessary, the permittee shall be so notified and shall initiate a TRE immediately thereafter. A TRE shall reference the latest revision of "*Technical Support Document for Water Quality-based Toxics Control*," EPA/505/2-90-001 – PB91-127415 (March 1991). The purpose of the TRE will be to establish the cause of the toxicity, locate the source(s) of the toxicity, and control or provide treatment for the toxicity.

If the TRE establishes that the toxicity cannot be eliminated by the current treatment system, the permittee shall submit a proposed compliance plan to the department. The plan shall include the proposed approach to control toxicity and a proposed compliance schedule for achieving control. If the approach and schedule are acceptable to the department, this permit may be reopened and modified.

If the TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with specific numerical limitations or proper discharge management as approved by the department, the permittee may:

Submit an alternative control program for compliance with the numerical requirements; or

If necessary, provide a modified biomonitoring protocol which compensates for the pollutant(s) being controlled numerically.

If acceptable to the department, this permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the department, and/or a modified biomonitoring protocol.

Failure to conduct an adequate TRE, or failure to submit a plan or program as described above, or the submittal of a plan or program judged inadequate by the department, shall in no way relieve the permittee from maintaining compliance with the whole effluent toxicity requirements of this permit.

### 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 <u>B. Test Procedures</u>. The permittee must report all additional monitoring in accordance with <u>D. Additional Monitoring</u>.

### **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 <u>B. Test Procedures</u>, 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.
- 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 <u>E. Signatory Requirements</u> 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 <u>G. Bypass of Treatment Facilities;</u>
  - b. Any upset which exceeds any effluent limitation in the permit under <u>H. Upset Conditions;</u> 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 <u>Part II.E. Reporting of Monitoring Results.</u> 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. <u>Bypass not exceeding limitations</u>. 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 <u>F. Twenty-four Hour Notice of Noncompliance Reporting</u>.
- 3. <u>Prohibition of Bypass.</u> 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 <u>1. Anticipated Bypass</u> 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 technologybased 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 <u>F. Twenty-four Hour Notice of</u> <u>Noncompliance Reporting</u> 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. INDUSTRIAL WASTE MANAGEMENT BP 2021.09.28 Minor POTWs Non-Approved Pretreatment Program Requirements

### A. General Responsibilities

The permittee has the responsibility to protect the Publicly Owned Treatment Works (POTW) from pollutants which would inhibit, interfere, or otherwise be incompatible with operation of the treatment works including interference with the use or disposal of municipal sludge.

### **B.** Pollutant Restrictions

Pretreatment Standards (40 CFR Section 403.5) developed pursuant to Section 307 of the Federal Clean Water Act (the Act) require that the permittee shall not allow, under any circumstances, the introduction of the following pollutants to the POTW from any source of nondomestic discharge:

- 1. Any other pollutant which may cause Pass Through or Interference;
- 2. Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, waste streams with a closed cup flashpoint of less than sixty (60) degrees Centigrade (140 degrees Fahrenheit) using the test methods specified in 40 CFR Section 261.21;
- 3. Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with a pH of lower than 5.0 s.u., unless the treatment facilities are specifically designed to accommodate such discharges;
- 4. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW, or other interference with the operation of the POTW;
- 5. Any pollutant, including oxygen demanding pollutants (e.g., BOD), released in a discharge at a flow rate and/or pollutant concentration which will cause Interference with any treatment process at the POTW;
- Heat in amounts which will inhibit biological activity in the POTW resulting in Interference, but in no case heat in such quantities that the temperature at the POTW treatment plant exceeds forty (40) degrees Centigrade (104 degrees Fahrenheit) unless the Approval Authority, upon request of the POTW, approves alternate temperature limits;
- 7. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through at the POTW;
- 8. Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems;
- 9. Any trucked or hauled pollutants, except at discharge points designated by the POTW; and
- 10. Any specific pollutant which exceeds a local limitation established by the permittee in accordance with the requirements of 40 CFR Section 403.5 (c) and (d).

#### C. Approval Authority

North Dakota was delegated the Industrial Pretreatment Program in September of 2005. The North Dakota Department of Environmental Quality, Division of Water Quality shall be the Approval Authority and the mailing address for all reporting and notifications to the Approval Authority shall be:

ND Department of Environmental Quality Division of Water Quality 4201 Normandy Street Bismarck ND 58503-1324

### **D. Industrial Categories**

In addition to the general limitations expressed above, more specific Pretreatment Standards have been and will be promulgated for specific industrial categories under Section 307 of the Act (40 CFR Part 405 et. Seq.).

#### E. Notification Requirements

The permittee must notify the Approval Authority, of any new introductions by new or existing industrial users or any substantial change in pollutants from any industrial user within sixty (60) days following the introduction or change. Such notice must identify:

- 1. Any new introduction of pollutants into the POTW from an industrial user which would be subject to Sections, 301, 306, and 307 of the Act if it were directly discharging those pollutants; or
- 2. Any substantial change in the volume or character of pollutants being introduced into the POTW by any industrial user;
- 3. For the purposes of this section, adequate notice shall include information on:
  - a. The identity of the industrial user;
  - b. The nature and concentration of pollutants in the discharge and the average and maximum flow of the discharge to be introduced into the POTW; and
  - c. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from or biosolids produced at such POTW,
- 4. For the purposes of this section, a significant industrial user shall include:
  - a. Any discharger subject to Categorical Pretreatment Standards under Section 307 of the Act and 40 CFR chapter I, subchapter N;
  - b. Any discharger which has a process wastewater flow of 25,000 gallons or more per day;
  - c. Any discharger contributing five percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant;
  - d. Any discharger who is designated by the Approval Authority as having a reasonable potential for adversely affecting the POTW's operation or for violating any Pretreatment Standards or requirements.

#### F. Approval Authority Options

At such time as a specific Pretreatment Standard or requirement becomes applicable to an industrial user of the permittee, the Approval Authority may, as appropriate:

- 1. Amend the permittee's North Dakota Pollutant Discharge Elimination System (NDPDES) discharge permit to specify the additional pollutant(s) and corresponding effluent limitation(s) consistent with the applicable national Pretreatment Standards;
- Require the permittee to specify, by ordinance, order, or other enforceable means, the type of pollutant(s) and the maximum amount which may be discharged to the permittee's POTW for treatment. Such requirement shall be imposed in a manner consistent with the POTW program development requirements of the General Pretreatment Regulations at 40 CFR Part 403; and/or,

3. Require the permittee to monitor its discharge for any pollutant which may likely be discharged from the permittee's POTW, should the industrial user fail to properly pre-treat its waste.

### G. Enforcement Authority

The Approval Authority retains, at all times, the right to take legal action against any source of nondomestic discharge, whether directly or indirectly controlled by the permittee, for violations of a permit, order or similar enforceable mechanism issued by the permittee, violations of any Pretreatment Standard or requirement, or for failure to discharge at an acceptable level under national standards issued by EPA under 40 CFR, chapter I, subchapter N. In those cases where a North Dakota Pollutant Discharge Elimination System (NDPDES) permit violation has occurred because of requirements as necessary to protect the POTW, the North Dakota Department of Health and/or Approval Authority shall hold the permittee and/or industrial user responsible and may take legal action against the permittee as well as the industrial user(s) contributing to the permit violation.

#### FACT SHEET FOR NDPDES PERMIT ND0022462

#### CITY OF ENDERLIN ENDERLIN, ND

### DATE OF THIS FACT SHEET – November 2021

### 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) has oversight authority. In 1975, the State of North Dakota was delegated primacy of the NPDES program by EPA. The North Dakota Department of Environmental Quality (NDDEQ), 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 hereby 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 NDAC 33.1-16 (North Dakota Century Code). The department uses North Dakota Pollutant Discharge Elimination System (NDPDES) as its permitting title.

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 the North Dakota Administrative Code (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 chapter 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	
FACILITY DESCRIPTION	7
History	9
Outfall Description	10
PERMIT STATUS	10
SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED	10
Past Discharge Data	11
PROPOSED PERMIT LIMITS AND SELF MONITORING REQUIREMENTS	16
Effluent Limitations	17
SELF-MONITORING REQUIREMENTS	25
SURFACE WATER QUALITY-BASED EFFLUENT LIMITS	26
Numerical Criteria for the protection of Aquatic Life and Recreation	27
Numerical Criteria for the Protection of Human Health	27
Narrative Criteria	
Antidegradation	
Mixing Zones	
EVALUATION OF SURFACE WATER QUALITY-BASED EFFLUENT LIMITS FOR	NUMERIC
CRITERIA	
BOD <sub>5</sub>	29
Outfalls 001 and 003	29
TSS	29
Outfalls 001 and 003	
Outfall 002	29
рН	29
Outfall 001	29
Outfall 002	29
Outfall 003	
E. coli	30
Outfalls 001	
Outfall 003	
Ammonia as N	30
Outfall 001	
Outfall 002	31
Outfall 003	31
Zinc Total	31
Outfalls 001	
Outfall 002	
Outfall 003	32
Free Available Chlorine	
Outfall 001	
Outfall 002	
Outfall 003	
Temperature	
126 Priority Pollutants	
Sulfate	33

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 3 of 78

PERMIT ISSUANCE PROCEDURES ......41 Permit Actions......41 DEFINITIONS Standard Permit BP 2019.05.29 ......44 DEFINITIONS Whole Effluent Toxicity (WET) BP 2017.04.06......45 APPENDIX C - DATA AND TECHNICAL CALCULATIONS ......47 

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 4 of 78

# BACKGROUND INFORMATION

Table 1 – General Facility Information	
Applicant:	Enderlin City of
Facility Name and Address:	Enderlin City of
	411 Railway St, Enderlin ND 58027
Permit Number:	ND0022462
Permit Type:	Minor Municipality – Renewal
Type of Treatment:	Waste Stabilization Ponds
SIC Code:	4952 – Electric, Gas and Sanitary Services-
	Sanitary Services-Sewerage Systems
NAICS Code:	221320 – Sewage Treatment Facilities
Discharge Location:	Outfall 001:
	Latitude: 46.6235519700
	Longitude: -97.5876438100
	Outfall 002:
	Latitude: 46.6184705900
	Longitude: -97.5856287900
	Outfall 003:
	Latitude: 46.6151889300
	Longitude: -97.5698354600
Hydrologic Code:	09020205 – Maple
Population:	940 – Provided on application.

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 5 of 78

Figure 1: Overview of the Wastewater Lagoon System.





July 27, 2016

1:18,056 0 0.2 0.4 0.8 mi 0 0.35 0.7 1.4 km North Dak de state agencies and the ND GIS Hub



### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 6 of 78

Figure 2: Lagoon Cells 1- 4.



City of Enderlin Wastewater Lagoon System

		1:9,028	
0	0.1	0.2	0.4 mi
0	0.175	0.35	0.7 km

North Dak cta state agencies and the ND GIS Hub



#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 7 of 78

Figure 3: Lagoon Cells 5 & 6.



City of Enderlin Wastewater Lagoon System



tota state agencies and the ND GIS Hub

Enderlin's Publicly Owned Treatment Works (POTW) treats wastewater in a six (6) cell waste stabilization pond system. Cells 1, 2, and 3 treat the domestic wastewater from the City of Enderlin. There is significant operational flexibility in the systems. The City of Enderlin owns Cells 1, 2, 3, 4, 5-4, and 6, while ADM owns Cells 5-1, 5-2, and 5-3. The following are the size of the cells: Cell 1 is 14.1 acres; Cell 2 is 9.0 acres; Cell 3 is 6.0 acres; Cell 4 is 0.5 acres; Cell 5-1 is 1.0 acres; Cell 5-2 is 1.0 acres; Cell 5-3 is 15 acres; Cell 5-4 is 15; and Cell 6 is 16 acres.

Cell 4 collects the cooling tower blowdown, boiler blowdown, and reverse osmosis (RO) reject water from ADM Northern Sun (ADM). Cell 4 is routed to the City of Enderlin's Cell 1, which flows to Cell 2. Cell 2 is then routed to ADM's Cell No. 5 series. ADM's waste streams are treated in the Cell No. 5 series (Cells 5-1, 5-2, 5-3, 5-4) and Cell 6. Wastewater from Cell 2 can be transferred to the Cell No. 5 series and vice versa.

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 8 of 78

Outfall 001 services Cells 1, 2, and 3; outfall 002 services Cell 4, and outfall 003 services Cells 5-3, 5-4, and 6.

Below is a schematic of the wastewater treatment system provided with the permit reapplication:



City of Enderlin - Wastewater Lagoon Flow Chart

The following flow diagram was provided by ADM during the permit reissuance of the wastewater treatment system as of 2021:

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 9 of 78



#### ADM Enderlin Water Flow Diagram After Completion of Updated Wastewater Treatment System Fall 2021

# History

The United States Environmental Protection Agency (EPA) first issued a NPDES permit to the City of Enderlin in 1974. The department assumed the NPDES permit in 1979. In 1991, Cell 5 was added to the treatment system and in 2009 the construction of Cell 6 was completed.

In 2020, ADM converted Cell 5-2 to a covered anaerobic digester with a biogas flare and Cell 5-1 was converted to a sludge handling pond. ADM also started routing the cooling tower blowdown, RO reject water and boiler blowdown to the anaerobic digester. Pond 4 and Outfall 002 are no longer utilized under normal operating conditions.

### **Outfall Description**

Discharges at any location not authorized under a NDPDES permit is a violation of the Clean Water Act (CWA) and could subject the person(s) responsible for such discharge to penalties under section 309 of the CWA. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within the specified timeframe outlined in this permit could subject such person(s) to criminal penalties as provided under the CWA.

Outfall 001. Active. Final Outfall. Sanitary/Industrial Wastewater.				
Latitude: 46.6235519700	Longitude: -97.5876438100	County: Ransom		
Township: 136	Range: 55	Section: 3 QQ: CAA		
Receiving Stream: Maple River		Classification: II		
Outfall Description: This is the outfall from Cells 1, 2, and 3 of the waste stabilization pond				
system.				

Outfall 003. Active. Final Outfall. Sanitary/Industrial Wastewater.			
Latitude: 46.6151889300	Longitude: -97.5698354600	County: Ransom	
Township: 136	Range: 55	Section: 11 QQ: B	
Receiving Stream: Maple Ri	Classification: II		
Outfall Description: This is the outfall from Cells 5-3, 5-4, and 6 of the waste stabilization pond			
system.			

# PERMIT STATUS

The department issued the previous permit for this facility on January 1, 2017. The previous permit placed limits on Biochemical Oxygen Demand (BOD<sub>5</sub>), Total Suspended Solids (TSS), pH, Ammonia as N, *Escherichia coli (E. coli)*, Oil and Grease, Sulfate, Chloride, Free Available Chlorine, Chromium, Zinc, Temperature, Whole Effluent Toxicity, and the 126 Priority Pollutants.

