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

Public Notice Date: 1/26/2023 Public Notice Number: ND-2023-003

Purpose of Public Notice

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

Permit Information

Application Date: 9/21/2022 Application Number: ND0024996

Applicant Name: Otter Tail Power Co

Mailing Address: PO Box 496, Fergus Falls, MN 56538-0496

Telephone Number: 218.739.8526

Proposed Permit Expiration Date: 3/31/2028

Facility Description

The reapplication is for a 427 megawatt, lignite coal-fired steam electric power generating plant located in Section 10, Township 143 North, Range 88 West. Discharges consist of cooling tower blowdown and screen washings to the Missouri River, a Class I stream, and surface runoff to unnamed tributaries of the Knife River and Brush Creek, Class III streams. The reapplication also includes the Missouri River cooling water intake for the plant subject to the requirements of section 316 (b) of the Clean Water Act.

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 February 24, 2023 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. 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.

DRAFT

Permit No: ND0024996
Effective Date: April 1, 2023
Expiration Date: March 31, 2028

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,

Otter Tail Power Company, a Division of Otter Tail Corporation
Fergus Falls, Minnesota

is authorized to discharge from its coal fired steam electric generating plant (Coyote Station) located near Beulah, North Dakota

to an unnamed tributary of the Knife River, unnamed tributary of Brush Creek, and the Missouri River

provided all the conditions of this permit are met.

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

March 31, 2028.

Signed this _____ day of _____, _____.

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

BP 2019.05.29

This page is intentionally left blank

TABLE OF CONTENTS

DEFINITIONS

DEFINITIONS Standard Permit BP 2019.05.29

1. "**Act**" means the Clean Water Act.

2. "**Average monthly discharge limitation**" means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

3. "**Average weekly discharge limitation**" means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

4. "**Best management practices**" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.

5. "**Bypass**" means the intentional diversion of waste streams from any portion of a treatment facility.

6. "**Composite**" sample means a combination of at least 4 discrete sample aliquots, collected over periodic intervals from the same location, during the operating hours of a facility not to exceed a 24-hour period. The sample aliquots must be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater.

7. "**Daily discharge**" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

8. "**Department**" means the North Dakota Department of Environmental Quality, Division of Water Quality.

9. "**DMR**" means discharge monitoring report.

10. "**EPA**" means the United States Environmental Protection Agency.

11. "**Geometric mean**" means the n^{th} root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.

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

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

14. "**Maximum daily discharge limitation**" means the highest allowable "daily discharge."

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

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

17. "**Severe property damage**" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

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

19. "**Upset**" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

DEFINITIONS Industry Specific

See 40 CFR 423.11

See 40 CFR 125.92

OUTFALL DESCRIPTION

Outfall 003. Active. Final Outfall. Settling Pond 3.			
Latitude: 47.22686	Longitude: -101.81811	County: Mercer	
Township: 143N	Range: 88W	Section: 10	QQ: BA
Receiving Stream: Tributary to Knife River		Classification: Class III	
Discharges from settling pond 3 consist of plant site stormwater runoff and overflows from the cooling tower and raw water storage tank. Discharges are to an unnamed tributary of the Knife River.			

Outfall 005. Active. Final Outfall. Cooling Tower Blowdown.			
Latitude: 47.28775	Longitude: -101.33651	County: Mercer	
Township: 144N	Range: 84W	Section: 16	QQ: CD
Receiving Stream: Missouri River		Classification: Class I	
The discharge of cooling tower blowdown. Outfall 005 has a design flow of 2.5 million gallons per day. Discharges are to the Missouri River.			

Outfall 007. Active. Final Outfall. Traveling Screen Wash Water.			
Latitude: 47.28767	Longitude: -101.33665	County: Mercer	
Township: 144N	Range: 84W	Section: 16	QQ: CD
Receiving Stream: Missouri River		Classification: Class I	
The intermittent discharge of wash water from the traveling screens at the Missouri River water intake structure. Discharges are to the Missouri River.			

Outfall 012. Active. Final Outfall. Pond 12.			
Latitude: 47.20599	Longitude: -101.79255	County: Mercer	
Township: 143N	Range: 88W	Section: 14	QQ: AC
Receiving Stream: Tributary to Brush Creek		Classification: Class III	
Discharges consist of stormwater runoff from undeveloped portions of the ash landfill through an 8.3-acre-foot runoff pond. Discharges are to an unnamed tributary of Brush Creek.			

PERMIT SUBMITTALS SUMMARY

Coverage Point	Submittal	Monitoring Period	Submittal Frequency	First Submittal Date
003A	Discharge Monitoring Report	Monthly	Quarterly	July 31, 2023
005A	Discharge Monitoring Report	Monthly	Quarterly	July 31, 2023
012A	Discharge Monitoring Report	Monthly	Quarterly	July 31, 2023
Cooling Water Intake	Actual Intake Flow Report	Monthly	Quarterly	July 31, 2023
Cooling Water Intake	Annual Certification Statement	Annual	Annual	April 30, 2024
Application Renewal	EPA Form 1, 2C, & 2F 316(b) Application	Not applicable	1/permit cycle	September 30, 2027

SPECIAL CONDITIONS

No special conditions have been determined at this time.

I. LIMITATIONS AND MONITORING REQUIREMENTS

A. Discharge Authorization

During the effective period of this permit, the permittee is authorized to discharge pollutants from the outfalls as specified to the following: **Unnamed Tributary of the Knife River, Unnamed Tributary of Brush Creek, and Missouri River**

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. Effluent Limitations and Monitoring

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

Table 1: Effluent Limitations and Monitoring Requirements **003**

Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
Total Suspended Solids (TSS), mg/L [a]	*	50	1/Month	Grab
pH, S.U.	Shall remain between 6.0 to 9.0		1/Month	Grab
Flow, mgd	Report Monthly Average	Report Maximum Daily Value	1/Day	Calculated
Total Flow, Mgal	N/A	Report Monthly Total	1/Month	Calculated

Notes:

a. If the facility is designed, constructed, operated, and maintained to contain the runoff from a 10-year, 24-hour precipitation event, this limitation shall be waived for any discharge overflow caused by a rainfall in excess of 3.1 inches (or equivalent snowmelt) in 24 hours. The permittee shall have the burden of proof that all of these conditions have been met. The precipitation shall be monitored by gauge and recorded daily by the permittee.

N/A Not Applicable

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

Stipulations:

There shall be no discharge of floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.

There shall be no discharge of polychlorinated biphenyl compounds.

Samples taken in compliance with the monitoring requirements shall be taken at the outfall prior to leaving company property and mixing with receiving waters.

Table 2: Effluent Limitations and Monitoring Requirements **005**

Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
pH, S.U.	Shall remain between 6.5 to 9.0		1/Week	Grab
Free Available Chlorine, mg/L [a]	0.2	0.5	1/Week	Grab
Free Available Chlorine, lb/day [a]	0.04	0.11	1/Week	Grab
Total Chromium, mg/L [b,d]	0.2	0.2	1/Quarter	Conditional/Grab
Total Zinc, mg/L [b,d]	1.0	1.0	1/Quarter	Conditional/Grab
126 Priority Pollutants excluding Chromium and Zinc [c, d]	No Detectable Amount	No Detectable Amount	1/5 Years	Conditional/Grab
Nitrogen, Total, mg/L [e,g]	Average for the Month	Monitor Only	1/Month	Conditional/Grab
Nitrogen, Total, lb/day [e,g]	Average for the Month	Monitor Only	1/Month	Conditional/ Calculated
Phosphorus, Total, mg/L [f]	Average for the Month	Monitor Only	1/Month	Conditional/Grab
Phosphorus, Total, lb/day [f]	Average for the Month	Monitor Only	1/Month	Conditional/ Calculated
Flow, mgd	Report Average Monthly Value	Report Maximum Daily Value	1/Day	Calculated
Total Flow, Mgal	Report Monthly Total		1/Month	Calculated

Notes:

a. Free available chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that the discharge for more than two hours is required for macroinvertebrate control.

b. Sampling requirements for total chromium and total zinc are presently waived. Should the constituents of the cooling tower maintenance additives change, the permittee shall test the effluent for total chromium and total zinc within 30 days unless the permittee can demonstrate through formulation that total chromium or total zinc are not present in the additive. The results shall be forwarded to the department for evaluation. The department will then determine if the effluent is continuing to meet the requirements for outfall 005.

c. Sampling requirements for the 126 priority pollutants found in 40 CFR 423 Appendix A (excluding chromium and zinc) are presently waived. Should any new chemicals be used for cooling tower maintenance, the permittee shall notify the department immediately. The permittee shall then have six months to provide adequate verification that the use of any new chemical will not result in the 126 priority pollutants (excluding chromium and zinc) being discharged at a detectable level. If the permittee does not provide adequate verification within six months, the requirement to sample for the 126 priority pollutants (excluding chromium and zinc) on a quarterly basis shall be in effect. As soon as an adequate verification is made by the permittee, sampling requirements for the 126 priority pollutants (excluding chromium and zinc) shall again be waived by the department.

Table 2: Effluent Limitations and Monitoring Requirements **005**
d. The use of engineering calculations may be used to demonstrate the regulated pollutant is not detectable in the final discharge by the analytical methods in 40 CFR 136 as allowed in 40 CFR 423.13(d)(3).
e. Testing required only during monitoring periods when a chemical in the effluent contains nitrogen.
f. Testing required only during monitoring periods when a chemical in the effluent contains phosphorus.
g. Total nitrogen is a combination of nitrate, nitrite, and Total Kjeldahl Nitrogen (TKN).
N/A Not Applicable
*. This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.
Stipulations:
There shall be no discharge of floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.
There shall be no discharge of polychlorinated biphenyl compounds.
Samples taken in compliance with the monitoring requirements specified in this permit shall be taken prior to leaving company property or mixing with receiving streams.

Table 3: Effluent Limitations and Monitoring Requirements **Outfall 007**
Stipulations:
Best management practices shall be utilized at all times. The quality of any discharge through this outfall shall be the best which is presently attainable. This is within EPA's policy guidelines for screen washings. There shall be no discharge of polychlorinated biphenyl compounds. Whenever the intake is in operation, the screens shall be monitored continuously by a sensor. The sensor shall, as necessary, trigger the screen-washing mechanisms.

Table 4: Effluent Benchmark Values and Monitoring Requirements **Outfall 012**			
Parameter	Benchmark Value [a]	Monitoring Requirements	
		Sample Frequency	Sample Type
pH, S.U.	Shall remain between 6.0 to 9.0	1/Discharge	Grab
Total Suspended Solids, mg/L	100	1/Discharge	Grab
Oil and Grease, mg/L [b]	15	1/Discharge	Visual/Grab
Total Iron, mg/L	1.0	1/Discharge	Grab
Total Chloride, mg/L	250	1/Discharge	Grab
Total Arsenic, mg/L	0.15	1/Discharge	Grab
Total Boron, mg/L	0.15	1/Discharge	Grab
Total Sulfate, mg/L	750	1/Discharge	Grab
Flow, mgd	Report Monthly Average	1/Day	Calculated
Total Flow, Mgal	Report Monthly Total	1/Month	Calculated
Notes:			
a. Benchmark concentrations should not be interpreted as effluent limitations. Benchmark concentrations provide an appropriate level to determine whether pollution prevention measures are effective. A pollutant concentration above the benchmark value represents a need to improve pollution prevention measures.			
b. The discharge shall not have a visible sheen or floating oil. If detected, the department shall be notified, and a grab sample shall be analyzed.			
Stipulations:			
There shall be no discharge of polychlorinated biphenyl compounds.			
Sampling shall only take place in the event of a discharge.			
Samples taken in compliance with the monitoring requirements shall be taken at the outfall prior to leaving company property and mixing with receiving waters.			

