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

Public Notice Date: 5/18/2023 Public Notice Number: ND-2023-013

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: 12/29/2022 Application Number: ND0024945

Applicant Name: Basin Electric Power An Val St

Mailing Address: 1717 E Interstate Ave, Bismarck, ND 58503

Telephone Number: 701.557.5557

Proposed Permit Expiration Date: 6/30/2028

Facility Description

The reapplication is for a 900 megawatt, lignite coal-fired steam electric power generating plant located in the NE1/4, SW1/4 Section 13 and N1/2 Section 24, Township 145 North, Range 88 West and W1/2 Section 7, Township 145 North, Range 87 West. Discharges consist of surface runoff and stack quench water to the nearby West Branch of Antelope Creek, a Class III stream. The reapplication also includes the Lake Sakakawea 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 June 16, 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: ND0024945
Effective Date: July 1, 2023
Expiration Date: June 30, 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,

Basin Electric Power Cooperative – Antelope Valley Station
Bismarck, North Dakota

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

to the west branch of Antelope Creek

provided all the conditions of this permit are met.

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

June 30, 2028.

Signed this _____ day of _____, _____.

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

BP 2019.05.29

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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 001. Active. Final Outfall. Mine Pond.			
Latitude: 47.3819	Longitude: -101.8325	County: Mercer	
Township: 145N	Range: 88W	Section: 13	QQ: ACB
Receiving Stream: West Branch Antelope Creek		Classification: Class III	
The Mine Pond is 19.3-acre-foot pond. The Mine Pond is designed for a 10-year, 24-hour rainfall event. The Mine Pond treats stormwater runoff from the closed landfill (closed in 1998) and capped areas of the Antelope Valley Station special waste landfill. Any discharge is to the west branch of Antelope Creek.			

Outfall 002. Active. Final Outfall. North Pond.			
Latitude: 47.3778	Longitude: -101.8433	County: Mercer	
Township: 145N	Range: 88W	Section: 13	QQ: CBB
Receiving Stream: West Branch Antelope Creek		Classification: Class III	
The North Pond is a 27.2-acre-foot pond. The North Pond is designed for a 25-year, 24-hour rainfall event. Runoff from the northern part of the plant flows to this pond. The North Pond also provides a means of secondary containment in the event the Evaporation Pond or the High Quality Water Pond overflow. Any discharge is to the west branch of Antelope Creek.			

Outfall 003. Active. Final Outfall. South Pond.			
Latitude: 47.3675	Longitude: -101.8431	County: Mercer	
Township: 145N	Range: 88W	Section: 24	QQ: BCB
Receiving Stream: West Branch Antelope Creek		Classification: Class III	
The South Pond is a 16-acre-foot pond. The South Pond is designed for a 10-year, 24-hour rainfall event. Runoff from the parking lots and warehouse storage areas, as well as stack quench water, flows to this pond. On an intermittent basis, the coal pile runoff pond is drained to the South Pond. Any discharge is to the west branch of Antelope Creek.			

PERMIT SUBMITTALS SUMMARY

Coverage Point	Submittal	Monitoring Period	Submittal Frequency	First Submittal Date
001A	Discharge Monitoring Report	Monthly	Quarterly	October 31, 2023
002A	Discharge Monitoring Report	Monthly	Quarterly	October 31, 2023
003A	Discharge Monitoring Report	Monthly	Quarterly	October 31, 2023
Cooling Water Intake	Actual Intake Flow Report	Monthly	Quarterly	October 31, 2023
Cooling Water Intake	Annual Certification Statement	Annual	Annual	July 31, 2024
Application Renewal	EPA Form 1, 2F, & 2E 316(b) Application	Not applicable	1/permit cycle	December 31, 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: **West branch of Antelope Creek**

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

B. Effluent Limitations and Monitoring

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

Table 1: Effluent Limitations and Monitoring Requirements **001**

Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
Total Suspended Solids, mg/L [a]	35	70	1/Month	Grab
pH, S.U.	Shall remain between 6.0 to 9.0		1/Month	Grab
Total Iron, mg/L [a]	3.5	7.0	1/Month	Grab
Oil & Grease, mg/L [b]	N/A	10	1/Day	Visual/Grab
Flow, mgd	Report Monthly Average	Report Maximum Daily Value	1/Day	Calculated
Total Flow, Mgal	Report Monthly Total		1/Quarter	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.

b. If an oily sheen is observed in the discharge, a grab sample for Oil & Grease shall be collected and the department shall be contacted.

N/A Not Applicable

Stipulations:

The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.

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 **002**				
Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
Total Suspended Solids, mg/L	30	50	1/Week	Grab
pH, S.U.	Shall remain between 6.0 to 9.0		1/Week	Grab
Oil & Grease, mg/L [a]	N/A	10	1/Day	Visual/Grab
Flow, mgd	Report Monthly Average	Report Maximum Daily Value	1/Day	Calculated
Total Flow, Mgal	Report Quarterly Total		1/Quarter	Calculated

Notes:

a. If an oily sheen is observed in the discharge, a grab sample for Oil & Grease shall be collected and the department shall be contacted.

N/A Not Applicable

Stipulations:

The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.

Should water, other than stormwater, enter the pond, the facility shall notify the department.

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 3: Effluent Limitations and Monitoring Requirements **003**

Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
Total Suspended Solids, mg/L [a]	30	50	1/Week	Grab
pH, S.U.	Shall remain between 6.0 to 9.0		1/Week	Grab
Oil & Grease, mg/L [b]	N/A	10	1/Day	Visual/Grab
Nitrogen, Total, mg/L [c]	Average for the Month	Monitor Only	1/Month	Grab
Nitrogen, Total, lb/day [c]	Average for the Month	Monitor Only	1/Month	Calculated
Phosphorus, Total, mg/L	Average for the Month	Monitor Only	1/Month	Grab
Phosphorus, Total, lb/day	Average for the Month	Monitor Only	1/Month	Calculated
Flow, mgd	Report Monthly Average	Report Maximum Daily Value	1/Day	Calculated
Total Flow, Mgal	Report Quarterly Total		1/Quarter	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.

b. If an oily sheen is observed in the discharge, a grab sample for Oil & Grease shall be collected and the department shall be contacted.

c. Total nitrogen is a combination of nitrate, nitrite, and Total Kjeldahl Nitrogen (TKN).

N/A Not Applicable

Stipulations:

The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.

Should water, other than stormwater, stack quench water and coal pile runoff pond transfers, enter the pond for Outfall 003, the facility shall notify the department.

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.

