

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

Public Notice Date: 8/7/2024

Public Notice Number: ND-2024-018

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: 7/12/2024

Application Number: ND0023175

Applicant Name: Dickinson City Of

Mailing Address: 3411 Public Works Blvd, Dickinson, ND 58601

Telephone Number: 701.456.7979

Proposed Permit Expiration Date: 9/30/2029

Facility Description

The reapplication is for the Dickinson Water Reclamation Facility which serves the City of Dickinson. The facility is located in NE1/4 NE1/4 Section 13 and SE1/4 SE1/4 Section 12, Township 139 North, Range 96 West. Any discharge would be through Outfall 005 to the Heart River, a Class IA stream.

Tentative Determinations

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

Information Requests and Public Comments

Copies of the application, draft permit, and related documents are available for review. 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 September 05, 2024 will be considered prior to finalizing the permit. If there is significant interest, a public hearing will be scheduled. Otherwise, the Department will issue the final permit within sixty (60) days of this notice.

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

Permit No: ND0023175
Effective Date: October 1, 2024
Expiration Date: September 30, 2029

AUTHORIZATION TO DISCHARGE UNDER THE
NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM

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

the City of Dickinson

is authorized to discharge from its Water Reclamation Facility

to the Heart River

provided all the conditions of this permit are met.

This permit and the authorization to discharge shall expire at midnight,
September 30, 2029.

Signed this _____ day of _____, _____.

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

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DEFINITIONS Standard Permit BP 2019.05.29

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

15. **“Salmonid”** means of, belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish.
16. **“Sanitary Sewer Overflows (SSO)”** means untreated or partially treated sewage overflows from a sanitary sewer collection system.
17. **“Severe property damage”** means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
18. **“Total drain”** means the total volume of effluent discharged.
19. **“Upset”** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

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., $100/\text{“LC50”}$).
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., $100/\text{“IC25”}$).
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 DESCRIPTION

Outfall 002. Active. Final.			
Latitude: 46.8676	Longitude: -102.7352	County: Stark	
Township: 139N	Range: 96W	Section: 12	QQ: DBB
Receiving Stream: Heart River		Classification: Class IA	
Outfall Description: Effluent limitations for lagoon cell 3. Water is kept in the cell to suppress dust from the cell.			

Outfall 003. Active. Final.			
Latitude: 46.8653	Longitude: -102.7308	County: Stark	
Township: 139N	Range: 96W	Section: 12	QQ: DAC
Receiving Stream: Heart River		Classification: Class IA	
Outfall Description: Effluent limitations for lagoon cell 4. Water from the Water Reclamation Facility is sent to cell 4 for beneficial reuse storage. This point could also include effluent from lagoon cell 3.			

Outfall 005. Active. Final.			
Latitude: 46.8628	Longitude: -102.7257	County: Stark	
Township: 139N	Range: 95W	Section: 7	QQ: CCC
Receiving Stream: Heart River		Classification: Class IA	
Outfall Description: Treated effluent flows as a continuous discharge from the Water Reclamation Facility.			

Outfall 006. Active. Internal.			
Latitude: 46.8605	Longitude: -102.7291	County: Stark	
Township: 139N	Range: 96W	Section: 13	QQ: AA
Receiving Stream: Heart River		Classification: Class IA	
Outfall Description: This is an interior point that is a sampling site for influent entering the Water Reclamation Facility.			

PERMIT SUBMITTALS SUMMARY

Coverage Point	Submittal	Monitoring Period	Submittal Frequency	First Submittal Date
005A	Discharge Monitoring Report	1/month	1/month	November 30, 2024
006A	Discharge Monitoring Report	1/month	1/month	November 30, 2024
005W	Discharge Monitoring Report	1/quarter	1/quarter	January 31, 2025
005Q	Discharge Monitoring Report	1/year	1/year	October 31, 2025
006Q	Discharge Monitoring Report	1/year	1/year	October 31, 2025
MMP	Mercury Pollutant Minimization Plan	Not applicable	1/permit cycle	April 30, 2025
Application Renewal	EPA Form 2A	Not applicable	1/permit cycle	March 31, 2029

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SPECIAL CONDITIONS

Mercury Pollutant Minimization Plan

The permittee is required to complete and submit a Mercury Pollutant Minimization Plan (MMP) to the North Dakota Department of Environmental Quality (department) as detailed in this section. If the permittee has previously submitted a MMP, the permittee must update and submit the MMP to the department. The purpose of the MMP is to evaluate collection and treatment systems to determine possible sources of mercury as well as potential mercury reduction options. Guidelines for developing a MMP are detailed in this section.

The permittee shall submit the MMP to the department by April 30, 2025. At a minimum, the MMP must include the following:

- a) A summary of mercury influent and effluent concentrations and biosolids monitoring data using the most recent five years of monitoring data, if available.
- b) Identification of existing and potential sources of mercury concentrations and/or loading to the wastewater treatment facility (WWTF). Residential, institutional, municipal, and commercial sources – such as dental clinics, hospitals, medical clinics, nursing homes, schools, and industries – that have the potential to contribute mercury to the WWTF should be considered. Other influent sources of mercury, such as stormwater inputs, ground water inflow and infiltration (I/I), and waste streams and sewer tributaries to the WWTF also should be considered.
- c) An evaluation of past and present WWTF operations that maximize mercury removal.
- d) A summary of mercury reduction activities implemented during the last five years.
- e) A plan to implement mercury management and reduction measures during the next five years.

The permittee shall sample effluent for dissolved mercury throughout the life of this permit in addition to the sampling required by this permit. Effluent samples shall be collected annually from outfall 005. Effluent must be sampled prior to discharging from the WWTF and before entering waters of the state. The sampling method shall be a concurrent grab sample. Dissolved mercury shall be analyzed using an EPA approved mercury analysis method. Samples may be taken at any time during the calendar year. A trip blank shall be collected and analyzed for each sampling event. Sample results shall be reported on a custom supplemental form provided by the department. The custom supplemental form must be submitted with the DMR for the month in which the sample was collected.

Outfall 002 and 003

No discharge shall occur from outfall 002 or outfall 003.

Discharge Monitoring Report – Quality Assurance Study

This facility has been selected to take part in the annual Discharge Monitoring Report – Quality Assurance (DMR-QA) Study. This participation is a requirement as outlined in Section 308 of the Clean Water Act (CWA). EPA will mail you a copy of the annual DMR-QA Study notification letter. Additional information may be found by visiting the following website: <https://www.epa.gov/compliance/discharge-monitoring-report-quality-assurance-study-program#about> Discontinuation from the DMR-QA Study may take place upon a written letter from the State DMR-QA Coordinator.

I. LIMITATIONS AND MONITORING REQUIREMENTS

A. Discharge Authorization

1. During the effective period of this permit, the permittee is authorized to discharge pollutants from the outfalls as specified to the following: **Heart River**.
2. No discharge shall occur from outfall 002 or outfall 003.
3. This permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams, and operations clearly identified in the permit application process.

B. Influent Monitoring

1. The permittee must monitor influent as specified below:

Influent Monitoring Requirements Outfall 006		
Parameter	Monitoring Requirements	
	Sample Frequency	Sample Type
Biochemical Oxygen Demand (BOD ₅)	1/week	Composite
Total Suspended Solids (TSS)	1/week	Composite
pH	1/week	Instantaneous
Ammonia as N	1/week	Composite
Chlorides, Total	1/week	Composite
Trace Elements (40 CFR 122 Appendix D, Table III) ^a	1/quarter	Composite
^a Refer to Part V(F) for the list of parameters that must be analyzed as part of the trace elements sample.		

C. Effluent Limitations and Monitoring

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

Effluent Limitations and Monitoring Requirements Outfall 005					
Parameter	Effluent Limitations			Monitoring Requirements	
	Average Monthly Limit	Weekly 7-Day Average Limit	Daily Maximum Limit	Sample Frequency	Sample Type
Temperature (°C)	N/A	N/A	*	1/day ^g	Grab
Stream Flow	Daily Mean, Monitor Only (cfs)			1/day ^g	Usable data source
Biochemical Oxygen Demand (BOD ₅)	25 mg/L	45 mg/L	N/A	3/week	Composite
BOD ₅ (Removal Efficiency)	Shall not be less than 85%	N/A	N/A	1/month	Calculated
Total Suspended Solids (TSS)	30 mg/L	45 mg/L	N/A	3/week	Composite
TSS (Removal Efficiency)	Shall not be less than 85%	N/A	N/A	1/month	Calculated
pH ^a	Between 6.5 and 9.0 s.u.			1/day ^g	Instantaneous
<i>E. Coli</i> ^b	126/100 mL	N/A	409/100 mL	3/week	Grab
Nitrogen, Total ^c	Average for the month (mg/L)	N/A	Monitor only (mg/L)	1/month	Composite
Nitrogen, Total ^c	Average for the month (lb/day)	N/A	Monitor only (lb/day)	1/month	Calculated
Ammonia as N ^d	Refer to the Ammonia Effluent Limitations table below			3/week	Composite
Phosphorus, Total (as P)	Average for the month (mg/L)	N/A	Monitor only (mg/L)	1/month	Composite
Phosphorus, Total (as P)	Average for the month (lb/day)	N/A	Monitor only (lb/day)	1/month	Calculated
Oil & Grease – Visual ^e	N/A	N/A	N/A	1/day ^g	Visual
Oil & Grease ^e	N/A	N/A	10 mg/L	Conditional	Grab
Flow Effluent (MGD)	N/A	N/A	N/A	1/day	Instantaneous
Drain Total (MG)	N/A	N/A	N/A	1/month	Calculated
Acute Whole Effluent Toxicity (WET)	Refer to WET requirements in Part I(E)(1)			1/quarter	Grab

Effluent Limitations and Monitoring Requirements Outfall 005			
Chronic Whole Effluent Toxicity (WET)	Refer to WET requirements in Part I(E)(2)	1/quarter	Grab
Trace Elements (40 CFR 122, Appendix D, Table III) ^f	Refer to Part V(F)	1/quarter	Composite
Notes:			
a. The pH, an instantaneous limitation, shall be between 6.5 and 9.0 s.u.			
b. The limit for <i>E. coli</i> shall apply only during the recreational season, April 1 to October 31. Monitoring for <i>E. coli</i> shall be in effect only during the recreational season. Averages for <i>E. coli</i> shall be determined as a geometric mean.			
c. Total nitrogen is a combination of nitrate, nitrite, and Total Kjeldahl Nitrogen (TKN).			
d. The permittee will use Heart River parameters to calculate the real-time water quality standard for ammonia (refer to the Ammonia Effluent Limitations table for Outfall 005). This calculated limit will be compared to facility effluent data for ammonia. If the effluent value is greater than the calculated limit, the permittee will report an exceedance.			
e. There shall be no floating oil or visible sheen present in the discharge. If floating oil or a visible sheen is detected in the discharge, the department shall be contacted and a grab sample analyzed to ensure compliance with the concentration limitation. Any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of the permit.			
f. A total hardness of the receiving stream needs to be determined every time metals are sampled and analyzed. The hardness is used to calculate parameter criteria according to the state water quality standards. This sample shall be collected upstream of the final discharge site.			
g. Sampling once per day applies during normal daily operations when the facility is staffed. Typically, a work week runs Monday through Friday.			
*. The thermal mixing zone shall not present a thermal shock or stressor, affect spawning, or block the migration of aquatic organisms.			
N/A Not Applicable			
Stipulations:			
The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water. The discharge must be free from materials that produce a color, odor or other condition to such a degree as to create a nuisance.			
All effluent parameters shall be sampled at a point leaving outfall 005 but prior to leaving plant property or entering waters of the state.			
The dates of discharge, frequency of analysis, and number of exceedances shall be included on the Discharge Monitoring Report (DMR).			

Ammonia Effluent Limitations – Outfall 005 – Water Reclamation Facility

Average Monthly Limitation (AML)

The 30-day average concentration of total ammonia (expressed as N in mg/L) does not exceed the numerical value given by the following formula:

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

Receiving stream pH and temperature in degrees Celsius are used for the calculation (Refer to Part I(D)(1)).

Maximum Daily Limitation (MDL)

The concentration of total ammonia (expressed as N in mg/L) does not exceed the numerical value given by the following formula:

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

Receiving stream pH and temperature in degrees Celsius are used for the calculation (Refer to Part I(D)(1)).

For the MDL calculation, permittee receives fifty percent of the stream flow for dilution at the time of discharge based on the flow of the Heart River. If upstream flow is not present, then the 1B3 critical low flow of 0 cfs shall be used. MDL concentration will be calculated on a mass balance basis using the following formula. The permittee is responsible for units matching in the equation.

MDL Ammonia Effluent Limitation = $(Q_u \cdot C_u + Q_e \cdot C_e) / (Q_u + Q_e)$ where

Q_u = 50% of the Heart River flow parameter (if no upstream flow is present, then the 1B3 critical low flow of 0 cfs shall be used)

C_u = Heart River ammonia parameter (if an upstream ammonia concentration is not available or collected, then an ambient concentration of 0.46 mg/L shall be used)

Q_e = Effluent flow parameter

C_e = Ammonia as N parameter in the effluent

Notes:

Calculation of the AML must be performed for the calendar month. If an exceedance is detected for the calendar month, the exceedance must be reported on the DMR.

Calculation of the MDL must be performed for each discharge sample. If an exceedance is detected on any single sample, the exceedance must be reported on the DMR.

D. Ambient Monitoring

1. Ambient monitoring of the Heart River shall be conducted as described below.

In-Stream, Self-Monitoring Requirements			
Parameter	Monitoring Requirements		
	Sample Point	Measurement Frequency	Sample Type
pH (s.u.)	Upstream (prior to mixing with effluent)	3/week	Instantaneous
Temperature (°C)	Upstream (prior to mixing with effluent)	3/week	Instantaneous
a. Sample must be collected/recorded the same day as the ammonia sample for Outfall 005.			

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E. Whole Effluent Toxicity (WET) Requirements BP 2023.10.16

1. Acute Toxicity Testing

Acute toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of "Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms," 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*.

Acute WET requirements for Outfall 005						
WET tests shall be performed at least once per calendar quarter on both species. This requirement may be reduced to alternating species upon the permittee requesting a reduction to toxicity testing – refer to the " Reduced Monitoring for Toxicity Testing " section below. Should there be no discharge during a specified sampling time frame; sampling shall be performed as soon as 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 TU_a for <i>Ceriodaphnia dubia</i> 48-hour and fathead minnow 96-hour test.						
Implementation	Limitations Imposed					
Effluent Dilution	0%(Control)	12.5%	25%	50%	75%	100%
Dilution Water	Heart River *					
Species and Test Type	<i>Ceriodaphnia dubia</i> - 48 Hour Acute - Static Renewal - 20°C					
	Fathead minnow - 96 Hour Acute - Static Renewal - 20°C					
Endpoint	Mortality LC ₅₀ reported as TU _a					
Compliance Point	End-of-pipe					
Sampling Frequency	1/Quarter					
Sample Type	Grab					
Maximum Daily Limit (MDL)	<1 TU _a					
Average Monthly Limit (AML)	<1 TU _a					
Test Failure	The 48-hour LC ₅₀ effluent value must be <1 TU _a to indicate a passing test. Any 48-hour LC ₅₀ effluent value >1 TU _a will constitute a failure. Tests in which the control survival is less than 90% are invalid and must be repeated.					
Reporting Requirements	The permittee shall report the following results of each toxicity test on the DMR for that reporting period: Report the highest TU _a for <i>Ceriodaphnia dubia</i> , Parameter No. TSM3B. Report the highest TU _a for <i>Pimephales promelas</i> , Parameter No. TSN6C.					
The use of alternate testing procedures or methods shall be approved in advance by the department (including, but not limited to the use of EDTA, CO ₂ overlay, chlorine removal from the effluent sample if the effluent is chlorinated, etc.).						
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>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.						