II. CLEAN WATER ACT 316(b) FINAL RULES

A. Cooling System Operation

The permittee operates a single intake structure along the Missouri River subject to the 316(b) rules for existing cooling water intake structures (CWIS). The permittee is subject to the following provisions as they relate to cooling water operations:

1. Nothing in this permit authorizes take for the purpose of a facility's compliance with the Endangered Species Act.

2. The permittee shall maintain the ability to remotely monitor the CWIS during the period the CWIS is in operation. The permittee shall employ remote monitoring devices to ensure that the technologies operated to comply with the impingement and entrainment standards are maintained and operated to function as designed. Weekly visual inspections of the onshore portion of the CWIS shall be conducted when remote monitoring devices are not in operation.

3. The permittee shall operate a closed-cycle recirculating system to comply with the best technology available standard for impingement mortality.

4. The permittee shall operate a closed-cycle recirculating system to comply with the best technology available standard for entrainment. Under 40 CFR 125.94(d), the department has determined the operation of a closed-cycle recirculating system is the site-specific best technology available standard for the maximum reduction in entrainment warranted for the permittee.

B. Monitoring and Reporting

1. The actual intake flow of the CWIS shall be monitored daily. Actual intake flow monitoring shall be representative of normal operating conditions. Actual intake flow monitoring shall include measuring the cooling water withdrawal from the Missouri River and blow down volumes. Actual intake flow monitoring shall be reported with discharge monitoring reports.

2. The permittee shall submit an annual certification statement and report regarding the operations of any unit that involves cooling water withdrawals or operation of the CWIS. If the facility has modified the operation of any unit at the facility that impacts cooling water withdrawals or operation of the CWIS, the facility shall provide a summary of those changes in the annual report. If the information contained in the previous year's annual certification is still pertinent, the permittee shall state as such in the annual certification statement. The annual certification statement shall be signed by the responsible corporate officer as defined in 40 CFR 122.22. Any revision to the information required by 40 CFR 122.21(r) shall be submitted with the next permit application.

3. The permittee shall notify the department of any proposed changes to the CWIS or operation of the cooling water intake. Any changes to the CWIS or operation of the cooling water intake shall be included with the annual certification statement and report.

4. All discharge monitoring reports, and annual certification statements and reports related to cooling water intake operation and closed-cycle recirculating system shall be retained until the subsequent permit is issued.

5. All the information submitted with the permit application used to satisfy the requirements of 40 CFR 122.21(r) shall be retained until the subsequent permit is issued.

C. Permit Application

Any revisions related to the requirements of 40 CFR 122.21(r) shall be included with the next permit application.

D. Inspection and Entry

The permittee shall allow the department and EPA representatives, at reasonable times and upon the presentation of credentials if requested, to enter the permittee's premises to inspect the cooling water withdrawals or operation of the CWIS and request information needed to determine permit compliance. This includes information needed to determine permit conditions and requirements, and any additional information recommend by the U.S. Fish and Wildlife Service upon review of the permittee's next permit application.

III. 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.

IV. 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.

V. GENERAL PROVISIONS

A. Inspection and Entry

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

B. Availability of Reports

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

C. Transfers

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

D. New Limitations or Prohibitions

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

E. Permit Actions

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

F. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

G. State Laws

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

H. Oil and Hazardous Substance Liability

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

I. Property Rights

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

J. Severability

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

FACT SHEET FOR NDPDES PERMIT ND0024996

PERMIT REISSUANCE

OTTER TAIL POWER COMPANY
BEULAH, ND

DATE OF THIS FACT SHEET – JANUARY 2023

INTRODUCTION

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

The following rules or regulations apply to NDPDES permits:

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

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

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

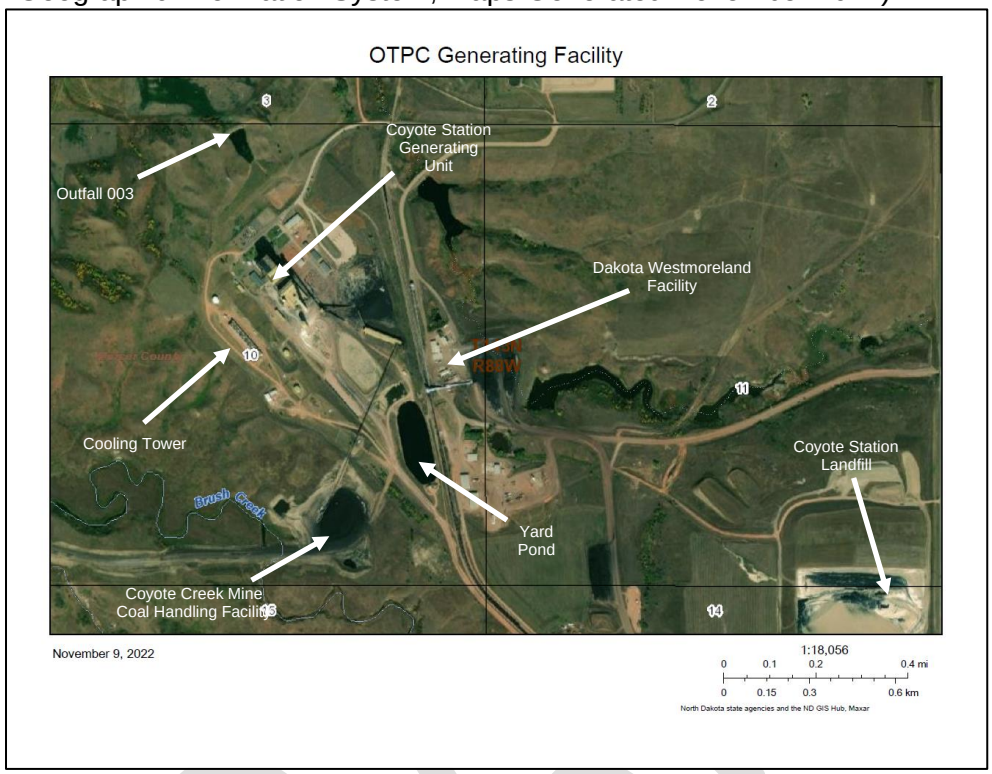
TABLE OF CONTENTS

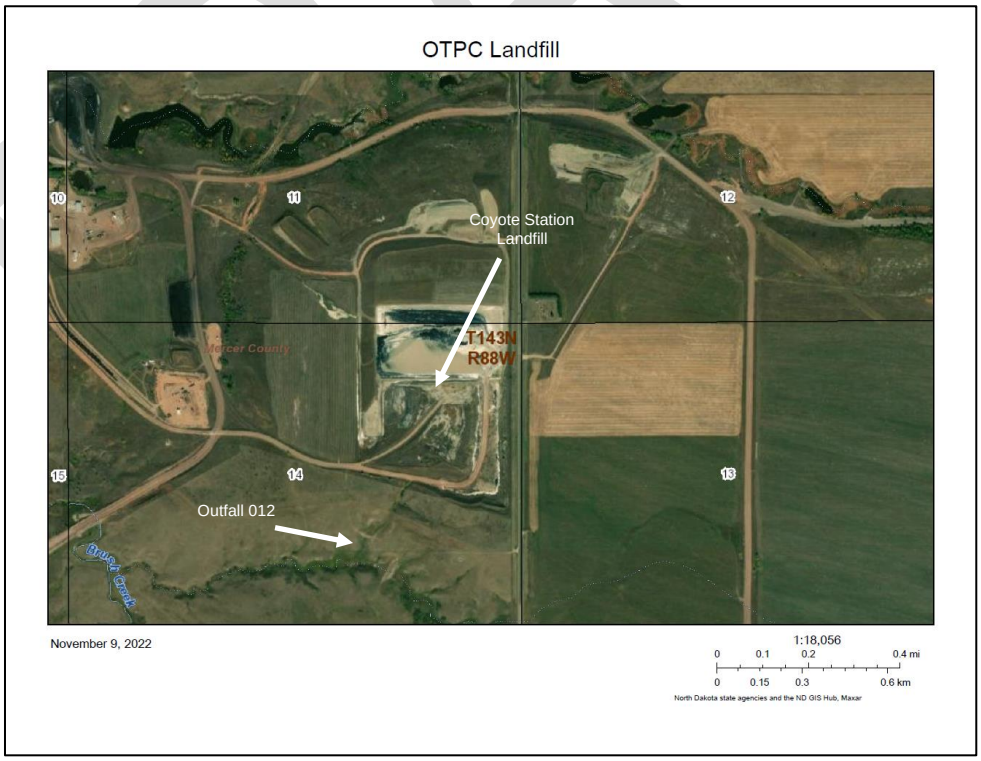
BACKGROUND INFORMATION

Table 1 – General Facility Information

Applicant:	Otter Tail Power Company
Facility Name and Address:	Coyote Station 6240 13th St SW Beulah, ND 58523
Permit Number:	ND0024996
Permit Type:	Minor Industrial, Permit Reissuance
Type of Treatment:	Sedimentation Ponds, Dechlorination, Best Management Practices
SIC Code:	4911
NAICS Code:	221112
Discharge Location:	Missouri River, Class I stream Latitude: 47.28770 Longitude: -101.33682 Tributary to Knife River, Class III stream Latitude: 47.22686 Longitude: -101.81810 Tributary to Brush Creek, Class III stream Latitude: 47.20599 Longitude: -101.79255
Cooling Water Intake Structure Location:	Missouri River, Class I stream Latitude: 47.28770 Longitude: -101.33682
Hydrologic Code:	10130101 – Painted Woods-Square Butte 10130201 – Knife

Figure 1: Aerial photograph of Otter Tail Power Company, Coyote Station (North Dakota Geographic Information System, Maps Generated November 2022)



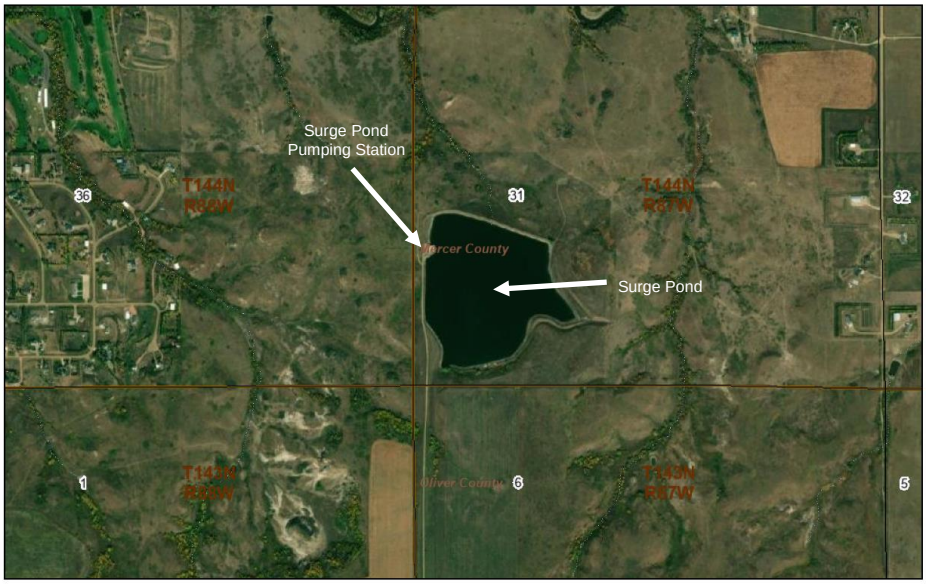


OTPC Substation

November 9, 2022

1:18,056
0 0.1 0.2 0.4 mi
0 0.15 0.3 0.6 km
North Dakota state agencies and the ND GIS Hub, Maxar