The department received the permit application on October 27, 2021 and was accepted by the department on November 02, 2021.

# SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED

Department staff last conducted a non-sampling compliance inspection on August 29, 2019. The department's assessment of compliance is based on a review of the facility's Discharge Monitoring Reports (DMRs) and physical inspections were conducted by department staff. No violations were noted at the time of the last inspection. The facility has the following 214 violations noted from submitted DMRs, 11 exceedances were TRC exceedances (40 percent or greater above the permit limit or 20 percent or greater above the permit limit for metals):
## FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 11 of 78

Table 1: Summary of exceedances for the City of Enderlin from 01/01/2017-06/30/2021.							
Parameter	Total Number of Exceedances	Total TRC Exceedances					
BOD <sub>5</sub>	5	1					
$NH_3$ as N	15	0					
Chlorides	8	1					
Total Chromium	2	1					
pH	112	NA					
Sulfates	44	4					
WET, Ceriodaphnia dubia	8	NA					
WET, Pimephales promelas	6	NA					
TSS	12	3					
Total Zinc	2	1					
Total	214	11					

# Past Discharge Data

The City of Enderlin is an intermittent discharger. A summary of the effluent data is displayed in Table 2.

	Table 2: [	OMR data summary for	Enderli	n, City of	from 01/0	1/2017-	07/31/2	2021.
Disch Pt	Location	Parameter	Ave Conc	Range	Units	Ave Load	Max Load	Max Load Units
001A	Effluent	Ammonia as Nitrogen	3.27	3.27 - 3.27	mg/L			
001A	Effluent	Biochemical Oxygen Demand	9.30	9.3 - 9.3	mg/L			
001A	Effluent	Chlorides	289.00	289 - 289	mg/l			
001A	Effluent	Discharge Flow in Million Gals				1.05	1.31	MGD
001A	Effluent	Drain in Million Gallons					5.23	Mgal
001A	Effluent	E Coli Geometric Mean						
001A	Effluent	Nitrate Nitrite Total	0.76	0.758 - 0.758	mg/l			
001A	Effluent	Oil & Grease	N/A	N/A	N/A			
001A	Effluent	Oil and Grease Visual					0	Y=1;N=0
001A	Effluent	рН		7.96 - 7.96	S.U.			
001A	Effluent	Phosphorus Total	1.20	1.2 - 1.2	mg/L			
001A	Effluent	Sulfates	802.00	802 - 802	mg/l			
001A	Effluent	Total Kjeldahl as Nitrogen						
001A	Effluent	Total Suspended Solids	11.80	11.8 - 11.8	mg/l			

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 12 of 78

	Table 2: DMR data summary for Enderlin, City of from 01/01/2017-07/31/2021.								
Disch Pt	Location	Parameter	Ave Conc	Range	Units	Ave Load	Max Load	Max Load Units	
001G	Effluent	Alkalinity							
001G	Effluent	Bicarbonate (as HCO3)							
001G	Effluent	Calcium Total							
001G	Effluent	Carbonate (CO3)							
001G	Effluent	Chlorides	289.00	289 - 289	mg/l				
001G	Effluent	Conductivity							
001G	Effluent	Dissolved Oxygen							
001G	Effluent	Flouride Total							
001G	Effluent	Hardness as CaCO3							
001G	Effluent	Hydroxide (OH)							
001G	Effluent	Iron Total							
001G	Effluent	Magnesium Total							
001G	Effluent	Manganese Total							
001G	Effluent	рН		7.96 - 7.96	S.U.				
001G	Effluent	Potassium Total							
001G	Effluent	Silica Total							
001G	Effluent	Sodium							
001G	Effluent	Sodium % of total cations							
001G	Effluent	Sodium Absorption Ratio							
001G	Effluent	Sulfates	802.00	802 - 802	mg/l				
001G	Effluent	Total Dissolved Solids							
001G	Effluent	Total Suspended Solids	11.80	11.8 - 11.8	mg/l				
001G	Effluent	Turbidity							
001M	Effluent	Chromium Total							
001M	Effluent	Zinc Total							
001W	Effluent	Acute Toxic Unit Stat Ceriodaphnia TSA3B							
001W	Effluent	Acute Toxic Unit Stat Fat Hd Minnows TSB6C							
002A	Effluent	Ammonia as Nitrogen	0.11	0.04 - 1.3	mg/L				
002A	Effluent	Chlorides	1325.22	3.68 - 7500	mg/l				

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 13 of 78

	Table 2: [	OMR data summary for	Enderlin	n, City of	from 01/0	1/2017-	07/31/2	021.
Disch Pt	Location	Parameter	Ave Conc	Range	Units	Ave Load	Max Load	Max Load Units
002A	Effluent	Chlorine Free Available	0.02	0 - 0.1	mg/l			
002A	Effluent	Chromium Total	0.02	0.02 - 0.05	mg/l			
002A	Effluent	Discharge Flow in Million Gals				0.04	0.105	MGD
002A	Effluent	Drain in Million Gallons					5.6	Mgal
002A	Effluent	Nitrate Nitrite Total	0.22	0.05 - 0.56	mg/l			
002A	Effluent	Oil & Grease						
002A	Effluent	Oil and Grease Visual					0	Y=1;N=0
002A	Effluent	рН		8.46 - 9.85	S.U.			
002A	Effluent	Phosphorus Total	1.11	0.47 - 1.7	mg/L			
002A	Effluent	Priority Pollutants					1	Y=1;N=0
002A	Effluent	Sulfates	1408.70	275 - 2220	mg/l			
002A	Effluent	Temperature in Fahrenheit	56.73	34 - 80	Deg F			
002A	Effluent	Total Kjeldahl as Nitrogen	0.62	0.3 - 1.95	mg/l			
002A	Effluent	Total Suspended Solids	10.58	1 - 219	mg/l			
002A	Effluent	Zinc Total	0.10	0.05 - 0.1	mg/l			
002G	Effluent	Alkalinity	276.20	175 - 524	mg/l			
002G	Effluent	Bicarbonate (as HCO3)	213.00	1 - 352	mg/L			
002G	Effluent	Calcium Total	73.68	36 - 116	mg/l			
002G	Effluent	Carbonate (CO3)	54.70	1 - 172	mg/L			
002G	Effluent	Chlorides	1513.67	45.6 - 7500	mg/l			
002G	Effluent	Conductivity	6840.60	3140 - 9370	uS/cm			
002G	Effluent	Dissolved Oxygen	11.11	8.5 - 12.93	mg/L			
002G	Effluent	Flouride Total	2.32	1.5 - 3.54	mg/L			
002G	Effluent	Hardness as CaCO3	307.00	1 - 584	mg/l			
002G	Effluent	Hydroxide (OH)	15.40	1 - 73	mg/L			
002G	Effluent	Iron Total	0.72	0.013 -	mg/l			

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 14 of 78

	Table 2: [	OMR data summary for	Enderlin	n, City of	from 01/0	1/2017-	07/31/2	.021.
Disch Pt	Location	Parameter	Ave Conc	Range	Units	Ave Load	Max Load	Max Load Units
				6.97				
002G	Effluent	Magnesium Total	36.38	14 - 78.4	mg/l			
002G	Effluent	Manganese Total	0.06	0.015 - 0.355	mg/l			
002G	Effluent	рН		8.4 - 9.85	S.U.			
002G	Effluent	Potassium Total	30.14	12.4 - 76.8	mg/L			
002G	Effluent	Silica Total	40.53	26.9 - 53.9	mg/L			
002G	Effluent	Sodium	1387.40	863 - 2070	mg/L			
002G	Effluent	Sodium % of total cations	202.34	0.12 - 1080	%			
002G	Effluent	Sodium Absorption Ratio	4.00	4 - 4	1U			
002G	Effluent	Sulfates	1410.50	275 - 2220	mg/l			
002G	Effluent	Total Dissolved Solids	4826.00	2790 - 6640	mg/l			
002G	Effluent	Total Suspended Solids	11.23	1 - 219	mg/l			
002G	Effluent	Turbidity	23.39	1.5 - 350	NTU			
002W	Effluent	Acute Toxic Unit Stat Ceriodaphnia TSA3B		<1.0 - 1.21	TU a			
002W	Effluent	Acute Toxic Unit Stat Fat Hd Minnows TSB6C		<1.0 - 1.63	TU a			
003A	Effluent	Ammonia as Nitrogen	1.38	0.04 - 9.95	mg/L			
003A	Effluent	Biochemical Oxygen Demand	14.77	2 - 145	mg/L			
003A	Effluent	Chlorides	408.66	73.4 - 795	mg/l			
003A	Effluent	Discharge Flow in Million Gals				1.60	2.9	MGD
003A	Effluent	Drain in Million Gallons					38.9	Mgal
003A	Effluent	E Coli Geometric Mean	8.89	1 - 51.2	Num/100 mL			
003A	Effluent	Nitrate Nitrite Total	57.55	0.03 -	mg/l			

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 15 of 78

	Table 2: DMR data summary for Enderlin, City of from 01/01/2017-07/31/2021.								
Disch Pt	Location	Parameter	Ave Conc	Range	Units	Ave Load	Max Load	Max Load Units	
				230					
003A	Effluent	Oil & Grease	N/A	N/A	N/A				
003A	Effluent	Oil and Grease Visual					0	Y=1;N=0	
003A	Effluent	рН		7.8 - 9.64	S.U.				
003A	Effluent	Phosphorus Total	29.18	0.33 - 113	mg/L				
003A	Effluent	Sulfates	1253.32	365 - 2110	mg/l				
003A	Effluent	Total Kjeldahl as Nitrogen	6.68	0.3 - 15.4	mg/l				
003A	Effluent	Total Suspended Solids	23.50	2 - 57.1	mg/l				
003G	Effluent	Alkalinity	1849.00	236 - 3510	mg/l				
003G	Effluent	Bicarbonate (as HCO3)	1556.82	269 - 2872	mg/L				
003G	Effluent	Calcium Total	54.90	10.6 - 139	mg/l				
003G	Effluent	Carbonate (CO3)	344.55	1 - 1170	mg/L				
003G	Effluent	Chlorides	451.09	162 - 4313	mg/l				
003G	Effluent	Conductivity	7132.64	2030 - 12387	uS/cm				
003G	Effluent	Dissolved Oxygen	9.30	4.17 - 12.3	mg/L				
003G	Effluent	Flouride Total	0.41	0.196 - 0.817	mg/L				
003G	Effluent	Hardness as CaCO3	398.91	205 - 755	mg/l				
003G	Effluent	Hydroxide (OH)	7.91	1 - 20	mg/L				
003G	Effluent	Iron Total	0.50	0.075 - 2.07	mg/l				
003G	Effluent	Magnesium Total	63.63	43.4 - 99.3	mg/l				
003G	Effluent	Manganese Total	0.17	0.051 - 0.25	mg/l				
003G	Effluent	рН		8.4 - 9.49	S.U.				
003G	Effluent	Potassium Total	276.52	18.4 - 610	mg/L				

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 16 of 78

	Table 2: [	OMR data summary for	<sup>.</sup> Enderlir	n, City of	from 01/0	1/2017-	07/31/2	021.
Disch Pt	Location	Parameter	Ave Conc	Range	Units	Ave Load	Max Load	Max Load Units
003G	Effluent	Silica Total	10.25	4.49 - 27.6	mg/L			
003G	Effluent	Sodium	1605.18	233 - 3080	mg/L			
003G	Effluent	Sodium % of total cations	64.71	0.02 - 88.2	%			
003G	Effluent	Sodium Absorption Ratio	47.26	1 - 93.6	1U			
003G	Effluent	Sulfates	1306.09	476 - 2120	mg/l			
003G	Effluent	Total Dissolved Solids	5492.73	1400 - 9940	mg/l			
003G	Effluent	Total Suspended Solids	33.15	2 - 67	mg/l			
003G	Effluent	Turbidity	34.97	0.5 - 210	NTU			
003M	Effluent	Chromium Total	1.01	0.02 - 5	mg/l			
003M	Effluent	Zinc Total	2.90	0.02 - 25.5	mg/l			
003W	Effluent	Acute Toxic Unit Stat Ceriodaphnia TSA3B		<1.0 - 6.8	TU a			
003W	Effluent	Acute Toxic Unit Stat Fat Hd Minnows TSB6C		<1.0 - 2.82	TU a			

# PROPOSED PERMIT LIMITS AND SELF MONITORING REQUIREMENTS

The following limitations are based on promulgated guidelines as outlined in the Code of Federal Regulations (40 CFR), the North Dakota Administrative Code (NDAC), the North Dakota Standards of Quality for Waters of the State (WQS) and Best Professional Judgment (BPJ), as determined by the North Dakota Department of Environmental Quality.

The City of Enderlin is subject to the secondary treatment standards. Federal and state regulations define technology-based effluent limits for municipal wastewater treatment plants. These effluent limits are given in 40 CFR 133 and in NDAC Chapter 33.1-16-01-30. These regulations are performance standards that constitute all known, available, and reasonable methods of prevention, control, and treatment for municipal wastewater.

Below are the technology-based limits specified in 40 CFR 133 for BOD<sub>5</sub>, TSS, pH, and Percent Removal:

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 17 of 78

40 CFR Part 133 Technology-Based Effluent Limits-Municipal Treatment							
Parameter	30 Day Average	7 Day Average					
BOD <sub>5</sub>	30 mg/l	45 mg/l					
TSS	30 mg/l	45 mg/l					
рН	Remain between 6.0 to 9.0						
Percent Removal	85% BOD5 and TSS						

The department acknowledges that 40 CFR 133 requires an 85% removal for BOD5 and TSS. The percent removal rate in 40 CFR 133 is dependent upon the influent and effluent samples being taken at the approximate same time, which lagoon systems have a hydraulic residency time of greater than 30 days. Therefore, the influent and effluent samples are not representative of the same wastewater.

NDAC Chapter 33.1-16-01-14 (3)(c)(1) allows for adjustment of the secondary treatment criteria to reflect site specific considerations. A five-day biochemical oxygen demand limit of twenty-five milligrams per liter (consecutive thirty-day average) may be applied in instances in which limits expressed in terms of secondary treatment standards would be impractical or deemed inappropriate to protect receiving waters.