* When dangerous conditions exist for personnel (i.e., thin ice, melting ice, flooding, etc.) the permittee may utilize moderately hard reconstituted water upon request and approval by the department.

2. Chronic Toxicity Testing

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

Chronic WET Requirements						
Implementation	Monitoring Imposed					
Effluent Dilution	0%(Control)	6.25%	12.5%	25%	50%	100%
Dilution Water	Heart River *					
Testing Type	Chronic Toxicity					
Species and Test Type	<i>Ceriodaphnia dubia</i> 7 Day Chronic Static Renewal 25°C					
	<i>Pimephales promelas</i> 7 Day Chronic Static Renewal 25°C					
Endpoint	Survival and Reproduction – (<i>Ceriodaphnia dubia</i>) – IC25 reported as TU _c					
	Larval Growth and Survival (Fathead minnow) – IC25 reported as TU _c					
Compliance Point	Monitoring only					
Sample Frequency	1/Quarter					
Sample Type	Grab					
Test Acceptability	Test acceptability for <i>Ceriodaphnia dubia</i> chronic must have 80% or greater survival of all control organisms and an average of 15 or more young per surviving female in the control solutions and 60% of surviving control females must produce three broods. If this condition is not satisfied, the test must be repeated.					
	Test acceptability for <i>Pimephales promelas</i> chronic must have 80% or greater survival in controls and an average dry weight per surviving organism in control chambers equals or exceeds 0.25 mg. If this condition is not satisfied, the test must be repeated.					
Reporting Requirements	The permittee shall report the following results of each toxicity test on the DMR for that reporting period:					
	<p><i>Pimephales promelas</i> (Fathead Minnow) Report the highest TU_c for <i>Ceriodaphnia dubia</i>, Parameter No. TPP3B.</p> <p><i>Ceriodaphnia dubia</i> (Water Flea) Report the highest TU_c for <i>Pimephales promelas</i>, Parameter No. TTP6C.</p>					
<p>The use of alternate testing procedures or methods shall be approved in advance by the department (including, but not limited to the use of EDTA, CO₂ overlay, chlorine removal from the effluent sample if the effluent is chlorinated, etc.).</p> <p>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>Toxicity Reduction Evaluation (TRE)</u> shall be determined by the department. If no toxicity is found in the second test, testing shall</p>						

occur as outlined in the permit.

* When dangerous conditions exist for personnel (i.e. thin ice, melting ice, flooding, etc.) the permittee may utilize moderately hard reconstituted water upon request and approval by the department.

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 submit a request to 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 1. Acute Toxicity Testing and/or 2. Chronic Toxicity Testing.

This provision restarts 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 1. Acute Toxicity Testing and/or 2. Chronic Toxicity Testing shall be followed in whole.

b. Monthly Testing

If the results of 5. 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 1. Acute Toxicity Testing and/or 2. 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:

- a. Submit an alternative control program for compliance with the numerical requirements;
or
- b. 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.

DRAFT

II. MONITORING, RECORDING, AND REPORTING REQUIREMENTS BP 2021.09.09

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

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

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

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

B. Test Procedures

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

C. Recording of Results

Records of monitoring information shall include:

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

D. Additional Monitoring

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

E. Reporting of Monitoring Results

1. Monitoring results shall be summarized and reported to the department using Discharge Monitoring Reports (DMRs). If no discharge occurs during a reporting period, "No Discharge" shall be reported. The permittee must submit DMRs electronically using the electronic information reporting system unless requirements in subsection 3 are met.

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

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

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

F. Records Retention

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

III. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply

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

B. Proper Operation and Maintenance

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

C. Planned Changes

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

D. Duty to Provide Information

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

E. Signatory Requirements

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

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

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

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

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

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

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

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. Twenty-four Hour Notice of Noncompliance Reporting

1. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The following occurrences of noncompliance shall be included in the oral report to the department at 701.328.5210:
 - a. Any lagoon cell overflow or any unanticipated bypass which exceeds any effluent limitation in the permit under G. Bypass of Treatment Facilities;
 - b. Any upset which exceeds any effluent limitation in the permit under H. Upset Conditions;
or
 - c. Violation of any daily maximum effluent or instantaneous discharge limitation for any of the pollutants listed in the permit.
2. A written submission shall also be provided within five days of the time that the permittee became aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected;
and
 - d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

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

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

G. Bypass of Treatment Facilities

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

- a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- c. The permittee submitted notices as required under the 1. Anticipated Bypass subsection of this section.

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

H. Upset Conditions

An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of the following paragraph are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

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

1. An upset occurred and the permittee can identify its cause(s);
2. The permitted facility was, at the time being, properly operated;
3. The permittee submitted notice of the upset as required under F. Twenty-four Hour Notice of Noncompliance Reporting and
4. The permittee complied with any remedial measures required under I. Duty to Mitigate.

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

I. Duty to Mitigate

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

J. Removed Materials

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

K. Duty to Reapply

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

IV. GENERAL PROVISIONS

A. Inspection and Entry

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

B. Availability of Reports

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

C. Transfers

This permit is not transferable except upon filing a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee and subsequent department approval. The written agreement shall be filed with the department at least thirty days in advance of the proposed transfer date. The current permit holder must inform the new controller, operator, or owner of the existence of this permit and 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

Major 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;
6. 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. Sampling and Reporting Requirements

The permittee shall sample and analyze the effluent for the following pollutants:

40 CFR 122 Appendix D Table III				
Antimony, Total	Arsenic, Total	Beryllium, Total	Cadmium, Total	Chromium, Total
Copper, Total	Lead, Total	Mercury, Total	Nickel, Total	Selenium, Total
Silver, Total	Thallium, Total	Zinc, Total	Cyanide, Total	Phenols, Total
Hardness, Total a/				
Notes:				
a. A total hardness of the receiving stream needs to be determined every time the above parameters are tested. The hardness is used to calculate parameter criterion(s) according to the North Dakota State Water Quality Standards.				

The sampling shall commence within thirty (30) days of the effective date of this permit and continue at a frequency of once per year.

Sampling and analytical procedures shall be in accordance with guidelines established in 40 CFR Part 136. Where sampling methods are not specified the effluent samples collected shall be composite samples consisting of at least twelve (12) aliquots collected at approximately equal intervals over a representative 24 hour period and composited according to flow. Where a flow proportioned composite sample is not practical, the permittee shall collect at least three (3) grab samples, taken at equal intervals over a representative 24 hour period. Lagoon treatment systems may collect a single effluent grab sample.

The results of all analyses shall be attached to, and reported along with the Discharge Monitoring Report (DMR) submitted for the end of that reporting period.

G. Approval Authority Options

At such time as a specific pretreatment limitation 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 Pretreatment Standards;
2. 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.

H. 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 Environmental Quality 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.

VI. BENEFICIAL REUSE BP 2015.09.03

A. Irrigation

Only wastewater that has received secondary or tertiary treatment may be used for irrigation provided soil and water compatibility testing confirms the water is suitable for irrigation. Wastewater used for irrigation shall be applied at a rate which would allow complete infiltration and not result in ponding or runoff from the irrigated area.

Agricultural land may be irrigated provided the crop is not used for human consumption. Forage crops used for livestock consumption or pastures irrigated with wastewater shall not be harvested or grazed within 30 days of a wastewater application.

Public properties such as golf courses or parks may be irrigated provided the treated wastewater meets the following quality criteria.

Parameter	Discharge Limitations	Monitoring Frequency	
		Measurement Frequency	Sample Type
	Daily Max		
BOD ₅ (mg/L)	30.0	1 per 14 days	Grab
TSS (mg/L)	45.0	1 per 14 days	Grab
<i>E. Coli</i> (number/100 mL)	126	Weekly	Grab

Whenever possible, irrigation shall take place during hours when the public does not have access to the area being irrigated. If the public has constant access to an area, signs must be posted in visible areas during irrigation and for two hours after irrigation is completed. The signs must advise people that the water could pose a health concern and to avoid the irrigated area.

Worker and public contact with treated wastewater should be minimized. Where frequent contact is likely, a higher level of disinfection should be provided such as achieving *E. Coli* counts less than 14 colonies per 100 mL.

Avoid application within 100 feet of areas which have unlimited access (i.e., yards) or within 300 feet of potable water supply wells.

Runoff that occurs from irrigated areas shall be monitored at the frequencies and with the types of measurements described in Part I(C).

The permittee shall maintain monitoring records indicating, the location and usage (e.g., park or agricultural) of the land being irrigated, the dates irrigation occurred, the amount of wastewater used, and the total flow. In addition, monitoring records must include results from collected samples.

B. Construction

Treated domestic wastewater may be used for construction purposes such as soil compaction,

dust suppression and washing aggregate, provided the following conditions are met.

The wastewater intended for use in construction, must at a minimum, receive secondary treatment.

Prior to using treated wastewater a sample from the prospective source must be tested and meet the criteria set below. In addition the test results for *E. coli* must be provided to the department prior to use. Results from samples up to two (2) weeks old will be considered valid. The water quality limitations and minimum sampling frequencies recommended for wastewater used in construction are provided in the following table.

Parameter	Limitations (Maximum)	Measurement Frequency	Sample Type
BOD ₅ (mg/L)	30	Monthly	Grab
TSS (mg/L)	100	Monthly	Grab
<i>E. Coli</i> (number/100 mL)	126	Weekly	Grab

While the conventional methods for treating domestic wastewater are generally effective in reducing infectious agents (bacteria, viruses, parasites) to acceptable levels, direct reuse of treated wastewater can pose a health concern. Additional precautions to consider are:

1. Worker and public contact with treated wastewater should be minimized.
2. Where frequent worker contact is likely a higher level of disinfection should be provided, such as achieving *E. coli* counts less than 14/100 mL.
3. Work closely with the treatment system operator to ensure treated wastewater quality is suitable when it is drawn for construction purposes.
4. Apply the treated wastewater in a manner that does not result in runoff or ponding.

Runoff that occurs from application areas shall be monitored at the frequencies and with the types of measurements described in Part I(C).

The permittee shall maintain monitoring records indicating the location and usage of the land where application occurs, the dates application occurred, the amount of wastewater used, and the total flow. In addition, monitoring records must include results from collected samples.

C. Oil and Gas Production (including Hydraulic Fracturing)

The specific user of the wastewater may determine the specific treatment requirements for receiving wastewater.

The permittee shall maintain monitoring records indicating the specific user, the amount of wastewater used, and the total flow. In addition, monitoring records must include results from collected samples.

D. Other Uses as Approved

The permittee must consult with the department before beneficially reusing wastewater for purposes not identified in this permit.

**FACT SHEET FOR NDPDES PERMIT
ND0023175**

PERMIT REISSUANCE

**CITY OF DICKINSON
DICKINSON, ND**

DATE OF THE FACT SHEET – JULY 2024

INTRODUCTION

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

The following rules or regulations apply to NDPDES permits:

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

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

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

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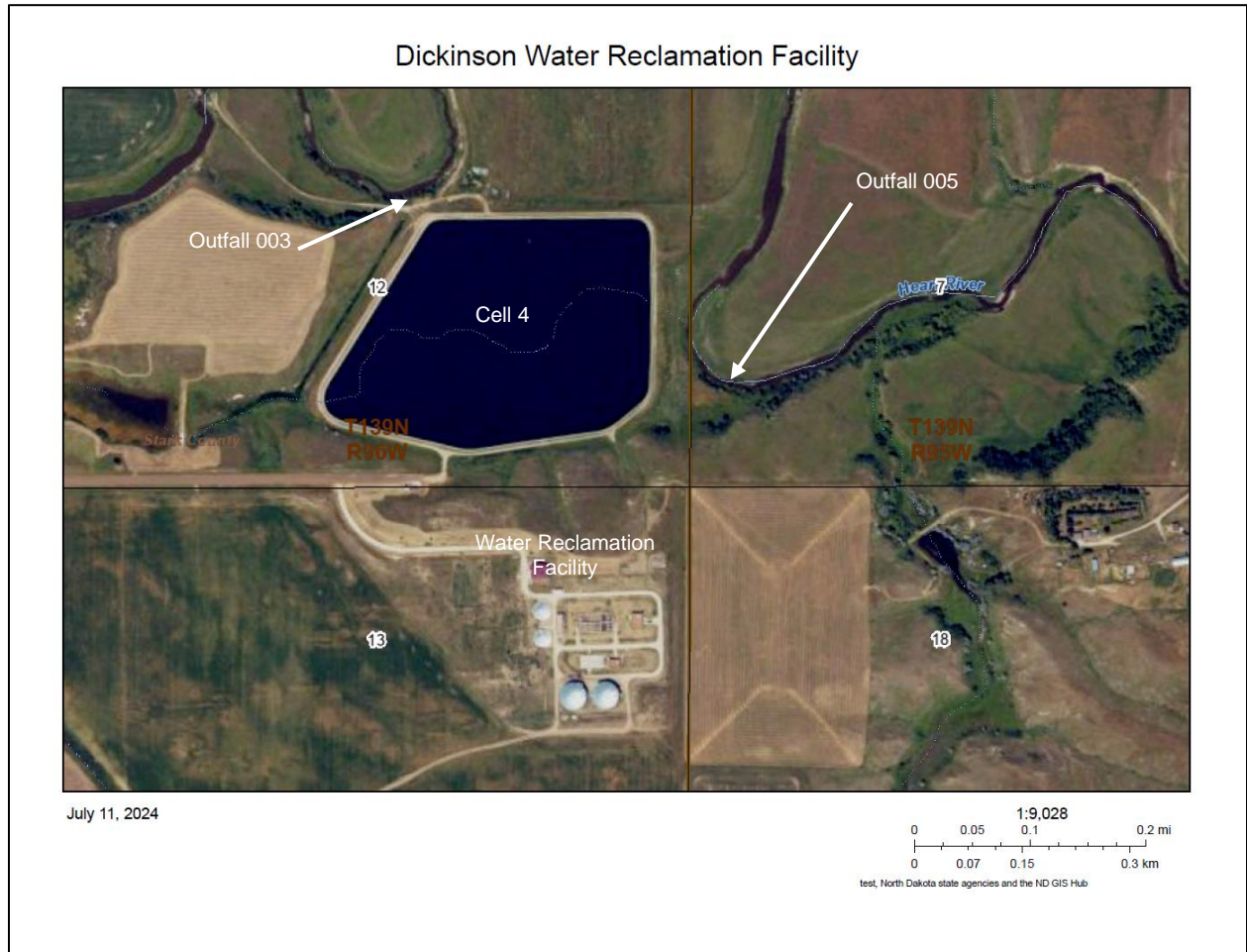
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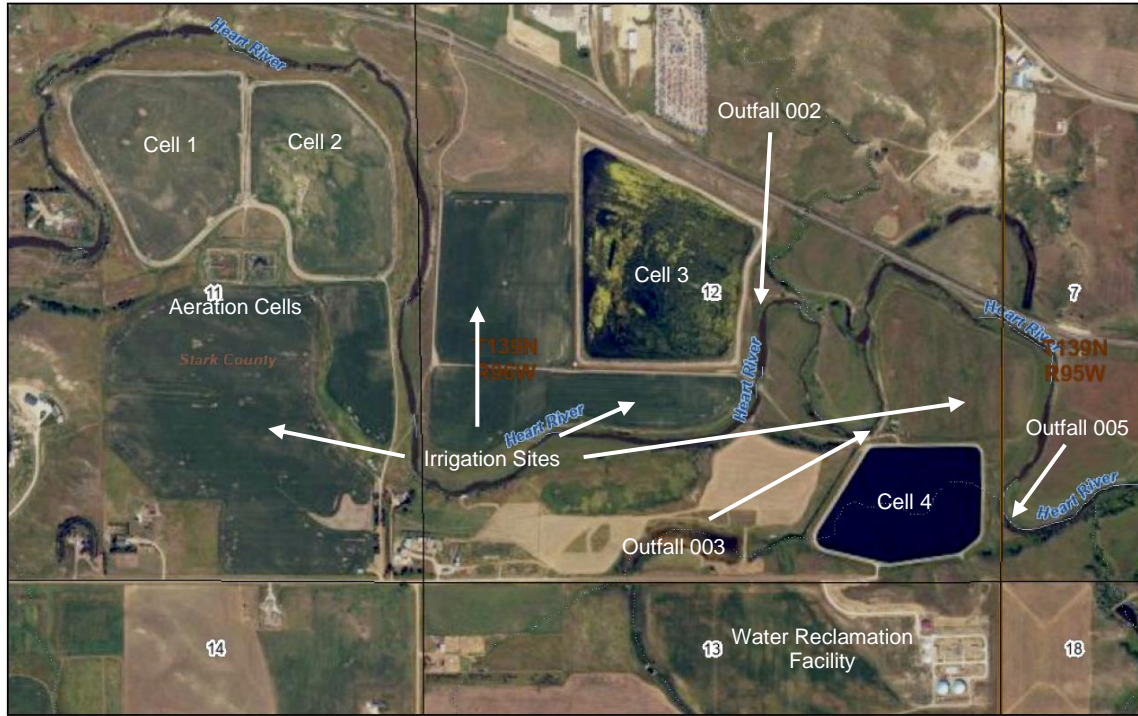
BACKGROUND INFORMATION**Table 1: General Facility Information**