OTPC Surge Pond



November 9, 2022

1:18,056
0 0.1 0.2 0.4 mi
0 0.15 0.3 0.6 km
North Dakota state agencies and the ND GIS Hub, Maxar

OTPC Intake Structure

November 9, 2022

1:9,028
0 0.05 0.1 0.2 mi
0 0.07 0.15 0.3 km
North Dakota state agencies and the ND GIS Hub, Maxar

OTPC Pipeline

November 9, 2022

1:288,895
0 1.5 3 6 mi
0 2.5 5 10 km
Earthstar Geographics

FACILITY DESCRIPTION

Otter Tail Power Company–Coyote Station started operation in 1981. Coyote Station is a lignite coal-fired steam electric generating plant with an approximate net capacity of 427 megawatts from a single unit. Coyote Station uses approximately 2 million tons of coal each year to generate electricity. Lignite coal comes from the adjacent Coyote Creek Mine operated by Coyote Creek Mining Company, L.L.C. Coyote Station is jointly owned by Otter Tail Power Company, Northern Municipal Power Agency, Montana-Dakota Utilities Co. and NorthWestern Energy, and is operated by Otter Tail Power Company.

Coyote Station utilizes a closed-cycle cooling system to transfer waste heat from the boiler to the environment. Water is drawn from the Missouri River near Stanton, ND. The water travels twenty-one miles to a surge pond where it can be stored before being delivered to Coyote Station for plant use through a 3.2-mile pipeline or to the Beulah Golf Course for irrigation. Cooling water is cycled through the cooling tower where it mostly evaporates. Cooling tower blowdown water is sent back to the Missouri River through a twenty-four-mile pipeline where it is discharged near the water intake structure. About ten percent of the water drawn from the Missouri River is sent back to river. The rest is used in plant processes, evaporated, or sold to Central Dakota Water Works for industrial purposes.

Cooling tower water chemical treatment includes chlorination, de-chlorination, and the addition of an antiscalant. Bleach (chlorination) and the antiscalant are added in the circulation water pumphouse prior to the cooling tower. Sodium bisulfite (de-chlorination) is added after the cooling tower, before the cooling tower blowdown water is sent to the Missouri River.

The cooling water intake structure for Coyote Station withdraws an average of 5.6 million gallons of water per day from the Missouri River; an increase from 4.5 million gallons per day in the current permit. The intake structure is contained within the Missouri River Pumping Station. The pumping station consists of five trash racks, three traveling screens, three wash water pumps, and three river intake pumps. Under normal conditions the cooling water intake structure operates twenty-four hours a day.

Coyote Station uses a hydrated lime, dry scrubber to remove sulfur dioxide. Water used in the lime hydration process is lost to the chemical reaction and evaporation. A fabric filter is used to remove particulates from flue gas. Material collected by the dry scrubber and fabric filter systems are transported to Coyote Station's permitted landfill by truck and is not allowed to discharge under this permit. An overfired air system is employed by Coyote Station to avoid creating nitrogen oxide during incineration and subsequent removal from flue gas.

Coal combustion residuals (i.e., bottom ash, fly ash, boiler slag, soot blowing material) are stored at the facility until disposal at the Coyote Station landfill or sold for reuse. Runoff from the coal combustion residual storage areas flows to the yard pond and is not allowed to discharge under this permit. In 2019, a dry handling system was added to collect bottom ash and fly ash. Collected bottom ash (including boiler slag and soot blowing material) is dewatered and transported by truck to the Coyote Station landfill. Water collected from the bottom ash dewatering process is reused in plant processes. Collected fly ash is dried and trucked to the landfill. The fly ash is wetted to control dust as it is trucked to the landfill. Coyote Station does not discharge bottom or fly ash transport water.

Metal cleaning waste, sanitary waste, and runoff from the coal storage area also are directed to the yard pond. Sanitary waste is treated in a small package wastewater treatment plant prior to discharge to the yard pond. The water in the yard pond is reused in plant operations or evaporates and is not allowed to discharge under this permit. Prior to 2019, boiler slag was sent to the yard pond (then known as the slag pond). In 2019, the slag was dredged from the yard pond as a result of the coal combustion residuals rules and disposed at the Coyote Station landfill.

The active ash landfill (Blue Pit) is located one mile southeast of Coyote Station. Industrial stormwater runoff from the undeveloped portions of the landfill flows to a sedimentation pond. A riser pipe (outfall 012) controls the flow from the pond. Stormwater runoff from the active portions of the landfill is collected within the landfill and is not allowed to discharge under this permit. The landfill is permitted by the department's Division of Waste Management under solid waste permit number 0182.

Industrial stormwater runoff from the substation located northeast of Coyote Station is directed to a sedimentation pond (outfall 006). The substation is owned separately by Montana-Dakota Utilities Company and is not associated with this permit. Industrial stormwater runoff from the plant site flows to either the yard pond (outfall 004) or settling pond 3 (outfall 003). The yard pond is not allowed to discharge under this permit.

Industrial stormwater runoff from the office grounds and parking areas, as well as the raw water storage tank and cooling tower areas, flows to settling pond 3. Potential pollutants include herbicides and fertilizers, liquid sodium hypochlorite (i.e., bleach), liquid sulfuric acid, and cooling tower overflow. Herbicides and fertilizers are applied according to label directions. Herbicides are applied as needed approximately once a month during the growing season to control weeds and leafy spurge, or to prevent weeds from growing on impervious surfaces. Herbicides include: Shredder 2-4D LV6, Milestone, Tordon 22K, and Roundup Power Max+Escalade2+Pramitol (as a ground sterilizer). Fertilizer includes Turf Blend 28-8-18, and Grow More 20-20-20 is applied to office grounds approximately three times per year. Sodium hypochlorite and sulfuric acid are delivered in tanker trucks that are connected by hose to indoor storage tanks during unloading. Discharges from settling pond 3 flow through a controlled discharge structure (outfall 003) that is monitored continuously by video surveillance. The pond is discharged periodically to maintain freeboard for stormwater runoff.

A coal processing facility is located adjacent to Coyote Station in the SW1/4 SE1/4, Section 10, Township 143 West, Range 88 West. The processing facility is operated by Coyote Creek Mining Company, LLC. Coal from Coyote Creek Mine is brought to the facility and processed by Coyote Creek Mining Co. before the coal is transferred to a conveyor belt that is operated and maintained by Coyote Station. The coal processing facility is located within Coyote Creek Mining Co.'s Surface Coal Mining Permit NACC-1302. Runoff from the coal processing facility flows to two ponds operated and maintained by Coyote Creek Mining Co. (P10-01 and P10-02). Discharges from these ponds are covered by Coyote Creek Mining Co.'s NDPDES permit ND0026697.

Discharge Outfall

There are four active discharge outfalls associated with the facility. The description of the active and inactive outfalls is provided below:

Outfall 003. Active. Final Outfall. Settling Pond 3.			
Latitude: 47.22686	Longitude: -101.81811	County: Mercer	
Township: 143N	Range: 88W	Section: 10	QQ: BA
Receiving Stream: Tributary to Knife River		Classification: Class III	
Discharges from settling pond 3 consist of plant site stormwater runoff and overflows from the cooling tower and raw water storage tank. Discharges are to an unnamed tributary of the Knife River.			

Outfall 005. Active. Final Outfall. Cooling Tower Blowdown.			
Latitude: 47.28775	Longitude: -101.33651	County: Mercer	
Township: 144N	Range: 84W	Section: 16	QQ: CD
Receiving Stream: Missouri River		Classification: Class I	
The discharge of cooling tower blowdown. Outfall 005 has a design flow of 2.5 million gallons per day. Discharges are to the Missouri River.			

Outfall 007. Active. Final Outfall. Traveling Screen Wash Water.			
Latitude: 47.28767	Longitude: -101.33665	County: Mercer	
Township: 144N	Range: 84W	Section: 16	QQ: CD
Receiving Stream: Missouri River		Classification: Class I	
The intermittent discharge of wash water from the traveling screens at the Missouri River water intake structure. Discharges are to the Missouri River.			

Outfall 012. Active. Final Outfall. Pond 12.			
Latitude: 47.20599	Longitude: -101.79255	County: Mercer	
Township: 143N	Range: 88W	Section: 14	QQ: AC
Receiving Stream: Tributary to Brush Creek		Classification: Class III	
Discharges consist of stormwater runoff from undeveloped portions of the ash landfill through an 8.3-acre-foot runoff pond. Discharges are to an unnamed tributary of Brush Creek.			

Outfall 001: Inactive (1981). No discharge point. This point was utilized during construction of the facility.

Outfall 002: Inactive (1995). Pond No. 2. No discharge point. This point collected stormwater runoff from a non-industrial area.

Outfall 004: Inactive (1984). Yard Pond. No discharge point. This point was for the ash pond (now called the Yard Pond and formerly known as the Slag Pond) which contains assorted wastewaters and stormwater runoff. Discharging from this point was discontinued when a system was installed to utilize or recycle the pond water in other plant processes. Water from this point is reused in various plant processes, which include evaporation in the flue gas desulfurization (FGD) dry scrubber, wetting of FGD product as it is unloaded into trucks and

taken to a permitted landfill, and for sluicing economizer ash into the pond. This pond also contains metal cleaning wastes (formerly Outfall 009). None of these processes result in a discharge.

Outfall 006: Inactive (1995). Pond No. 6. This pond collects stormwater from a substation area. The pond is located in the SW ¼ SW ¼ Section 2, Township 143 North, Range 88 West in Mercer County. The substation is not associated with this permit.

Outfall 008: Inactive (1984). Internal discharge point. This point is for a small sanitary wastewater package plant. It is an internal point which discharges to the Yard Pond (Outfall 004).

Outfall 009: Inactive (1984). Internal discharge point. This point is for non-chemical, metal cleaning wastewater. It is an internal point which discharges to the Yard Pond (Outfall 004).

Outfall 010: Inactive (1993). Pond No. 10. Internal discharge point. This point collected surface runoff from the reclaimed Green Pit mining site.

PREVIOUS PERMIT STATUS

The department issued the previous permit for this facility on April 1, 2018. The permit has monitoring requirements for total suspended solids, pH, free available chlorine, total chromium, total zinc, the 126 priority pollutants, oil and grease, total iron, total chloride, total arsenic, total boron, total sulfate, flow, and total flow. The permit also has monitoring requirements for actual intake flow. The permit is scheduled to expire at midnight on March 31, 2023.

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED

Department staff conducted a non-sampling compliance inspection on November 16, 2022. The department's assessment of compliance is based on review of the facility's Discharge Monitoring Reports (DMRs) and inspections conducted by department staff.

Bypasses

No bypasses were reported since April 2018.