Cooling tower blowdown is a regulated waste stream under 40 CFR 423 for the Steam Electric Power Generating Point Source Category. The department has determined by BPJ that the effluent limitations as defined by 40 CFR 423(13)(d)(1) would be a similar waste stream to the cooling tower blowdown produced at ADM. Therefore, the department proposes that the Best Available Treatment (BAT) limitations be incorporated into the permit. Below are the BAT limits specified in 40 CFR 423(13)(d)(1):

40 CFR Part 423(13)(d)(1) Best Available Technology Effluent Limitations Guidelines							
Parameter	Daily Maximum	Daily Average					
Free Available Chlorine	0.5 mg/l	0.2 mg/l					
126 Priority Pollutants except Total Chromium and Total Zinc	No Detectable Amount						
Total Chromium	0.2 mg/l	0.2 mg/l					
Total Zinc	1.0 mg/l	1.0 mg/l					

# **Effluent Limitations**

The department proposes the following effluent limitations for Outfalls 001 and 003.

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 18 of 78

Table 3: Effluent Limitations and Monitoring Requirements <b>Outfall 001</b> .							
		Efflue	ent Limitatio	ons			
		Quantity		Concentrat	ion		
	Avg.	Daily Maximum	Avg.	Avg.	Daily		
Parameter	Monthly	Limit	Monthly	Weekly	Maximum		
	Limit		Limit	Limit	Limit		
Biological Oxygen	*	*	25.0	45 0 mg/l	*		
Demand (BOD <sub>5</sub> )			mg/l				
Total Suspended	*	*	30.0	45.0 mg/l	*		
Solids (TSS)		<b>.</b>	mg/l				
pH a/		Shall be be	tween 6.0 t	o 9.0 s.u.			
<i>E. coli</i> b/	*	5.87 BCFUs/day	126 /100 ml	*	409 /100 ml		
Ammonia		Refer to Am	monia Table	e (Table 4)			
Total Phosphorus,	*	*	*	*	*		
mg/l							
Total Nitrogen mg/l	*	*	*	*	*		
Sulfate mg/l	*	*	614 mg/l		614 mg/l		
Chloride mg/l	*	*	354 mg/l	*	354 mg/l		
Potassium mg/l	*	*	*	*	*		
Chromium, Total	*	*	0.1 mg/	*	0.2 mg/l		
mg/l c/			0.1 mg/i		0.2 mg/i		
Zinc, Total mg/l d/	*	*	0.5 mg/l	*	1.0 mg/l		
Free Available	*	*	0.2 mg/l	*	0.5 mg/l		
Chlorine			0.2 mg/i		0.5 mg/i		
126 Priority		No Det	ectable Am	ounts			
Pollutants e/				ounto			
TRC, mg/l	*	*	*	*	*		
Oil & Grease f/	*	*	*	*	10.0 mg/l		
Oil & Grease visual	*	*	*	*	Yes/No		
f/					100,110		
Whole Effluent		See "Whole Effluent	Toxicity (W	ET) Requirem	ents"		
			, , , , , , , , , , , , , , , , , , ,	, ,			
	*	*	*	*	*		
g/			Depart				
Elow, Bossiving			Report		Poport Mox		
Stroom	*	*	Avg.	*	Daily Value		
Silean			Value		Dally value		
			Poport				
			Δνα		Report May		
Flow Effluent, mgd	*	*	Monthly	*	Daily Value		
			Value		Daily value		
			Value		Report		
Total Drain, mgal	*	*	*	*	Monthly Total		
* This item for the s	tated param	neter is not limited Ho	wever the	department m	av impose		
limitations based on	sample histo	ory and to protect the	receivina wa	aters.			

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 19 of 78

Table 3: Effluent Lim	Table 3: Effluent Limitations and Monitoring Requirements <b>Outfall 001</b> .								
		Efflu	ent Limitatio	ons					
		Quantity		Concentrat	ion				
	Avg.	Daily Maximum	Avg.	Avg.	Daily				
Parameter	Monthly	Limit	Monthly	Weekly	Maximum				
	Limit		Limit	Limit	Limit				
a/ The pH, an instant	aneous limit	ation, shall be betwee	en 6.0 s.u. a	nd 9.0 s.u. An	iy single				
analysis and or meas	analysis and or measurement beyond this limitation shall be considered a violation of the								
conditions of this per	mit.								
b/ <i>E. coli</i> limits shall b	pe effective f	rom April 1 through C	october 31.	The daily max	kimum loading				
for <i>E. coli</i> shall be ca	lculated utiliz	zing the following forn	nula:						
E coli BCFU = Flo	$w\left(\frac{gal}{d}\right) \times \frac{gal}{d}$	$\frac{L}{37854} \xrightarrow{L} \times E$ coli c	oncentratio	$n\left(\frac{CFU}{2}\right) \times$	1 <i>BCFU</i>				
	day	gal	oncentratio	(100 ml)	$1 \times 10^9  CFU$				
	Where:								
Flow = flo	Flow = flow at the time when the <i>E. coli</i> sample was taken in gallons/day								
c/ the sample for chro	c/ the sample for chromium shall be analyzed using an EPA approved method with an analytical								
method detection lim	1t  of  <= 10  ug	/I or 0.01 mg/I.		41					
d/ the sample for zind	t of <=50 up	alyzed using an EPA	approved n	nethod with an	analytical				
e/ Sampling requirem	nents are wa	ived except for chror	nium and zi	nc Should an					
chemicals be used for	r cooling toy	ver maintenance the	nermittee s	hall immediate	ly contact the				
department and will	have six mo	nths to provide adequ	permittee s	tion that these	new chemicals				
will not cause any of	the 126 Prio	rity Pollutants (exclud	ling chromi	ion inat inese im and zinc) to	he present				
Should the demonstr	ation prove	adequate sampling w	vill be waive	d If the demo	Instration is not				
provided within this ti	ime or the d	emonstration shows t	hat any of t	he 126 Priority	Pollutants is				
present the sampling	n requiremen	ts identified will beco	me effective	<u>a</u>					
f/ The permittee mus	t not dischar	de any floating solids	visible foa	n in other that	n trace amounts				
or oily wastes that pr	oduce a she	en or floating oil in the	effluent or	on the surface	e of the				
receiving water The	discharge st	nall be visibly inspected	ed for sheer	or floating oil	lf present				
grab samples shall b	e analyzed f	or oil and grease		i or nouting on	. In procont,				
g/ The following para	meters shall	be sample and analy	zed for:						
<i>9,</i>									
Alkalinity E	Bicarbonate	Calcium		Carbonate					
Conductivity D	issolved Ox	vaen Fluoride		Hardness To	otal as CaCO3				
Hydroxide Ir	on	Magnesium		Manganese					
Percent Sodium p	н	Sodium Adsor	ption Ratio	Total Dissol	ved Solids				
			-						

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 20 of 78

Table 3: Effluent Limitations and Monitoring Requirements <b>Outfall 001</b> .						
	Effluent Limitations					
		Quantity		Concentration		
	Avg.	Daily Maximum	Avg.	Avg.	Daily	
Parameter	Monthly	Limit	Monthly	Weekly	Maximum	
Limit Limit Limit Limit						

# Stipulations:

Dates of discharge and number of excursions shall be included on the Discharge Monitoring Reports.

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 oily 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 and entering the receiving stream.

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 21 of 78

Table 4: Effluent Limitations and Monitoring Requirements Outfall 003						
		Efflue	ent Limitatio	ons		
		Quantity		Concentrat	lion	
	Avg.	Daily Maximum	Avg.	Avg.	Daily	
Parameter	Monthly	Limit	Monthly	Weekly	Maximum	
	Limit		Limit	Limit	Limit	
Biological Oxygen	*	*	25.0	45.0 mg/l	*	
Demand (BOD₅)			mg/l	45.0 mg/i		
Total Suspended	*	*	30.0	45.0 mg/l	*	
Solids (TSS)			mg/l	45.0 mg/i		
pH a/		Shall be be	tween 6.0 t	<u>o 9.0 s.u.</u>		
E coli b/	*	8 108 BCFUs/day	126 /100	*	409 /100 ml	
		0.100 Ber borday	ml		4007100111	
Ammonia		Refer to Am	monia Table	e (Table 4)		
Total Phosphorus,	*	*	*	*	*	
mg/l						
Total Nitrogen mg/l	*	*	*	*	*	
Sulfate mg/l	*	*	343 mg/l	*	615 mg/l	
Chloride mg/l	*	*	213 mg/l	*	333 mg/l	
Potassium mg/l	*	*	*	*	*	
Chromium, Total	*	*	0.1 mg/l	*	0.2 ma/l	
mg/l c/			0.1 mg/i		0.2 mg/1	
Zinc. Total mg/l d/	*	*	0.09	*	0.09 mg/l	
			mg/l		0.00 mg/i	
Free Available	*	*	0.2 mg/l	*	0.5 mg/l	
Chlorine			- <b>J</b>		<b>J</b>	
126 Priority		No Det	ectable Am	ounts		
	+	+	*	*	*	
	*	*	*	*	10.0 mm m/l	
					10.0 mg/i	
f/	*	*	*	*	Yes/No	
Whole Effluent						
Toxicity (WET)		See "Whole Effluent	Toxicity (W	ET) Requirem	ents"	
General Chemistry			_	_	_	
a/	*	*	*	*	*	
<u>.</u>			Report			
Flow. Receiving			Ava.	4	Report Max.	
Stream	^	*	Monthly	^	Daily Value	
			Value			
			Report			
	*	*	Avg.	*	Report Max.	
Flow Effluent, mgd	^	^	Monthly	^	Daily Value	
			Value		-	
Total Drain maal	*	*	*	*	Report	
rotai Drain, mgai					Monthly Total	
* This item for the s	* This item for the stated parameter is not limited. However, the department may impose					

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 22 of 78

Table 4: Effluent Limitations and Monitoring Requirements Outfall 003					
		Efflu	ent Limitatio	ons	
	Quar	ntity		Concentrat	ion
	Avg. Da	ily Maximum	Avg.	Avg.	Daily
Parameter	Monthly	Limit	Monthly	Weekly	Maximum
	Limit		Limit	Limit	Limit
limitations based on	sample history and	d to protect the	receiving wa	aters.	
a/ The pH, an instantaneous limitation, shall be between 6.0 s.u. and 9.0 s.u. Any single					
analysis and or meas	surement beyond	this limitation sh	all be consid	dered a violati	on of the
conditions of this per	mit.				
b/ <i>E. coli</i> limits shall b	be effective from A	April 1 through C	october 31.	The daily max	kimum loading
for <i>E. coli</i> shall be ca	Iculated utilizing the	ne following forn	nula:		
F coli BCFU = Flo	$w\left(\frac{gal}{m}\right) \times 3.7854$	$4 \frac{L}{L} \times F$ coli c	oncentratio	$\left(\frac{CFU}{1}\right) \times$	1 BCFU
	$(day) \times 5.705$	gal Alleon e	oncentration	(100 ml)	$1 \times 10^9  CFU$
		Where:	-		
Flow = flo	ow at the time whe	en the <i>E. coli</i> sai	mple was ta	ken in gallons	/day
c/ the sample for chro	omium shall be an	alyzed using an	EPA appro	ved method w	ith an analytical
method detection lim	it of $\leq 10 \text{ ug/l or } 0$	).01 mg/l.			
d/ the sample for zind	c shall be analyze	d using an EPA	approved m	ethod with an	analytical
	1000000000000000000000000000000000000	0.05 mg/l.		0	
e/ Sampling requirem	nents are waived,	except for chror	nium and zil	nc. Snould ar	iy new
chemicals be used to	br cooling tower m	aintenance, the	permittee si		ely contact the
will not course only of	the 126 Drierity D	o provide adequ	late vernicat	ion that these	new chemicals
Should the demonstr	the 120 Phonly P		ing chroniu	ini anu zinc) lu	o be present.
provided within this ti	ation prove adequ	ate, sampling w	hat any of the	a. If the defic	/ Pollutants is
provided within this to	nne, or the demon	stration shows t	me effective		r oliularits is
f/ The permittee mus	t not discharge an	v floating solide	visible foar	<del>.</del> n in other that	n trace amounts
or oily wastes that pr	oduce a sheen or	floating oil in the	, visible ioai	on the surface	a of the
receiving water. The	discharge shall be	visibly inspected	e enluent of	or floating oil	lf nresent
receiving water. The discharge shall be visibly inspected for sheen of hoating oil. If present,					
grab samples shall be analyzed for oil and grease.					
g, The following parameters shall be sample and analyzed for.					
Alkalinity E	Bicarbonate	Calcium		Carbonate	
Conductivity D	issolved Oxygen	Fluoride		Hardness To	otal as CaCO3
Hydroxide Ir	ron	Magnesium		Manganese	-
Percent Sodium p	н	Sodium Adsor	ption Ratio	Total Dissol	ved Solids
	-		-		

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 23 of 78

Table 4: Effluent Limitations and Monitoring Requirements <b>Outfall 003</b>						
Effluent Limitations						
		Quantity Concentration				
	Avg.	Daily Maximum	Avg.	Avg.	Daily	
Parameter	Monthly	Limit	Monthly	Weekly	Maximum	
	Limit		Limit	Limit	Limit	

# Stipulations:

Dates of discharge and number of excursions shall be included on the Discharge Monitoring Reports.

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 oily 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 and entering the receiving stream.

Table 5: Ammonia Effluent Limitations and Monitoring Requirements Outfalls 001 and 003				
		Effluent Limitations		
Parameter	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit	
Ammonia 1/	+	*	‡	
Stream flow upstream, cfs 2/	*	*	*	
Temperature upstream, ° C 2/,	*	*	*	
3/				
pH upstream, S.U. 2/, 3/	*	*	*	

1/ Calculations must be performed for each discharge sample. If an exceedance is detected on any single sample, the exceedance must be reported on the DMR.

2/ Sample must be collected/ recorded the same day as the ammonia sample. The upstream flow, temperature, and pH may be obtained from the USGS gauging station at Enderlin, North Dakota.

3/ If the upstream values are not collected then following minimum values base on the 90<sup>th</sup> percentile upstream STORET and USGS data are to be used: pH: 8.2 S.U., Temperature 23.24 ° C, and ammonia 0.48 mg/l. If the upstream flow is not available then, the 30B10 critical low flow of 2.0 cfs shall be used. The maximum mixing factor is 10.0%.