Permittee:	City of Dickinson
Facility Name and Address:	Dickinson Water Reclamation Facility 10816 38 th Street Southwest Dickinson, ND 58601
Permit Number:	ND0023175
Permit Type:	Major Municipality - Renewal
Type of Treatment:	Advanced Mechanical Wastewater Treatment Plant
SIC Code:	4952 – Sewerage Systems
NAICS Code:	221320 – Sewage Treatment Facilities
Discharge Location:	005: Heart River, Class IA Stream Latitude: 46.8628 Longitude: -102.7256
Hydrologic Code:	10130202 – Upper Heart
Population:	25,130 – US Census Estimate as of 2023

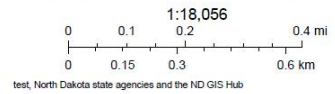
Figure 1 – Aerial Photograph of the City of Dickinson Water Reclamation Facility, Dickinson, ND
(North Dakota Geographic Information System, Map Generated July 2024)

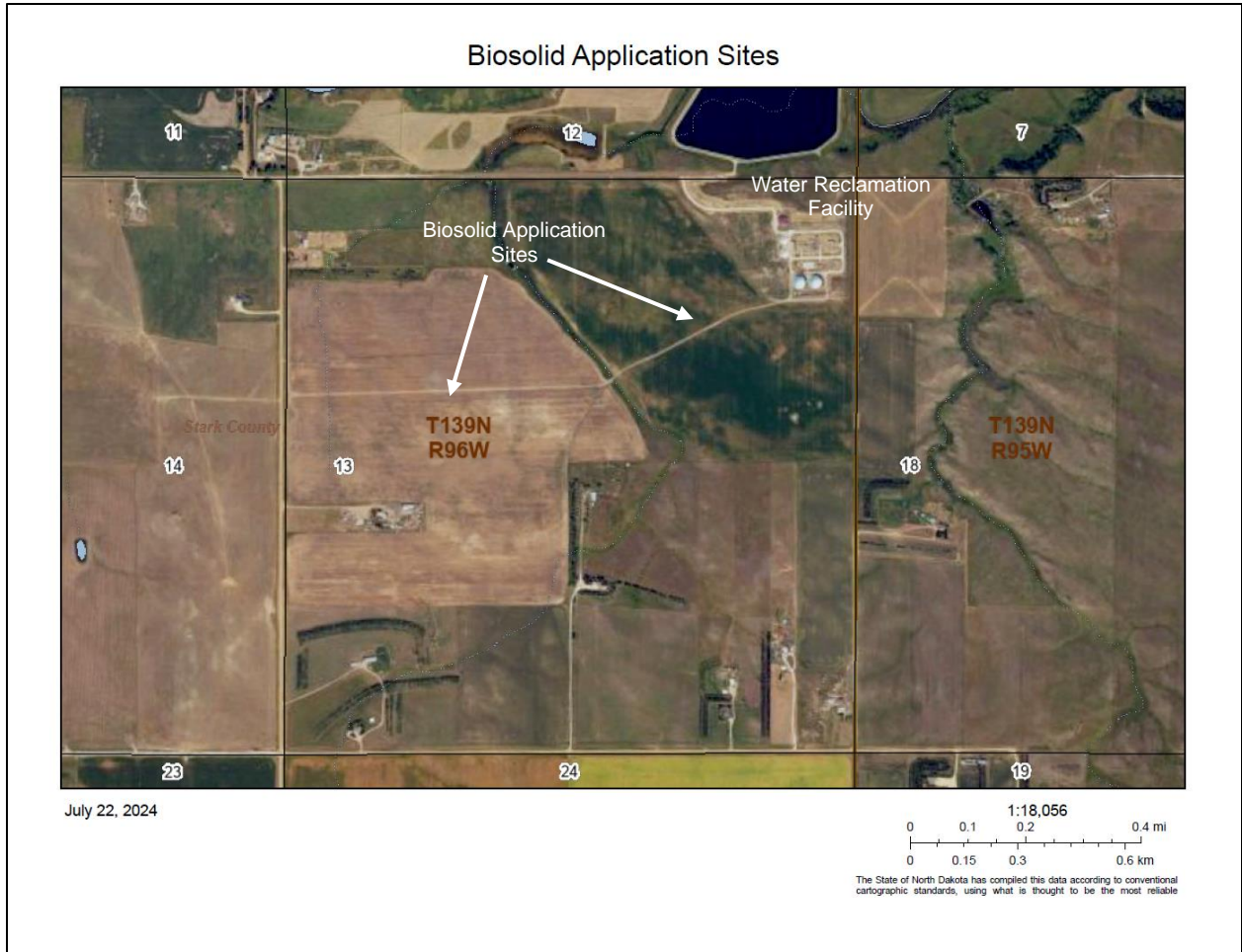


Dickinson Wastewater Lagoon Cells



July 11, 2024





FACILITY DESCRIPTION

The city of Dickinson Water Reclamation Facility (WRF) consists of an advanced mechanical treatment system to treat municipal waste. The WRF is located in the NE1/4 NE1/4, Section 13 and SE1/4 SE1/4 Section 12, Township 139N, Range 96W. Construction of the WRF was completed in 2014. Prior to construction of the WRF, the city treated sanitary waste with a four-cell waste stabilization pond treatment system that included two additional aeration cells. The treatment components of the former treatment system (aeration cells; Cells 1, 2, and 3) are located in Sections 11 and 12.

Wastewater that enters the WRF is treated using screening and grit removal, integrated fixed film activated sludge, biological treatment, clarification, and ultraviolet disinfection. Treated effluent can be discharged continuously to the Heart River (outfall 005) or sent to Cell 4 for industrial and irrigation uses. Treated effluent also can be sent to an inactive load-out station where it would be hauled away.

Outfall 005 consists of a diffuser located in the Heart River east of Cell 4. Outfall 005 has a design flow rate of 3.65 million gallons per day (MGD). Cell 4 is a 29.7-acre polishing cell that was part of the former treatment system. Discharges from Cell 4 were from outfall 003. No discharges are expected from outfall 003. The load-out station is located in the southwest part of the City of Dickinson.

The former aeration cells, and Cells 1, 2, and 3 have been decommissioned. Cells 1 and 2 were planted with a hay/clover mix in 2018 and are no longer used for wastewater treatment. Treated effluent from Cell 4 is used to control dust in Cell 3. Water passes through an open transfer valve between the cells and equalizes between the two cells. Water in Cell 3 evaporates and is not discharged. The aeration cells are no longer used and are expected to be reclaimed in the future.

The former treatment system had three outfalls that discharged treated effluent to the Heart River (outfalls 002, 003 and 004). Discharges from outfall 002 originated from Cell 3. Discharges from outfall 003 originated from Cell 4. Outfall 004 was a French drain tile system that collected seepage from Cell 4. Improvements were made to the French drain tile system in 2015 that allowed collected water to be discharged back into Cell 4. No discharge occurred from outfall 002 or 003 during the past permit cycle.

According to the NDPDES permit application, the city of Dickinson services a population of approximately 25,000 people. This includes treating septage from regional septic haulers. The WRF has the ability to expand in phases. Each expansion depends on population and industrial growth and needs. Phase I has a service population of 35,000 to 38,000 people. Subsequent phases have a design capacity to treat a service population of 57,000 people and ultimately 76,000 people. Phase II upgrades currently are in the initial planning stage.

Treated effluent is sent to the Marathon Dickinson Refinery located west of Dickinson through a reuse pipe. The South Hearth Golf Course is tapped into the reuse pipe and water is drawn for seasonal irrigation. Wastewater from the refinery is discharged back to the city's wastewater treatment plant through separate pipe. The average daily flow of wastewater from the refinery is 300,000 gpd. The refinery is a categorical industrial user and is subject to pretreatment requirements. The city does not have a pretreatment program therefore the refinery is permitted through the department's pretreatment program. Effluent information from the refinery is reported to the department through the pretreatment program.

The city of Dickinson continues to beneficially reuse treated effluent for irrigation. Historically, irrigation took place on privately- and city-owned agricultural land next to the wastewater treatment system which has ceased. The city plans to irrigate seven newly planted tree rows with treated effluent for the first couple of years through drip lines. Also as mentioned above, the South Heart Golf Course pulls water for seasonal irrigation.

Biosolids generated at the WRF are land applied to a field owned by the city located west of the WRF in the NE1/4 of Section 13, Township 139 North, Range 96 West. The generation process begins by sending sludge from the clarifiers through the waste activated sludge screen, then to the aerobic digesters. The thickened sludge is then sent to the biosolids holding tanks before land application. The city is exploring different management options for biosolids following obstacles to land application (land and equipment availability, wet soil conditions, equipment breakdown, etc.) including switching from the current thickening process to a press (liquid vs. solid management).

Discharge Outfalls

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a NDPDES permit is a violation of the 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 penalties as provided under the CWA.

There are three active final outfalls and one active internal outfall associated with the facility. The description of the active and inactive outfalls is provided below:

Outfall 002. Active. Final.			
Latitude: 46.8676	Longitude: -102.7352	County: Stark	
Township: 139N	Range: 96W	Section: 12	QQ: DBB
Receiving Stream: Heart River		Classification: Class IA	
Outfall Description: Effluent limitations for lagoon cell 3. Water is kept in the cell to suppress dust from the cell.			

Outfall 003. Active. Final.			
Latitude: 46.8653	Longitude: -102.7308	County: Stark	
Township: 139N	Range: 96W	Section: 12	QQ: DAC
Receiving Stream: Heart River		Classification: Class IA	
Outfall Description: Effluent limitations for lagoon cell 4. Water from the Water Reclamation Facility is sent to cell 4 for beneficial reuse storage. This point could also include effluent from lagoon cell 3.			

Outfall 005. Active. Final.			
Latitude: 46.8628	Longitude: -102.7257	County: Stark	
Township: 139N	Range: 95W	Section: 7	QQ: CCC
Receiving Stream: Heart River		Classification: Class IA	
Outfall Description: Treated effluent flows as a continuous discharge from the Water Reclamation Facility.			

Outfall 006. Active. Internal.			
Latitude: 46.8605	Longitude: -102.7291	County: Stark	
Township: 139N	Range: 96W	Section: 13	QQ: AA
Receiving Stream: Heart River		Classification: Class IA	
Outfall Description: This is an interior point that is a sampling site for influent entering the Water Reclamation Facility.			

Outfall 001. Not Active. Final.			
Latitude: 46.8688	Longitude: -102.7477	County: Stark	
Township: 139N	Range: 96W	Section: 11	QQ: ADD
Receiving Stream: Heart River		Classification: Class IA	
Outfall Description: Outfall 001 was removed from lagoon cell 2.			

Outfall 004. Not Active. Final.			
Latitude: 46.8633	Longitude: -102.7265	County: Stark	
Township: 139N	Range: 96W	Section: 12	QQ: DDD
Receiving Stream: Heart River		Classification: Class IA	
Outfall Description: Outfall 004 was a French Drain tile for lagoon cell 4. A new pump station was installed in 2014 to intercept and return flows from the French drain to cell 4.			

PREVIOUS PERMIT STATUS

The department issued the current permit for this facility on October 1, 2019. The permit will expire on September 30, 2024. The current permit has effluent monitoring requirements for:

- Temperature
- Stream flow
- Five-day biochemical oxygen demand (BOD₅)
- Total suspended solids (TSS)
- pH
- *E. coli*
- Ammonia as nitrogen
- Oil and grease
- Whole effluent toxicity (WET)
- Trace elements
- Nutrients
- Flow
- Volume drained

Influent monitoring for:

- BOD₅
- TSS
- pH
- Ammonia as nitrogen
- Trace elements
- Total chlorides

Instream monitoring for:

- pH
- Temperature

The department was in contact with the City of Dickinson to obtain information to reissue the permit. The department received EPA application Form 2A on July 12, 2024. The application was accepted by the department on July 23, 2024. Effluent sample data has been provided to the department through official laboratory reports, discharge monitoring reports, and the permit application Form 2A.

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED

The department's assessment of compliance is based on review of the facility's Discharge Monitoring Reports (DMRs) and inspections conducted by department staff. The department's Division of Water Quality and Division of Municipal Facilities conduct yearly inspections of the facility. Six inspections were conducted since July 2019.

Bypasses

The city reported a combined fifteen bypasses and overflows since July 2019. The bypasses and overflows were caused by infrastructure failures, blockages, hydrocarbon pass-through, equipment failures, and valve failures. Blockages (rags, grit, grease) occurred the most.