Past Discharge Data

The concentration of pollutants in discharges was reported with discharge monitoring report (DMR) forms. The effluent is characterized as shown in Table 2. No discharge occurred from outfall 012 during the monitoring period. Information about discharges from outfall 007 was not required to be submitted to the department.

Table 2 – Otter Tail Power Company – Coyote Station (October 2017 to September 2022)

Parameter	Units	Range	Average	Permit Limit	Number of Excursions
Outfall 003					
pH	S.U.	7.4 – 9.0	N/A	6.0 – 9.0	0
Total Suspended Solids (TSS)	mg/L	6.5 – 48.5	19.1	50 Daily max	0
Flow	MGD	2.592 (max)	0.298	N/A	N/A
Drain	Mgal	0.221 – 6.299	1.925	N/A	N/A
Outfall 005					
Free Available Chlorine	mg/L	0	0	0.2 30-day avg 0.5 Daily max	0
Free Available Chlorine	lb/day	0	0	0.05 30-day avg 0.13 Daily max	0
pH	S.U.	7.22 – 8.68	N/A	7.0 – 9.0	0
Flow	MGD	0.864 (max)	0.313	N/A	N/A
Drain	Mgal	1.218 – 22.82	8.406	N/A	N/A

PROPOSED EFFLUENT LIMITATIONS

Discharges from steam electric power generating facilities are regulated by national effluent guidelines which establish technology-based effluent limitations. The technology based effluent limitations may be found in Title 40 of the Code of Federal Regulations, Part 423 – or 40 CFR 423. The department may generate additional limitations using Best Professional Judgment (BPJ) to ensure reasonable control technologies are used to prevent potential harmful effects from the discharge. The department also must consider and include limitations necessary to protect water quality standards applicable to receiving waters.

The free available chlorine loading concentration was updated based on the long-term average daily flow value provided in the permit application. The thirty-day average loading concentration changed from 0.05 lb/day to 0.04 lb/day. The daily maximum loading concentration changed from 0.13 lb/day to 0.11 lb/day.

The parameters for outfall 012 reflect the current parameters for landfills contained in the department's NDPDES general discharge permit associated with industrial activity and Division of Waste Management solid waste management facility permit.

Limitations based on numeric nutrient criteria are not being included in the proposed permit. Narrative nutrient criteria have been developed for the state of North Dakota that require discharges to be free from nutrients that cause objectionable growth of aquatic vegetation or algae or threaten public health, welfare, or impair beneficial uses.

In the current permit, the lower pH water quality-based effluent limitation applicable to discharges to Class I streams was set at 7.0 standard units (S.U.). The water quality-based limitation was based on the Standards of Quality for Waters of the State in place at the time the 2018 permit took effect. In July 2021, the lower pH water quality standard for Class I streams changed from 7.0 S.U. to 6.5 S.U. (NDAC chapter 33.1-16-02.1). Based on a change to the water quality standards, the department changed the lower pH water quality-based effluent limitation for discharges to Class I streams from 7.0 S.U. to 6.5 S.U. in the proposed permit.

The proposed effluent limitations shall take effect upon the effective date of the proposed permit. The effluent limitations and the basis for the limitations are provided in Tables 3 through 6. The notations used in the tables for the basis of the effluent limitations are as follows:

"BPJ" refers to best professional judgment.

"Previous Permit" refers to limitations in the previous permit. The NPDES regulations 40 CFR Part 122.44(1)(1) Reissued permits require that when a permit is renewed or reissued, interim limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit unless the circumstances on which the previous permit was issued have materially and substantially changed since the previous permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR Part 122.62.

"WQS" refers to effluent limitations based on the State of North Dakota's "Standards of Quality for Waters of the State", NDAC Chapter 33.1-16-02.1.

"CFR" refers to the Code of Federal Regulations.

Table 3: Effluent Limitations for Outfall 003

Effluent Parameter	**Units**	**Daily Maximum**	**Basis**
Total Suspended Solids (TSS) [a]	mg/L	50 mg/L	Previous Permit
pH	S.U.	Shall remain between 6.0 to 9.0	40 CFR 423.12(b)(1); WQS
There shall be no discharge of floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.			Previous Permit
There shall be no discharge of polychlorinated biphenyl compounds.			40 CFR 423.12(b)(2) 40 CFR 423.13(a)
Notes:			
a.	If the facility is designed, constructed, operated, and maintained to contain the runoff from a 10-year, 24-hour precipitation event, this limitation shall be waived for any discharge overflow caused by a rainfall in excess of 3.1 inches (or equivalent snowmelt) in 24 hours. The permittee shall have the burden of proof that all of these conditions have been met. The precipitation shall be monitored by gauge and recorded daily by the permittee.		

Table 4: Effluent Limitations for Outfall 005

Effluent Parameter	Units	30-Day Average	Daily Maximum	Basis
pH	S.U.	Shall remain between 6.5 to 9.0		40 CFR 423.12(b)(1); WQS
Free Available Chlorine [a]	mg/L	0.2	0.5	40 CFR 423.12(b)(7) & (8); 40 CFR 423.13(d)(1) & (2)
Free Available Chlorine [a]	lb/day	0.04	0.11	40 CFR 423.12(b)(7) & (8); 40 CFR 423.13(d)(1) & (2)
Total Chromium [b,d]	mg/L	0.2	0.2	40 CFR 423.13(d)(1) & (3)
Total Zinc [b,d]	mg/L	1.0	1.0	40 CFR 423.13(d)(1) & (3)
126 Priority Pollutants excluding Chromium and Zinc [c,d]	mg/L	No Detectable Amount	No Detectable Amount	40 CFR 423.13(d)(1) & (3)
There shall be no discharge of floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.				Previous Permit
There shall be no discharge of polychlorinated biphenyl compounds.				40 CFR 423.12(b)(2) 40 CFR 423.13(a)

Notes:

a.	Free available chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that the discharge for more than two hours is required for macroinvertebrate control.
b.	Sampling requirements for total chromium and total zinc are presently waived. Should the constituents of the cooling tower maintenance additives change, the permittee shall test the effluent for total chromium and total zinc within 30 days unless the permittee can demonstrate through formulation that total chromium or total zinc are not present in the additive. The results shall be forwarded to the department for evaluation. The department will then determine if the effluent is continuing to meet the requirements for outfall 005.
c.	Sampling requirements for the 126 priority pollutants found in 40 CFR 423 Appendix A (excluding chromium and zinc) are presently waived. Should any new chemicals be used for cooling tower maintenance, the permittee shall notify the department immediately. The permittee shall then have six months to provide adequate verification that the use of any new chemical will not result in the 126 priority pollutants (excluding chromium and zinc) being discharged at a detectable level. If the permittee does not provide adequate verification within six months, the requirement to sample for the 126 priority pollutants (excluding chromium and zinc) on a quarterly basis shall be in effect. As soon as an adequate verification is made by the permittee, sampling requirements for the 126 priority pollutants (excluding chromium and zinc) shall again be waived by the department.
d.	The use of engineering calculations may be used to demonstrate the regulated pollutant is not detectable in the final discharge by the analytical methods in 40 CFR 136 as allowed in 40 CFR 423.13(d)(3).

Table 5: Effluent Limitations for Outfall 007

Stipulation	Basis
Best management practices shall be utilized at all times.	Previous Permit
The quality of any discharge through this outfall shall be the best which is presently attainable. This is within EPA's policy guidelines for screen washings.	Previous Permit
There shall be no discharge of polychlorinated biphenyl compounds.	40 CFR 423.12(b)(2) 40 CFR 423.13(a)

Table 6: Effluent Limitations for Outfall 012

Effluent Parameter	Units	Benchmark Value [a]	Basis
pH	S.U.	Shall remain between 6.0 to 9.0	40 CFR 423.12(b)(1); Previous Permit; WQS
Total Suspended Solids (TSS)	mg/L	100	Previous Permit; BPJ
Oil and Grease [b]	mg/L	15	Previous Permit; BPJ
Total Iron	mg/L	1.0	BPJ
Total Chloride	mg/L	250	BPJ; WQS
Total Arsenic	mg/L	0.15	BPJ; WQS
Total Boron	mg/L	0.75	WQS
Total Sulfate	mg/L	750	WQS
There shall be no discharge of polychlorinated biphenyl compounds.			40 CFR 423.12(b)(2) 40 CFR 423.13(a)

Notes	
a.	Benchmark concentrations should not be interpreted as effluent limitations. Benchmark concentrations provide an appropriate level to determine whether pollution prevention measures are effective. A pollutant concentration above the benchmark value represents a need to improve pollution prevention measures.
b.	The discharge shall not have a visible sheen or floating oil.

SELF-MONITORING REQUIREMENTS

Effluent parameters for outfalls 003 and 012 are sampled at the outfalls prior to leaving company property and mixing with receiving waters. Effluent parameters for outfall 005 must be

representative of the effluent in the cooling tower blowdown pipeline and are sampled from the plant circulating water system within the plant.

Nutrient monitoring was added to Outfall 005 in the proposed permit to coincide with the development of the state's nutrient reduction strategy. Sources of nutrients from Outfall 005 include the use of cooling water chemicals (either now or in the future) that may contain nitrogen or phosphorus.

Table 7: Self-Monitoring Requirements for Outfall 003

Effluent Parameter	Frequency	Sample Type [a]
TSS	1/Month	Grab
pH	1/Month	Grab
Flow, mgd	1/Day	Calculated
Total Flow, Mgal	1/Month	Calculated
Notes:		
a.	Refer to Appendix B for definitions.	

Table 8: Self-Monitoring Requirements for Outfall 005

Effluent Parameter	Frequency	Sample Type [a]
pH	1/Week	Grab
Free Available Chlorine	1/Week	Grab
Total Chromium [b,d]	1/Quarter	Conditional/Grab
Total Zinc [b,d]	1/Quarter	Conditional/Grab
126 Priority Pollutants excluding Chromium and Zinc [c,d]	1/5 Years	Conditional/Grab
Total Nitrogen [e,g]	1/Month	Conditional/Grab/Calculated
Total Phosphorus [f]	1/Month	Conditional/Grab/Calculated
Flow, mgd	1/Day	Calculated
Total Flow, Mgal	1/Month	Calculated
Notes:		
a.	Refer to Appendix B for definitions.	
b.	Sampling requirements for total chromium and total zinc are presently waived. Should the constituents of the cooling tower maintenance additives change, the permittee shall test the effluent for total chromium and total zinc within 30 days unless the permittee can demonstrate through formulation that total chromium or total zinc are not present in the additive. The results shall be forwarded to the department for evaluation. The department will then determine if the effluent is continuing to meet the requirements for outfall 005.	
c.	Sampling requirements for the 126 priority pollutants found in 40 CFR 423 Appendix A (excluding chromium and zinc) are presently waived. Should any new chemicals be used for cooling tower maintenance, the permittee shall notify the department immediately. The permittee shall then have six months to provide adequate verification that the use of any new chemical will not result in the 126 priority pollutants (excluding chromium and zinc) being discharged at a detectable level. If	

Table 8: Self-Monitoring Requirements for Outfall 005

	the permittee does not provide adequate verification within six months, the requirement to sample for the 126 priority pollutants (excluding chromium and zinc) on a quarterly basis shall be in effect. As soon as an adequate verification is made by the permittee, sampling requirements for the 126 priority pollutants (excluding chromium and zinc) shall again be waived by the department.
d.	The use of engineering calculations may be used to demonstrate the regulated pollutant is not detectable in the final discharge by the analytical methods in 40 CFR 136 as allowed in 40 CFR 423.13(d)(3).
e.	Testing required only during monitoring periods when a chemical in the effluent contains nitrogen.
f.	Testing required only during monitoring periods when a chemical in the effluent contains phosphorus.
g.	Total nitrogen is a combination of nitrate, nitrite, and Total Kjeldahl Nitrogen (TKN).