† Chronic Standard (Average Monthly Limit)

The 30-day average concentration of total ammonia (expressed as N in mg/L) does not exceed, more often than once every three years on the average, the numerical value given by the following formula; and the highest 4-day average concentration of total ammonia within the 30-day averaging period does not exceed 2.5 times the numerical value given by the following formula:

 $0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) \times \left(2.126 \times 10^{0.028 \times \left(20 - MAX(T,7)\right)}\right)$ 

Receiving stream pH and Temperature is used for the calculation

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 24 of 78

Table 5: Ammonia Effluent Limitations and Monitoring Requirements <b>Outfalls 001 and 003</b>					
		Effluent Limitations			
Parameter	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit		
‡ Acute Standard (Daily Maximu	um Limit)				
The one-hour average concentr	ation of total ammonia (ex	pressed as N in mg/l) do	pes not exceed, more		
often than once every three yea	rs on the average, the nu	merical value given by th	ne following formula:		
$0.7249 \times \left(\frac{0.0114}{1+10^{7.204-pH}} + \frac{1.6181}{1+10^{pH-7.204}}\right) \times MIN(51.93,23.12 \times 10^{0.036 \times (20-T)})$					
Receiving stream pH and Temperature is used for the calculation					

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 25 of 78

# SELF-MONITORING REQUIREMENTS

All effluent shall be collected at a point following the treatment system and prior to entering the Maple River.

Table 6: Self-Monitoring Requirements for Outfall 001 and 003				
Effluent Parameter	Frequency	Sample Type		
BOD₅, mg/L	1/Week	Grab		
TSS, mg/L	1/Week	Grab		
рН	1/Week	Grab		
E. coli	1/Week	Grab		
Ammonia as N	1/Week	Grab		
Total Phosphorus	1/Month	Grab		
Total Nitrogen	1/Month	Grab		
Sulfate	1/Week	Grab		
Chloride	1/Week	Grab		
Potassium	1/Quarter	Grab		
Total Residual Chlorine	1/Quarter	Grab		
Chromium, Total	1/Quarter	Grab		
Zinc, Total	1/Quarter	Grab		
Free Available Chlorine	1/Week	Grab		
126 Priority Pollutants a/	1/Quarter	Grab		
WET, TU <sub>a</sub>	1/Quarter	Grab		
Oil and Grease Visual	Daily <sup>b</sup>	Visual		
Oil and Grease	Conditional <sup>b</sup>	Grab		
General Chemistry c/	1/Quarter	Grab		
Stream flow upstream	1/Day	Instantaneous		
Flow Effluent, MGD	1/Day	Calculated		
Total Drain, MGAL	1/Month	Calculated		

#### Notes:

a/ Sampling requirements are waived, except for chromium and zinc. Should any new chemicals be used for cooling tower maintenance, the permittee shall immediately contact the department, and will have six months to provide adequate verification that these new chemicals will not cause any of the 126 Priority Pollutants (excluding chromium and zinc) to be present. Should the demonstration prove adequate, sampling will be waived. If the demonstration is not provided within this time, or the demonstration shows that any of the 126 Priority Pollutants is present, the sampling requirements identified will become effective.

b/ The effluent shall be visibly examined daily for a sheen or floating oil. If present, a grab sample shall be analyzed for oil and grease to ensure compliance with the concentration limitations.

c/ The following parameters shall be sampled and analyzed for:

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 26 of 78

Table 6: Self-Mon	itoring F	Requirements	for Outfall 001 and (	003	
Effluent Param	eter	F	requency		Sample Type
Alkalinity	Bicarb	onate	Calcium		Carbonate
Conductivity	Dissolv	/ed Oxygen	Fluoride		Hardness Total as CaCO3
Hydroxide	Iron		Magnesium		Manganese
Percent Sodium	рН		Sodium Adsorption F	Ratio	Total Dissolved Solids

Table 7: Maple River Upstream and Downstream Self-Monitoring Requirements

1 1		
Effluent Parameter	Frequency	Sample Type
General Chemistry a/	1/Quarter	Grab
Sulfate, mg/l	Weekly	Grab
Chloride, mg/l	Weekly	Grab
Chromium, Total b/	1/Quarter	Grab
Zinc, Total c/	1/Quarter	Grab

#### Notes:

Upstream and downstream sampling shall be collected on the same day as the effluent samples are collected.

When dangerous conditions exist for personnel (i.e., thin ice, melting ice, flooding, etc.) the scheduled river sampling may be suspended until conditions are deemed suitable. a/ The following parameters shall be sampled and analyzed:

Alkalinity	Bicarbonate	Calcium	Carbonate			
Conductivity	Dissolved Oxygen	Fluoride	Hardness Total as CaCO3			
Hydroxide	Iron	Magnesium	Manganese			
Percent Sodium	рН	Potassium	Sodium Adsorption Ratio			
Total Dissolved Solids						
b/ The sample for chromium shall be analyzed using an EPA approved method with an						
analytical method detection limit of <=10 ug/l or 0.01 mg/l.						
c/ The sample for zinc shall be analyzed using an EPA approved method with an analytical						
method detection limit of <=50 ug/l or 0.05 mg/l.						

# 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 segment of the Maple River that the facility discharges into is listed in the North Dakota 2014 Integrated Section 305(d) Water Quality Assessment Report and Section 303(d) List of Waters Needing Total Maximum Daily Loads. The segment which the facility discharges to is

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 27 of 78

assessment unit ND-09020205-012-S\_00, which is the Maple River from its confluence with the South Branch Maple River downstream to its confluence with a tributary near Leonard, ND. This segment is listed as impaired for fish and other aquatic biota due to dissolved oxygen and fishes bioassessments and for recreation due to *E. coli*.

A TMDL has been developed for the river segment for *E. coli*. The TMDL establishes the following waste load allocations:

The waste load allocation for Outfall 001 was determined by average daily discharge volume of 1.23 MGD multiplied by an *E. coli* bacteria concentration of 126 CFUs/100 mL, times appropriate conversion factors.

WLA-Outfall 001 = 1.23 million gallons/ day \* 126 CFUs/100mL = 1.23 million gallons/day \* 3.7854 L/gal\*1000mL/L\* 126 CFU/100mL = 586.6 x  $10^7$  CFUs/day

The waste load allocation for Outfall 003 was determined by taking the average daily discharge volume of 1.70 MGD multiplied by an *E. coli* bacteria concentration of 126 CFUs/100 mL, times appropriate conversion factors.

WLA-Outfall 003 = 1.70 million gallons/ day \* 126 CFUs/100mL = 1.70 million gallons/day \* 3.7854 L/gal\*1000mL/L\* 126 CFU/100mL = 810.8 x  $10^7$  CFUs/day

The segment is also listed as low priority for fishes bioassessments for TMDL development. The fishes bioassessment use support is listed as fully supporting but threatened.

# 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.

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 28 of 78

# Narrative Criteria

Narrative water quality criteria (NDAC Chapter 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(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 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 SURFACE WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA

**Outfall 001:** This is the outfall from Cells 1, 2, and 3 of the waste stabilization pond system for domestic waste.

**<u>Outfall 002</u>**: This is the outfall from the Cell 4 cooling pond which consists of cooling tower blowdown, boiler blowdown and RO reject water from ADM. This discharge point is proposed to be a no discharge point under normal operations. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass requirements of the permit.

**<u>Outfall 003</u>**: This is the outfall from the Cell 5 series and Cell 6 which consists of process wastewater from ADM.

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 29 of 78

# BOD<sub>5</sub>

**Outfalls 001 and 003** The department has reviewed the  $BOD_5$  data and the sampling frequency. Five (5) excursions occurred for this parameter with one exceeding the Technical Review Criteria (TRC). A determination was made to continue with the permit limit of 25 mg/l (monthly average) and a 45 mg/l (maximum daily limit) for  $BOD_5$  with a sampling frequency of weekly in the proposed permit. This is based upon 40 CFR 133.

# TSS

## Outfalls 001 and 003

The department has reviewed the TSS data and the sampling frequency. Nine (9) excursions occurred at outfall 003 for this parameter with two (2) exceeding the TRC. A determination was made to continue with the permit limit of 30 mg/l (monthly arithmetic average) and a 45 mg/l (maximum daily limit) with a sampling frequency of weekly in the proposed permit. This is based upon 40 CFR 133.

## Outfall 002

The department has reviewed the TSS data and the sampling frequency. Three (3) exceedances occurred from this outfall with one (1) exceedance meeting the TRC of being forty percent (40%) above the effluent limitation.

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

#### рΗ

# Outfall 001

The department has reviewed the pH data and the sampling frequency. No excursions occurred for this parameter. The department proposes to continue with the pH limits of 6.0 to 9.0 with a sampling frequency of weekly based on the previous permit. This is based upon NDAC 33.1-16-02.1.

#### Outfall 002

The department has reviewed the pH data and the sampling frequency. Eighty-seven (87) excursions occurred for this parameter. All exceedances were above 9.0 SU.

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

# Outfall 003

The department has reviewed the pH data and the sampling frequency. Twenty-five (25) excursions occurred for this parameter. All exceedances were above 9.0 SU. The department proposes to continue with the pH limits of 6.0 to 9.0 with a sampling frequency of weekly based on the previous permit. This is based upon NDAC 33.1-16-02.1.

# E. coli

# Outfalls 001

The department has reviewed the data for this parameter. No exceedances occurred for this parameter. The department proposes to continue the limits of 126 organisms per 100 ml (30-day average geometric mean) and 409 organisms per 100 ml (daily maximum) for E. coli with a sampling frequency of weekly in the proposed permit. This is based upon NDAC 33.1-16-02.1.

The department also proposes to add the following loading limitations for *E. coli* based upon the 2016 Final TMDL for the Maple River in Cass, Barnes, Steele, Ransom, and Richland Counties, North Dakota:

Outfall 001: 586.6 x 10<sup>7</sup> CFU/day =

$$586.6 \ge 10^7 \frac{\text{CFU}}{\text{day}} \times \left(\frac{1 \text{ BCFU}}{1 \text{ X } 10^9 \text{ CFU}}\right) = 5.87 \frac{\text{BCFU}}{\text{day}}$$

# Outfall 003

The department has reviewed the data for this parameter. No exceedances occurred for this parameter. The department proposes to continue the limits of 126 organisms per 100 ml (30-day average geometric mean) and 409 organisms per 100 ml (daily maximum) for *E. coli* with a sampling frequency of weekly in the proposed permit. This is based upon NDAC 33.1-16-02.1.

The department proposes to add the following loading limitations for *E. coli* based upon the 2016 Final TMDL for the Maple River in Cass, Barnes, Steele, Ransom, and Richland Counties, North Dakota:

Outfall 003: 810.8 x 10<sup>7</sup> CFU/day =

$$810.8 \ge 10^7 \frac{\text{CFU}}{\text{day}} \times \left(\frac{1 \text{ BCFU}}{1 \text{ X } 10^9 \text{ CFU}}\right) = 8.108 \frac{\text{BCFU}}{\text{day}}$$

# Ammonia as N

# Outfall 001

The department has reviewed the ammonia as N data for this outfall. One (1) exceedance occurred for this parameter. The department has conducted a reasonable potential analysis for ammonia as N. The analysis determined that there is reasonable potential to cause an instream

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 31 of 78

exceedance of ammonia as N. The department proposes to utilize the instream criteria outlined in NDAC 33.1-16-02.1 for calculating ammonia effluent limits. Refer to **Table 5** for the proposed ammonia as N requirements.

See **Appendix C** for a detailed explanation on the criteria used to determine reasonable potential for this outfall. The department proposes to continue with the ammonia effluent sampling frequency of weekly based on the previous permit.

# Outfall 002

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

# Outfall 003

The department has reviewed the ammonia as N data. Fourteen (14) exceedances for ammonia have occurred. The department conducted a reasonable potential analysis for ammonia as N. Based on this analysis it was determined that there is reasonable potential to exceed the North Dakota Standards of Quality for Waters of the State for ammonia as N. The department proposes to continue the instream criteria outlined in NDAC 33.1-16-02.1 for calculating ammonia effluent limits. Refer to **Table 5** for the proposed ammonia as N requirements.

See **Appendix C** for a detailed explanation on the criteria used to determine reasonable potential for this outfall. The department proposes to continue with the ammonia effluent sampling frequency of weekly based on the previous permit.

Zinc Total

# Outfalls 001

The department has reviewed the zinc data and the sampling frequency. No excursions occurred for this parameter. A determination was made to continue with the permit limit of 0.5 mg/l (arithmetic average) and 1.0 mg/l (maximum daily limit) with a sampling frequency of quarterly based on the previous permit and BPJ due to the interconnection of the domestic ponds and the industrial ponds.

# Outfall 002

The department has reviewed the zinc data and the sampling frequency. No excursions occurred for this parameter.

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 32 of 78

# Outfall 003

The department has reviewed the zinc data and the sampling frequency. Two (2) excursions occurred for this parameter with one (1) excursion meeting the TRC of twenty percent (20%) above the effluent limitation. The department conducted a reasonable potential analysis for this parameter and determined that there was reasonable potential for the discharge to cause an exceedance of the WQS.

The department proposes an effluent limitation of 0.09 mg/l (average monthly) and 0.09 mg/l (daily maximum) with a sampling frequency of quarterly. This is based upon NDAC 33.1-16-02.1 being more stringent than the limitations outlined in 40 CFR 423.13(d)(1).

#### Free Available Chlorine

#### Outfall 001

The department has reviewed the free available chlorine data. No excursions occurred for this parameter. A determination was made to include a permit limit of 0.2 mg/l arithmetic average and 0.5 mg/l maximum daily limit based on incorporating 40 CFR 423.13(c)(1) by BPJ and the interconnections with industrial wastewater. The department proposes a sampling frequency of weekly.

## Outfall 002

The department has reviewed the free available chlorine data. No excursions occurred for this parameter.

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

#### Outfall 003

The department has reviewed the free available chlorine data. No excursions occurred for this parameter. A determination was made to continue the permit limit of 0.2 mg/l arithmetic average and 0.5 mg/l maximum daily limit based on the previous permit and incorporating 40 CFR 423.13(c)(1) by BPJ. The department proposes a sampling frequency of weekly.

#### Temperature

#### Outfall 002

The department has reviewed the temperature data and the sampling frequency. No excursions occurred for this parameter.

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

# **126 Priority Pollutants**

## Outfall 002

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

## Outfall 003

The department is proposing to continue with waiving the sampling requirements, except for chromium and zinc. Should any new chemicals be used for cooling tower maintenance, the permittee shall immediately contact the department, and will have six months to provide adequate verification that these new chemicals will not cause any of the 126 Priority Pollutants (excluding chromium and zinc) to be present. Should the demonstration prove adequate, sampling will be waived. If the demonstration is not provided within this time, or the demonstration shows that any of the 126 Priority Pollutants is present, the sampling requirements identified will become effective.

## Sulfate

## Outfall 001

The department has reviewed the sulfate data. The department conducted a reasonable potential analysis and determined that there is reasonable potential for the discharge to cause an excursion of the WQS for sulfate (**Appendix C**). The department is proposing a maximum daily limit of 614 mg/l and an average monthly limit of 614 mg/l with a monitoring frequency of once per week. This is based on NDAC 33.1-16-02.1.