II. CLEAN WATER ACT 316(b) FINAL RULES

A. Cooling System Operation

The permittee operates a single intake structure in Lake Sakakawea 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 Lake Sakakawea 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 recommended 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 ND0024945

PERMIT REISSUANCE

BASIN ELECTRIC POWER COOPERATIVE BEULAH, ND

DATE OF THIS FACT SHEET – MAY 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.

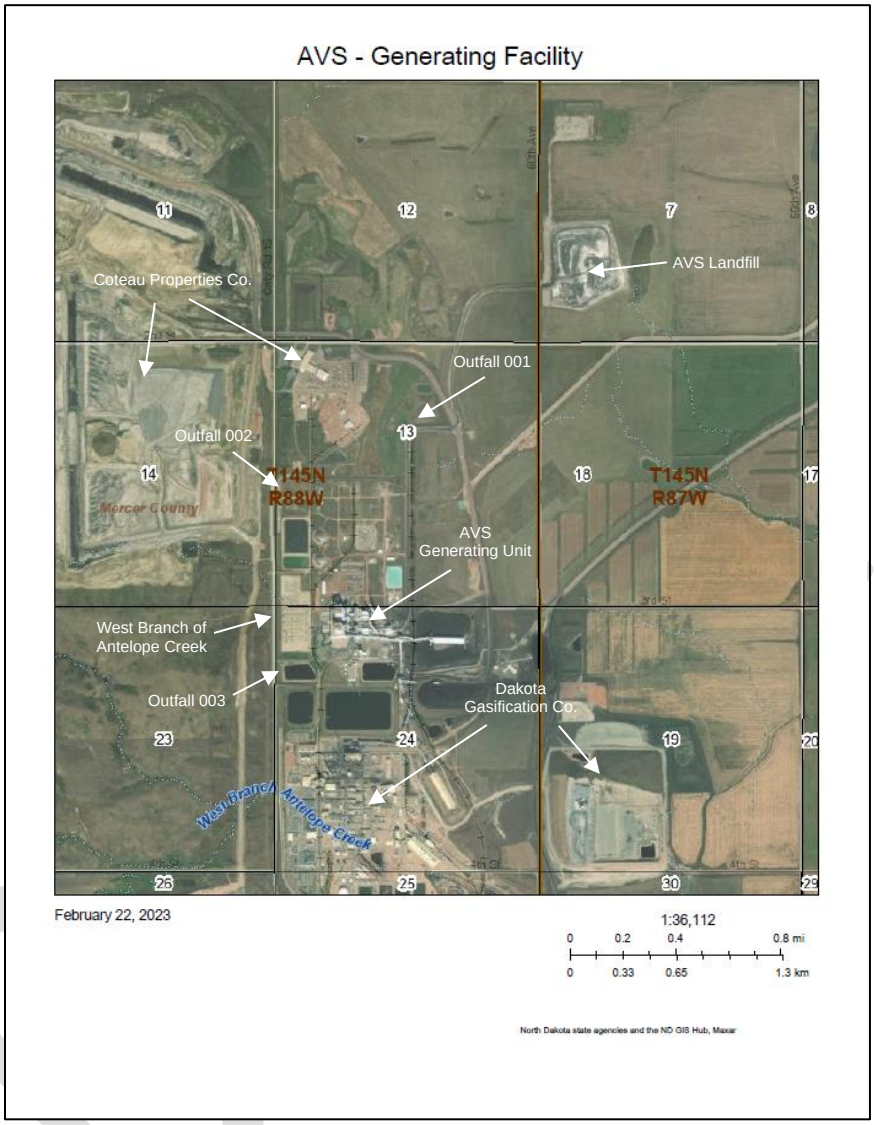
TABLE OF CONTENTS

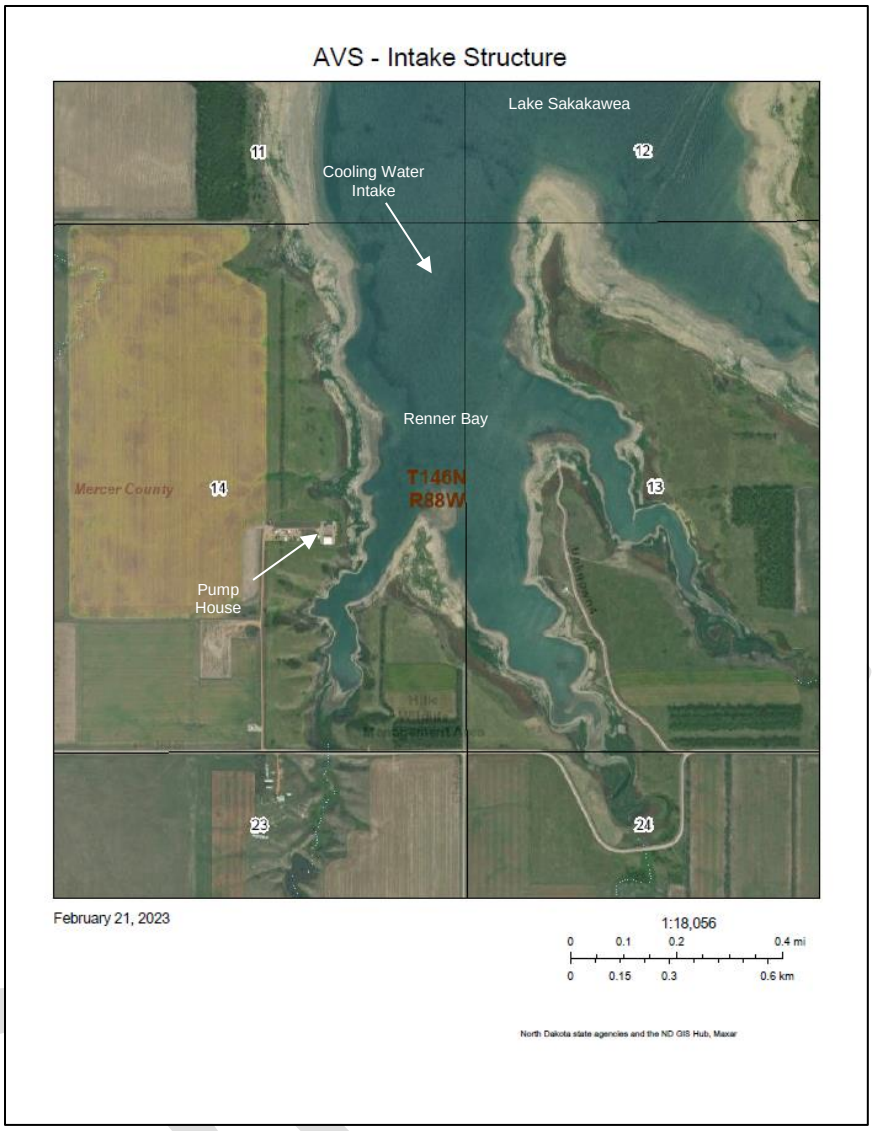
BACKGROUND INFORMATION

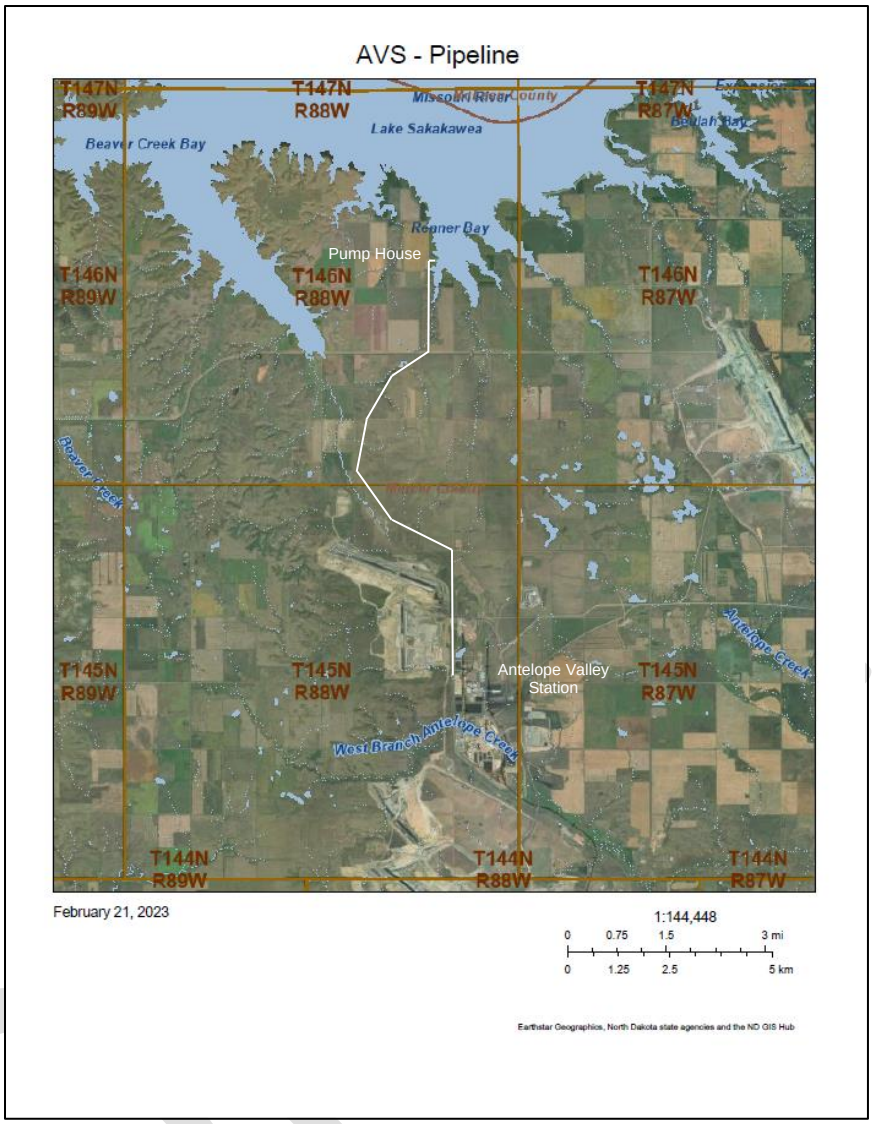
Table 1 – General Facility Information

Applicant:	Basin Electric Power Cooperative
Facility Name and Address:	Antelope Valley Station 294 County Road 15 Beulah, ND 58523
Permit Number:	ND0024945
Permit Type:	Minor Industrial, Permit Reissuance
Type of Treatment:	Sedimentation Ponds, Best Management Practices
SIC Code:	4911
NAICS Code:	221112
Discharge Location:	West Branch of Antelope Creek, Class III Stream Outfall 001 Latitude: 47.3819 Longitude: -101.8325 Outfall 002 Latitude: 47.3778 Longitude: -101.8433 Outfall 003 Latitude: 47.3675 Longitude: -101.8431
Cooling Water Intake Structure Location:	Lake Sakakawea, Class 1 Reservoir Cooling Water Intake Latitude: 47.4719 Longitude: -101.8447 Pump House Latitude: 47.4643 Longitude: -101.8493
Hydrologic Code:	10130201 – Knife River 10110101 – Lake Sakakawea

Figure 1 – Aerial photograph of Basin Electric Power Cooperative, Antelope Valley Station (North Dakota Geographic Information System, Maps Generated February 2023)




AVS - Intake Structure
Lake Sakakawea
11
12
Cooling Water Intake
Renner Bay
Mercer County
14
T146N
R88W
13
Pump House
23
24
February 21, 2023
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


AVS - Pipeline
T147N R89W
T147N R88W
T147N R87W
Missouri River
Lake Sakakawea
Beaver Creek Bay
Beulah Bay
Renner Bay