Table 9: Self-Monitoring Requirements for Outfall 007

Whenever the intake is in operation, the screens will be monitored continuously by a sensor. The sensor will as necessary, trigger the screen-washing mechanisms.

Table 10: Self-Monitoring Requirements for Outfall 012

Effluent Parameter	**Frequency**	**Sample Type** [a]
pH	1/Discharge	Grab
TSS	1/Discharge	Grab
Oil and Grease	1/Discharge	Visual/Grab
Total Iron	1/Discharge	Grab
Total Chloride	1/Discharge	Grab
Total Arsenic	1/Discharge	Grab
Total Boron	1/Discharge	Grab
Total Sulfate	1/Discharge	Grab
Flow, mgd	1/Day	Calculated
Total Flow, Mgal	1/Month	Calculated
Notes:		
a.	Refer to Appendix B for definitions.	

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 Missouri River is listed as a class I stream in the Standards of Quality for Waters of the State. The quality of water in class I streams must be suitable for resident fish and other aquatic life, as well as recreational use. The quality 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 Missouri River is not listed as impaired in the 2018 North Dakota Section 303(d) List of Waters Needing Total Maximum Daily Loads (303(d) List). All beneficial uses are attained in this section of the Missouri River.

The tributaries of the Knife River and Brush Creek are not specifically mentioned in the Standards of Quality for Waters of the State (NDAC 33.1-16-02.1, Appendix I) and are considered class III streams. The quality of water in class III streams must be suitable for agricultural and industrial uses. Streams in this class generally have low average flows with prolonged periods of no flow. During periods of no flow, class III streams are of limited value for recreation and fish and aquatic biota. The quality of these waters must be maintained to protect secondary contact recreation uses, such as wading, and fish and aquatic biota, and wildlife uses.

A TMDL allocation for fecal coliform bacteria was finalized for Brush Creek and its tributaries in 2010 (*Fecal Coliform Bacteria TMDLs for the Knife River Tributaries in Mercer County, North Dakota*, September 2010). The department identified the recreational use of Brush Creek as being fully supported but threatened by fecal coliform bacteria (fecal coliform bacteria are used as an indicator of recreational use risk). As a result, a TMDL for fecal coliform bacteria was developed for the creek. The TMDL is intended to reduce fecal coliform bacteria counts in Brush Creek to meet the beneficial use of the creek.

Fecal coliform count reductions described in the TMDL have generally been allotted to non-point sources of pollution (e.g., failing septic systems, livestock, etc.). The TMDL prescribes BMPs such as livestock management to achieve load reductions for non-point sources of pollution. A wasteload allocation for fecal coliform bacteria was not given to the facility.

Sources of fecal coliform bacteria from the facility that could contribute to fecal coliform bacteria counts include sanitary wastewater. Sanitary wastewater is sent to an onsite wastewater package plant for treatment. Effluent from the package plant discharges to the yard pond and is reused in facility processes or evaporates. The department determined fecal coliform requirements are not necessary in the proposed permit since the facility is not expected to contribute fecal coliform to Brush Creek.

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

Total Residual Chlorine

Discharges from the facility do not have the potential to exceed the WQS for total residual chlorine for class I streams (Appendix C–Chlorine, Total Residual). The proposed permit does not include monitoring for total residual chlorine.

pH

Discharges to Class I streams shall have an instantaneous limitation between 6.5 (s.u.) and 9.0 (s.u.). Discharges to Class III streams shall have an instantaneous limitation between 6.0 (s.u.) and 9.0 (s.u.).

Toxic Metals, Cyanide, and Total Phenols

The proposed permit does not include monitoring for toxic metals, cyanide, and total phenols at Outfall 005. Discharges from Outfall 005 do not have the potential to exceed water quality standards for toxic metals, cyanide, and total phenols for class I streams based on the department's reasonable potential analyses (Appendix C). A reliable analysis could not be conducted to determine whether the concentrations of total mercury or total thallium have the potential to exceed the human health water quality standard criterion. This is because the detection/report limit for instream data was larger than the effluent concentrations and applicable water quality standard. 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.

Organic Compounds

As provided in the permittee's application, there were sixty-six organic compounds analyzed at Outfall 005. All sixty-six analytes were believed absent in the effluent and results of analyses were below detection/report levels. The detection/report levels for thirty-three of the compounds were below the most stringent water quality standard for Class I streams or did not have a corresponding water quality standard. The department determined the reported detection/report levels for these parameters were acceptable. The department determined there was no reasonable potential for the organic compounds to be present in detectable amounts.

Sample results of the remaining thirty-two compounds (Table 11) were reported below detection levels but those levels were above the most stringent water quality standard for Class I streams.

Table 11 – List of Organic Compounds Above Class I Stream Water Quality Standards

Volatile Compounds	Acid Compounds	Pesticide Compounds
1,1,2,2- tetrachloroethane	2,4-dichlorophenol	4,4'-DDD
1,1,2-trichloroethane	2,4-dinitrophenol	4,4'-DDT*
1,2-dichloropropane	4,6-dinitro-o-cresol*	Aldrin*
1,3-dichloropropylene	Pentachlorophenol*	alpha-BHC
Acrolein		beta-BHC
Acrylonitrile		Chlordane*
Benzene		Dieldrin*
Carbon tetrachloride*		Heptachlor*
Chlorodibromomethane		Heptachlor epoxide*
Dichlorobromomethane		PCB-1221*
Trichloroethylene		PCB-1232*
Vinyl chloride*		PCB-1242*
		PCB-1248*
		PCB-1254*
		PCB-1260*
*U.S. banned or restricted chemical or pesticide (not all-inclusive)		

Fifteen pesticide compounds (Table 11) were analyzed with results below detection/report levels. Twelve of these compounds are banned or have restricted uses and are not present in the discharge. Additionally, PCB (polychlorinated biphenyl) compounds found in the pesticide group are not allowed to be discharged by the proposed permit. The detection/report levels of the additional three compounds were compared to the water quality standards associated with the compounds. All of the detection/report levels were above the human health water quality standards associated with each compound. Currently there is no practical method to test down to these water quality standards. The department determined there is no reasonable potential for these organic compounds to be present in the discharge. Because of this, the department will not include the parameters reported as non-detect in the proposed permit.

Twelve volatile compounds (Table 11) were analyzed with results below detection/report levels. The department mathematically determined there is no reasonable potential for eleven of these organic compounds to be present in the discharge. Two of these compounds are banned or have restricted uses and are not present in the discharge. One compound (acrylonitrile) had the mathematical possibility to be present in the discharge above the human health water quality standard criterion based on detection/report level; however this compound is used in the manufacture of things like plastics and no longer used as a pesticide. Because of this, the department will not include the parameters reported as non-detect in the proposed permit.

Four acid compounds (Table 11) were analyzed with results below detection/report levels. The department mathematically determined there was reasonable potential for the four compounds to be present in the discharge above human health water quality standard criteria based on the detection/report levels. Two compounds (pentachlorophenol and 4,6-dinitro-o-cresol) have restricted uses and would not be present in the discharge. The other two compounds (2,4-dichlorophenol and 2,4-dinitrophenol) are used as precursors to make other chemicals and

would not be present in the discharge. Because of this, the department will not include the parameters reported as non-detect in the proposed permit.

Whole Effluent Toxicity

Testing requirements and limitations for whole effluent toxicity (WET) testing are specified in 40 CFR 122.44(d)(1)(iv) & (v) for discharges that may have the reasonable potential to contribute to an in-stream excursion above a numeric or narrative criterion for whole effluent toxicity. The state water quality standards include a narrative standard related to whole effluent toxicity. The narrative standard listed in NDAC 33.1-16-02.1-08(1)(a)(4) states that waters of the state shall be "[f]ree from substances attributable to municipal, industrial or other discharges or agricultural practices in concentrations 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."

The department conducted a reasonable potential analysis for whole effluent toxicity for Outfall 005. The department determined no reasonable potential for acute toxicity from Outfall 005 (Appendix C). The department determined the waste stream discharge from the facility is monitored and limited for parameters present and recognizable in the discharge.

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

COOLING WATER INTAKE STRUCTURE REQUIREMENTS

Cooling Water Intake Structure

The cooling water intake structure (CWIS) for Coyote Station is subject to the final Clean Water Act section 316(b) rule. The rule requires facilities to minimize environmental impact associated with the use of the CWIS. The rule requires facilities to utilize appropriate technology to minimize impingement and entrainment of aquatic species at the CWIS. The rule does not authorize take, as defined by the Endangered Species Act, for the purposes of compliance.

On October 6, 2022, the department emailed the 316(b) application to the USFWS more than 60 days prior to the public notice date of January 26, 2023. The USFWS responded on October 18, 2022, that the permit was consistent with the Programmatic Biological Opinion on the U.S. Environmental Protection Agency's Issuance and Implementation of the Final Regulations Section 316(b) of the Clean Water Act and that the permit will have not more than minor detrimental effects on federally-listed species and critical habitat; no further considerations were necessary.

Coyote Station uses a closed-cycle recirculating system to withdraw water from the Missouri River. The system is designed to operate using minimized make-up and blowdown water. Use of a closed-cycle recirculating system reduces the quantity of water withdrawn from the Missouri River, which reduces impingement and entrainment. Operating a closed-cycle recirculating system is one of the best technology available (BTA) alternatives for reducing impingement (40 CFR 125.94(c)(1)).

The CWIS is located on the south bank of the Garrison Reach of the Missouri River, roughly two miles south of the confluence of the Knife River near Stanton, ND. The CWIS is contained within the Missouri River Pumping Station and consists of five trash racks, three traveling screens, three wash water pumps, and three river intake pumps. The opening of the CWIS consists of trash racks placed in a row separated by concrete pillars. Three of the trash racks measure 9.5 feet by 6 feet and two are 3.5 feet by 6 feet. Each bar on every trash rack is spaced four inches apart. The intake channel is normally about 10 feet below the surface of the Missouri River. After passing through the trash racks, water flows through the vertical traveling screens. Each traveling screen has forty-four, 2-foot by 6.5-foot carbon steel baskets with 3/8-inch square openings. The screens are rotated at a rate of 10 feet per minute. The wash water pumps provide water for the traveling screens and for the initial filling of the pipeline. The wash water pumps operate with a discharge capacity of 200 gallons per minute. Wash water from the traveling screens is troughed back to the river. The river intake pumps have a discharge capacity of 6,750 gallons per minute. The intake pumps move screened water into a 36-inch concrete pipeline that sends water to the Coyote Station.

The CWIS operates 24 hours a day, year-round. Under outage or at times when there is excess precipitation in the surge pond, the CWIS is taken out of service until water is needed. From 2017 to 2021, the generating unit was online an average of 84 percent of the time each year. The maximum Design Intake Flow of the CWIS is 28.8 million gallons per day. As provided in the permittee's application, the typical daily Actual Intake Flow since 2017 averaged 5.6 million gallons per day; an increase from 4.5 million gallons per day from 2010 to 2017. Approximately 80 to 90 percent of the Actual Intake Flow is used as non-contact cooling water. Less than 0.1 percent of the Missouri River is withdrawn at the CWIS on an average monthly basis. CWIS flows reported to the department in discharge monitoring reports are summarized in Table 12.