Collected stream data indicate that the average sulfate level of the Maple River is 477.8 mg/l. With a WQS of 450 mg/l, the Maple River could have no assimilative capacity at times. The department proposes to continue upstream and downstream monitoring for this parameter to continue to monitor potential impacts from the discharge.

# Outfall 002

The department has reviewed the sulfate data. Forty-four (44) exceedances occurred from this outfall with four (4) of the exceedances meeting the Technical Review Criteria (TRC) of being forty percent (40%) above the effluent limitation.

This discharge point is proposed to be a no discharge point under normal operations due to operational changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 34 of 78

# Outfall 003

The department has reviewed the sulfate data. The previous permit did not contain effluent limitations for this parameter. The department conducted a reasonable potential analysis and determined that there is reasonable potential for the discharge to cause an excursion of the WQS for sulfate (**Appendix C**). The department is proposing a maximum daily limit of 614 mg/l and an average monthly limit of 343 mg/l with a monitoring frequency of once per week. This is based on NDAC 33.1-16-02.1.

Collected stream data indicate that the average sulfate level of the Maple River is 477.8 mg/l. With a WQS of 450 mg/l, the Maple River could have no assimilative capacity at times. The department proposes to continue upstream and downstream monitoring for this parameter to continue to monitor potential impacts from the discharge.

## Chloride

## Outfall 001

The department has reviewed the chloride data. The department conducted a reasonable potential analysis and determined that there is reasonable potential for the discharge to cause an excursion of the WQS for chloride (**Appendix C**). The department is proposing a maximum daily limit of 354 mg/l and an average monthly limit of 354 mg/l with a monitoring frequency of once per week. This is based on NDAC 33.1-16-02.1.

The department proposes to continue upstream and downstream monitoring for this parameter to continue to monitor potential impacts from the discharge.

# Outfall 002

The department has reviewed the chloride data. Eight (8) exceedances occurred from this outfall with one (1) of the exceedances meeting the Technical Review Criteria (TRC) of being forty percent (40%) above the effluent limitation.

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

#### Outfall 003

The department has reviewed the chloride data. The previous permit did not contain effluent limitations for this parameter. The department conducted a reasonable potential analysis and determined that there is reasonable potential for the discharge to cause an excursion of the WQS for chloride (**Appendix C**). The department is proposing a maximum daily limit of 332 mg/l and an average monthly limit of 213 mg/l with a monitoring frequency of once per week. This is based on NDAC 33.1-16-02.1.

The department proposes to continue upstream and downstream monitoring for this parameter to continue to monitor potential impacts from the discharge.

# **Total Residual Chloride**

#### Outfall 003

The department is proposing TRC monitoring based upon the presence of TRC in samples utilized for WET testing. Total Residual Chlorine levels indicated in WET tests showed levels up to 10 mg/l. The department is proposing a sampling frequency of quarterly. This is based upon BPJ and NDAC 33.1-16-02.1.

## Potassium

## Outfall 003

The department has review to potassium data provided with the general chemistry analysis. The department is proposing to add quarterly monitoring of potassium based upon NDAC 33.1-16-2.1-08(a)(4). The facility has been documented to have potassium levels of up to 610 mg/l.

The American Petroleum Institute (API) conducted a literature review of the toxicity of common inorganic ions to freshwater and marine organisms in a report titled *The Toxicity of Common lons to Freshwater and Marine Organisms*. The report indicates that fifty percent (50%) of *Ceriodaphnia dubia* died in potassium concentrations of 330 mg/l with a 24 and 48-hour LC<sub>50</sub>.

#### Oil and Grease Visual

#### Outfalls 001 and 003

The department has reviewed the oil and grease visual data and the sampling frequency. No excursions occurred for this parameter. The department proposes to continue with the oil and grease visual requirement of daily and report if present in the proposed permit and NDAC 33.1-16-02.1.

# Outfall 002

The department has reviewed the oil and grease visual data and the frequency. No excursions occurred for this parameter.

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 36 of 78

## **Oil and Grease**

#### Outfalls 001 and 003

The department has reviewed the oil and grease data and sampling frequency. No excursions occurred for this parameter. The department is continuing a conditional limit of 10.0 mg/l for oil and grease with a sampling frequency of weekly. This is based upon the previous permit and the requirement of oil and grease in the NDG22-0000 general permit for domestic wastewater discharges to Class II streams.

## Outfall 002

The department has reviewed the oil and grease data and the sampling frequency. No excursions occurred for this parameter.

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

# Whole Effluent Toxicity (WET)

The department has reviewed the WET testing results. Seven (7) excursions occurred for *Ceriodaphnia dubia* and five (5) excursions occurred for *Pimephales promelas*. The department conducted a reasonable potential analysis (**Appendix C**) and determined there is a reasonable potential to cause and exceedance of the WQS.

On November 30, 2020, the department notified the permittee that there were to conduct a TRE/TIE to identify the cause of the toxicity in the wastewater discharge.

The department has concerns with the sulfate, chloride and potassium concentrations which are being discharged to the receiving stream. The American Petroleum Institute (API) conducted a literature review of the toxicity of common inorganic ions to freshwater and marine organisms in a report titled *The Toxicity of Common lons to Freshwater and Marine Organisms*. The report indicated that fifty percent (50%) of *Ceriodaphnia dubia* died in sulfate concentrations of 2,080 mg/L with a 48 hour LC<sub>50</sub>. The facility has been documented to have sulfate levels of 2,060 mg/l in their effluent. The report indicated that fifty percent (50%) of *Ceriodaphnia* (50%) of *Ceriodaphnia dubia* died in chloride concentrations of 1,190 mg/l with a 48 hour LC<sub>50</sub>. The facility has been documented to have sulfate levels of 2,390 mg/l in their effluent. The facility has also documented to have potassium levels of up to 610 mg/l. The report indicates that fifty percent (50%) of *Ceriodaphnia dubia* died in potassium concentrations of 330 mg/l with a 24 and 48-hour LC<sub>50</sub>.

Whole effluent toxicity testing is proposed to continue based upon NDAC 33.1-16-2.1-08(a)(4), which states that "[a]II waters of the state shall be:...Free from substances attributable to municipal, industrial, or other discharges or agricultural practices in concentrations or combinations which are toxic or harmful to humans, animals, plants, or resident aquatic biota. For surface water, this standard will be enforced in part through appropriate whole effluent toxicity requirements in North Dakota pollutant discharge elimination system permits." This limit will need to be met at the end-of-pipe with no allowance for a zone of initial dilution (ZID), in

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 37 of 78

accordance with N.D.A.C. 33.1-16-02.1, Appendix III, which states: "Acute whole effluent toxicity (WET) limits shall be achieved at the end-of-pipe with no allowance for a ZID."

The department is proposing the following requirements for WET.

Table 12: WET requirements for <b>Outfalls 001 and 003</b>					
Implementation	Limitations Imposed				
Effluent Dilution	0%(Control) 12.5%	25%	50%	75%	100%
Dilution Water	Maple River at designated	upstream s	ampling loc	ation	
Testing Type	Acute Toxicity				
Species and Test Type	Ceriodaphnia dubia 48 Hou	ir Acute Sta	itic Renewal	20°C	
Species and Test Type	Pimephales promelas 96 H	our Acute S	Static Renew	/al 20°C	
Endpoint	Survival reported as TUa				
Compliance Point	End of pipe				
Sample Frequency	1/Quarter				
Sample Type	Grab				
Maximum Daily Limit (MDL)	<1 TUa				
Average Monthly Limit (AML)	<1 TUa				
Test Failure	The 48-hour LC50 effluent value must be <1 TUa to indicate a passing test. Any 48-hour LC50 effluent value >1 TUa will constitute a failure. Tests in which the control survival is less than 90% are invalid and must be repeated				
Reporting Requirements Report the highest TUa for <i>Ceriodaphnia dubia</i> , Parameter No. TSM3B.				est on the TSM3B.	
If toxicity occurs in a routine test, an additional test shall be initiated within 14 days from the date of the initial toxicity findings. Should there be no discharge during a specified sampling time frame; sampling shall be performed as soon as there is a discharge. Should toxicity occur in the second test, testing shall be conducted at a frequency of once a month and the implementation of a <u>5.Toxicity Reduction Evaluation</u> ( <u>TRE</u> ) shall be determined by the department. If no toxicity is found in the second test, testing shall occur as outlined in the permit					

Acute toxicity test requirements are set out in the latest revision of <u>"Methods for Measuring the</u> <u>Acute Toxicity of Effluents to Freshwater and Marine Organisms</u>," EPA-821-R-02-012 (Fifth Ed., October 2002).

# 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

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 38 of 78

regulated to protect human health. The department will re-evaluate this discharge for impacts to human health at the next permit reissuance.

# **Total Chromium**

#### Outfall 001

The department has reviewed the chromium data and the sampling frequency. No excursions occurred for this parameter. There was insufficient data to conduct a reasonable potential analysis. A determination was made to continue with the permit limit of 0.1 mg/l (arithmetic average) and 0.2 mg/l (maximum daily limit) with a sampling frequency of quarterly based on the previous permit and BPJ due to the interconnection of the domestic ponds and the industrial ponds.

#### Outfall 002

The department has reviewed the chromium data and the sampling frequency. No excursions occurred for this parameter.

This discharge point is proposed to be a no discharge point under normal operations due to operation changes. Any discharge from this point would be considered an unpermitted discharge and subject to the bypass and monitoring requirements of the permit.

#### Outfall 003

The department has reviewed the chromium data and the sampling frequency. Two (2) excursions occurred for this parameter with one (1) excursion which met the TRC of twenty percent (20%) above the effluent limitation. The department conducted a reasonable potential analysis for Total Chromium (**Appendix C**). Based on this analysis it was determined that there is reasonable potential to exceed the North Dakota Standards of Quality for Waters of the State for Total Chromium (Human Health criteria of 100  $\mu$ g/I).

The WQBELs determined a maximum daily limit of 0.17 mg/l and an average monthly limit of 0.17 mg/l. The department then compared the WQBEL's calculated limitations to the current limitations outlined in 40 CFR 423.13(d)(1).

A determination was made to continue with the permit limit of 0.1 mg/l (average monthly limit) and 0.2 mg/l (maximum daily limit) with a sampling frequency of quarterly based on the previous permit and 40 CFR 423.13(d)(1) being more stringent than the calculated WQBELs for the average monthly limitation and about the same for the maximum daily limitation.

#### **Biosolids**

Currently the department does not have the authority to regulate biosolids. Therefore, the permittee is required under the Direct Enforceability provision of 40 CFR §503.3(b) to meet the applicable requirements of the regulation.

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 39 of 78

# **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**

## **Upstream and Downstream Sampling Requirements**

<u>Upstream sample point for outfalls 001 and 003</u>. This is the upstream sampling point for discharges occurring from 001 and 003. It is located at the bridge 0.25 miles east of the Enderlin baseball park on highway 46. This point is about 1.2 river miles upstream of outfall 001 and 2.5 river miles upstream of outfall 003. This shall also be the location of where the dilution water for WET testing is collected from.

<u>Downstream sample point for outfalls 001 and 003</u>. This is the downstream sampling point for discharges occurring from 001 and 003. It is located at the bridge 3 miles east of the Enderlin baseball park on highway 46. This point is about 6.25 river miles downstream of outfall 001 and about 5 river miles downstream of outfall 003.

#### **Predischarge Protocol**

The permittee shall take predischarge samples for BOD<sub>5</sub>, TSS, pH, *E. coli*, and ammonia prior to the discharge of outfalls 001 and 003. No discharge shall occur until all pre-discharge parameters have been reviewed by the department. Ammonia sampling shall be conducted in accordance with **Table 4** above.

# **Pretreatment Requirements**

This permit shall contain the pretreatment requirements for Industrial Waste Management for Minors with a Non-Approved Pretreatment Program. This requirement is based on 40 CFR 122.44(j).

# **Emergency Discharges of Pond 4**

Outfall 002 has been identified in this permit as an emergency outlet for situations where cooling tower blowdown, boiler blowdown and RO reject water need to be discharged. No discharge shall occur from this outfall during normal operating conditions. This outfall is not a permitted outfall. Any discharge from outfall 002 is considered an un-authorized discharge which must be monitored for the parameters specified for outfall 002 and must be reported to the department in accordance with 40 CFR 122.41(6) and Part III(G) of the permit.

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 40 of 78

Outfall 002. Active. Industrial Wastewater Emergency Outlet					
Latitude: 46.6184705900	Latitude: 46.6184705900 Longitude: -97.5856287900 County: Ransom				
Township: 136	Range: 55	Section: 3	QQ: DC		
Receiving Stream: Maple Ri	ver	Classification: II			
Outfall Description: This is the outfall from the Cell 4 Cooling Pond. This outfall shall not have discharges under normal operating conditions. Any discharge which occurs from this point is un-authorized.					

If an un-permitted discharge occurs from outfall 002, the following parameters must be monitored and reported to the department on the DMR for outfall 002:

Effluent Limitations and Monitoring Requirements Outfall 002						
	E	ffluent Limitatio	ons	Monitoring Re	Monitoring Requirements	
Parameter	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit	Sample Frequency	Sample Type	
Total Suspended Solids (TSS)	*	*	*	Daily	Grab	
рН	*	*	*	Daily	Grab	
Ammonia	*	*	*	Daily	Grab	
Sulfate	*	*	*	Daily	Grab	
Chloride	*	*	*	Daily	Grab	
Oil & Grease a/	*	*	*	Weekly	Grab	
Oil & Grease Visual a/	*	*	*	Daily	Visual	
Free Available Chlorine	*	*	*	Daily	Grab	
Chromium, Total b/	*	*	*	Daily	Grab	
Zinc, Total c/	*	*	*	Daily	Grab	
Temperature	*	*	*	Daily	Grab	
Effluent Flow, mgd	Report Avg. Value	*	Report Max. Daily Value	1/Day	Instantaneous	
Total Drain, mgal	*	*	Report Total	1/Month	Calculated	

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

a/ 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 oily wastes that produce a visible sheen on the surface of the receiving water.

b/ The sample for chromium shall be analyzed using an EPA approved method with an analytical method detection limit of <=10 ug/l or 0.01 mg/l.

c/ The sample for zinc shall be analyzed using an EPA approved method with an analytical method detection limit of <=50 ug/l or 0.05 mg/l.