Pump House
T146N R89W
T146N R88W
T146N R87W
Beaver Creek
Antelope Creek
T145N R89W
T145N R88W
T145N R87W
Antelope Valley Station
West Branch Antelope Creek
T144N R89W
T144N R88W
T144N R87W
February 21, 2023
1:144,448
0 0.75 1.5 3 mi
0 1.25 2.5 5 km
Earthstar Geographics, North Dakota state agencies and the ND GIS Hub

FACILITY DESCRIPTION

Basin Electric Power Cooperative–Antelope Valley Station (AVS) started operation in 1984. AVS is a lignite coal-fired steam electric generating plant with an approximate net capacity of 900 megawatts from two 450-megawatt units. AVS uses approximately 4 to 5 million tons of coal each year to generate electricity. Lignite coal comes from the adjacent Freedom Mine operated by Coteau Properties Company.

The generating units utilize individual wet, mechanical draft, multi-cell cooling tower closed-cycle cooling systems for heat rejection. Cooling water for the cooling system is withdrawn by a submerged intake from Lake Sakakawea at Renner Bay. The intake and pump house are located approximately 6.5 miles north of AVS. The intake also is used by the Southwest Water Authority through a separate pumping system to supply municipal water to southwest North Dakota.

Water from Lake Sakakawea travels to AVS through a 9-mile pipeline and is stored in two raw water ponds at AVS. The raw water ponds supply make-up cooling water and plant process water to AVS. The raw water ponds also supply water to the neighboring Great Plains Synfuels Plant (GPSP). The combined actual intake flow from July 2018 to December 2022 for AVS and GPSP was 18.93 million gallons per day (MGD). The actual intake flow split between AVS and GPSP is 9.84 MGD and 9.09 MGD, respectively. Approximately 90 percent of the water used by AVS is used as cooling water for the cooling towers. Cooling water either evaporates at the cooling towers or evaporates from the evaporation ponds. Cooling water is not discharged from AVS.