Past Discharge Data

The concentration of pollutants in the discharge was reported on discharge monitoring report forms. Effluent information for outfall 005 is characterized in Table 2. Influent information for outfall 006 is characterized in Table 3. The information spans the period from July 2019 to April 2024.

Table 2: Effluent Information for the City of Dickinson (July 2019-April 2024)

Parameter	Units	Range	Average	Permit Limit	Number of Excursions
<i>Effluent – Outfall 005</i>					
Temperature	°C	10.7 – 25	16.8	N/A	N/A
Stream Flow	cfs	1011 (max)	62	N/A	N/A
BOD ₅	mg/L	2 – 48.2	5.7	25 _{30-day avg} 45 _{7-day avg}	1 1
TSS	mg/L	2 – 42.3	6.9	30 _{30-day avg} 45 _{7-day avg}	0 0
pH	S.U.	6.42 – 8.12	NA	6.5 to 9.0	2
<i>E. coli</i>	#/100 mL	1 – 2420	22.1 (geometric mean)	126 _{30-day avg} 409 _{Daily max}	1 22
Nitrogen, Total	mg/L	3.3 – 53.7	13.5	N/A	N/A
Nitrogen, Total	lb/d	980 (max)	249	N/A	N/A
Ammonia as N	mg/L	0.2 – 51.9	1.4	Water Quality Standard	0 _{30-day avg} 7 _{Daily max}
Phosphorus, Total	mg/L	0.1 – 13	1.4	N/A	N/A
Phosphorus, Total	lb/d	267 (max)	24	N/A	N/A

Table 2: Effluent Information for the City of Dickinson (July 2019-April 2024)

Parameter	Units	Range	Average	Permit Limit	Number of Excursions
Oil & Grease - Visual		0	0	0 = No Visible Sheen 1 = Visible Sheen	0
Oil & Grease	mg/L	No Visible Sheen	No Visible Sheen	10 _{Daily max}	0
Flow	MGD	4.47 (max)	1.98	N/A	N/A
Drain	MG	4 – 84	56	N/A	N/A
Antimony ^a	ug/L	1 – 1.4	1.1	N/A	N/A
Arsenic ^{a,b}	ug/L	<2	<2	N/A	N/A
Beryllium ^{a,b}	ug/L	<0.5	<0.5	N/A	N/A
Cadmium ^{a,b}	ug/L	<0.1	<0.1	N/A	N/A
Chromium ^{a,b}	ug/L	<2	<2	N/A	N/A
Copper ^a	ug/L	<2 – 6.6	3.3	N/A	N/A
Cyanide	mg/L	<0.007 – 0.009	<0.007	N/A	N/A
Hardness of receiving stream	mg/L as CaCO ₃	307 – 757	490	N/A	N/A
Lead ^a	ug/L	<0.5 – 0.6	<0.5	N/A	N/A
Mercury ^{b,c}	ug/L	<0.2	<0.2	N/A	N/A
Nickel	ug/L	3 – 5.6	4.1	N/A	N/A
Phenols	mg/L	<0.01 – 0.024	0.013	N/A	N/A
Selenium ^{a,b}	ug/L	<5	<5	N/A	N/A
Silver ^{a,b}	ug/L	<0.5	<0.5	N/A	N/A
Thallium ^{a,b}	ug/L	<0.1	<0.1	N/A	N/A
Zinc ^a	ug/L	<50 – 70	<51	N/A	N/A
<i>Ceriodaphnia dubia</i> (acute WET)	TUa	<1	<1	<1	0
Fathead Minnow (acute WET)	TUa	<1	<1	<1	0
<i>Ceriodaphnia dubia</i> (chronic WET)	TUc	<1	<1	N/A	N/A

Table 2: Effluent Information for the City of Dickinson (July 2019-April 2024)

Parameter	Units	Range	Average	Permit Limit	Number of Excursions
Fathead Minnow (chronic WET)	TUc	<1	<1	N/A	N/A
Notes:					
The WRF removes 98 percent of the BOD ₅ and 97 percent of the TSS that enters the plant.					
a. All sample results were below the applicable water quality standard. A hardness concentration of 490 mg/L as CaCO ₃ was used for hardness dependent trace elements. The hardness concentration was derived from the average concentration reported on DMRs.					
b. All sample results were below detection levels.					
c. Results received from the laboratory were below the detection level but greater than the applicable water quality standard. An appropriate reasonable potential analysis cannot be conducted due to inadequate data					

Table 3: Influent Information for the City of Dickinson (July 2019-April 2024)

Parameter	Units	Range	Average
BOD ₅	mg/L	68 – 5010	260
TSS	mg/L	10 – 1950	244
pH	S.U.	7.05 – 8.59	N/A
Ammonia as N	mg/L	4.2 – 369	33.6
Chlorides	mg/L	24 – 365	120
Antimony	ug/L	1 – 2.8	1.5
Arsenic	ug/L	<2 – 2.9	2.1
Beryllium ^a	ug/L	<0.5	<0.5
Cadmium	ug/L	0.1 – 1.1	0.3
Chromium	ug/L	2 – 17.7	4.4
Copper	ug/L	22.3 – 182.5	50.0
Cyanide	mg/L	<0.007 – 0.017	<0.008
Lead	ug/L	0.9 – 52.4	5.8
Mercury ^a	ug/L	<0.2	<0.2

Table 3: Influent Information for the City of Dickinson (July 2019-April 2024)

Parameter	Units	Range	Average
Nickel	ug/L	5.1 – 18.1	8.3
Phenols	mg/L	0.033 – 0.143	0.068
Selenium ^a	ug/L	<5	<5
Silver	ug/L	<0.5 – 1	0.6
Thallium	ug/L	<0.1 – 0.6	0.3
Zinc	ug/L	60 – 710	162
Notes:			
a. All sample results were below detection levels.			

PROPOSED PERMIT LIMITATIONS

Effluent Limitations

The discharge of wastewater generated by the WRF is regulated by secondary treatment limitations as well as state rules. Secondary treatment limitations may be found in Title 40 of the Code of Federal Regulations, Part 133 (or 40 CFR 133) and in NDAC chapter 33.1-16-01-30. These regulations describe the minimum level of effluent quality attainable by secondary treatment of municipal wastewater in terms of BOD₅, TSS and pH. The regulations also include requirements to remove at least 85 percent of the BOD₅ and TSS found in the influent to the WRF or provide treatment equivalent to secondary treatment under certain circumstances. NDAC chapter 33.1-16-01-14 also establishes additional treatment standards for municipal wastes.

Limitations also may be generated using Best Professional Judgment (BPJ) in the absence of a federal standard to ensure reasonable control technologies are used to prevent potential harmful effects of the discharge. In addition, the department must consider and include limitations necessary to protect water quality standards applicable to the receiving waters.

Limitations based on numeric nutrient criteria are not being included in the proposed permit. Nutrient criteria have yet to be developed for the state of North Dakota. Currently, the water quality standards (WQS) contain a narrative standard stating that surface waters must be free from nutrients in concentrations or loadings that cause objectionable growth of vegetation, algae, or other impairments.

In the current permit, the lower pH effluent limitation was set at 6.5 standard units (S.U.). The limitation was based on EPA's DESCONE model which confirmed that if the effluent had a pH of 6.5 S.U., the pH water quality standard of 7.0 S.U. for a Class IA stream would be maintained at the end of a mixing zone. The pH water quality standard of 7.0 S.U. was based on the

Standards of Quality for Waters of the State in place at the time the 2019 permit took effect. In July 2021, the lower pH water quality standard for Class IA streams changed from 7.0 S.U. to 6.5 S.U. (NDAC chapter 33.1-16-02.1). Based on the change to the water quality standards, the department will maintain a lower pH water quality-based effluent limitation at 6.5 S.U. in the proposed permit. As such, a mixing zone is not being established for pH and EPA's DESCONE model is not being used in the development of the proposed permit.

In the current permit, the ammonia effluent limitation was based on the acute and chronic ammonia water quality standards in place at the time the permit was issued. Since the issuance of the current permit, the ammonia water quality standards changed. As a result, the department updated the acute and chronic ammonia effluent limitations based on the current water quality standards.

The proposed permit includes a mass balance equation for as part of the ammonia effluent limitation. The mass balance equation is meant to calculate the maximum daily ammonia effluent limitation based on an allowable mixing zone. If no flow is present in the Heart River, a 1B3 critical low flow (or the lowest 1-day average flow that occurs on average once every 3 years) of 0 cfs shall be used to represent upstream flow in the calculation. Additionally, if an upstream ammonia concentration is not available or collected, then an ambient value of 0.46 mg/L can be used to represent the upstream Heart River ammonia parameter. This value is based on 90th percentile of ammonia data collected at North Dakota Department of Environmental Quality surface water quality data station 380865 – Patterson Lake – Deepest 1 Mile West of Dickinson ND, with a 95% confidence level.

Discharges from outfalls 002 and 003 discontinued with completion of the construction of the WRF in 2014. The city is not authorized to discharge from outfalls 002 and 003 under the proposed permit. In the event that water needs to be discharged from the holding ponds or outfalls 002 and 003, such as for decommissioning the holding ponds, coverage will need to be obtained under one of the general permits for discharges from waste stabilization ponds (NDG12-, 22-, or 320000). The department will specify the appropriate general permit at that time.

The limitations included in the proposed permit for the WRF are found in Tables 4 and 5.

Table 4: Comparison of Effluent Limits of Outfall 005

Effluent Parameter	30-Day Average	7-Day Average	Daily Maximum	Basis ^a
BOD ₅ ^b	25 mg/L	45 mg/L	N/A	NDAC 33.1-16-01-14(3)(c)(1); 40 CFR 133.102(a)(2)
BOD ₅ (Removal Efficiency)	Shall not be less than 85%	N/A	N/A	40 CFR 133.102(a)(3)
TSS ^c	30 mg/L	45 mg/L	N/A	40 CFR 133.102(b)
TSS (Removal Efficiency)	Shall not be less than 85%	N/A	N/A	40 CFR 133.102(b)(3)
pH ^d	Between 6.5 and 9.0 s.u.			40 CFR 133.102(c); WQS

Table 4: Comparison of Effluent Limits of Outfall 005

Effluent Parameter	30-Day Average	7-Day Average	Daily Maximum	Basis ^a
Oil & Grease – Visual ^e	N/A	N/A	N/A	WQS
Oil & Grease ^e	N/A	N/A	10 mg/L	BPJ
Temperature	N/A	N/A	*	WQS
<i>Escherichia coli</i> (<i>E. coli</i>) ^f	126/100 mL	N/A	409/100 mL	WQS
Ammonia as N _{g,h}	Refer to the Ammonia Table (Table 5)			WQS
Whole Effluent Toxicity (WET), TUa	<1.0			40 CFR 122.44(d)(1)(iv), (v); WQS
The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water. The discharge must be free from materials that produce a color, odor or other condition to such a degree as to create a nuisance.				Previous Permit
All effluent parameters shall be sampled at a point leaving outfall 005 but prior to leaving plant property or entering waters of the state.				Previous Permit
Notes:				
<p>a. The basis of the effluent limitations is given below: “BPJ” refers to best professional judgment.</p> <p>“Previous Permit” refers to limitations in the previous permit. The NPDES regulations 40 CFR Part 122.44(1)(1) Reissued permits require that when a permit is renewed or reissued, interim limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit unless the circumstances on which the previous permit was issued have materially and substantially changed since the previous permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR Part 122.62.</p> <p>“WQS” refers to effluent limitations based on North Dakota’s “Standards of Quality for Waters of the State,” NDAC Chapter 33.1-16-02.1.</p>				
b. The limits for BOD ₅ are based on 40 CFR 133.102(a)(2) “Secondary Treatment Standards,” and NDAC Chapter 33.1-16-01-14(3)(c)(1).				
c. The limits for TSS are based on 40 CFR 133.102(b), “Secondary Treatment Standards.”				
d. The limits for pH are based on the WQS for a class IA stream.				
e. There shall be no floating oil or visible sheen present in the discharge. If floating oil or a visible sheen is detected in the discharge, the department shall be contacted and a grab sample				

Table 4: Comparison of Effluent Limits of Outfall 005

Effluent Parameter	30-Day Average	7-Day Average	Daily Maximum	Basis ^a
analyzed to ensure compliance with the concentration limitation. Any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of the permit.				
f. The limit for <i>E. coli</i> shall apply only during the recreational season, April 1 to October 31. Monitoring for <i>E. coli</i> shall be in effect only during the recreational season. Averages for <i>E. coli</i> shall be determined as a geometric mean.				
g. A discharge ammonia criterion will be dependent on river flow, discharge rate, river pH and temperature, and the effluent concentration. This determination shall be in accordance with the formula specified in the latest revision of the state water quality standards.				
h. Permittee will use Heart River parameters to calculate the real-time water quality standard for ammonia. This calculated limit will be compared to facility effluent data on ammonia, and if the effluent value is greater than the calculated limit, the permittee will report an exceedance.				
*. The thermal mixing zone shall not present a thermal shock or stressor, affect spawning, or block the migration of aquatic organisms.				
N/A Not Applicable				

Table 5: Ammonia Effluent Limitations – Outfall 005**Average Monthly Limitation (AML)**

The 30-day average concentration of total ammonia (expressed as N in mg/L) does not exceed the numerical value given by the following formula:

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

Receiving stream pH and temperature in degrees Celsius are used for the calculation.

Maximum Daily Limitation (MDL)

The concentration of total ammonia (expressed as N in mg/L) does not exceed the numerical value given by the following formula:

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

Receiving stream pH and temperature in degrees Celsius are used for the calculation.

For the MDL calculation, permittee receives fifty percent of the stream flow for dilution at the time of discharge based on the flow of the Heart River. If upstream flow is not present, then the 1B3 critical low flow of 0 cfs shall be used. MDL concentration will be calculated on a mass balance basis using the following formula. The permittee is responsible for units matching in the equation.

MDL Ammonia Effluent Limitation = $(Q_u * C_u + Q_e * C_e) / (Q_u + Q_e)$ where

Q_u = 50% of the Heart River flow parameter (if no upstream flow is present, then the 1B3 critical low flow of 0 cfs shall be used)

C_u = Heart River ammonia parameter (if an upstream ammonia concentration is not available or collected, then an ambient concentration of 0.46 mg/L shall be used)

Q_e = Effluent flow parameter

C_e = Ammonia as N parameter in the effluent

Notes:

Calculation of the AML must be performed for the calendar month. If an exceedance is detected for the calendar month, the exceedance must be reported on the DMR.

Calculation of the MDL must be performed for each discharge sample. If an exceedance is detected on any single sample, the exceedance must be reported on the DMR.

SELF-MONITORING REQUIREMENTS**Influent/Effluent Monitoring**

All effluent parameters will be sampled prior to entering waters of the state.

Table 6: Self-Monitoring Requirements, Outfall 006

Influent Parameter	Frequency	Sample Type ^a
BOD ₅	1/week	Composite
TSS	1/week	Composite
pH	1/week	Instantaneous
Ammonia as N	1/week	Composite
Chlorides, Total	1/week	Composite
Trace Elements (40 CFR 122 Appendix D, Table III)	1/quarter	Composite
Notes:		
a. Refer to Appendix B for definitions.		