Stipulations:

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

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 41 of 78

# 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 reissue a permit to the **City of Enderlin**. 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 15, 2021**, in the **Ransom County Gazette** 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 4201 Normandy Street Bismarck, ND 58503

The primary author of this permit and fact sheet is Patrick Schuett.

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

Public Notice Date: 11/15/2021 Public Notice Number: ND-2021-035

#### 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: 10/27/2021

Application Number: ND0022462

Applicant Name: Enderlin City Of Mailing Address: PO Box 65, Enderlin, ND 58027-0065 Telephone Number: 701.437.3476

Proposed Permit Expiration Date: 12/31/2026

#### Facility Description

The reapplication is for a series of wastewater stabilization ponds. The system services the City of Enderlin and an oil seed processing plant. The facility is located in the SW1/4 of the SE1/4 of Section 3, Township 136N, Range 55W, and the N1/2 of the NW1/4 of Section 11, Township 136N, Range 55W. Any discharges would be to the Maple River, a Class II stream via outfalls 001 and 003.

#### 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 December 16, 2021 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<sup>th</sup> 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.

# DEFINITIONS Whole Effluent Toxicity (WET) BP 2017.04.06

- 20. "Acute toxic unit" ("TUa") is a measure of acute toxicity. TUa is the reciprocal of the effluent concentration that causes 50 percent of the organisms to die by the end on the acute exposure period (i.e., 100/"LC50").
- 21. "Chronic toxic unit" ("TUc") is a measure of chronic toxicity. TUc is the reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period (i.e., 100/"IC25").
- 22. "Inhibition concentration", ("IC"), is a point estimate of the toxicant concentration that causes a given percent reduction (p) in a non-quantal biological measurement (e.g., reproduction or growth) calculated from a continuous model (e.g., Interpolation Method).
- 23. "**LC50**" means the concentration of toxicant (e.g., effluent) which is lethal to 50 percent of the organisms exposed in the time period prescribed by the test.

#### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 46 of 78

24. "**No observed effect concentration**", ("NOEC"), is the highest concentration of toxicant (e.g., effluent) to which organisms are exposed in a chronic toxicity test [full life-cycle or partial life-cycle (short term) test], that causes no observable adverse effects on the test organisms (i.e., the highest concentration of effluent in which the values for the observed responses are not statistically significantly different from the controls).
# **APPENDIX C – DATA AND TECHNICAL CALCULATIONS**

# **Critical Low Flow**

The department obtained stream flow data from USGS site 05059700 from January 1, 2000, to August 19, 2021. Below are the critical low flows calculated by the USGS SW Toolbox.

1B3 (ACUTE)	0.85	CFS	1Q10 (ACUTE)	1.13	CFS
4B3 (CHROŃIC)	1.5	CFS	7Q10 (CHRONIC)	1.27	CFS
30B10 (AMMONIA)	2.0	CFS	Harmonic Mean (Human Health)	7.86	CFS

Below is a Time-Series of the receiving stream flow:



### **Reasonable Potential Analysis**

### Ammonia

### Outfall 001:

The reasonable potential determination for ammonia is provided below. The determination is conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991). The coefficient of variation used was 0.6.

### 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

	Er Alsosiz-so-ool, march 1351						
Facility Name:	Enderlin City of		Receiving Stream:	Maple River			
NDPDES Permit:	ND00	22462	1Q10 Acute	1.13	cfs		
Daily Maximum Flow	/ (mgd):	2.90	1B3 Acute	0.85	cfs		
Daily Average Flow (	mgd):	1.88	7Q10 Chronic	1.27	cfs		
Stream Design Mixin	g:	10.0%	30B10 Chronic	2	cfs		
Statistical Multiplier:	:	6.2					
Upstream Concentra	ition:	0.2300	mg/l		Parameter:		
Effluent Concetratio	n (max):	9.9500	mg/l		Ammonia		
DIVIC		(StatQeCe)+(Cs(pmf)Qs)			Outfall:		
	RVVC	Qe	e+(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	2.90	mgd	Qs - 1Q10	0.73	mgd
Qe - Chronic	1.88	mgd	Qs - 1B3	0.55	mgd
Ce	9.9500	mg/l	Qs - 7Q10	0.82	mgd
Cs	0.2300	mg/l	Qs - 30B10	1.29	mgd
Stat	6.20				
pmf	10.0%				
Acute RP			Chronic RP		
RWC - 1Q10	60.1809	mg/l	RWC - 7Q10	59.1201	mg/l
RWC - 1B3	60.5479	mg/l	RWC - 30B10	57.7379	mg/l
Criterion Maximum	Concentratio	n (CMC)	Criterion Continuous	Concentrat	ion (CCC)
Acute Criterion	4 04	mg/l	Chronic Criterion	0 7900	mg/l
Acute enterion	4.04	116/1	enronic enteriori	0.7500	

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	YES	7Q10 Chronic OR YES
1B3 Acute	YES	4B3 Chronic YES

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.

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 49 of 78

# Outfall 003:



### Enderlin City of Max NH3 Trend Outfall 003

Ammonia being discharged from outfall 003 shows an upward trend. For calculating the Coefficient of Variance (CV), the department checked the normality of the ammonia concentrations. Below is the q-q plot with the Shapiro-Wilk Normality test results.

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 50 of 78



Due to the data not being normally distributed (rejecting the assumption of normality with a pvalue less than 0.05, using a 95% confidence interval), the ammonia data was log transformed and tested for log normality. Below is the q-q plot for the log of ammonia, the results from the Shapiro-Wilk Normality test, and the determined CV to be utilized in the Reasonable Potential Analysis.

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 51 of 78

Normal Q-Q Plot for Log NH3



The analysis determined that the data can be assumed to be log normal based upon a p-value greater than 0.05 (using a 95% confidence interval). The CV was calculated by utilizing the following equation:

$$\widehat{CV}(x) = \left[\exp(\widehat{\sigma}_{y}^{2}) - 1\right]^{\frac{1}{2}}$$
where:  

$$\widehat{\sigma}_{y}^{2} = estimated \ variance = \sum[(y_{i} - \widehat{\mu})^{2}] / (k - 1),$$

$$\widehat{\mu}_{y} = estimated \ mean = \sum(y_{i}) / k,$$

$$y_{i} = \ln(x_{i}), \text{ and}$$

$$k = sample \ size$$

The reasonable potential determination for ammonia is provided below. The determination is conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991). The coefficient of variation used was 3.5.

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 52 of 78

### 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:	Enderlin City of		Receiving Stream:	Maple River		
NDPDES Permit:	ND00	22462	1Q10 Acute	1.13	cfs	
Daily Maximum Flow	/ (mgd):	2.90	1B3 Acute	0.85	cfs	
Daily Average Flow (	mgd):	1.88	7Q10 Chronic	1.27	cfs	
Stream Design Mixing:		10.0%	30B10 Chronic	2	cfs	
Statistical Multiplier:	:	2.0				
Upstream Concentra	ream Concentration:		mg/l		Parameter:	
Effluent Concetration (max):		9.9500	mg/l	Ammonia		
		(StatOoCo) (Cc(pmf)Oc)			Outfall	
	RWC	Interest	ec/n(es(piin/es)	Outian.		
		Q	e+(pmf)Qs	003		

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	2.90	mgd	Qs - 1Q10	0.73	mgd
Qe - Chronic	1.88	mgd	Qs - 1B3	0.55	mgd
Ce	9.9500	mg/l	Qs - 7Q10	0.82	mgd
Cs	0.2300	mg/l	Qs - 30B10	1.29	mgd
Stat	2.00				
pmf	10.0%				
Acute RP			Chronic RP		
RWC - 1Q10	19.4170	mg/l	RWC - 7Q10	19.0775	mg/l
RWC - 1B3	19.5345	mg/l	RWC - 30B10	18.6351	mg/l
Criterion Maximum	Concentratio	on (CMC)	Criterion Continuou	us Concentrat	tion (CCC)
Acute Criterion	4.04	mg/l	Chronic Criterion	0.7900	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	YES	7Q10 Chronic OR	YES
1B3 Acute	YES	4B3 Chronic	YES

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.

Page 1 of 4

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF **EXPIRATION DATE: December 31, 2026** Page 53 of 78

### Chloride

### Outfall 001

The reasonable potential determination for Chloride is provided below. The determination is conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991).

The coefficient of variation used was 0.6. The median of the average chloride concentrations was utilized as the median of the averages is more representative of the discharge and is thus a better representation than to average an average. The department also utilized the average of the upstream chloride data since the WQS for chloride is a 30-day average.

#### 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:	Enderlin City of		Receiving Stream:	Maple River		
NDPDES Permit:	ND00	22462	1Q10 Acute	1.13	cfs	
Daily Maximum Flow	/ (mgd):	2.90	1B3 Acute	0.85	cfs	
Daily Average Flow (mgd):		1.88	7Q10 Chronic	1.27	cfs	
Stream Design Mixing:		10.0%	30B10 Chronic	2	cfs	
Statistical Multiplier:	:	6.2				
Upstream Concentration:		56.9100	mg/l	Parameter:		
Effluent Concetration (max):		289.0000	mg/l	Chlorides		
(StatOeC		Ce)+(Cs(pmf)Os)		Outfall:		
	RWC	Interes	(	-	004	

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)

001

Qe+(pmf)Qs

Oe = 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	2.90	mgd	Qs - 1Q10	0.73	mgd
Qe - Chronic	1.88	mgd	Qs - 1B3	0.55	mgd
Ce	289.0000	mg/l	Qs - 7Q10	0.82	mgd
Cs	56.9100	mg/l	Qs - 30B10	1.29	mgd
Stat	6.20				
omf	10.0%				
Acute RP			Chronic RP		
RWC - 1Q10	1749.2021	mg/l	RWC - 7Q10	1719.2563	mg/l
RWC - 1B3	1759.5612	mg/l	RWC - 30B10	1680.2393	mg/l
Criterion Maximum	Concentratio	n (CMC)	Criterion Continuous	Concentration	n (CCC)
Acute Criterion	NA	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 YE	S
1B3 Acute	NO	30B10 Chronic YE	S

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.

#### Wasteload Allocation (WLA) Determination

Wasteload Allocation (WLA) is the portion of a receiving water's TMDL that is allocated to one of its existing or future point sources of pollution.

WLA = Cd = [Cr(Qd+%Qs)] - [(Cs)(%Qs)]/Qd

Qd = waste discharge flow

Cd = waste discharge pollutant concetration in mg/l.

Qs = background in-stream flow above point of discharge.

Cs = background in-stream pollutant concentration in mg/l. %Qs = percent of upstream flow allowed by mixing zone standard, if applicable

Qr = resultant in-stream flow after discharge: %Qs + Qd

Cr = applicable criterion = resultant in-stream pollutant concentration in mg/l, in the stream reach (after complete mixing)

WLA = Cd - Acute			WLA = Cd - Chronic	
1Q10	#VALUE!	mg/l	7Q10	258.43 mg/l
1B3	#VALUE!	mg/l	4B3	263.27 mg/l
Qd - Acute	2.90	mgd	Qd - Chronic	1.88 mgd
Qs				
1Q10	0.73	mgd	7Q10	0.82 mgd
1B3	0.55	mgd	4B3	1.29 mgd
Cs	56.91	mg/l		
%Qs	10.0%			
Qr - Acute			Qr - Chronic	
1Q10	2.97	mgd	7Q10	2.98 mgd
1B3	2.95	mgd	4B3	3.03 mgd
Cr - Acute	NA	mg/l	Cr - Chronic	250.00 mg/l

Calculate the standard deviation or coefficient of variance (CV) (CV = 0.6 as a default, see TSD, page 107)

CV = Standard Deviation / Mean

#### Data set > or = to 10, (see TSD, Appendix E)

Data set < 10, the conservative value of 0.6 is recommended (see TSD, Appendix E, page E-3) to estimate the CV, from which the variance is then calculated using formulas in Box 5-2 of the TSD (page 100). Numerical values for the case when CV = 0.6 are provided in the TSD (Tables 5-1 and 5-2, pages 102-103). Data set = 0, the LTA equals the WLA (see TSD, page 105)

Page 2 of 5

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF **EXPIRATION DATE: December 31, 2026** Page 55 of 78

#### Long Term Average (LTA) Determination

Long Term Average (LTA), calculate acute and chronic numbers. (see TSD, Table 5-1, page 102)

0.468 0.644

LTAa = WLAa x e^[0.5q2 -zq] LTAc = WLAc x e^[0.5q42 - zq]

4B3

Acute M Chronic	ultiplier Multiplier		
LTAa			
1Q10		#VALUE!	mg/l
1B3		#VALUE!	mg/l
LTAc			
7Q10		166.4266	mg/l
4B3		169.5458	mg/l

Page 3 of 5

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 56 of 78

#### Maximum Daily Limit (MDL) Determination

Maximum Daily Limit (MDL) - EPA recommends using the 99th percentile (see TSD, Table 5-2, page 103)

MDL = LTA x e^[zq-0.5q2]

z		2.13
MDL		
1Q10	#VALUE! mg/l	
183	#VALUE! mg/l	
7Q10	354.4886 mg/l	
4B3	361.1325 mg/l	

#### Average Monthly Limit (AML) Determination

Average Monthly Limit (AML) - EPA recommends using the 95th percentile (see TSD, Table 5-2, page 103)

	2.13
mg/l	
mg/l	
i mg/l	
mg/l	
	mg/l mg/l 5 mg/l 5 mg/l

Following these procedures, the maximum daily limit and average monthly limit may then be incorporated into the permit as justifiable WQBELS.

		BIOLOGIC	CALLY BASED L	IMITS		
WQBELs CMC - Acute Limit CCC - Chronic Limit						
	MDL	AML		MDL	AML	
mg/l	#VALUE!	#VALUE!	mg/l	361.1325	361.1325	
ug/l	#VALUE!	#VALUE!	ug/l	361132.4530	361132.4530	

		mence	OICALL'I DAGLE LI			
WQBELs	CMC - Ad	cute Limit		CCC - Chr	onic Limit	
	MDL	AML		MDL	AML	
mg/l	#VALUE!	#VALUE!	mg/l	354.4886	354.4886	
ug/l	#VALUE!	#VALUE!	ug/l	354488.5576	354488.5576	

Page 4 of 5

The reasonable potential analysis determined that there is a reasonable potential for the discharge to cause an exceedance of the WQS for chloride. The department determined a monthly average effluent limitation of 354 mg/l and a maximum daily limit of 354 mg/l.

### Outfall 003

The department reviewed the chloride trend from January 01, 2017, through June 30, 2021. Below is a plot of the chloride concentrations from outfall 003 along with a trendline.

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 57 of 78



Enderlin City of Avg Chlorides Outfall 003 Trend

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 58 of 78



The reasonable potential determination for Chloride is provided below. The determination is conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991).