Plant wastewater and drains flow to the spray drier ash (SDA) pond. Water in the SDA pond is used as make-up water for the scrubber. Historically, material collected in the SDA pond was dredged and sent to the decant pond to dewater. The decant pond has an underdrain system which sends water back to the SDA pond. Material from the decant pond is hauled to the active ash landfill by truck for disposal. Water in the SDA pond is consumed in plant processes and does not discharge from the facility. The most recent dredging involved the use of a centrifuge system to dewater collected material. The dewatered, collected material was sent directly to the AVS landfill without the use of the decant pond. The use of the centrifuge system likely will be used during future dredging operations. The SDA and decant ponds are permitted by the department's Division of Waste Management under solid waste Permit 0393.

Runoff from the coal piling area flows to the 35.3-acre-foot coal run-off pond for treatment. Water from the coal run-off pond is pumped to the spray drier ash (SDA) pond to control water levels in the coal run-off pond. Occasionally, water from the coal run-off pond is drained to the 16-acre-foot South Pond.

Stack quench water, a low volume waste, is generated in the event the fiberglass liner of the stack for Unit 2 begins to overheat (220° Fahrenheit) and water is needed to cool the liner below 220° Fahrenheit. This generally happens less than one time per year. The stack for Unit 1 is brick-lined so quench water is not necessary. Stack quench water is drawn from the high-quality pond and is only used to cool the stack – the majority of the water is lost to evaporation. Other than heat, the concentration of pollutants in the stack quench water is likely to be present in *de minimis* amounts. Water that makes it to the base of the stack drains to the coal run-off

pond, which, as stated previously, is pumped to the SDA pond and occasionally drained to the South Pond.

Dry scrubbers are used to remove sulfur dioxide from stack gases; no flue gas desulfurization (FGD) wastewater is generated. Filter fabric also removes particulates including fly ash from stack gases. Fly ash and FGD material are stored in silos, moisture-conditioned to control dust, then gravity fed into haul trucks in enclosed loading bays and taken to the active ash landfill.

Metal cleaning waste is gathered in frac-tanks and moved to the concrete weirs by the SDA pond where the waste is combined with fly ash and then hauled to the landfill.

Bottom ash purge water is gathered in a tank and reused to transport bottom ash. Bottom ash and bottom ash transport water is collected in bins where it is dewatered, moisture-conditioned and loaded into trucks in enclosed loading bays and taken to the active ash landfill. Water collected from the bottom ash dewatering process is collected and used in plant process and does not discharge from AVS.

The active ash landfill is located northeast of the AVS plant. Leachate and runoff in the landfill are directed to a sump within the landfill that does not discharge. Coal combustion residual leachate will be present in the new landfill cell (Cell 5) scheduled for completion and use in 2023. Coal combustion residual leachate will be gathered in a sump located on the east end of Cell 5 and pumped to the lined leachate pond that does not discharge. The discharge of coal combustion residual leachate is not allowed under this permit. Runoff from capped areas that slope to the east and south is directed to the Mine Pond (outfall 001). Runoff from capped areas that slope to the north would be directed to the west end sump and ultimately to the leachate pond. Runoff from the landfill coverage storage area is collected in a pond that does not discharge. The active ash landfill is permitted by the department's Division of Waste Management under solid waste Permit 0610.

Industrial stormwater runoff from the surface of the closed ash landfill and expansion area of the active landfill flows to the Mine Pond. Final closure of the old ash landfill occurred in 1998. The department's Division of Waste Management solid waste permit for the ash landfill (0025C) is in post-closure status.

Stormwater runoff from the AVS plant flows to the Mine Pond, North Pond, and South Pond for treatment. Discharges from the ponds are addressed by this permit. Coverage under an industrial stormwater general permit is not required for AVS.

Sanitary waste is treated by a sewage treatment unit. The sewage treatment unit discharges treated effluent to one of the cooling tower basins which is ultimately consumed by plant processes. Treated sanitary waste is not allowed to discharge under this permit.

Outfall Description

There are three active discharge outfalls associated with the facility. The description of the active outfalls is provided below. There are no inactive outfalls at the facility.

Outfall 001. Active. Final Outfall. Mine Pond.			
Latitude: 47.3819	Longitude: -101.8325	County: Mercer	
Township: 145N	Range: 88W	Section: 13	QQ: ACB
Receiving Stream: West Branch Antelope Creek		Classification: Class III	
The Mine Pond is 19.3-acre-foot pond. The Mine Pond is designed for a 10-year, 24-hour rainfall event. The Mine Pond treats stormwater runoff from the closed landfill (closed in 1998) and capped areas of the Antelope Valley Station special waste landfill. Any discharge is to the west branch of Antelope Creek.			

Outfall 002. Active. Final Outfall. North Pond.			
Latitude: 47.3778	Longitude: -101.8433	County: Mercer	
Township: 145N	Range: 88W	Section: 13	QQ: CBB
Receiving Stream: West Branch Antelope Creek		Classification: Class III	
The North Pond is a 27.2-acre-foot pond. The North Pond is designed for a 25-year, 24-hour rainfall event. Runoff from the northern part of the plant flows to this pond. The North Pond also provides a means of secondary containment in the event the Evaporation Pond or the High Quality Water Pond overflow. Any discharge is to the west branch of Antelope Creek.			

Outfall 003. Active. Final Outfall. South Pond.			
Latitude: 47.3675	Longitude: -101.8431	County: Mercer	
Township: 145N	Range: 88W	Section: 24	QQ: BCB
Receiving Stream: West Branch Antelope Creek		Classification: Class III	
The South Pond is a 16-acre-foot pond. The South Pond is designed for a 10-year, 24-hour rainfall event. Runoff from the parking lots and warehouse storage areas flows to this pond. On an intermittent basis, the coal pile runoff pond, including stack quench water, is drained to the South Pond. Any discharge is to the west branch of Antelope Creek.			

PREVIOUS PERMIT STATUS

The department issued the previous permit for this facility on July 1, 2018. The permit has monitoring requirements for total suspended solids, pH, total iron, oil & grease, flow, total flow, total nitrates, and total phosphorus. The permit also has monitoring requirements for actual intake flow. The permit is scheduled to expire at midnight on June 30, 2023.

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED

Department staff conducted a non-sampling compliance inspection on October 9, 2018. Minor reporting deficiencies were noted during the inspection and promptly corrected. 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 have occurred at the facility.