Table 7: Self-Monitoring Requirements, Outfall 005

Effluent Parameter	Frequency	Sample Type ^a
Temperature	1/day ^b	Grab
Stream flow	1/day ^b	Usable data source
BOD ₅	3/week	Composite
BOD ₅ (Removal Efficiency)	1/month	Calculated
TSS	3/week	Composite
TSS (Removal Efficiency)	1/month	Calculated
pH	1/day ^b	Instantaneous
<i>E. coli</i>	3/week	Grab
Nitrogen, Total ^c	1/month	Composite
Ammonia as N	3/week	Composite
Phosphorus, Total	1/month	Composite
Oil & Grease – Visual	1/day ^b	Visual
Oil & Grease	Conditional	Grab
Flow	1/day	Instantaneous
Total Drain	1/month	Calculated
Whole Effluent Toxicity	1/quarter	Grab
Trace Elements (40 CFR 122 Appendix D, Table III)	1/quarter	Composite
Notes:		
a. Refer to Appendix B for definitions.		
b. Sampling once per day applies during normal daily operations when the facility is staffed. Typically, a work week runs Monday through Friday.		
c. Total nitrogen is a combination of nitrate, nitrite, and Total Kjeldahl Nitrogen (TKN).		

Ambient Monitoring

The proposed permit includes ambient monitoring for pH and temperature in the Heart River. The monitoring frequency for pH and temperature was changed from once per month to three times per week and requires samples to be collected the same day as the ammonia sample.

The monitoring frequencies are consistent with similar facilities with a continuous discharge and similar ammonia effluent limitations.

Table 8: Ambient Monitoring

Instream Parameter	Frequency	Sample Type ^a
pH ^b	3/week	Instantaneous
Temperature ^b	3/week	Instantaneous
Notes:		
a.	Refer to Appendix B for definitions.	
b.	Sample must be collected/recorded the same day as the ammonia sample for Outfall 005.	

Secondary Treatment Effluent Limits

Federal and state regulations define secondary treatment limitations for municipal wastewater treatment facilities. These effluent limitations are given in 40 CFR 133 and in NDAC Chapter 33.1-16-01-30. These regulations describe the minimum level of effluent quality attainable by secondary treatment of municipal wastewater in terms of BOD₅, TSS and pH. NDAC Chapter 33.1-16-01-30 incorporates by reference 40 CFR 133 which list the following technology-based limits for BOD₅, TSS, and pH:

Table 9: Secondary Treatment Limits

Parameter	30 Day Average	7 Day Average
BOD ₅	25 mg/l	45 mg/l
TSS	30 mg/l	45 mg/l
pH	Remain between 6.0 to 9.0	--
Percent Removal	85% BOD ₅ and TSS	--

SURFACE WATER QUALITY-BASED EFFLUENT LIMITS

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

The Heart River is listed as a class IA stream in the Standards of Quality for Waters of the State. Class IA streams must be suitable for resident fish and other aquatic life, as well as recreation use. The quality of water in class IA streams also must be suitable for irrigation, stock watering and wildlife. The quality must be able to meet the bacteriological, physical, and chemical requirements for municipal or domestic use.

The segment of the Heart River that receives discharges from the facility is listed as impaired in the 2020-2022 North Dakota Section 303(d) List of Waters Needing Total Maximum Daily Loads (303(d) List). Biological stressors are indicated as the impairment; however no specific stressor has been identified. Lake Tschida, downstream, also is included on the 303(d) list. It is listed as impaired for nutrients. TMDLs for the Heart River and Lake Tschida are not scheduled for completion prior to the expiration date of the proposed permit. Nutrient monitoring requirements will be maintained in the proposed permit to aid in any TMDL development for Lake Tschida.

Numerical Criteria for the Protection of Aquatic Life and Recreation

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

Numerical Criteria for the Protection of Human Health

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

Narrative Criteria

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

pH

Discharges to class IA streams shall have an instantaneous limitation between 6.5 (s.u.) and 9.0 (s.u.).

Oil & Grease

The WQS state that waters of the state must be free from oil or grease attributable to wastewater which causes a visible sheen or film upon the water. Using BPJ, the department has determined that a daily maximum limitation of 10 mg/L is appropriate for this type of facility if a visible sheen is detected. Other treatment systems in the state have similar limitations.

Temperature

The department will maintain the narrative thermal mixing zone effluent standard in the proposed permit. Temperatures within a thermal mixing zone may exceed the numeric criteria of the WQS; however, temperatures may not exceed the acute standards. In addition, the thermal mixing zone must meet the WQS found in NDAC 33.1-16-02.1-08. The thermal mixing zone cannot present a thermal shock or stressor, affect spawning, or block the migration of aquatic organisms. Aquatic species use and other beneficial uses must be maintained within the thermal mixing zone.

The department reviewed the basis for the thermal mixing zone found in the 2019 fact sheet and determined there has been no substantial changes to the WRF or Heart River that affect the determination. The following summary from the 2019 renewal fact sheet provides the basis for the determination:

"The current permit contains language that states the temperature cannot be above 29.44 degrees Celsius (°C). The effluent limitation was based on the state WQS for temperature. The department reviewed the temperature of the effluent from the WRF as well as the available upstream Heart River temperature measured by the permittee as required by the current permit. During the warmer months of the year (June through September) the temperature of the Heart River increases to around 28 °C; typically peaking in late July/early August. The temperature of the river also varies considerably from week to week, ranging from 15 °C to 30 °C. The corresponding temperature of the WRF effluent during these months increases at the same time but does not rise much above 24 °C. The highest temperature of the effluent, at 24.5 °C, is nearly the same as the 90th-percentile of the measured temperature of the Heart River during the summer months.

The monthly temperature of the effluent from the WRF does not vary appreciably from year-to-year and is not expected to change. The temperature of the effluent does not approach and will not cause

the Heart River to exceed the maximum temperature of WQS of 29.44 °C. Based on this, the department proposes to remove the maximum effluent temperature limitation from the proposed permit. The department has determined that although the Heart River itself can exceed the maximum temperature WQS, effluent from the WRF does not have the potential to cause the exceedance since the effluent would be at a cooler temperature. The department has also determined that any heat generated in the process of wastewater treatment is de minimis and thus proposes to discontinue the limit for temperature of 29.44 °C.

The current permit also contains language that states the temperature of the discharge cannot be more than 2.78 °C above the receiving stream. The effluent limitation in the current permit was based on the state WQS for temperature and the point of compliance has been at the end-of-pipe. As part of the permit renewal, the department proposes to allow a thermal mixing zone in the Heart River and remove the 2.78 °C temperature change limitation from the proposed permit.

As part of the determination, the department developed different effluent and receiving stream dynamics to determine what the resulting mixing temperature would be based on different discharge and receiving water flows and the temperature difference between the effluent and receiving water during colder months. At current effluent flows, the change in temperature of the effluent/river mix was generally below 2.78 °C. Changes in temperature greater than 2.78 °C generally occurred when there were low flows in the receiving water (approximately 10 cubic feet per second [cfs]) and the difference in temperature between the effluent and river was more than 10 °C.

The department also evaluated changes to the thermal mixing zone temperature based on thermal energy of the effluent and receiving stream. A constant effluent flow of 1.5 mgd was used in the evaluation. The department used the measured temperatures of the effluent and corresponding measured temperature of the river in the evaluation. The evaluation showed that temperature changes above 2.78 °C decreased as the receiving stream flow increased. In the early fall and late spring months it took less of an increase in river flow (approximately 9 cfs) to see a temperature change beyond 2.78 °C. During the months from late fall to early spring, more flow in the river was needed to not have a temperature change beyond 2.78 °C. When the flow of the river was set to 14 cfs, the temperature change did not increase above 2.78 °C.

The department continued its evaluation of the thermal mixing zone by calculating the thermal effects of the presence of ice on the effluent and receiving stream. The department reviewed information available for freezing and thawing degree days to estimate the amount of ice generated during the colder months. A freezing degree day is determined by calculating the difference in temperature below the freezing temperature for the average temperature during the day. A thawing degree day is determined the same way but for temperatures above the freezing temperature. The department obtained freezing and thawing degree day information measured at Theodore Roosevelt Regional Airport in Dickinson. The information collected extends back to 2016. As part of the evaluation, the department also had to estimate the size of the thermal mixing zone. The width of the receiving stream is approximately 7 meters which allows for a mixing zone length of approximately 70 meters. The department estimated the mixing zone area would be about 490 square meters.

The department predicted ice thickness within the thermal mixing zone using the methods found in the study "Ice Thickness Prediction: A Comparison of Various Practical Approaches" (Comfort and Abdelnour, 2013). The department calculated the mass of the ice generated per year and the amount of thermal energy needed to melt the ice. Based on the calculations, the thermal energy of the effluent stream was less than the thermal energy of the ice predicted in the thermal mixing zone. The results predict that the thermal energy within the effluent stream would melt ice near the outfall but would not be able to melt all of the ice in the mixing zone during the colder months of the year. As such, the ice in the mixing zone would work to lower the temperature of the receiving stream towards 0 °C as the water leaves the mixing zone. This would indicate that the temperature of the effluent stream would not affect the temperature of the receiving stream beyond the thermal mixing zone. The

results also predict that the temperature of the effluent stream would have to be approximately 20 °C to have enough thermal energy to not allow for the formation of ice in the mixing zone.

Based on this evaluation, the department has determined that it is not necessary to continue the 2.78 °C temperature variation limit in the proposed permit and instead will require a narrative thermal mixing zone effluent standard. The department has determined that removing the 2.78 °C temperature variation limit will not result in backsliding since the thermal mixing zone is still protective of aquatic species and beneficial uses.

E. coli

Based on the WQS, the department has determined that an *E. coli* limitation of 126 organisms per 100 mL as a monthly geometric mean and 409 organisms per 100 mL as a daily maximum is appropriate for this type of facility. The standard only applies during the recreation season from May 1 through September 30. The limitation in the permit is meant to cover the period one month before and one month after the recreation season (April 1 through October 30).

Ammonia as Nitrogen

Discharges from Outfall 005 have the reasonable potential to exceed the acute and chronic WQS for ammonia. The reasonable potential analysis (Appendix C) was conducted using the procedures given in “Technical Support Document (TSD) For Water Quality based Toxics Control”; EPA/505/2-90-001; March 1991.

Numeric ammonia as nitrogen effluent limitations limit will not be established in the proposed permit. Instead, effluent limitations will be calculated based on the acute (*Oncorhynchus* absent) and chronic water quality standards to provide real-time effluent limitations. Receiving stream parameters (pH and temperature) will be tested three times per week. Both the acute and chronic WQS are variable and dependent on pH levels and temperature of the receiving water. As temperatures rise or pH levels increase, ammonia toxicity increases. In 2021, the acute and chronic WQS changed. As such, the acute and chronic WQS used in the 2019 permit are no longer valid. The “*Oncorhynchus* absent” acute water quality standard is applicable to discharges from the facility due to the absence of the *Oncorhynchus* genus of fish in the receiving water.

Total Arsenic

A total arsenic RP analysis was conducted as part of the development of the 2019 permit. The results of the 2019 analysis showed a reasonable potential to exceed the human health criteria for total arsenic. The 2019 analysis showed there was not a reasonable potential to exceed the aquatic life criteria. The department determined there was insufficient data at the time to require an effluent limitation and required the permittee to continue monitoring for total arsenic in the 2019 permit.

Quarterly total arsenic samples were collected from outfall 005 as part of the 2019 permit. The results of all samples were below the method/report detection limit of 2 micrograms/liter (ug/L).

An RP analysis was conducted based on the human health criteria for total arsenic. The human health criteria for class IA streams is 10 ug/L (based on the Safe Drinking Water Act). The RP analysis showed the potential to exceed the total arsenic standard for human health.

Although the RP analysis still showed the potential to exceed the human health criteria, effluent data has shown there has been only one sample collected in the first quarter of 2016 that was above the method/report detection limit of 2 ug/L. All other samples collected beginning in November 2014 with the operation of the WRF through October 2023 had results at the method/report detection limit of 2 ug/L. The department determined total arsenic is unlikely to exceed the water quality standard based on sample results and will not require an effluent limitation in the proposed permit. The permittee will continue monitoring for total arsenic in the proposed permit to create a larger data set.

Total Cyanide

The department reviewed data to determine whether a WQBEL was necessary for total cyanide for outfall 005. Fifteen data sets were available for outfall 005. Thirteen of the data sets were below the method detection limit of 7 micrograms/liter (ug/L), with one data set of 8 ug/L and one data set of 9 ug/L.

An RP analysis was conducted based on the aquatic life criteria for total cyanide. The acute and chronic aquatic life criteria are 22 and 5.2 ug/L, respectively. The RP analysis showed the potential to exceed the chronic criterion but not the acute criterion.

An RP analysis also was conducted based on the human health criteria for total cyanide. The human health criteria for class IA streams is 4 ug/L. The RP analysis showed the potential to exceed the total arsenic standard for human health.

Although the RP analysis showed the potential to exceed the chronic aquatic life and human health criteria, the department determined there was inadequate data at this time to establish an effluent limitation. Effluent sample results from December 2014 through March 2018 had a method/report detection limit of 5 ug/L which is below the chronic aquatic life criterion of 5.2 ug/L but above the human health criterion of 4 ug/L. Beginning April 2018 to September 2023, effluent sample results had a method/report detection limit of 7 ug/L which is above both the chronic aquatic life and human health criteria of 5.2 and 4 ug/L, respectively. The permittee will continue to monitor for total cyanide in the proposed permit.

Whole Effluent Toxicity (WET)

The permittee must conduct *Ceriodaphnia dubia* (Water Flea) and *Pimephales promelas* (Fathead Minnow) WET tests. Acute toxicity testing shall occur once each calendar quarter. Acute test failure (LC₅₀) is defined as lethality of 50 percent or more of each test organism at any effluent concentration. Chronic toxicity testing shall be performed once each calendar quarter for monitoring purposes. If an acute toxicity test failure occurs, an additional test must be initiated within fourteen days of the initial toxicity findings. If the additional test fails, the department will determine whether a Toxicity Reduction Evaluation (TRE) is necessary.

The department is proposing to continue with TUa of less than 1 (<1) in order to meet the requirements of NDAC 33.1-16-02.1-08(a)(4), which states that "[a]ll 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 accordance with NDAC 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.”

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 has not identified any chemicals in the applicant’s discharges for regulation based on the human health criteria. The department will re-evaluate this discharge for impacts to human health at the next permit reissuance.

MONITORING REQUIREMENTS

The department requires monitoring, recording, and reporting (NDAC Chapter 33.1-16-01-(21 through 23) and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit’s limits.

Discharge Monitoring Report (DMR) Requirements

The proposed permit requires the permittee to monitor discharges and submit discharge monitoring reports (DMRs) to the department. DMRs summarize monitoring results obtained during specified monitoring periods. If no discharge occurs during a monitoring period, “no discharge” must be reported.