Table 12 – Cooling Water Intake Structure DMR Data (October 2017 to September 2022)

Parameter	Units	Maximum	Average
Flow	MGD	21.6	5.85

Coyote Station continuously monitors the CWIS from station operations. Intake flows are monitored by station operations. The flow of each pump and whether the pumps are "off" or "on" is monitored by station operations. Station operations also monitors whether the traveling screens are "off" or "on." The monitoring system displays alarms when issues or failures occur. In addition to the remote monitoring system, Coyote Station personnel visually inspect the major components of the CWIS as part of regular maintenance.

Otter Tail Power Company worked with four other power companies to collect data on the baseline biology of the Garrison Reach of the Missouri River. The range of data spans the years 1996 through 2015. Although no data was collected at the Coyote Station CWIS, three of the

four companies operate cooling water intake structures in the vicinity of the Coyote Station CWIS.

Fragile species that inhabit the Garrison Reach of the Missouri River include rainbow smelt and gizzard shad. These species are likely to be present and impinged at the Coyote Station CWIS.

There is no designated critical habitat for Federally-listed threatened and endangered species near the Coyote Station CWIS. The only Federally-listed aquatic species with a potential for occurrence near the Coyote Station CWIS is the pallid sturgeon. While the pallid sturgeon is known to occur in the Missouri River, it is likely to be rarely found in the Garrison Reach. Pallid sturgeon are large fish and strong swimmers, and could avoid the Coyote Station CWIS. There has been no record of impingement of a pallid sturgeon at any CWIS.

No entrainment studies have been conducted by Otter Tail Power Company. Entrainment sampling was conducted by other power companies with intake structures in the vicinity of the Coyote Station CWIS. Coyote Station has a uniquely-designed cooling water supply system as compared to other facilities along the Garrison Reach. Coyote Station has minimal water withdrawals and operates a closed-cycle recirculating system. Consequently, entrainment performance studies from other facilities would not be applicable or relevant to conditions at Coyote Station.

Impingement and Entrainment

The primary method for reducing impingement at Coyote Station is achieved through the closed-cycle recirculating system. The operation of a closed-cycle recirculating system is consistent with the Clean Water Act section 316(b) rule's approach to impingement BTA standards (40 CFR 125.94(c)(1)).

The department must establish site-specific BTA standards for entrainment based on best professional judgment (40 CFR 125.94(d) and 125.98(f)). The standards must reflect the department's determination of the maximum reduction in entrainment warranted. The department reviewed the information submitted with the permittee's application. The Coyote Station CWIS is a closed-cycle recirculating system which reduces the quantity of cooling water required from the Missouri River—less than 0.1 percent of the monthly river flow average. The use of less cooling water reduces the potential for entrainment. In addition, the supplemental data included with the permittee's application states the potential for entrainment of early life stages of fish species in the Garrison Reach varies from unlikely to potentially. Based on this information, it is the department's best professional judgment that operation of a closed-cycle recirculating system along with the low likelihood of early life stages of fish present in the Missouri River constitutes the maximum reduction in entrainment warranted.

Permit Requirements

The proposed permit will contain the following language as required by 40 CFR 125.98(b)(1), "Nothing in this permit authorizes take for the purpose of a facility's compliance with the Endangered Species Act."

The proposed permit requires Coyote Station to monitor the CWIS with remote monitoring devices or conduct weekly visual inspections in instances where the remote monitoring devices are not in operation (40 CFR 125.96(e)).

The proposed permit requires the facility to operate a closed-cycle recirculating system in accordance with 40 CFR 125.94(a)(1) and 125.94(c)(1). The proposed permit also requires the facility to operate a closed-cycle recirculating system to comply with the BTA standard for entrainment in accordance with 40 CFR 125.94(a)(1) and 125.94(d). The operation of a closed-cycle recirculating system is the site-specific best technology available standard for the maximum reduction in entrainment warranted.

The proposed permit requires the facility to monitor the actual intake flow (AIF) daily. Monitoring of the AIF must be representative of normal operating conditions and include measuring the cooling water withdrawals and blow down volume. In order to determine compliance with the proposed permit, the permittee will be required to submit intake flow monitoring results with the discharge monitoring report (40 CFR 125.97(a)).

The proposed permit requires the facility to submit an annual certification statement and report regarding the operation of the cooling water system. The report must summarize any changes made related to the cooling water system. If the information contained in the previous statement is still relevant, then the facility may simply state that in the certification statement. The certification statement must be signed by a responsible corporate officer. Also, any revision related to the information required by 40 CFR 122.21(r) must be submitted with the next permit application (40 CFR 125.97(c), 125.98(b)(4)).

The proposed permit requires all discharge monitoring reports, and annual certification statements and reports related to cooling water intake operation and closed-cycle recirculating system to be retained until the subsequent permit is issued (40 CFR 125.97(d), 125.98(b)(4)).

The proposed permit includes a statement requiring any revisions to the requirements of 40 CFR 122.21(r) to be included with the next permit application (40 CFR 125.98(b)(6)).

The proposed permit requires all of the information submitted with the permit application used to satisfy the requirements of 40 CFR 122.21(r) to be retained until the subsequent permit is issued (40 CFR 125.95(e)).

The proposed permit includes a requirement for the facility to notify the department of any proposed changes to the cooling water intake structure or operation of the cooling water intake. Any changes must be included with the annual certification statement and report.

The proposed permit allows the department and EPA representatives to inspect the cooling water intake structure and operation of the cooling water intake structure, and request information needed to determine permit compliance (40 CFR 125.98(i)).

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.

Test Procedures

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

OTHER PERMIT CONDITIONS

There are no other permit conditions included in the proposed 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 sludge. 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 to **Otter Tail Power Company – Coyote Station** located near Beulah, North Dakota. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and the department's reasons for requiring permit conditions.

The department will place a Public Notice of Draft on **January 26, 2023** in the **Hazen Star** to inform the public and to invite comment on the proposed draft North Dakota Pollutant Discharge Elimination System permit and fact sheet.

The Notice –

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

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

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

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: 1/26/2023 Public Notice Number: ND-2023-003

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

Permit Information
Application Date: 9/21/2022 Application Number: ND0024996

Applicant Name: Otter Tail Power Co
Mailing Address: PO Box 496, Fergus Falls, MN 56538-0496
Telephone Number: 218.739.8526

Proposed Permit Expiration Date: 3/31/2028

Facility Description
The reapplication is for a 427 megawatt, lignite coal-fired steam electric power generating plant located in Section 10, Township 143 North, Range 88 West. Discharges consist of cooling tower blowdown and screen washings to the Missouri River, a Class I stream, and surface runoff to unnamed tributaries of the Knife River and Brush Creek, Class III streams. The reapplication also includes the Missouri River cooling water intake for the plant subject to the requirements of section 316 (b) of the Clean Water Act.

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 February 24, 2023 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. To request accommodations, contact the NDDEQ Non-discrimination Coordinator at 701-328-5210 or deqEJ@nd.gov. TTY users may use Relay North Dakota at 711 or 1-800-366-6888.

APPENDIX B – DEFINITIONS

DEFINITIONS Standard Permit BP 2019.05.29

1. "**Act**" means the Clean Water Act.

2. "**Average monthly discharge limitation**" means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

3. "**Average weekly discharge limitation**" means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

4. "**Best management practices**" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.

5. "**Bypass**" means the intentional diversion of waste streams from any portion of a treatment facility.

6. "**Composite**" sample means a combination of at least 4 discrete sample aliquots, collected over periodic intervals from the same location, during the operating hours of a facility not to exceed a 24-hour period. The sample aliquots must be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater.

7. "**Daily discharge**" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

8. "**Department**" means the North Dakota Department of Environmental Quality, Division of Water Quality.

9. "**DMR**" means discharge monitoring report.

10. "**EPA**" means the United States Environmental Protection Agency.

11. "**Geometric mean**" means the n^{th} root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.

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

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

14. "**Maximum daily discharge limitation**" means the highest allowable "daily discharge."

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

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

17. "**Severe property damage**" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

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

19. "**Upset**" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

DEFINITIONS Industry Specific

See 40 CFR 423.11

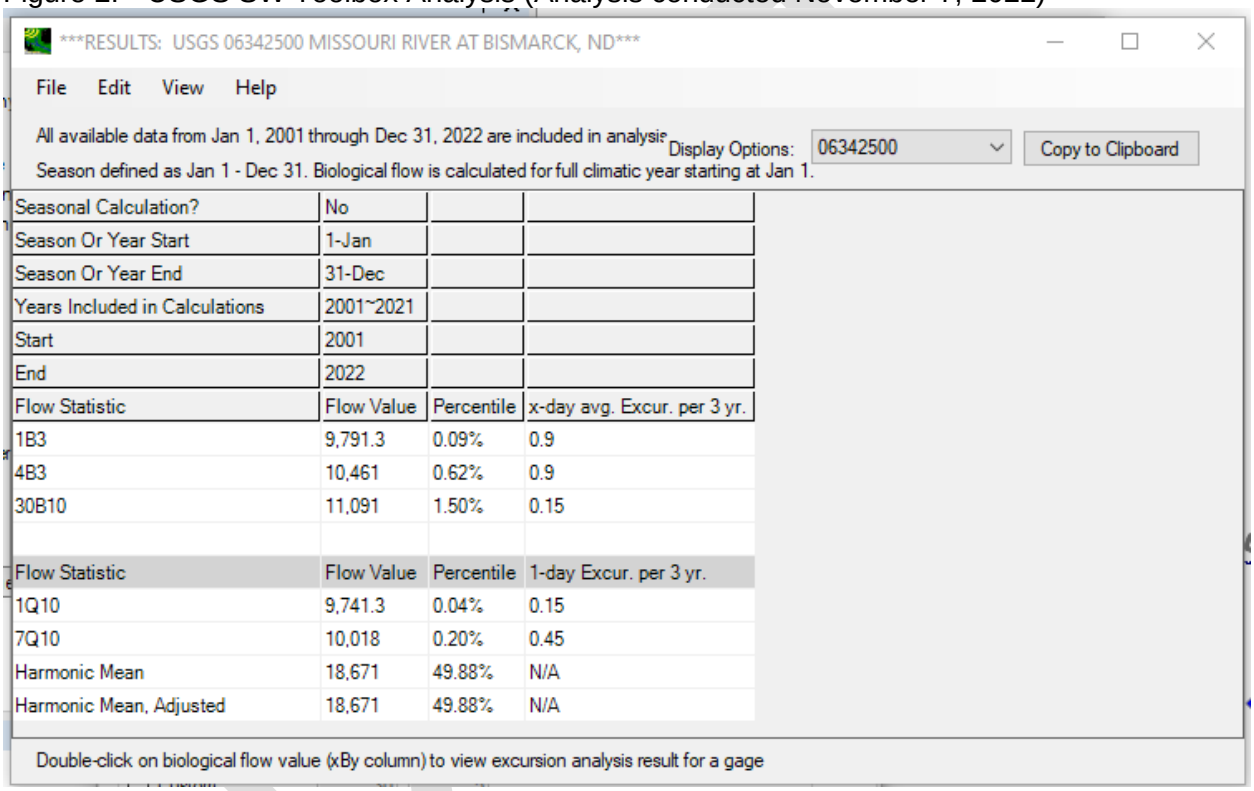
See 40 CFR 125.92

APPENDIX C – DATA AND TECHNICAL CALCULATIONS

The North Dakota Department of Environmental Quality reviewed NDPDES permit application, DMR information, and applicable water quality standards for class I and III streams to determine the appropriate requirements to be placed in the permit.