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 outfalls 001 and 002 during the monitoring period.

Table 2 – Basin Electric Power Cooperative – AVS (July 2018 to December 2022)

Parameter	Units	Range	Average	Permit Limit	Number of Excursions
Outfall 001:					
No discharge occurred during the monitoring period.					
Outfall 002:					
No discharge occurred during the monitoring period.					
Outfall 003:					
Total Suspended Solids (TSS)	mg/L	4.4 – 34.2	16.5	50	0
pH	S.U.	7.5 – 8.9	N/A	6.0 – 9.0	0
Oil & Grease - Visual	N/A	0 or 1	N/A	0 = No Visible Sheen 1 = Visible Sheen	0
Oil & Grease	mg/L	No Visible Sheen	No Visible Sheen	10 Daily max	0
Total Nitrates	mg/L	<0.2 – 0.83	0.52	N/A	N/A
Total Phosphorus	mg/L	<0.1 – 0.41	0.23	N/A	N/A
Flow	MGD	4.714 (max)	2.36	N/A	N/A
Drain	Mgal	0.33 – 12.78	5.38	N/A	N/A

PROPOSED EFFLUENT LIMITATIONS

Discharges from the 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 pond for outfall 001 (Mine Pond) treats runoff from an area previously mined for lignite coal that is dedicated for the planned expansion of the active ash landfill. Using BPJ, the department determined that the runoff would be similar to alkaline mine drainage and established effluent limitations similar to active mining areas (40 CFR 434.42).

The pond for outfall 002 (North Pond) treats runoff from the northern part of AVS and provides a means of secondary containment should the Evaporation Pond or High Quality Water Pond overflow. The Evaporation Pond consists of makeup water for the SDA Pond and also takes excess SDA Pond water. The High Quality Water Pond is used for service water in the facility and for fire protection water. Based on this, the department determined the standards provided in the steam electric power generating point source category for low volume waste sources (40 CFR 423.12(b)(3)) apply to this pond. The limitations are the same as previous permits.

The pond for outfall 003 (South Pond) treats runoff from the southern part of AVS and occasionally water from the coal run-off pond (which includes coal pile runoff and stack quench water). The limitations for outfall 003 represent the standards provided in the steam electric power generating point source category for coal pile runoff and low volume waste sources; 40 CFR 423.12(b)(9) and 40 CFR 423.12(b)(3), respectively. The department determined a water quality-based effluent limitation for temperature is not necessary for outfall 003. Although the South Pond receives stack quench water, the stack quench water first mixes with the water in the coal run-off pond and constitutes a very small portion of the total volume of both ponds. The holding time provided by the ponds allows the stack quench water to reach ambient conditions before a discharge takes place.

As part of the permit renewal, the effluent limitations for outfalls 002 and 003 were separated into two tables in the proposed permit. The separation distinguishes the differences between the effluent limitations at each outfall based on the type of runoff and wastewater that flow to each outfall.

The storm event provision of 40 CFR 423.12(b)(10) pertaining to the TSS limitation in 40 CFR 423.12(b)(9) was removed from 002 since coal pile runoff is not directed to the pond. Additionally, although 40 CFR 423.12(b)(3) allows a maximum daily TSS limitation of 100 mg/L for the discharge of low volume waste, the maximum daily TSS limitation for outfall 002 will remain at 50 mg/L (established based on 40 CFR 423.12(b)(9), applicable to coal pile runoff). This is because 40 CFR Part 122.44(l)(1) requires effluent limitations in reissued permits to be at least as stringent as the effluent limitations in the previous permit unless circumstances on which the previous permit was issued have materially and substantially changed. The department determined there has not been a material or substantial change to the runoff or wastewater that flows to outfall 002 that allows for less stringent effluent limitations.

The effluent limitations for low volume waste found in 40 CFR 423.12(b)(3) stipulate that the 30-day TSS average limitation for treated low volume waste must be 30 mg/L. The current and past permits did not include this effluent limitation for outfalls 002 and 003. Since low volume waste is directed to the ponds for outfalls 002 and 003, a monthly TSS average limitation of 30 mg/L was added to each outfall in the proposed permit.

As part of the permit renewal, the provisions of 40 CFR 423.12(b)(2) prohibiting the discharge of polychlorinated biphenyl compounds from any outfall were added to the proposed 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.

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

"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 001

Effluent Parameter	Units	30-Day Average	Daily Maximum	Basis
Total Suspended Solids [a]	mg/L	35	70	BPJ
pH	S.U.	Shall remain between 6.0 to 9.0		40 CFR 423.12(b)(1); WQS
Total Iron [a]	mg/L	3.5	7.0	BPJ
Oil & Grease [b]	mg/L	N/A	10	Previous Permit; BPJ
The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.				Previous Permit
There shall be no discharge of polychlorinated biphenyl compounds.				40 CFR 423.12(b)(2) 40 CFR 423.13(a)

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.
b.	If an oily sheen is observed in the discharge, a grab sample for Oil & Grease shall be collected and the department shall be contacted.
N/A	Not Applicable

Table 4: Effluent Limitations for Outfall 002

Effluent Parameter	Units	30-Day Average	Daily Maximum	Basis
Total Suspended Solids	mg/L	30	50	40 CFR 423.12(b)(3); Previous Permit
pH	S.U.	Shall remain between 6.0 to 9.0		40 CFR 423.12(b)(1); WQS
Oil & Grease [a]	mg/L	N/A	10	BPJ; Previous Permit; 40 CFR 423.12(b)(3)
The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.				Previous Permit
Should water, other than stormwater, enter the pond, the facility shall notify the department.				Previous Permit
There shall be no discharge of polychlorinated biphenyl compounds.				40 CFR 423.12(b)(2) 40 CFR 423.13(a)
a.	If an oily sheen is observed in the discharge, a grab sample for Oil & Grease shall be collected and the department shall be contacted.			
N/A	Not Applicable			

Table 5: Effluent Limitations for Outfall 003

Effluent Parameter	Units	30-Day Average	Daily Maximum	Basis
Total Suspended Solids [a]	mg/L	30	50	40 CFR 423.12(b)(3), (9) and (10), and (13); Previous Permit
pH	S.U.	Shall remain between 6.0 to 9.0		40 CFR 423.12(b)(1); WQS
Oil & Grease [b]	mg/L	N/A	10	BPJ; Previous Permit; 40 CFR 423.12(b)(3)
The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce sheen on the surface of the receiving water.				Previous Permit
Should water, other than stormwater, stack quench water and coal pile runoff pond transfers, enter the pond for Outfall 003, the facility shall notify the department.				Previous Permit
There shall be no discharge of polychlorinated biphenyl compounds.				40 CFR 423.12(b)(2) 40 CFR 423.13(a)
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 5: Effluent Limitations for Outfall 003

b.	If an oily sheen is observed in the discharge, a grab sample for Oil & Grease shall be collected and the department shall be contacted.
N/A	Not Applicable

SELF-MONITORING REQUIREMENTS

Effluent parameters for outfalls 001, 002, and 003 are sampled at the outfalls prior to leaving company property and mixing with receiving waters.