The proposed permit includes specified intervals for submitting monthly, quarterly, and yearly DMRs (Table 10). DMRs must be submitted electronically to the department in accordance with 40 CFR 127 unless otherwise waived and in compliance with 40 CFR 3. The requirement to submit the ‘A’ reports monthly, ‘W’ reports quarterly, and ‘Q’ reports yearly is similar to other major Publicly Owned Treatment Works.

Table 10: DMR Submittal Requirements

Outfall	Report Designator	Report Type	Report Interval
005	A	Conventional and Non-Conventional Pollutants, Flow and Volume Information	1/month
005	W	Whole Effluent Toxicity Results	1/quarter
005	Q	Trace Elements	1/year
006	A	Conventional and Non-Conventional Pollutants, Flow and Volume Information	1/month
006	Q	Trace Elements	1/year

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.

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 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

Mercury Pollutant Minimization Plan

The current permit requires the permittee to implement a Mercury Pollutant Minimization Plan (MMP). The MMP is a best management practice (40 CFR 122.44(k)(4)) intended to minimize the amount of mercury that enters the WRF, consequently minimizing the amount of mercury that discharges from the WRF. The MMP is meant to control sources of mercury in the collection system as an alternative to analyzing mercury samples at Outfall 005 using EPA Method 1631, Revision E to a sufficiently sensitive report/detection level below the mercury water quality standard. The acute and chronic aquatic life water quality standards for mercury are 1.7 and 0.012 micrograms/liter, respectively. The human health water quality standard for a Class IA stream is 0.050 micrograms/liter.

Outfalls 002 and 003

The proposed permit states that there shall be no discharge from outfall 002 or 003.

DMR QA Study

The permittee participates in the Discharge Monitoring Report – Quality Assurance (DMR-QA) Study as a requirement outlined in Section 308 of the CWA. Language was added to the proposed permit reiterating the permittees requirement to participate in and discontinue the DMR-QA Study.

Standard Permit Conditions

The proposed permit contains applicable permit conditions found in 40 CFR 122.41 and 122.42.

INDUSTRIAL WASTE MANAGEMENT

The proposed permit contains general pretreatment language and requirements. The general requirements include protection from any source of non-domestic wastewater which causes Pass Through or Interference; creates a fire or explosion hazard; causes corrosive structural damage; causes obstruction; interferes with the treatment process; includes excessive heat; contains petroleum oil and other products which causes Interference or Pass Through; results in the presence of toxic gases, vapors or fumes in the facility; and is any trucked or hauled pollutant except at designated discharge points.

In addition to the general limitations and requirements, the facility must sample and analyze the influent from outfall 006 and effluent from outfall 005 for those parameters listed in 40 CFR 122, Appendix D, Table III (see Table 11, below). Samples must be collected quarterly from outfalls 005 and 006. Sample analysis must be conducted with a method/report detection level less than the applicable water quality standard where reasonable.

Table 11: Parameters from 40 CFR 122, Appendix D, Table III

Antimony, Total	Lead, Total	Zinc, Total
Arsenic, Total	Mercury, Total	Cyanide, Total
Beryllium, Total	Nickel, Total	Phenols, Total
Cadmium, Total	Selenium, Total	Hardness as CaCO ₃
Chromium, Total	Silver, Total	
Copper, Total	Thallium, Total	

BENEFICIAL REUSE

The proposed permit will continue to contain conditions for the beneficial reuse of wastewater for irrigation, construction, and oil and gas production. Wastewater that has met secondary or tertiary treatment standards may be beneficially reused in lieu of discharging.

Irrigation

Treated effluent may be used for irrigation provided it has gone through secondary or tertiary treatment and is suitable for irrigation. The effluent must be applied in a manner that allows complete infiltration and does not result in ponding or a discharge to waters of the state. Crop used for human consumption cannot be irrigated. Forage crops and pastureland may be irrigated but cannot be harvested or grazed for thirty days following application of treated effluent.

Treated effluent may be used to irrigate public properties if it meets the treatment levels in Table 12. Irrigation must be done during times when the public does not have access to the irrigated area to minimize human contact. Signs must be posted if the public has constant access to the area to keep the public aware. A higher level of disinfection is recommended when frequent contact is likely. Irrigation should be avoided within 100 feet of areas that have unlimited access, such as a private residence to minimize human contact. Irrigation also should be avoided within 300 feet of drinking water wells to minimize impact to the water source.

Irrigation water must be tested in accordance with Table 12 at a minimum; the results of more frequent testing may be used. Runoff from irrigated areas must be tested the same as a direct discharge.

Table 12: Irrigation Reuse Criteria

Parameter	Units	Secondary Treatment Level (Daily Maximum)	Monitoring Frequency	Sample Type	Basis
BOD ₅	mg/L	30	1 per 14 days	Grab	BPJ
TSS	mg/L	45	1 per 14 days	Grab	BPJ
<i>E. Coli</i>	#/100 mL	126	1/Week	Grab	BPJ

Construction

Treated effluent that has gone through secondary treatment may be used for construction purposes (e.g., soil compaction, dust suppression, aggregate washing). Treated effluent must be tested and meet the treatment levels in Table 13. The department considers sample results up to two weeks old to be valid. Runoff from construction areas must be tested the same as a direct discharge.

Table 13: Construction Reuse Criteria

Parameter	Units	Secondary Treatment Level (Daily Maximum)	Monitoring Frequency	Sample Type	Basis
BOD ₅	mg/L	30	1/Month	Grab	BPJ
TSS	mg/L	100	1/Month	Grab	BPJ
<i>E. Coli</i>	#/100 mL	126	1/Week	Grab	BPJ

While conventional methods for treating domestic wastewater are generally effective in reducing infectious agents (bacteria, viruses, parasites) to acceptable levels, direct reuse of treated wastewater can pose a health concern. Additional precautions include:

- Minimize worker and public contact with treated wastewater.
- Provide a higher level of disinfection where frequent worker contact is likely such as achieving *E. coli* counts less than 14/100 mL.
- Ensure treated wastewater quality is suitable for construction purposes.
- Apply treated wastewater in a manner that does not result in runoff or ponding.

The current permit discusses chlorinating water used for construction purposes when frequent worker or public contact occurs and maintaining a chlorine residual of at least 0.1 mg/L. Since the facility uses UV for disinfection, the discussion was removed from the proposed permit.

Oil and Gas Production (including Hydraulic Fracturing)

The specific user of wastewater used for oil and gas production is expected to determine the specific treatment requirements before receiving the wastewater.

Other Uses as Approved

The permittee must consult with the department before beneficially reusing wastewater for purposes not identified in the permit.

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 years.

APPENDIX A – PUBLIC INVOLVEMENT INFORMATION

The department proposes to reissue a permit for the **City of Dickinson**. 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 **August 7, 2024** in the **Dickinson Press** to inform the public and to invite comment on the proposed draft North Dakota Pollutant Discharge Elimination System permit and fact sheet. The facility will be provided a copy of the public notice and draft permit at the beginning of the public comment period.

The Notice –

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

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

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

The primary author of this permit and fact sheet is Dallas Grossman.

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

Public Notice Date: 8/7/2024

Public Notice Number: ND-2024-018

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: 7/12/2024

Application Number: ND0023175

Applicant Name: Dickinson City Of

Mailing Address: 3411 Public Works Blvd, Dickinson, ND 58601

Telephone Number: 701.456.7979

Proposed Permit Expiration Date: 9/30/2029

Facility Description

The reapplication is for the Dickinson Water Reclamation Facility which serves the City of Dickinson. The facility is located in NE1/4 NE1/4 Section 13 and SE1/4 SE1/4 Section 12, Township 139 North, Range 96 West. Any discharge would be through Outfall 005 to the Heart River, a Class IA stream.

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 September 05, 2024 will be considered prior to finalizing the permit. If there is significant interest, a public hearing will be scheduled. Otherwise, the Department will issue the final permit within sixty (60) days of this notice.

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

APPENDIX B – GLOSSARY

DEFINITIONS Standard Permit BP 2019.05.29

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

12. **“Grab”** for monitoring requirements, means a single "dip and take" sample collected at a representative point in the discharge stream.
13. **“Instantaneous”** for monitoring requirements, means a single reading, observation, or measurement. If more than one sample is taken during any calendar day, each result obtained shall be considered.
14. **“Maximum daily discharge limitation”** means the highest allowable “daily discharge.”
15. **“Salmonid”** means of, belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish.
16. **“Sanitary Sewer Overflows (SSO)”** means untreated or partially treated sewage overflows from a sanitary sewer collection system.
17. **“Severe property damage”** means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
18. **“Total drain”** means the total volume of effluent discharged.
19. **“Upset”** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

DEFINITIONS Whole Effluent Toxicity (WET) BP 2017.04.06

1. **“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., $100/“LC50”$).
2. **“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., $100/“IC25”$).
3. **“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).
4. **“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.

5. **“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

The North Dakota Department of Environmental Quality reviewed the NDPDES permit application, DMR information, applicable water quality standards for class IA streams, and available stream data to determine the appropriate requirements to be placed in the permit. In addition, the department reviewed Total Maximum Daily Load information for the Heart River and Lake Tschida and the department's 2020-2022 North Dakota Section 303(d) List of Waters Needing Total Maximum Daily Loads (303(d) List).

DFLOW

The department used daily flow data Edward Arthur Patterson Lake to determine critical low flows using the DFLOW (3.1b) program. The data was obtained from the U.S. Bureau of Reclamation and covered the period from water year 1984 through water year 2023.

DFLOW 1B3 (ACUTE)	0.00	CFS	DFLOW 1Q10 (ACUTE)	0.00	CFS
DFLOW 4B3 (CHRONIC)	0.00	CFS	DFLOW 7Q10 (CHRONIC)	0.00	CFS
DFLOW 30B10 (AMMONIA)	0.00	CFS			

Reasonable Potential (RP) Analysis

The RP determination for ammonia is provided below. The determination was conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991). The critical low flow data above was used during the determination.

An ammonia concentration of 0.462 mg/L was chosen to represent the ambient ammonia concentration for the RP analysis. Ambient ammonia concentrations were obtained from the North Dakota Department of Environmental Quality surface water quality data station 380865 – Patterson Lake – Deepest 1 Mile West of Dickinson ND. The ambient concentration of 0.462 mg/L represents the 90th-percentile of available data. The 90th-percentile is slightly lower than the higher-end confidence value of 0.477 mg/L based on a 95% confidence level.

The acute and chronic ammonia water quality standards used in the RP analysis were calculated based on the 2021 revision to the North Dakota Standards of Quality for Waters of the State (NDAC Chapter 33.1-16-02.1). The "*Oncorhynchus* absent" acute water quality standard was used in the analysis due to the absence of the *Oncorhynchus* genus of fish in the receiving water. The water quality standards are pH and temperature dependent. As pH or temperature increases, the standard becomes more restrictive (or decreases). Figures 1 through 4 show how ammonia concentrations can change when pH or temperature change.