The coefficient of variation used was 0.5. The median of the reported average chloride concentrations was utilized as the median of the averages is more representative of the discharge and is thus a better representation than to average an average. The department also utilized the average of the upstream chloride data since the WQS for chloride is a 30-day average.

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF **EXPIRATION DATE: December 31, 2026** Page 59 of 78

#### 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

El 4303/2-30-001, March 1331							
Facility Name:	Enderlin City of		Receiving Stream:	Maple River			
NDPDES Permit:	ND00	22462	1Q10 Acute	1.13	cfs		
Daily Maximum Flow	r (mgd):	2.90	1B3 Acute	0.85	cfs		
Daily Average Flow (mgd):		1.88	7Q10 Chronic	1.27	cfs		
Stream Design Mixing:		10.0%	30B10 Chronic	2	cfs		
Statistical Multiplier:		1.3					
Upstream Concentra	tion:	56.9100	mg/l		Parameter:		
Effluent Concetration (max):		313.0000	mg/l		Chlorides		
RWC (St		(StatQe	Ce)+(Cs(pmf)Qs)		Outfall:		
		Qe+(pmf)Qs		003			

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	2.90	mgd	Qs - 1Q10	0.73	mgd
Qe - Chronic	1.88	mgd	Qs - 1B3	0.55	mgd
Ce	313.0000	mg/l	Qs - 7Q10	0.82	mgd
Cs	56.9100	mg/l	Qs - 30B10	1.29	mgd
Stat	1.30				
pmf	10.0%				
Acute RP			Chronic RP		
RWC - 1Q10	398.3065	mg/l	RWC - 7Q10	392.2653	mg/l
RWC - 1B3	400.3963	mg/l	RWC - 30B10	384.3942	mg/l
Criterion Maximum	Concentratio	n (CMC)	Criterion Continuous	Concentratio	n (CCC)
Acute Criterion	NA	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:	
040		

CMC RP Present:		CCC RP Present:	
1Q10 Acute OR	NO	7Q10 Chronic OR	YES
1B3 Acute	NO	30B10 Chronic	YES

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.

Page 1 of 5

#### Wasteload Allocation (WLA) Determination

Wasteload Allocation (WLA) is the portion of a receiving water's TMDL that is allocated to one of its existing or future point sources of pollution.

WLA = Cd = [Cr(Qd+%Qs)] - [(Cs)(%Qs)]/Qd

Qd = waste discharge flow

Cd = waste discharge pollutant concetration in mg/l.

Qs = background in-stream flow above point of discharge. Cs = background in-stream pollutant concentration in mg/l.

%Qs = percent of upstream flow allowed by mixing zone standard, if applicable

Qr = resultant in-stream flow after discharge: %Qs + Qd

Cr = applicable criterion = resultant in-stream pollutant concentration in mg/l, in the stream reach (after complete mixing)

WLA = Cd - Acute 1Q10 1B3 Qd - Acute	#VALUE! #VALUE! 2.90	mg/l mg/l mgd	WLA = Cd - Chronic 7Q10 4B3 Qd - Chronic	258.43 mg/l 263.27 mg/l 1.88 mgd
1Q10 1B3 Cs %Qs	0.73 0.55 56.91 10.0%	mgd mgd mg/l	7Q10 4B3	0.82 mgd 1.29 mgd
Qr - Acute 1Q10 1B3 Cr - Acute	2.97 2.95 NA	mgd mgd mg/l	Qr - Chronic 7Q10 4B3 Cr - Chronic	2.98 mgd 3.03 mgd 250.00 mg/l

Calculate the standard deviation or coefficient of variance (CV) (CV = 0.6 as a default, see TSD, page 107)

CV = Standard Deviation / Mean

#### Data set > or = to 10, (see TSD, Appendix E)

Data set < 10, the conservative value of 0.6 is recommended (see TSD, Appendix E, page E-3) to estimate the CV, from which the variance is then calculated using formulas in Box 5-2 of the TSD (page 100). Numerical values for the case when CV = 0.6 are provided in the TSD (Tables 5-1 and 5-2, pages 102-103). Data set = 0, the LTA equals the WLA (see TSD, page 105)

Page 2 of 5

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF **EXPIRATION DATE: December 31, 2026** Page **61** of **78**

#### Long Term Average (LTA) Determination

Long Term Average (LTA), calculate acute and chronic numbers. (see TSD, Table 5-1, page 102)

LTAa = WLAa x e^[0.5q2 -zq] LTAc = WLAc x e^[0.5q42 - zq]

Acute Multiplier Chronic Multiplier			0.514 0.736
LTAa 1Q10 1B3	#VALUE! #VALUE!	mg/l mg/l	
LTAc 7Q10 4B3	190.2018 193.7666	mg/l mg/l	

Page 3 of 5

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 62 of 78

#### Maximum Daily Limit (MDL) Determination

Maximum Daily Limit (MDL) - EPA recommends using the 99th percentile (see TSD, Table 5-2, page 103)

MDL = LTA x e^[zq-0.5q2]

2		1.75
MDL		
1Q10	#VALUE! mg/l	
1B3	#VALUE! mg/l	
7Q10	332.8531 mg/l	
4B3	339.0915 mg/l	

#### Average Monthly Limit (AML) Determination

Average Monthly Limit (AML) - EPA recommends using the 95th percentile (see TSD, Table 5-2, page 103)

AML = LTA x e^[zqn-0.	.5qn2]		
Z			1.12
AML			
1Q10	#VALUE!	mg/l	
1B3	#VALUE!	mg/l	
7Q10	213.0260	mg/l	
4B3	217.0186	mg/l	

Following these procedures, the maximum daily limit and average monthly limit may then be incorporated into the permit as justifiable WQBELS.

C140 A				
CMC - Acute Limit			CCC - Chr	onic Limit
MDL	AML		MDL	AML
#VALUE!	#VALUE!	mg/l	339.0915	217.0186
#VALUE!	#VALUE!	ug/l	339091.5051	217018.5633
	#VALUE!	MDL     AML       #VALUE!     #VALUE!       #VALUE!     #VALUE!	MDL AML #VALUE! #VALUE! mg/l #VALUE! #VALUE! ug/l	MDL         AML         MDL           #VALUE!         #VALUE!         mg/l         339.0915           #VALUE!         #VALUE!         ug/l         339091.5051

WQBELs	CMC - Acute Limit			CCC - Chr	onic Limit	
	MDL	AML		MDL	AML	
mg/l	#VALUE!	#VALUE!	mg/l	332.8531	213.0260	
ug/l	#VALUE!	#VALUE!	ug/l	332853.1058	213025.9877	

Page 4 of 5

The reasonable potential analysis determined that there is a reasonable potential for the discharge to cause an exceedance of the WQS for chloride. The department determined a monthly average effluent limitation of 213 mg/l and a maximum daily limit of 332 mg/l.

### Sulfate

### Outfall 001

The reasonable potential determination for Sulfate is provided below. The determination is conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991).

The coefficient of variation used was 0.6. The median of the average sulfate concentrations was utilized as the median of the averages is more representative of the discharge and is thus a

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 63 of 78

better representation than to average an average. The department also utilized the average of the upstream sulfate data since the WQS for sulfate is a 30-day average.

#### 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:	Enderlin City of		Receiving Stream:	Maple River			
NDPDES Permit:	ND00	22462	1Q10 Acute	1.13	cfs		
Daily Maximum Flow	/ (mgd):	2.90	1B3 Acute	0.85	cfs		
Daily Average Flow (	mgd):	1.88	7Q10 Chronic	1.27	cfs		
Stream Design Mixing:		10.0%	30B10 Chronic	2	cfs		
Statistical Multiplier:		6.2					
Upstream Concentra	ition:	477.8000	mg/l		Parameter:		
Effluent Concetration (max):		802.0000	mg/l		Sulfates		
		(StatOaCa), (Colomf)Oc)			Outfall		
	RWC	Istatuet	zej+(cs(piiii)cs)	_	Outlan.		
RWC		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.

 $\label{eq:Qs} Qs = \mbox{Receiving Water Flow (1Q10 or 1B3 for acute and 7Q10 or 4B3 for chronic)} \\ Cs = \mbox{Background concentration of the receiving water.}$ 

Qe - Acute	2.90	mgd	Qs - 1Q10	0.73	mgd
Qe - Chronic	1.88	mgd	Qs - 1B3	0.55	mgd
Ce	802.0000	mg/l	Qs - 7Q10	0.82	mgd
Cs	477.8000	mg/l	Qs - 30B10	1.29	mgd
Stat	6.20				
pmf	10.0%				
Acute RP			Chronic RP		
RWC - 1Q10	4862.0411	mg/l	RWC - 7Q10	4784.4601	mg/l
RWC - 1B3	4888.8785	mg/l	RWC - 30B10	4683.3783	mg/l
Criterion Maximum (	Concentratio	n (CMC)	Criterion Continuou:	Concentration	n (CCC)
Acute Criterion	NA	mg/l	Chronic Criterion	450.0000	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	YES
1B3 Acute	NO	30B10 Chronic	YES

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.

#### Page 1 of 5

#### Wasteload Allocation (WLA) Determination

Wasteload Allocation (WLA) is the portion of a receiving water's TMDL that is allocated to one of its existing or future point sources of pollution.

WLA = Cd = [Cr(Qd+%Qs)] - [(Cs)(%Qs)]/Qd

Qd = waste discharge flow

Cd = waste discharge pollutant concetration in mg/l.

Qs = background in-stream flow above point of discharge.

 $\label{eq:cs} Cs = background in-stream pollutant concentration in mg/l. \\ \ensuremath{\%Qs} = percent of upstream flow allowed by mixing zone standard, if applicable to the standard of the$ 

Qr = resultant in-stream flow after discharge: %Qs + Qd

Cr = applicable criterion = resultant in-stream pollutant concentration in mg/l, in the stream reach (after complete mixing)

VLA = Cd - Acute			WLA = Cd - Chronic		
Q10	#VALUE!	mg/l	7Q10	448.79	mg/l
B3	#VALUE!	mg/l	4B3	448.09	mg/l
Qd - Acute	2.90	mgd	Qd - Chronic	1.88	mgd
Qs					
Q10	0.73	mgd	7Q10	0.82	mgd
LB3	0.55	mgd	4B3	1.29	mgd
Cs	477.80	mg/l			
6Qs	10.0%				
Qr - Acute			Qr - Chronic		
Q10	2.97	mgd	7Q10	2.98	mgd
LB3	2.95	mgd	4B3	3.03	mgd
Cr - Acute	NA	mg/l	Cr - Chronic	450.00	mg/l

Calculate the standard deviation or coefficient of variance (CV) (CV = 0.6 as a default, see TSD, page 107)

CV = Standard Deviation / Mean

#### Data set > or = to 10, (see TSD, Appendix E)

Data set < 10, the conservative value of 0.6 is recommended (see TSD, Appendix E, page E-3) to estimate the CV, from which the variance is then calculated using formulas in Box 5-2 of the TSD (page 100). Numerical values for the case when CV = 0.6 are provided in the TSD (Tables 5-1 and 5-2, pages 102-103). Data set = 0, the LTA equals the WLA (see TSD, page 105)

Page 2 of 5

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF **EXPIRATION DATE: December 31, 2026** Page **65** of **78**

#### Long Term Average (LTA) Determination

Long Term Average (LTA), calculate acute and chronic numbers. (see TSD, Table 5-1, page 102)

LTAa = WLAa x e^[0.5q2 -zq] LTAc = WLAc x e^[0.5q42 - zq]

Acute Multiplier Chronic Multiplier			0.468 0.644
LTAa 1Q10 1B3	#VALUE! #VALUE!	mg/l mg/l	
LTAc 7Q10 4B3	289.0187 288.5696	mg/l mg/l	

Page 3 of 5

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 66 of 78

#### Maximum Daily Limit (MDL) Determination

Maximum Daily Limit (MDL) - EPA recommends using the 99th percentile (see TSD, Table 5-2, page 103)

MDL = LTA x e^[zq-0.5q2]

z			2.13
MDL			
1Q10	#VALUE!	mg/l	
183	#VALUE!	mg/l	
7Q10	615.6099	mg/l	
4B3	614.6533	mg/l	

#### Average Monthly Limit (AML) Determination

Average Monthly Limit (AML) - EPA recommends using the 95th percentile (see TSD, Table 5-2, page 103)

.5qn2]		
		2.13
#VALUE!	mg/l	
#VALUE!	mg/l	
615.6099	mg/l	
614.6533	mg/l	
	#VALUE! #VALUE! 615.6099 614.6533	"VALUE! mg/l #VALUE! mg/l #VALUE! mg/l 615.6099 mg/l 614.6533 mg/l

Following these procedures, the maximum daily limit and average monthly limit may then be incorporated into the permit as justifiable WQBELS.

BIOLOGICALLY BASED LIMITS							
WQBELs	CMC - A	CMC - Acute Limit CCC - Chr		ronic Limit			
	MDL	AML		MDL	AML		
mg/l	#VALUE!	#VALUE!	mg/l	614.6533	614.6533		
ug/l	#VALUE!	#VALUE!	ug/l	614653.3143	614653.3143		

		mbholo	OICALLI DAGLD L			
WQBELs	CMC - Acute Limit			CCC - Chr	onic Limit	
	MDL	AML		MDL	AML	
mg/l	#VALUE!	#VALUE!	mg/l	615.6099	615.6099	
ug/l	#VALUE!	#VALUE!	ug/l	615609.8646	615609.8646	

Page 4 of 5

The reasonable potential analysis determined that there is a reasonable potential for the discharge to cause an exceedance of the WQS for sulfate. The department determined a monthly average effluent limitation of 614 mg/l and a maximum daily limit of 614 mg/l.

### Outfall 003

The department reviewed the sulfate trend from January 01, 2017, through June 30, 2021. Below is a plot of the chloride concentrations from outfall 003 along with a trendline.

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF **EXPIRATION DATE: December 31, 2026** Page **67** of **78**



Enderlin City of Avg Sulfates Outfall 003

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 68 of 78



Based upon the Shapiro-Wilk Normality test having a p-value greater than 0.05 the assumption of normality is not rejected (using 95% confidence interval). The CV was calculated using the following equation:

$$CV = \frac{\sigma}{\mu}$$

The reasonable potential determination for sulfate is provided below. The determination is conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991). The coefficient of variation used was 0.4.