The development of the permit required the use of USGS SW Toolbox 1.0.5 to determine the 1B3, 4B3, 30B10, 1Q10, and 7Q10 flows for the Missouri River at USGS gauging station 06342500 Missouri River at Bismarck, ND from 2001 through 2022 (Figure 2). The date of the analysis was November 7, 2022. The statistical flows were used to characterize the effects of cooling tower blowdown water mixing with the Missouri River.

Figure 2: USGS SW Toolbox Analysis (Analysis conducted November 7, 2022)



Free Available Chlorine

The quantity of free available chlorine (FAC) discharged in cooling tower blowdown was calculated by multiplying the long-term average daily flow of the cooling tower blowdown times 0.5 mg/L for the maximum load, and 0.2 mg/L for the average load (see 40 CFR 423.12(b)(7)). The long-term average daily flow provided in the permittee's application was 0.313 million gallons per day (years 2018-2021). Since FAC cannot be discharged for more than two hours in one day, the calculation includes a two-hour time factor. Based on the calculation, the thirty-day average changed from 0.05 lb/day to 0.04 lb/day and the daily maximum changed from 0.13 lb/day to 0.11 lb/day.

$$FAC_{Max} = 0.11 lb/d = 0.5 mg/L \times 0.313 mgal/d \times \left(\frac{2hr}{24hr}\right) \times \left(\frac{2.21\ lb}{1 \times 10^6 mg}\right) \times \left(\frac{3.785\ L}{1\ gal}\right) \times \left(\frac{1 \times 10^6 gal}{1 mgal}\right)$$

$$FAC_{Avg} = 0.04 lb/d = 0.2 mg/L \times 0.313 mgal/d \times \left(\frac{2hr}{24hr}\right) \times \left(\frac{2.21\ lb}{1 \times 10^6 mg}\right) \times \left(\frac{3.785\ L}{1\ gal}\right) \times \left(\frac{1 \times 10^6 gal}{1 mgal}\right)$$

Aluminum

The reasonable potential (RP) determination for aluminum in the cooling tower blowdown 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 one sample of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since less than ten samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The upstream concentration used in the RP analysis was 0.6 mg/L based on the 75th percentile of instream data. The maximum effluent concentration used in the RP analysis was 0.83 mg/L. Based on the RP analysis, the department found there to be no reasonable potential for aluminum to be above the aquatic life water quality standard criterion.

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.6000	mg/l	**Parameter:**	
Effluent Concetration (max):	0.8300	mg/l	**Aluminum, A.L.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.8300	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.6000	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.6062	mg/l	RWC - 7Q10	0.6022	mg/l
RWC - 1B3	0.6062	mg/l	RWC - 4B3	0.6021	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	0.75	mg/l	Chronic Criterion	0.7500	mg/l

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

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

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

Page 1 of 4

Arsenic, Total

The RP determination for total arsenic in the cooling tower blowdown 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 one sample of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since less than ten samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The upstream concentration used in the RP analysis was 0.003 mg/L based on the 75th percentile of instream data. The maximum effluent concentration used in the RP analysis was 0.0129 mg/L. Based on the RP analysis, the department found there to be no reasonable potential for total arsenic to be above the aquatic life and human health water quality standard criteria.

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.0030	mg/l	**Parameter:**	
Effluent Concetration (max):	0.0129	mg/l	**Arsenic, Total, A.L.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.0129	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0030	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0031	mg/l	RWC - 7Q10	0.0030	mg/l
RWC - 1B3	0.0031	mg/l	RWC - 4B3	0.0030	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)	
Acute Criterion	0.34	mg/l	Chronic Criterion	0.1500	mg/l

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

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

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

Page 1 of 4

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.0030	mg/l	**Parameter:**	
Effluent Concetration (max):	0.0129	mg/l	**Arsenic, Total, H.H.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.0129	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0030	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0031	mg/l	RWC - 7Q10	0.0030	mg/l
RWC - 1B3	0.0031	mg/l	RWC - 4B3	0.0030	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	0.01	mg/l	Chronic Criterion	0.0100	mg/l

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

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

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

Page 1 of 4

Boron, Total

The RP determination for total boron in the cooling tower blowdown 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 one sample of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since less than ten samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The upstream concentration used in the RP analysis was 0.15 mg/L based on the 75th percentile of instream data. The maximum effluent concentration used in the RP analysis was 0.83 mg/L. Based on the RP analysis, the department found there to be no reasonable potential for total boron to be above the agricultural, irrigation, industrial water quality standard criterion.

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.1500	mg/l	**Parameter:**	
Effluent Concetration (max):	0.8300	mg/l	**Boron, Total, A.l.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.8300	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.1500	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.1569	mg/l	RWC - 7Q10	0.1524	mg/l
RWC - 1B3	0.1568	mg/l	RWC - 4B3	0.1523	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	0.75	mg/l	Chronic Criterion	0.7500	mg/l

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

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

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

Page 1 of 4

Chlorine, Total Residual

The RP determination for total residual chlorine in the cooling tower blowdown 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 649 samples of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since the data set was not included with the NDPDES permit application. The statistical multiplier based on the 95th percentile occurrence probability was 1.4. The upstream concentration used in the RP analysis was 0 mg/L since no point sources of total residual chlorine are present upstream. The maximum effluent concentration used in the RP analysis was 1.08 mg/L (although Coyote Station does dechlorinate the effluent before discharge). Based on the RP analysis, the department found there to be no reasonable potential for total residual chlorine to be above the aquatic life water quality standard criteria.

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	1.4			
Upstream Concentration:	0.0000	mg/l	**Parameter:**	
Effluent Concetration (max):	1.0800	mg/l	**Chlorine, Total Residual, A.L.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	1.0800	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0000	mg/l	Qs - 4B3	6757.81	mgd
Stat	1.40				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0021	mg/l	RWC - 7Q10	0.0007	mg/l
RWC - 1B3	0.0021	mg/l	RWC - 4B3	0.0007	mg/l

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

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

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

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

Page 1 of 4

Copper, Total Recoverable

The RP determination for total recoverable copper in the cooling tower blowdown 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 one sample of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since less than ten samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The upstream concentration used in the RP analysis was 0.02 mg/L based on the 75th percentile of instream data. The maximum effluent concentration used in the RP analysis was 0.1133 mg/L. Because the acute and chronic aquatic life water quality standards for total recoverable copper are dependent on the hardness of the receiving water, the 95th percentile hardness concentration was used to determine the applicable total recoverable copper water quality standards. The 95th percentile hardness concentration at USGS Monitoring Station 06342500 was 250 mg/L. Based on the RP analysis, the department found there to be no reasonable potential for total recoverable copper to be above the aquatic life and human health water quality standard criteria.

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.0200	mg/l	**Parameter:**	
Effluent Concetration (max):	0.1133	mg/l	**Copper, Total Recoverable, A.L.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.1133	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0200	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0209	mg/l	RWC - 7Q10	0.0203	mg/l
RWC - 1B3	0.0209	mg/l	RWC - 4B3	0.0203	mg/l

Criterion Maximum Concentration (CMC)		Criterion Continuous Concentration (CCC)	
Acute Criterion	0.03319 mg/l	Chronic Criterion	0.0204 mg/l

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

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

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

Page 1 of 4

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.0200	mg/l	**Parameter:**	
Effluent Concetration (max):	0.1133	mg/l	**Copper, Total Recoverable, H.H.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.1133	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0200	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0209	mg/l	RWC - 7Q10	0.0203	mg/l
RWC - 1B3	0.0209	mg/l	RWC - 4B3	0.0203	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	1	mg/l	Chronic Criterion	1.0000	mg/l

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

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

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

Page 1 of 4

Cyanide, Total

The RP determination for total cyanide in the cooling tower blowdown 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 one sample of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since less than ten samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The upstream concentration used in the RP analysis was 0 mg/L since no cyanide results were reported at USGS Monitoring Station 06342500. The maximum effluent concentration used in the RP analysis was 0.02 mg/L. Based on the RP analysis, the department found there to be no reasonable potential for total cyanide to be above the aquatic life and human health water quality standard criteria.

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.0000	mg/l	**Parameter:**	
Effluent Concetration (max):	0.0200	mg/l	**Cyanide, Total, A.L.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: 005

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.0200	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0000	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0002	mg/l	RWC - 7Q10	0.0001	mg/l
RWC - 1B3	0.0002	mg/l	RWC - 4B3	0.0001	mg/l

Criterion Maximum Concentration (CMC)		Criterion Continuous Concentration (CCC)	
Acute Criterion	0.022 mg/l	Chronic Criterion	0.0052 mg/l

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

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

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

Page 1 of 4

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.0000	mg/l	**Parameter:**	
Effluent Concetration (max):	0.0200	mg/l	**Cyanide, Total, H.H.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.0200	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0000	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0002	mg/l	RWC - 7Q10	0.0001	mg/l
RWC - 1B3	0.0002	mg/l	RWC - 4B3	0.0001	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)	
Acute Criterion	0.004	mg/l	Chronic Criterion	0.0040	mg/l

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

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

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

Page 1 of 4

Fluoride, Total

The RP determination for total fluoride in the cooling tower blowdown 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 one sample of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since less than ten samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The upstream concentration used in the RP analysis was 0.6 mg/L based on the 75th percentile of instream data. The maximum effluent concentration used in the RP analysis was 4.16 mg/L. Based on the RP analysis, the department found there to be no reasonable potential for total fluoride to be above the human health water quality standard criterion.

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

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

Facility Name:	Coyote Station		Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996		1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86		1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31		7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%		4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2				
Upstream Concentration:	0.6000	mg/l		**Parameter:**	
Effluent Concetration (max):	4.1600	mg/l		**Fluoride, Total, H.H.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	4.1600	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.6000	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.6345	mg/l	RWC - 7Q10	0.6122	mg/l
RWC - 1B3	0.6344	mg/l	RWC - 4B3	0.6117	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	4	mg/l	Chronic Criterion	4.0000	mg/l

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

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

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

Page 1 of 4

Mercury, Total

The RP determination for total mercury in the cooling tower blowdown 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 one sample of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since less than ten samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The upstream concentration used in the RP analysis was 0.0005 mg/L based on the 75th percentile of instream data (all instream results were below detection/report levels). The maximum effluent concentration used in the RP analysis was 0.000134 mg/L. Based on the RP analysis, the department found there to be no reasonable potential for total mercury to be above the aquatic life water quality standard criteria.

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

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

Facility Name:	Coyote Station		Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996		1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86		1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31		7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%		4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2				
Upstream Concentration:	0.0005	mg/l		**Parameter:**	
Effluent Concetration (max):	0.0001	mg/l		**Mercury, Total, A.L.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: 005

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.0001	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0005	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0005	mg/l	RWC - 7Q10	0.0005	mg/l
RWC - 1B3	0.0005	mg/l	RWC - 4B3	0.0005	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	0.0017	mg/l	Chronic Criterion	0.0009	mg/l

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

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

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

Page 1 of 4

A reliable RP analysis could not be conducted to determine the reasonable potential for total mercury to be above the human health water quality standard criterion. This is because the detection/report limit for instream data was larger than both the effluent concentration and applicable water quality standard. 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.