Nutrient monitoring will continue at outfall 003 in the proposed permit to coincide with the development of the state's nutrient reduction strategy. Sources of nutrients from outfall 003 include organically bound nutrients in coal pile runoff. Nutrient monitoring at outfall 003 also was updated to include total nitrogen to align with the nutrient reduction strategy. The update subsequently removes the monitoring and reporting requirement for total nitrates; however, the parameter is used to calculate total nitrogen. In addition, the monitoring frequency was changed from semiannual sampling to monthly sampling to align with the nutrient reduction strategy.

Nutrient monitoring will discontinue at outfall 002 in the proposed permit. The department determined stormwater runoff from the area that drains to outfall 002 would not contribute to nutrient loading; similar to outfall 001.

Table 6: Self-Monitoring Requirements for Outfall 001

Effluent Parameter	**Frequency**	**Sample Type** [a]
TSS	1/Month	Grab
pH	1/Month	Grab
Total Iron	1/Month	Grab
Oil & Grease	1/Day	Visual/Grab
Flow, mgd	1/Day	Calculated
Total Drain, Mgal	1/Quarter	Calculated
Samples taken in compliance with the monitoring requirements shall be taken at the outfall prior to leaving company property and mixing with receiving waters.		
Notes:		
a.	Refer to Appendix B for definitions.	

Table 7: Self-Monitoring Requirements for Outfall 002

Effluent Parameter	**Frequency**	**Sample Type** [a]
TSS	1/Week	Grab
pH	1/Week	Grab
Oil & Grease	1/Day	Visual/Grab
Flow, mgd	1/Day	Calculated
Total Drain, Mgal	1/Quarter	Calculated
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 7: Self-Monitoring Requirements for Outfall 002

Notes:	
a.	Refer to Appendix B for definitions.

Table 8: Self-Monitoring Requirements for Outfall 003

Effluent Parameter	**Frequency**	**Sample Type** [a]
TSS	1/Week	Grab
pH	1/Week	Grab
Oil & Grease	1/Day	Visual/Grab
Total Nitrogen [b]	1/Month	Grab
Total Phosphorus	1/Month	Grab
Flow, mgd	1/Day	Calculated
Total Drain, Mgal	1/Quarter	Calculated
Samples taken in compliance with the monitoring requirements shall be taken at the outfall prior to leaving company property and mixing with receiving waters.		
Notes:		
a.	Refer to Appendix B for definitions.	
b.	Total nitrogen is a combination of nitrate, nitrite, and Total Kjeldahl Nitrogen (TKN).	

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 West Branch of Antelope Creek is not specifically mentioned in the Standards of Quality for Waters of the State (NDAC 33.1-16-02.1, Appendix I) and is considered a class III stream. 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.

The segment of Antelope Creek that receives discharges from the facility is listed as impaired for fecal coliform in the 2018 North Dakota Section 303(d) List of Waters Needing Total Maximum Daily Loads (303(d) List). A TMDL for fecal coliform is not expected to be developed during the effective period of the proposed permit.

Sources of fecal coliform bacteria from the facility that could contribute to fecal coliform bacteria counts include sanitary wastewater. Sanitary wastewater is treated by an on-site sewage treatment unit. The treatment unit discharges treated effluent to one of the cooling tower basins which is ultimately consumed by plant processes. The department determined fecal coliform

requirements are not necessary in the proposed permit since the facility is not expected to contribute fecal coliform bacteria to the West Branch of Antelope 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

pH

Discharges to Class III streams shall have an instantaneous limitation between 6.0 (s.u.) and 9.0 (s.u.) in accordance with the water quality standards.

Oil and Grease

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

Temperature

The department determined the addition of stack quench water to the South Pond does not require additional monitoring or a water-quality based effluent limitation for temperature to ensure the addition of stack quench water does not exceed the applicable water quality standards. Stack quench water is sprayed on the Unit 2 stack when the temperature of the stack is above 220°F and needed to cool the stack below 220°F. This generally happens less than one time per year. Most of the water is evaporated but water that reaches the ground flows to the coal run-off pond, which is pumped to the SDA pond and occasionally drained to the South Pond.

The department calculated an amount of stack quench water needed to raise the temperature in the South Pond above the 85°F water quality standard and an increase of no more than 5°F water quality standard. The calculations held the stack quench water temperature constant at 211.95°F. The department determined the 173,500 gallons of stack quench water would be needed to affect the temperature in the South Pond above 85°F if the South Pond were at an ambient temperature of 75°F. The department determined 70,200 to 84,100 gallons of stack quench water would be needed to increase the temperature more than 5°F in the South Pond based on varying ambient temperatures (32.2°F, 50°F, 70°F). To simplify the calculations, the department did not take into account the change or rate of change of temperature of the stack quench water as it approaches equilibrium with the coal run-off pond. However, in a real-world scenario, these would likely increase the amount of stack quench water needed to affect change. See Appendix C for more details.

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.”

Testing requirements and limitations for whole effluent toxicity are not included in the proposed permit. The department determined the waste streams and runoff discharged from the facility are 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 AVS 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 February 10, 2023, the department emailed the 316(b) application to the USFWS more than 60 days prior to the public notice date of May 18, 2023. The USFWS responded on February 15, 2023, that the application 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.

AVS utilizes mechanical-draft, evaporative, recirculating cooling towers that draw make-up water from on-site raw water retention ponds. The ponds are fed from a pump house located 6.5 miles north of AVS along Lake Sakakawea. The pump house draws water through the CWIS from Lake Sakakawea using five electric-driven pumps that operate alternately. The intake pumps have a design capacity of 5,000 gallons per minute. The intake pumps move screened water into a 42-inch diameter concrete pipeline that sends water to the AVS.

The CWIS consists of an off-shore, submerged, fully screened velocity cap-like structure. The CWIS was originally built with a steel-top velocity cap with screened side openings but the metal cap was replaced in 2012 by a screen which allows water to enter the CWIS through the top as well as the sides. Because the metal cap was replaced by a screen, the CWIS does not fit the “offshore velocity cap” definition (40 CFR 125.92(v)). The CWIS is located 3000 feet north-

northeast of the pump house and 800 feet from the lake shore. The top of the CWIS is approximately 60 feet below the normal reservoir pool elevation. Lake water is drawn through screens on the sides and top of the intake structure. The screens consist of 130-mil wedgewire with ¼-inch size slot openings.