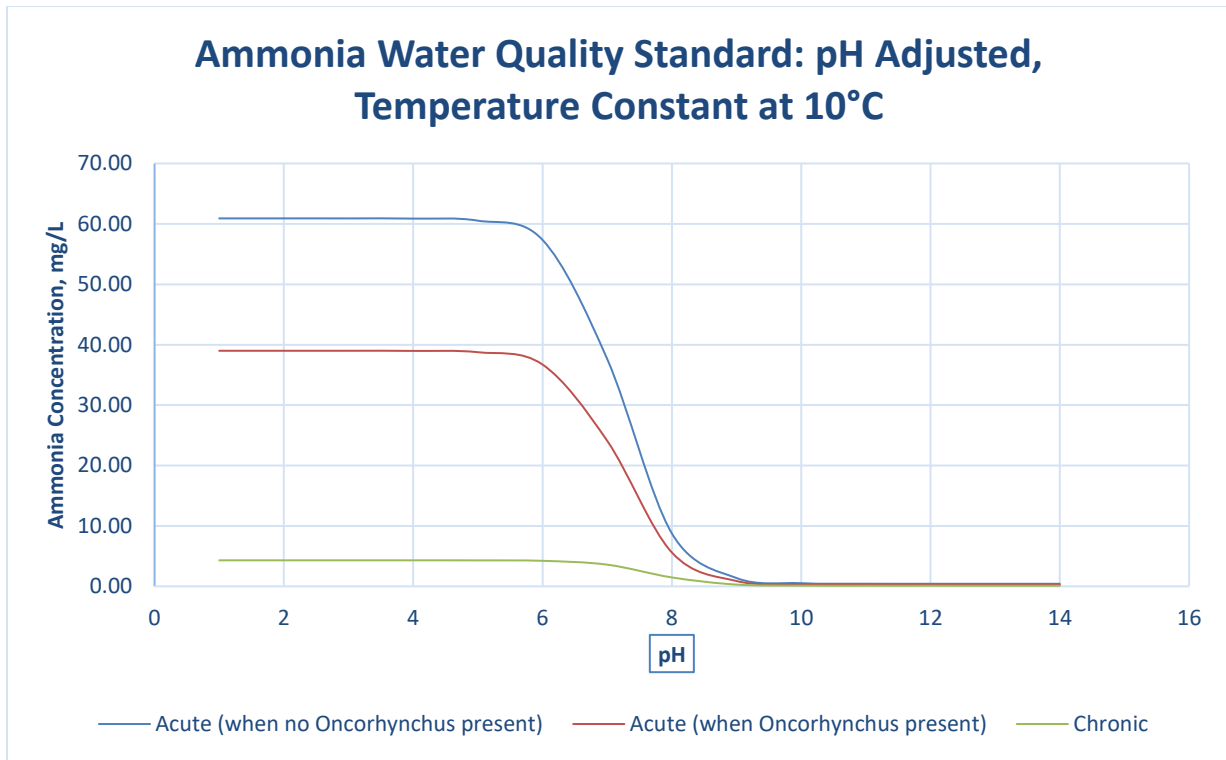


Figure 1

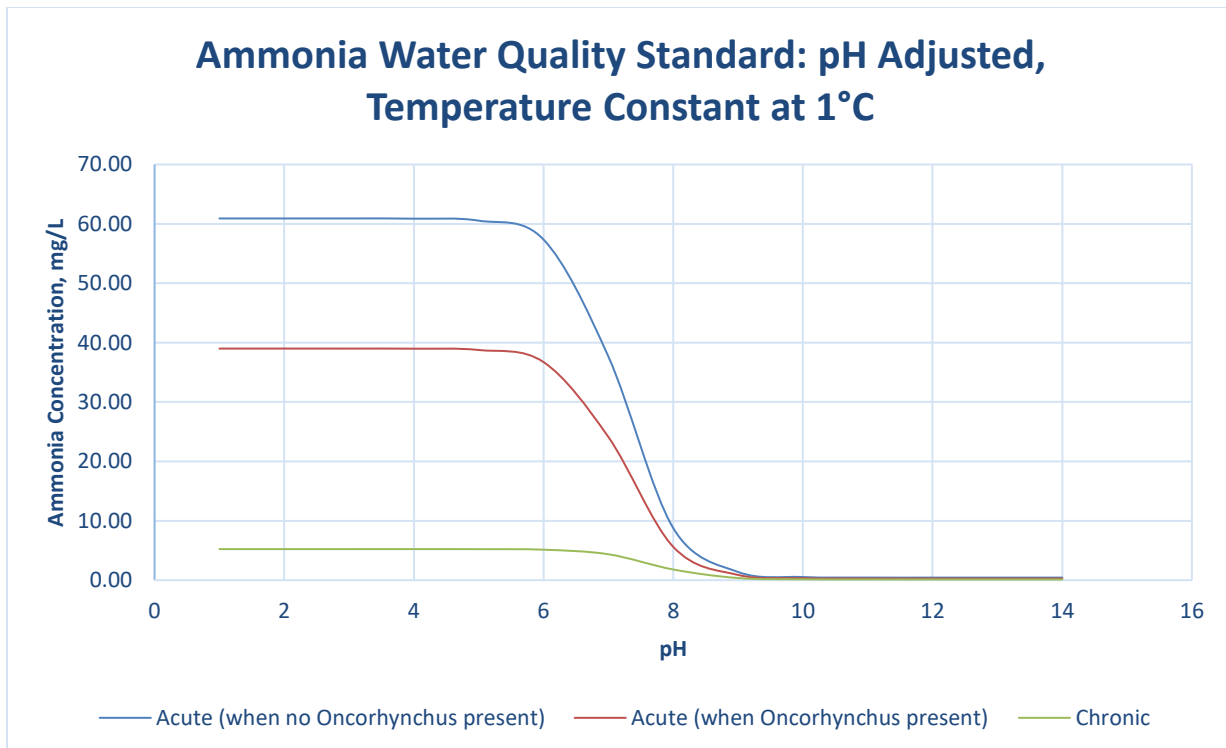


Figure 2

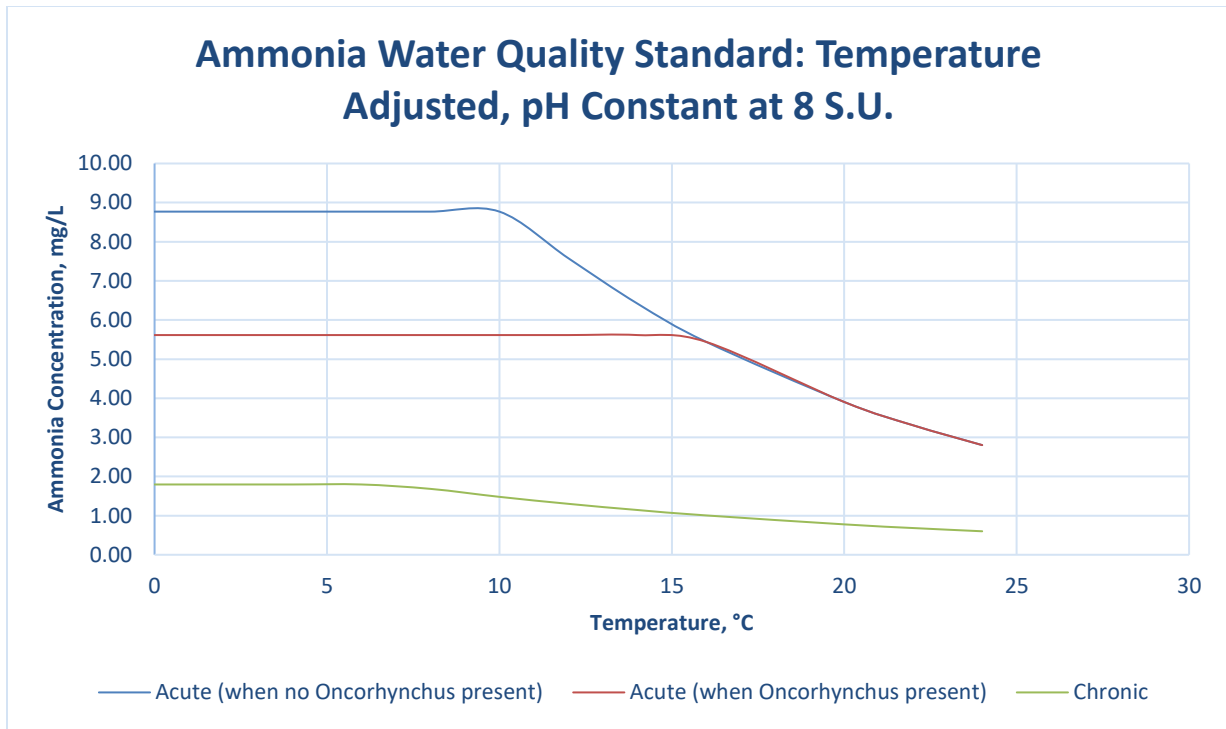


Figure 3

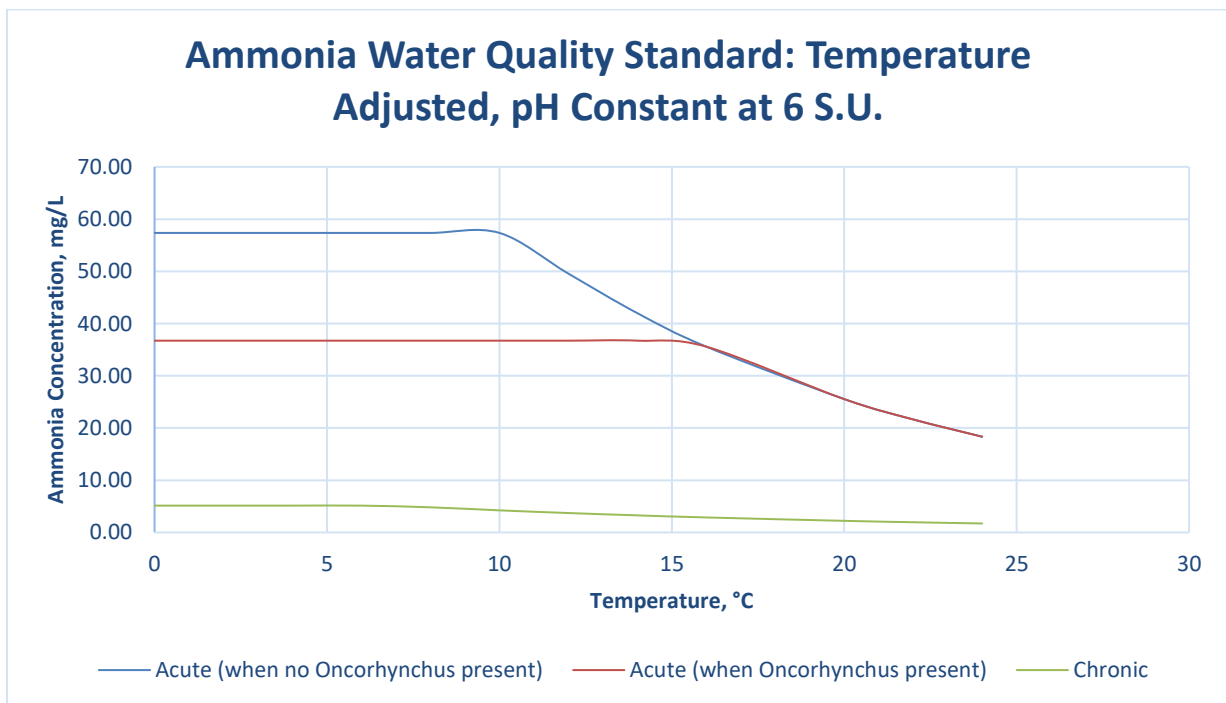


Figure 4

Ambient pH data used to calculate representative acute and chronic water quality concentrations for use in the RP analysis was obtained from North Dakota Department of Environmental Quality surface water quality data station 380865 – Patterson Lake – Deepest 1 Mile West of Dickinson ND. The data was broken into three timeframes – January through December, May through September, October through April – representing the entire year, warmer months, and colder months, respectively. Temperature is not monitored in the area of the discharge. The department reviewed temperature data from North Dakota Department of Environmental Quality surface water quality data station 380024 – Heart River – Mandan On Hwy 6 Bridge to establish the warmer and colder months of the year. Generally, the temperature of the Heart River during the warmer months ranged from 10°C to 27°C. The temperature of the Heart River during the colder months ranged from 0°C to 10°C.

The ambient data for pH had a normal distribution within each timeframe with means ranging from 8.14 to 8.41 standard units (S.U.) and upper and lower 95% confidence intervals ranging from of 8.0 to 8.3 S.U. and 8.3 to 8.6 S.U., respectively. Based on the data, a pH value of 8.3 and temperature of 25°C were selected to determine the acute and chronic water quality standards. For acute, because the water quality standards become more restrictive as pH and temperature increase, these values represent a reasonable likelihood of encountering the water quality standards in the receiving stream. The resulting “*Oncorhynchus* absent” acute and chronic water quality standards are 1.45 mg/L and 0.35 mg/L, respectively.

The results of the RP analysis are provided in Figure 5. The data set for the RP analysis included 171 data points with a log normal distribution. The coefficient of variation (CV) was calculated as 2.69. The statistical multiplier based on the 99th percentile occurrence probability was 6.8 (Table 3-1 of the TSD 99% Confidence Level and 99% Probability Analysis).

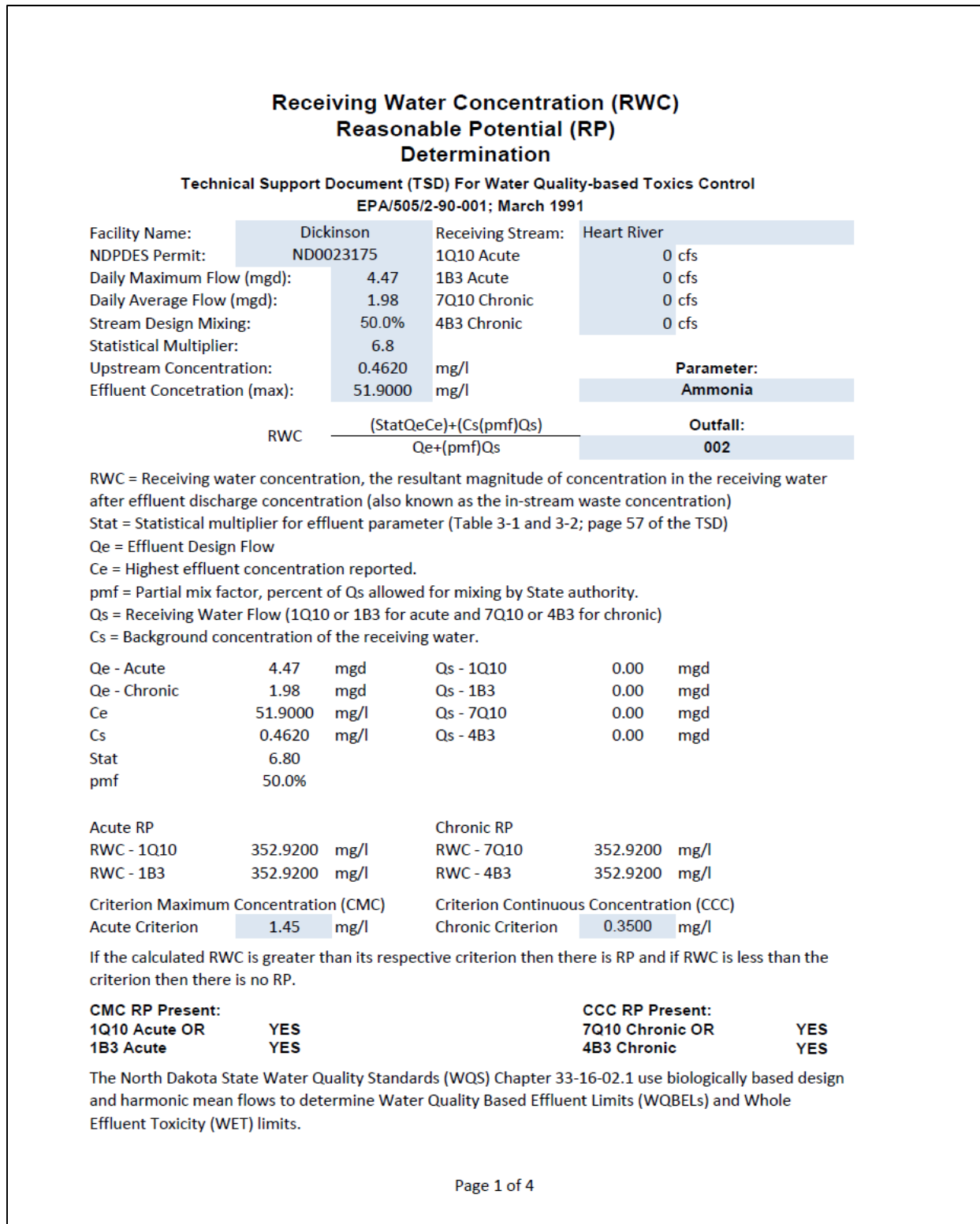


Figure 5

Total Arsenic

The RP determinations for total arsenic are provided below. The determinations were conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991). The results of the RP analyses are provided in Figures 6 and 7.

The data set for the RP analysis included all data sets from the WRF effluent and data from North Dakota Department of Environmental Quality surface water quality data station 380865 – Patterson Lake – Deepest 1 Mile West of Dickinson ND. A coefficient of variation of 2.1 was calculated based on the WRF effluent data set. The statistical multiplier based on the 99% Confidence Level and 95% Probability Basis was 2.0. The upstream concentration used in the RP analysis was 0.0094 mg/L based on the 90th percentile of upstream data. The maximum effluent concentration used in the RP analysis was 0.0392 mg/L. Based on the RP analysis, the department found reasonable potential for arsenic to be above the human health water quality standard criterion. Additionally, the department found there to be no reasonable potential for arsenic to be above the aquatic life water quality standard criterion.