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF **EXPIRATION DATE: December 31, 2026** Page 69 of 78

#### 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

LFA/303/2-30-001, March 1331							
acility Name:	Enderlin City of		Receiving Stream:	Maple River			
NDPDES Permit:	ND00	22462	1Q10 Acute	1.13	cfs		
Daily Maximum Flow	r (mgd):	2.90	1B3 Acute	0.85	cfs		
Daily Average Flow (mgd):		1.88	7Q10 Chronic	1.27	cfs		
Stream Design Mixin	g:	10.0%	30B10 Chronic	2	cfs		
Statistical Multiplier:		1.2					
Jpstream Concentra	tion:	477.8000	mg/l		Parameter:		
Effluent Concetration (max):		1090.0000	mg/l	Sulfates			
RWC —		(StatQe	(StatQeCe)+(Cs(pmf)Qs)		Outfall:		
		Qe+(pmf)Qs		003			

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	2.90	mgd	Qs - 1Q10	0.73	mgd
Qe - Chronic	1.88	mgd	Qs - 1B3	0.55	mgd
Ce	1090.0000	mg/l	Qs - 7Q10	0.82	mgd
Cs	477.8000	mg/l	Qs - 30B10	1.29	mgd
Stat	1.20				
pmf	10.0%				
Acute RP			Chronic RP		
RWC - 1Q10	1287.6155	mg/l	RWC - 7Q10	1273.2855	mg/l
RWC - 1B3	1292.5727	mg/l	RWC - 30B10	1254.6147	mg/l
Criterion Maximum	Concentratio	n (CMC)	Criterion Continuous	Concentratior	(CCC)
Acute Criterion	NA	mg/l	Chronic Criterion	450.0000	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	YES
1B3 Acute	NO	30B10 Chronic	YES

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.

Page 1 of 5

#### Wasteload Allocation (WLA) Determination

Wasteload Allocation (WLA) is the portion of a receiving water's TMDL that is allocated to one of its existing or future point sources of pollution.

WLA = Cd = [Cr(Qd+%Qs)] - [(Cs)(%Qs)]/Qd

Qd = waste discharge flow

Cd = waste discharge pollutant concetration in mg/l.

Qs = background in-stream flow above point of discharge.

 $\label{eq:cs} Cs = background in-stream pollutant concentration in mg/l. \\ \ensuremath{\%Qs} = percent of upstream flow allowed by mixing zone standard, if applicable to the standard of the$ 

Qr = resultant in-stream flow after discharge: %Qs + Qd

Cr = applicable criterion = resultant in-stream pollutant concentration in mg/l, in the stream reach (after complete mixing)

VLA = Cd - Acute			WLA = Cd - Chronic		
Q10	#VALUE!	mg/l	7Q10	448.79	mg/l
B3	#VALUE!	mg/l	4B3	448.09	mg/l
Qd - Acute	2.90	mgd	Qd - Chronic	1.88	mgd
Qs					
Q10	0.73	mgd	7Q10	0.82	mgd
LB3	0.55	mgd	4B3	1.29	mgd
Cs	477.80	mg/l			
6Qs	10.0%				
Qr - Acute			Qr - Chronic		
Q10	2.97	mgd	7Q10	2.98	mgd
LB3	2.95	mgd	4B3	3.03	mgd
Cr - Acute	NA	mg/l	Cr - Chronic	450.00	mg/l

Calculate the standard deviation or coefficient of variance (CV) (CV = 0.6 as a default, see TSD, page 107)

CV = Standard Deviation / Mean

#### Data set > or = to 10, (see TSD, Appendix E)

Data set < 10, the conservative value of 0.6 is recommended (see TSD, Appendix E, page E-3) to estimate the CV, from which the variance is then calculated using formulas in Box 5-2 of the TSD (page 100). Numerical values for the case when CV = 0.6 are provided in the TSD (Tables 5-1 and 5-2, pages 102-103). Data set = 0, the LTA equals the WLA (see TSD, page 105)

Page 2 of 5

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 71 of 78

#### Long Term Average (LTA) Determination

Long Term Average (LTA), calculate acute and chronic numbers. (see TSD, Table 5-1, page 102)

LTAa = WLAa x e^[0.5q2 -zq] LTAc = WLAc x e^[0.5q42 - zq]

Acute Multiplier Chronic Multiplier			0.468
LTAa 1Q10	#VALUE!	mg/l	
1B3	#VALUE!	mg/l	
LTAc			
7Q10	289.0187	/ mg/l	
4B3	288.5696	5 mg/l	

Page 3 of 5

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 72 of 78

#### Maximum Daily Limit (MDL) Determination

Maximum Daily Limit (MDL) - EPA recommends using the 99th percentile (see TSD, Table 5-2, page 103)

MDL = LTA x e^[zq-0.5q2]

z			2.13
MDL			
1Q10	#VALUE!	mg/l	
1B3	#VALUE!	mg/l	
7Q10	615.6099	mg/l	
4B3	614.6533	mg/l	

#### Average Monthly Limit (AML) Determination

Average Monthly Limit (AML) - EPA recommends using the 95th percentile (see TSD, Table 5-2, page 103)

AML = LTA x e^[zqn-0	.5qn2]		
z			1.19
AML			
1Q10	#VALUE!	mg/l	
1B3	#VALUE!	mg/l	
7Q10	343.9323	mg/l	
4B3	343.3979	mg/l	

Following these procedures, the maximum daily limit and average monthly limit may then be incorporated into the permit as justifiable WQBELS.

BIOLOGICALLY BASED LIMITS						
WQBELs	CMC - Ad	CMC - Acute Limit		CCC - Chr	onic Limit	
	MDL	AML		MDL	AML	
mg/l	#VALUE!	#VALUE!	mg/l	614.6533	343.3979	
ug/l	#VALUE!	#VALUE!	ug/l	614653.3143	343397.8611	

HYDROLOGICALLY BASED LIMITS						
WQBELs	CMC - Ad	CMC - Acute Limit		CCC - Chr	onic Limit	
	MDL	AML		MDL	AML	
mg/l	#VALUE!	#VALUE!	mg/l	615.6099	343.9323	
ug/l	#VALUE!	#VALUE!	ug/l	615609.8646	343932.2718	

Page 4 of 5

# **Total Chromium**

### Outfall 003

The reasonable potential determination for Total Chromium is provided below. The determination is conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991). The coefficient of variation

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 73 of 78

used was 0.6. The department utilized the Harmonic Mean stream flow as Total Chromium has a human health water quality standard of 100 µg/l.

#### 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:	Enderli	n City of	Receiving Stream:	Maple River	
NDPDES Permit:	NDOC	22462	1Q10 Acute	7.86	cfs
Daily Maximum Flow	/ (mgd):	2.90	1B3 Acute	7.86	cfs
Daily Average Flow (	mgd):	1.88	7Q10 Chronic	7.86	cfs
Stream Design Mixing:		10.0%	30B10 Chronic	7.86	cfs
Statistical Multiplier:		1.7			
Upstream Concentra	ition:	0.0200	mg/l		Parameter:
Effluent Concetration (max):		0.2500	mg/l		Chromium
RWC -		(StatQeCe)+(Cs(pmf)Qs)			Outfall:
		Q	e+(pmf)Qs		003

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 Qe - Chronic Ce Cs Stat pmf	2.90 1.88 0.2500 0.0200 1.70 10.0%	mgd mgd mg/l mg/l	Qs - 1Q10 Qs - 1B3 Qs - 7Q10 Qs - 30B10	5.08 5.08 5.08 5.08	mgd mgd mgd mgd
Acute RP			Chronic RP		
RWC - 1Q10	0.3647	mg/l	RWC - 7Q10	0.3389	mg/l
RWC - 1B3	0.3647	mg/l	RWC - 30B10	0.3389	mg/l
Criterion Maximum	Concentratio	on (CMC)	Criterion Continuous	s Concentratio	n (CCC)
Acute Criterion	0.1	mg/l	Chronic Criterion	0.1000	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:
CMC RP Present:
CCC RP Present:

1Q10 Acute OR	YES	7Q10 Chronic OR	YES
1B3 Acute	YES	30B10 Chronic	YES

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.

#### Page 1 of 4

#### Wasteload Allocation (WLA) Determination

Wasteload Allocation (WLA) is the portion of a receiving water's TMDL that is allocated to one of its existing or future point sources of pollution.

WLA = Cd = [Cr(Qd+%Qs)] - [(Cs)(%Qs)]/Qd

Qd = waste discharge flow

Cd = waste discharge pollutant concetration in mg/l.

Qs = background in-stream flow above point of discharge.

Cs = background in-stream pollutant concentration in mg/l.

%Qs = percent of upstream flow allowed by mixing zone standard, if applicable

Qr = resultant in-stream flow after discharge: %Qs + Qd

Cr = applicable criterion = resultant in-stream pollutant concentration in mg/l, in the stream reach (after complete mixing)

WLA = Cd - Acute		WLA = Cd - Chronic	
1Q10	0.11 mg/l	7Q10	0.12 mg/l
1B3	0.11 mg/l	4B3	0.12 mg/l
Qd - Acute	2.90 mgd	Qd - Chronic	1.88 mgd
Qs			
1Q10	5.08 mgd	7Q10	5.08 mgd
1B3	5.08 mgd	4B3	5.08 mgd
Cs	0.02 mg/l		
%Qs	10.0%		
Qr - Acute		Qr - Chronic	
1Q10	3.41 mgd	7Q10	3.41 mgd
1B3	3.41 mgd	4B3	3.41 mgd
Cr - Acute	0.1 mg/l	Cr - Chronic	0.10 mg/l

Calculate the standard deviation or coefficient of variance (CV) (CV = 0.6 as a default, see TSD, page 107)

CV = Standard Deviation / Mean

#### Data set > or = to 10, (see TSD, Appendix E)

Data set < 10, the conservative value of 0.6 is recommended (see TSD, Appendix E, page E-3) to estimate the CV, from which the variance is then calculated using formulas in Box 5-2 of the TSD (page 100). Numerical values for the case when CV = 0.6 are provided in the TSD (Tables 5-1 and 5-2, pages 102-103). Data set = 0, the LTA equals the WLA (see TSD, page 105)

Page 2 of 4

# FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF **EXPIRATION DATE: December 31, 2026** Page **75** of **78**

#### Long Term Average (LTA) Determination

Long Term Average (LTA), calculate acute and chronic numbers. (see TSD, Table 5-1, page 102)

LTAa = WLAa x e^[0.5q2 -zq] LTAc = WLAc x e^[0.5q42 - zq]

Acute Multiplier Chronic Multiplier		0.468 0.644
LTAa	0.0524 mg/l	
1010 1B3	0.0534 mg/l 0.0534 mg/l	
LTAc 7Q10 4B3	0.0783 mg/l 0.0783 mg/l	

Page 3 of 4

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 76 of 78

#### Maximum Daily Limit (MDL) Determination

Maximum Daily Limit (MDL) - EPA recommends using the 99th percentile (see TSD, Table 5-2, page 103)

MDL = LTA x e^[zq-0.5q2]

Z	2.13
MDL	
1Q10	0.1136 mg/l
1B3	0.1136 mg/l
7Q10	0.1668 mg/l
4B3	0.1668 mg/l

#### Average Monthly Limit (AML) Determination

Average Monthly Limit (AML) - EPA recommends using the 95th percentile (see TSD, Table 5-2, page 103)

AML = LTA x e^[zqn-0.5qr	12]		
z			2.13
AML			
1Q10	0.1136	mg/l	
1B3	0.1136	mg/l	
7Q10	0.1668	mg/l	
4B3	0.1668	mg/l	

Following these procedures, the maximum daily limit and average monthly limit may then be incorporated into the permit as justifiable WQBELs.

BIOLOGICALLY BASED LIMITS						
WQBELs	CMC - Ad	ute Limit		CCC - Chr	onic Limit	
	MDL	AML		MDL	AML	
mg/l	0.1136	0.1136	mg/l	0.1668	0.1668	
ug/l	113.6468	113.6468	ug/l	166.8103	166.8103	

HYDROLOGICALLY BASED LIMITS							
WQBELs	CMC - Ad	cute Limit		CCC - Chr	onic Limit		
	MDL	AML		MDL	AML		
mg/l	0.1136	0.1136	mg/l	0.1668	0.1668		
ug/l	113.6468	113.6468	ug/l	166.8103	166.8103		

Page 4 of 4

# Whole Effluent Toxicity

### Outfall 003

The reasonable potential determination for Whole Effluent Toxicity is provided below. The determination is conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991). The coefficient of variation used was 0.6.

### FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF **EXPIRATION DATE: December 31, 2026** Page 77 of 78

#### Whole Effluent Toxicity (WET) Resonable Potential (RP) Determination

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

Facility Name:	Ender	lin City of	Receiving Stream:	Maple Rive	r	
NDPDES Permit:	ND0	022462	1Q10 Acute	1.13	cfs	
Effluent Flow (mgd):		2.900	1B3 Acute	0.85	cfs	
Stream Design Mixin	g:	10.0%	7Q10 Chronic	1.27	cfs	
WET TUa (max):	-	6.80	4B3 Chronic	2	cfs	
ACR:						
Statistical Multiplier:		1.6				
		01-10-0-			Outfalls	
	DMC	StatQeCe			Outrail:	
	NWC	Qe+(pmf)Qs			003	

RWC = Receiving water concentration, the resultant magnitude of toxicity in the receiving water after effluent discharge in TUs (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)

Ce = Effluent Design Flow Ce = Highest Toxicity Unit (TU) reported. (Use 1 if no WET data is available.) 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)

Qe Ce pmf Stat ACR	2.900 6.80 10.0% 1.6 0.00	mgd TU	Qs - Acute Qs - Acute 1B3 Qs - Chronic Qs - Chronic 4B3	0.730 0.549 0.820 1.292	mgd mgd mgd mgd	
Acute RP			Chronic RP			
RWC - 1Q10	10.61	TUa	RWC - 7Q10	0.00	TUc	
RWC - 1B3	10.68	TUa	RWC - 4B3	0.00	TUc	
Criterion Maximum	Concentrat	tion (CMC)	Criterion Continuous	s Concent	ration (CC	C)
Acute Criterion	0.3	TUa	Chronic Criterion	1.0	TUc	

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	YES	7Q10 Chronic OR	NO	
1B3 Acute	YES	4B3 Chronic	NO	

The North Dakota State Water Quality Standards (WQS) Chapter 33-16-02.1 use biologically based design flows to determine Whole Effluent Toxicity (WET) limits for acute and chronic endpoints.

Page 1 of 4

FACTSHEET FOR NDPDES PERMIT ND0022462 ENDERLIN, CITY OF EXPIRATION DATE: December 31, 2026 Page 78 of 78

# APPENDIX D – RESPONSE TO COMMENTS

Comments received during the public notice period will be placed here.