The design intake flow (DIF) for the AVS CWIS is 36 million gallons per day. This does not include the DIF for the Southwest Water Authority, a municipal water supplier, which is an additional 17 million gallons per day. The actual intake flow (AIF) of the AVS CWIS from July 2018 through December 2023 was 18.9 million gallons per day (MGD); an increase from 15.45 MGD reported in 2018. Of the 18.9 MGD, 9.84 MGD is used by AVS while the other 9.09 MGD is supplied to Great Plains Synfuels Plant. CWIS flows reported to the department in discharge monitoring reports are summarized in Table 9.

Table 9 – Cooling Water Intake Structure DMR Data (July 2018 to December 2022)

Parameter	Units	Maximum	Average
Flow	MGD	33.7	18.9

AVS operates a closed-cycle recirculating system that withdraws water from Lake Sakakawea at Renner Bay. The system is estimated to achieve a flow reduction of 97 percent relative to a once-through cooling system. Use of a closed-cycle recirculating system reduces the quantity of water withdrawn from Lake Sakakawea, which reduces impingement and entrainment. The system also withdraws water with a through-screen velocity of less than 0.5 feet per second. Operating a closed-cycle recirculating system and withdrawing water at less than 0.5 feet per second are best technology available (BTA) alternatives for reducing impingement (40 CFR 125.94(c)(1) and (2)).

AVS is a base load power plant that operates continuously, with staggered planned outages of each unit for maintenance. Because of this, the circulating water system operates 24 hours a day, year-round. Water is drawn from the CWIS as needed to maintain the needed volume in the raw water reservoirs. Less than 0.01 percent of the volume of Lake Sakakawea is withdrawn on an average monthly basis.

The CWIS pump system is monitored from the primary water treatment plant at AVS. Each pump has a start/stop indication, pump discharge valve open/closed indication, and is monitored for flow and speed. The total raw water flow is monitored by plant operations. The monitoring system is equipped with alarms in the event of a malfunction.

Basin Electric Power Cooperative provided data on the baseline biology of Lake Sakakawea near the CWIS. The baseline biology data was collected at Beaver Bay. The range of data spans the years 2006 through 2016. The department determined the data is still representative of the baseline biology in the Lake Sakakawea reservoir. Biological conditions within the reservoir have not changed that would require additional data.

Fragile species that inhabit Lake Sakakawea include gizzard shad and rainbow smelt. Although these species are likely to be impinged by the AVS CWIS, biological data did not show the presence of gizzard shad and the very rare occurrence of rainbow smelt.

There is no designated critical habitat for Federally-listed endangered species near the AVS CWIS. The CWIS is within the critical habitat area for two Federally-listed threatened species (the piping plover and Dakota skipper); however, the CWIS is not likely to affect the habitat of these species since it is located below the surface of the reservoir.

The only Federally-listed aquatic species with a potential for occurrence near the AVS CWIS is the pallid sturgeon. Although adult pallid sturgeon have been known to occur in the headwaters and within the reservoir, the likelihood of adults being impinged is low due to both the location of the intake as well as fish being able to overcome the intake velocity. It is highly unlikely that early life stages of pallid sturgeon will occur in the location of the CWIS. Successful recruitment of naturally spawned pallid sturgeon above the Garrison Dam has not been documented for over fifty years although recruitment is occurring from hatchery augmentation efforts.

No entrainment studies have been or were previously conducted at the AVS CWIS. There are no other comparable facilities that have a CWIS that withdraw water from Lake Sakakawea. AVS uses a closed-cycle recirculating system which reduces the quantity of water withdrawn from Lake Sakakawea. The closed-cycle recirculating system also withdraws water at less than 0.5 feet per second. Entrainment performance studies from other facilities would not be applicable or relevant to conditions at AVS.

Impingement and Entrainment

The primary method for reducing impingement at AVS 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)). Additionally, the CWIS is designed to withdraw water at a through-screen velocity less than 0.5 feet per second. The operation of a CWIS with a maximum design through-screen intake velocity of 0.5 feet per second also is consistent with the impingement BTA standards (40 CFR 125.94(c)(2)).

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 AVS CWIS is a closed-cycle recirculating system which reduces the quantity of cooling water required from Lake Sakakawea—less than 0.01 percent of the monthly average volume of Lake Sakakawea. The use of less cooling water reduces the potential for entrainment.

The supplemental data included with the permittee's application states the potential for entrainment of early life stages of fish species in Lake Sakakawea varies from unlikely, to potentially, to likely. The department also reviewed the fish survey data collected at Beaver Bay; the likelihood of early life stages of fish species being entrained by the CWIS at Renner Bay; and the seasonal and spawning activities of the fish species. Of the fish species who's early life stage would potentially or likely be present, the department determined most fish species would not be affected by the CWIS based on location of spawning activity away from the CWIS, or the CWIS being above normal habitat. Emerald shiner would likely be affected by the CWIS because of the species' daily movement; however, it was rarely found in the fish survey in Beaver Bay. Rainbow smelt would likely be affected because of the movement of fry, but again the species was rarely found in the fish survey. Walleye fry would potentially be affected before

they develop the ability to move away from the CWIS, but this would be for a short time period during the species development. Freshwater drum are likely to be affected as young larvae leave the surface and move to deeper water.

Based on the information, the department determined the operation of a closed-cycle recirculating system with a design intake velocity of less than 0.5 feet per second, along with limited affects to fish species present in Lake Sakakawea and around the CWIS during early life stages, constitutes the maximum reduction in entrainment warranted (40 CFR 125.94(d)).

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 AVS 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 CWIS 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 CWIS and operation of the CWIS, 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.

Discharge Monitoring Report (DMR) and Cooling Water Intake Requirements

The proposed permit requires the permittee to monitor discharges and submit discharge monitoring reports (DMRs) to the department. DMRs summarize monitoring results obtained during specified monitoring periods. If no discharge occurs during a monitoring period, "no discharge" must be reported. The monitoring periods for 001, 002, 003, and the cooling water intake structure are monthly.

The proposed permit includes specified intervals for submitting DMRs (Table 10). DMRs must be submitted electronically to the department in accordance with 40 CFR 127 unless otherwise waived and in compliance with 40 CFR 3. The requirement to submit DMRs quarterly is similar to other minor facilities.