Human Health Criteria

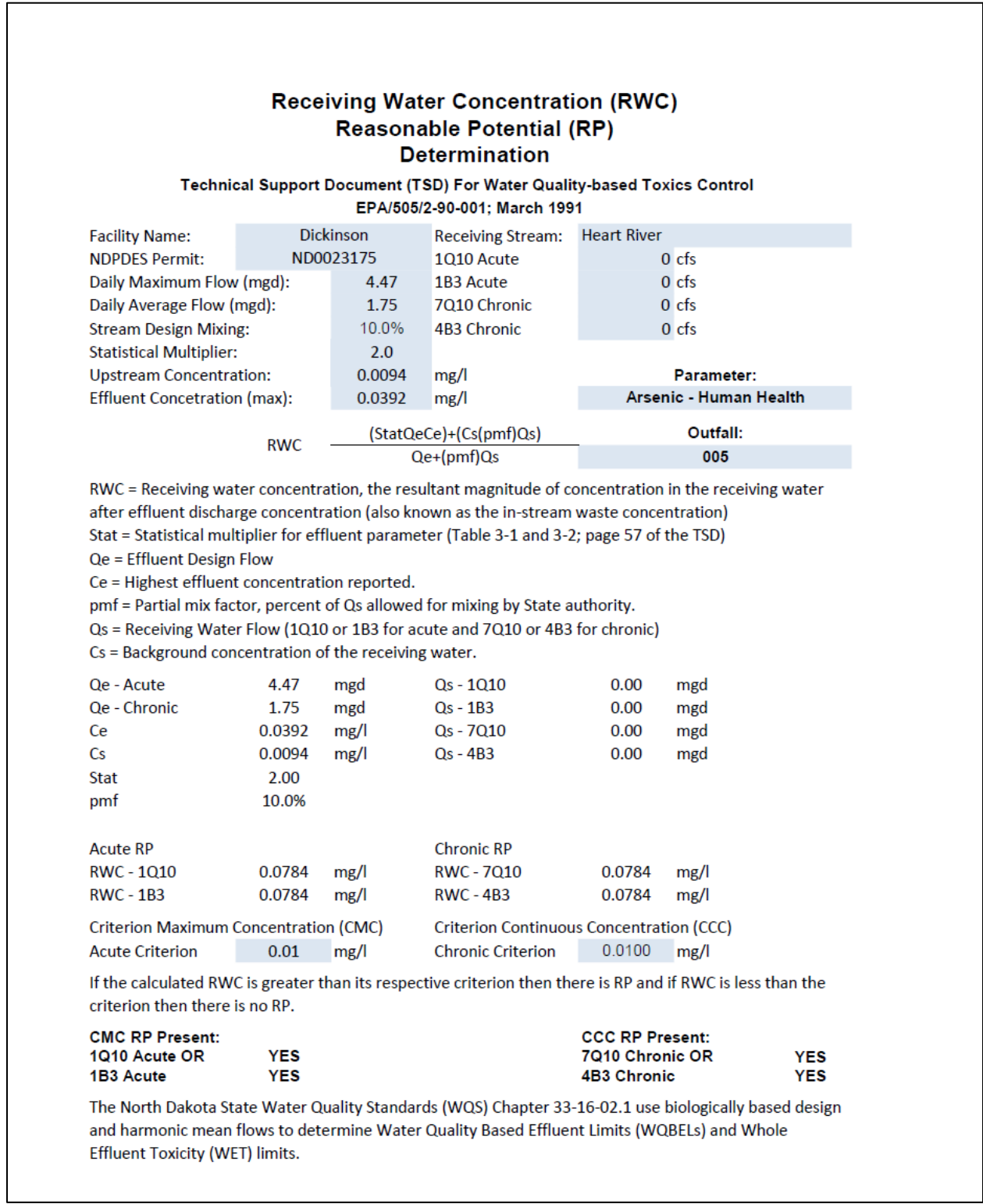


Figure 6

Aquatic Life Criteria

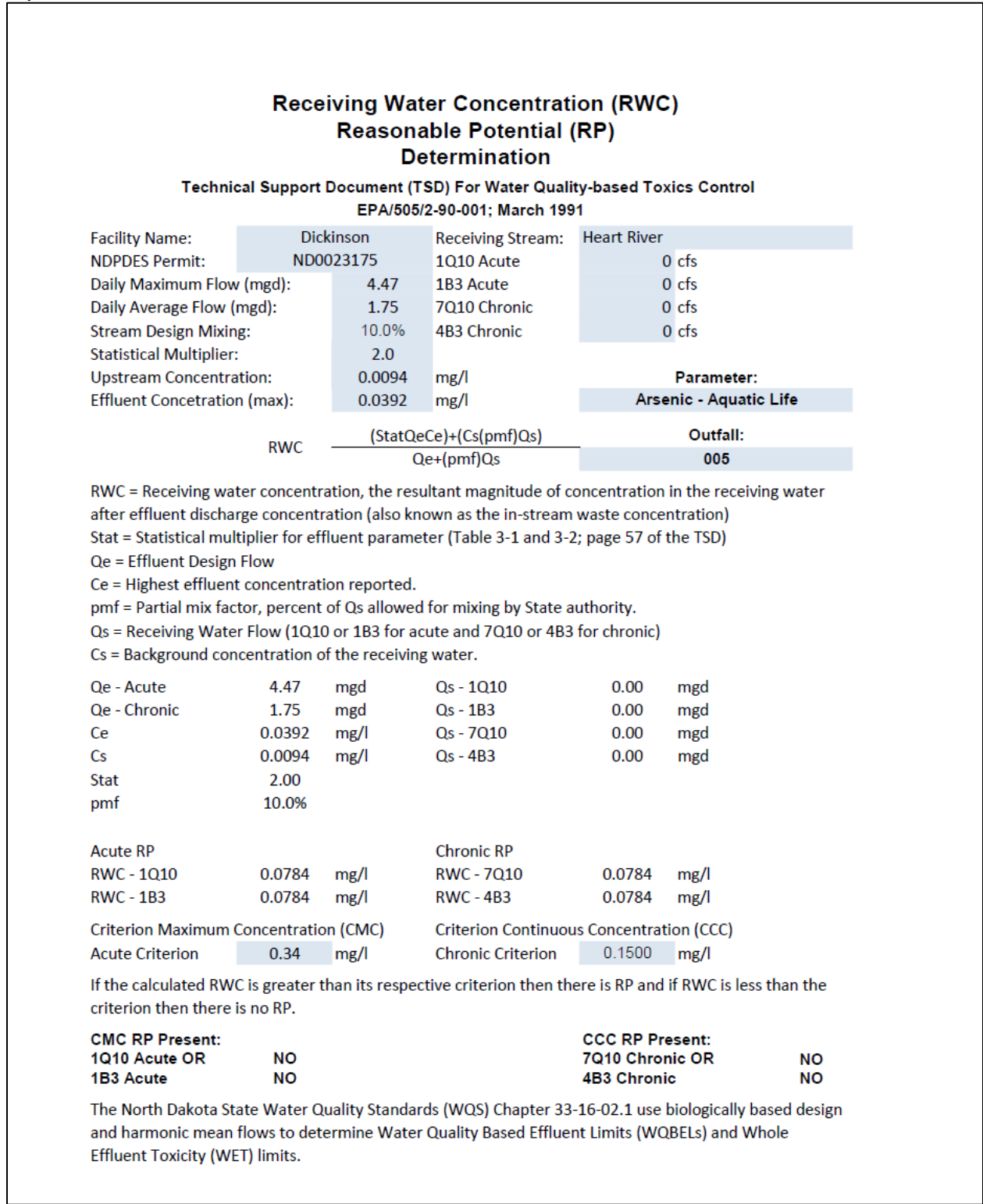


Figure 7

Total Cyanide

The RP determination for total cyanide in Outfall 005 is provided below. The determination was conducted utilizing the Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991).

The data set for the RP analysis included fifteen data sets of the effluent and data from North Dakota Department of Environmental Quality surface water quality data station 380865 – Patterson Lake – Deepest 1 Mile West of Dickinson ND. A coefficient of variation of 0.1 was calculated based on the effluent data set. The statistical multiplier based on the 99% Confidence Level and 95% Probability Basis was 1.1. The upstream concentration used in the RP analysis was 0 mg/L since no cyanide results were reported at surface water quality data station 380865. The maximum effluent concentration used in the RP analysis was 0.009 mg/L. Based on the RP analysis, the department found there to be no reasonable potential for total cyanide to be above the acute aquatic life standard.

A reliable RP analysis could not be conducted to determine the reasonable potential for total cyanide to be above the chronic aquatic life and human health water quality standard criteria. This is because there is no instream data for cyanide (i.e., no monitoring was conducted). Additionally, the detection/report limit for samples collected since April 2018 was below detection/report limit but above the chronic aquatic life and human health water quality standards. This creates a condition where mathematically determining a potential to exceed the water quality standard by mixing the effluent and receiving stream always results in an exceedance of the water quality standard.

Human Health Criteria

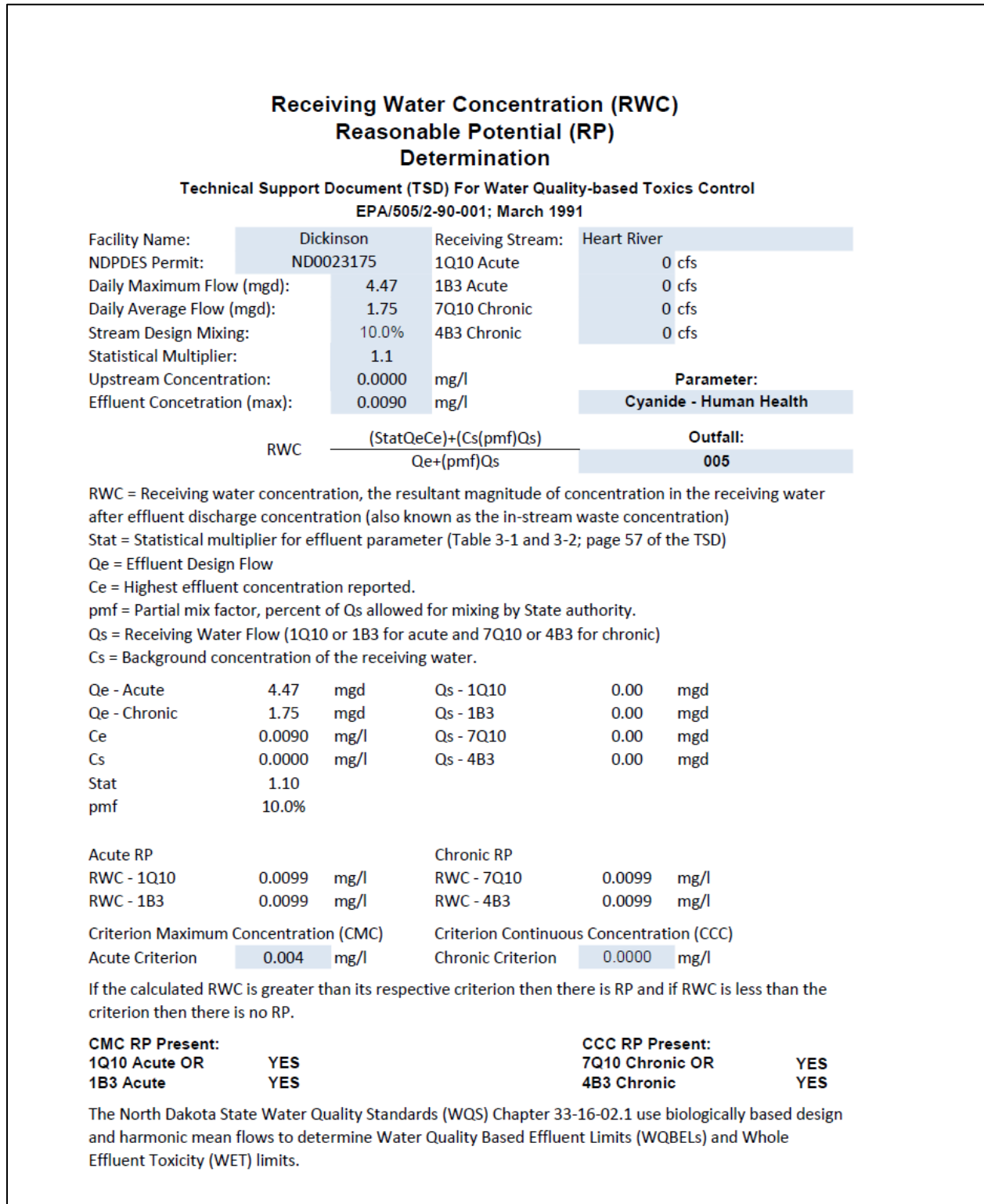


Figure 8

Aquatic Life Criteria

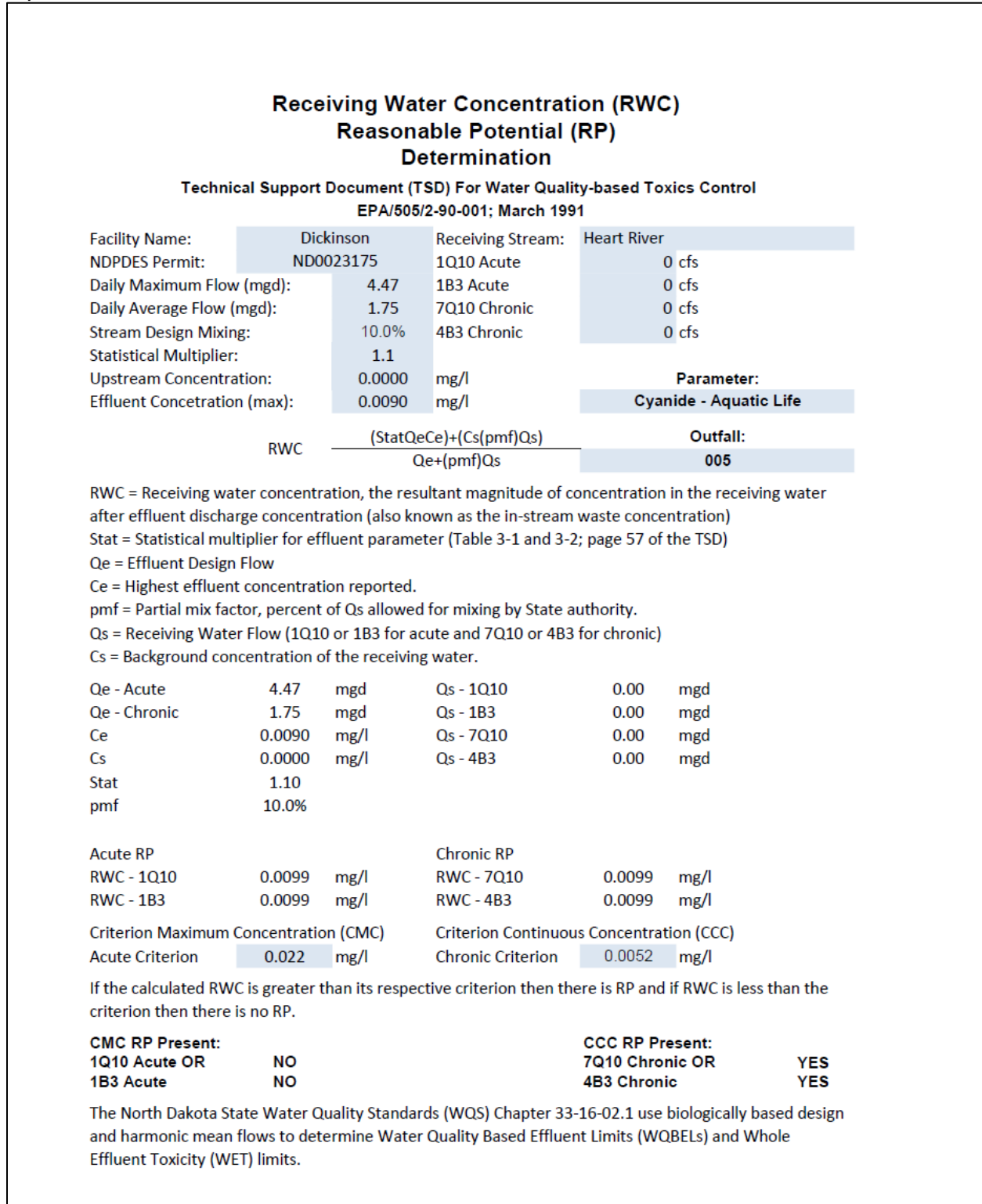


Figure 9

FACT SHEET FOR NDPDES PERMIT ND0023175

City of Dickinson

EXPIRATION DATE: SEPTEMBER 30, 2029

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APPENDIX D – RESPONSE TO COMMENTS

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