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.0005	mg/l	**Parameter:**	
Effluent Concetration (max):	0.0001	mg/l	**Mercury, Total, H.H.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.0001	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0005	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0005	mg/l	RWC - 7Q10	0.0005	mg/l
RWC - 1B3	0.0005	mg/l	RWC - 4B3	0.0005	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	0.00005	mg/l	Chronic Criterion	0.0001	mg/l

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

CMC RP Present:		**CCC RP Present:**	
1Q10 Acute OR	**YES**	**7Q10 Chronic OR**	**YES**
1B3 Acute	**YES**	**4B3 Chronic**	**YES**

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

Page 1 of 4

Selenium, Total Recoverable

The RP determination for total recoverable selenium in the cooling tower blowdown 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 one sample of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since less than ten samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The upstream concentration used in the RP analysis was 0.001 mg/L based on the 75th percentile of instream data. The maximum effluent concentration used in the RP analysis was 0.005 mg/L. Based on the RP analysis, the department found there to be no reasonable potential for total recoverable selenium to be above the aquatic life and human health water quality standard criteria.

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

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

Facility Name:	Coyote Station		Receiving Stream:	Missouri River
NDPDES Permit:	ND0024996		1Q10 Acute	9741 cfs
Daily Maximum Flow (mgd):	0.86		1B3 Acute	9791 cfs
Daily Average Flow (mgd):	0.31		7Q10 Chronic	10018 cfs
Stream Design Mixing:	10.0%		4B3 Chronic	10461 cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.0010	mg/l		**Parameter:**
Effluent Concetration (max):	0.0050	mg/l		**Selenium, Total Recoverable, A.L.**

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.0050	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0010	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0010	mg/l	RWC - 7Q10	0.0010	mg/l
RWC - 1B3	0.0010	mg/l	RWC - 4B3	0.0010	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	0.02	mg/l	Chronic Criterion	0.0050	mg/l

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

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

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

Page 1 of 4

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.0010	mg/l	**Parameter:**	
Effluent Concetration (max):	0.0050	mg/l	**Selenium, Total Recoverable, H.H.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: **005**

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.0050	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0010	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0010	mg/l	RWC - 7Q10	0.0010	mg/l
RWC - 1B3	0.0010	mg/l	RWC - 4B3	0.0010	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	0.05	mg/l	Chronic Criterion	0.0500	mg/l

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

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

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

Page 1 of 4

Sulfate, Total

The RP determination for total sulfate in the cooling tower blowdown 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 one sample of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since less than ten samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The upstream concentration used in the RP analysis was 205 mg/L based on the 75th percentile of instream data. The maximum effluent concentration used in the RP analysis was 2740 mg/L. Based on the RP analysis, the department found there to be no reasonable potential for total sulfate to be above the water quality standard criterion for municipal and domestic drinking water sources prior to treatment.

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

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

Facility Name:	Coyote Station		Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996		1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86		1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31		7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%		4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2				
Upstream Concentration:	205.0000	mg/l		**Parameter:**	
Effluent Concetration (max):	2740.0000	mg/l		**Sulfate, Total, M.&D.W.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: 005

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	2740.0000	mg/l	Qs - 7Q10	6471.63	mgd
Cs	205.0000	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	228.0118	mg/l	RWC - 7Q10	213.1132	mg/l
RWC - 1B3	227.8945	mg/l	RWC - 4B3	212.7698	mg/l

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

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

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

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

Page 1 of 4

Thallium, Total

The RP determination for total thallium in the cooling tower blowdown 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 one sample of the effluent and all available data from USGS Monitoring Station 06342500-Missouri River at Bismarck, ND. A default coefficient of variation (CV) of 0.6 was used since less than ten samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The upstream concentration used in the RP analysis was 0.001 mg/L based on the 75th percentile of instream data (all instream results were below detection/report levels). The maximum effluent concentration used in the RP analysis was 0.0005 mg/L.

A reliable RP analysis could not be conducted to determine the reasonable potential for total thallium to be above the human health water quality standard criterion. This is because the detection/report limit for instream data was larger than both the effluent concentration and applicable water quality standard. 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.

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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Daily Maximum Flow (mgd):	0.86	1B3 Acute	9791	cfs
Daily Average Flow (mgd):	0.31	7Q10 Chronic	10018	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	10461	cfs
Statistical Multiplier:	6.2			
Upstream Concentration:	0.0010	mg/l	**Parameter:**	
Effluent Concetration (max):	0.0005	mg/l	**Thallium, Total, H.H.**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: 005

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

Qe - Acute	0.86	mgd	Qs - 1Q10	6292.69	mgd
Qe - Chronic	0.31	mgd	Qs - 1B3	6324.99	mgd
Ce	0.0005	mg/l	Qs - 7Q10	6471.63	mgd
Cs	0.0010	mg/l	Qs - 4B3	6757.81	mgd
Stat	6.20				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0010	mg/l	RWC - 7Q10	0.0010	mg/l
RWC - 1B3	0.0010	mg/l	RWC - 4B3	0.0010	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	0.00024	mg/l	Chronic Criterion	0.0002	mg/l

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

CMC RP Present:		**CCC RP Present:**	
1Q10 Acute OR	**YES**	**7Q10 Chronic OR**	**YES**
1B3 Acute	**YES**	**4B3 Chronic**	**YES**

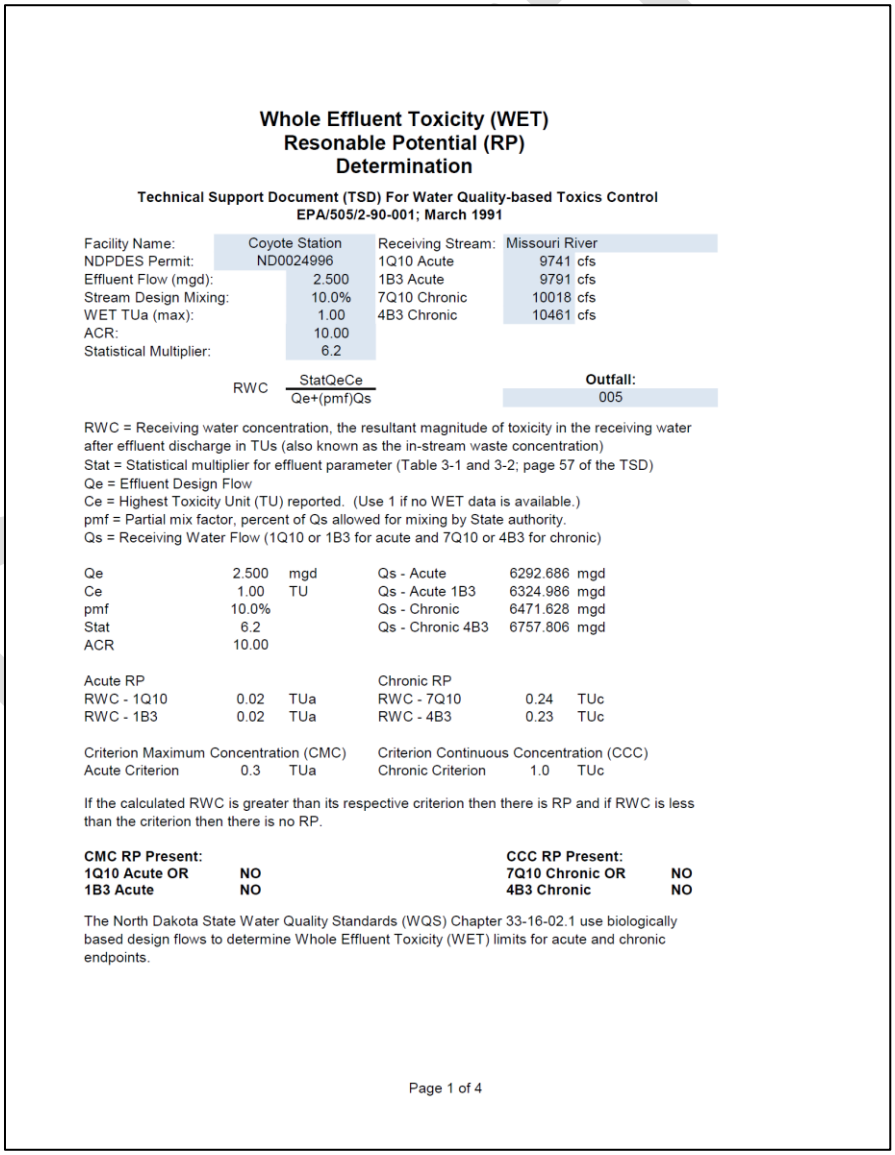
The North Dakota State Water Quality Standards (WQS) Chapter 33-16-02.1 use biologically based design and harmonic mean flows to determine Water Quality Based Effluent Limits (WQBELs) and Whole Effluent Toxicity (WET) limits.

Page 1 of 4

Whole Effluent Toxicity

The RP determination for whole effluent toxicity in the cooling tower blowdown 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 1 sample of the effluent. A default coefficient of variation (CV) of 0.6 was used since less than 10 samples were included in the data set. The statistical multiplier based on the 95th percentile occurrence probability was 6.2. The acute to chronic ratio (ACR) used in the RP analysis was 10 since no ACR data was available. The maximum effluent concentration used in the RP analysis was <1 acute toxicity unit (TUa). Based on the RP analysis, the department found there to be no reasonable potential for the effluent to be acutely or chronically toxic.



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

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

Facility Name:	Coyote Station	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0024996	1Q10 Acute	9741	cfs
Effluent Flow (mgd):	2.500	1B3 Acute	9791	cfs
Stream Design Mixing:	10.0%	7Q10 Chronic	10018	cfs
WET TUa (max):	1.00	4B3 Chronic	10461	cfs
ACR:	10.00			
Statistical Multiplier:	6.2			

$$RWC = \frac{StatQeCe}{Qe+(pmf)Qs}$$

Outfall: 005

RWC = Receiving water concentration, the resultant magnitude of toxicity in the receiving water after effluent discharge in TUs (also known as the in-stream waste concentration)
Stat = Statistical multiplier for effluent parameter (Table 3-1 and 3-2; page 57 of the TSD)
Qe = Effluent Design Flow
Ce = Highest Toxicity Unit (TU) reported. (Use 1 if no WET data is available.)
pmf = Partial mix factor, percent of Qs allowed for mixing by State authority.
Qs = Receiving Water Flow (1Q10 or 1B3 for acute and 7Q10 or 4B3 for chronic)

Qe	2.500	mgd	Qs - Acute	6292.686	mgd
Ce	1.00	TU	Qs - Acute 1B3	6324.986	mgd
pmf	10.0%		Qs - Chronic	6471.628	mgd
Stat	6.2		Qs - Chronic 4B3	6757.806	mgd
ACR	10.00				

Acute RP			Chronic RP		
RWC - 1Q10	0.02	TUa	RWC - 7Q10	0.24	TUc
RWC - 1B3	0.02	TUa	RWC - 4B3	0.23	TUc

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	0.3	TUa	Chronic Criterion	1.0	TUc

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

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

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

Page 1 of 4

APPENDIX D – RESPONSE TO COMMENTS

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