Table 10: DMR Submittal Requirements

Coverage Point	Report Designator	Report Type	Report Interval
001	A	Conventional and Non-Conventional Pollutants, Flow and Volume Information	1/quarter
002	A	Conventional and Non-Conventional Pollutants, Flow and Volume Information	1/quarter
003	A	Conventional and Non-Conventional Pollutants, Flow and Volume Information	1/quarter
Cooling Water Intake Structure	-	Actual Cooling Water Intake Flow	1/quarter

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 **Basin Electric Power Cooperative – Antelope Valley 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 **May 18, 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: 5/18/2023 Public Notice Number: ND-2023-013

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: 12/29/2022 Application Number: ND0024945

Applicant Name: Basin Electric Power An Val St
Mailing Address: 1717 E Interstate Ave, Bismarck, ND 58503
Telephone Number: 701.557.5557

Proposed Permit Expiration Date: 6/30/2028

Facility Description
The reapplication is for a 900 megawatt, lignite coal-fired steam electric power generating plant located in the NE1/4, SW1/4 Section 13 and N1/2 Section 24, Township 145 North, Range 88 West and W1/2 Section 7, Township 145 North, Range 87 West. Discharges consist of surface runoff and stack quench water to the nearby West Branch of Antelope Creek, a Class III stream. The reapplication also includes the Lake Sakakawea 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 June 16, 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 DMR information and applicable water quality standards for class III streams to determine the appropriate requirements to be placed in the permit. In addition, the department reviewed the 2018 North Dakota Section 303(d) List of Waters Needing Total Maximum Daily Loads (303(d) List).

Temperature

The calculations used to determine the effects of stack quench water on the South Pond and subsequently Outfall 003 are provided in the following pages.

Temperature-Mass Balance Calculations

Temperature-Mass Balance Formula
$T3=(m1*T1 + m2*T2)/(m1 + m2)$

Temperature-Mass Balance Formula Written to Find Mass
$m2=(m1*(T1-T3))/(T3-T2)$
$m = V*SG$

mCP = mass of water in coal run-off pond
mSP = mass of water in South Pond
mSQW = mass of water in stack quench water

VCP = volume of water in coal run-off pond
VSP = volume of water in South Pond
VSQW = volume of water in stack quench water
VMix1 = Volume of mixed stack quench water and coal run-off pond
VMix2 = Volume of mixed stack quench water and coal run-off pond and South Pond

	Volume (acre-Feet)	Volume (gallons)
VCP	35.3	1537668
VSP	16	696960

DCP = Density of water in coal run-off pond at ambient temperature
DSP = Density of water in South Pond at ambient temperature
DSQW = Density of water in stack quench water at 210 deg F

https://www.engineeringtoolbox.com/water-temperature-specific-gravity-d_1179.html

lb/ft3	32.2 deg F	50 deg F	70 deg F	85 Deg F
DCP	62.418	62.409	62.301	62.162
DSP	62.418	62.409	62.301	62.162

lb/ft3	211.95 deg F
DSQW	59.829

Temperature-Mass Balance Calculations

TCP = Temperature of water in coal run-off pond
TSP = Temperature of water in South Pond
TSQW = Temperature of water in stack quench water
TMix = Temperature of mixed coal run-off pond with stack quench water
TMix1-1 = Limit of temperature of mixed stack quench water and coal run-off pond based on 85 deg F water quality standard
TMix1-2 = Limit of temperature of mixed stack quench water and coal run-off pond based on 5 deg F above background water quality standard
TMix2-1 = Limit of temperature of mixed stack quench water and coal run-off pond and South Pond based on 85 deg F water quality standard
TMix2-2 = Limit of temperature of mixed stack quench water and coal run-off pond and South Pond based on 5 deg F above background water quality standard

deg F	Spring Ambient	Summer Ambient
TCP	32.2	75
TSP	32.2	75
TSQW	211.95	211.95

deg F	Water Quality Standard
TMix1-1	85
TMix1-2	5 degrees above background
TMix2-1	85
TMix2-2	5 degrees above background

Temperature-Mass Balance Calculations

Determine the volume of stack quench water needed to effect the coal run-off pond in height of summer limited by water quality standards

Set:	
VCP	1,537,668
DCP	62.301
mCP	95798254
TCP	75
TSQW	211.95
TMix1-1	85
DSQW	59.829
VSQW (gal)	126,128
VSQW (acre-ft)	3

Determine the volume of stack quench water needed to effect the coal run-off pond in spring limited by water quality standards

Set:	
VCP	1,537,668
DCP	62.418
mCP	95978161
TCP	32.2
TSQW	211.95
TMix1-2	37.2
DSQW	59.829
VSQW (gal)	45,900
VSQW (acre-ft)	1

Temperature-Mass Balance Calculations

Determine the volume of stack quench water needed to effect the coal run-off pond and South Pond in height of summer limited by water quality standards

Set:	Step 1	
TCP	75	
TSQW	211.95	
VCP	1,537,668	
DCP	62.301	
mCP	95798254	
VSQW	173,500	(Hypothetical)
DSQW	59.829	
mSQW	10380331.5	
TMix	88	
Set:	Step 2	
VSP	696,960	
DSP	62.301	
mSP	43421304.96	
TSP	75	
mMix	106178586	
TMix	88	
TMix2	85	
VSQW (gal)	173,500	
VSQW (acre-ft)	4.0	

Temperature-Mass Balance Calculations

Determine the volume of stack quench water needed to effect the coal run-off pond and South Pond in spring limited by water quality standards

Set:	Step 1
TCP	32.2
TSQW	211.95
VCP	1,537,668
DCP	62.418
mCP	95978161
VSQW	70,200 (Hypothetical)
DSQW	59.829
mSQW	4199996
TMix	40
Set:	Step 2
VSP	696,960
DSP	62.418
mSP	43502849
TSP	32.2
mMix	100178157
TMix	40
TMix2	37.5
VSQW (gal)	70,200
VSQW (acre-ft)	1.6

Set:	Step 1
TCP	50
TSQW	211.95
VCP	1,537,668
DCP	62.409
mCP	95964322
VSQW	73,500 (Hypothetical)
DSQW	59.829
mSQW	4397432
TMix	57
Set:	Step 2
VSP	696,960
DSP	62.409
mSP	43496577
TSP	50
mMix	100361754
TMix	57
TMix2	55.0
VSQW (gal)	73,500
VSQW (acre-ft)	1.7

Set:	Step 1
TCP	70
TSQW	211.95
VCP	1,537,668
DCP	62.301
mCP	95798254
VSQW	84,100 (Hypothetical)
DSQW	59.829
mSQW	5031619
TMix	77
Set:	Step 2
VSP	696,960
DSP	62.301
mSP	43421305
TSP	70
mMix	100829873
TMix	77
TMix2	75.0
VSQW (gal)	84,100
VSQW (acre-ft)	1.9

APPENDIX D – RESPONSE TO COMMENTS

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