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

Public Notice Date: 5/14/2020 Public Notice Number: ND-2020-016

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: 12/30/2019 Application Number: ND0000370

Applicant Name: Minnkota Power Cooperative

Mailing Address: 5301 32nd Avenue South, Grand Forks, ND 58201

Telephone Number: 701.794.8711

Proposed Permit Expiration Date: 6/30/2025

Facility Description

The reapplication is for a 2-unit lignite coal-fired steam electric power generating plant located in the NW1/4, Section 4, Township 141N, Range 83W. There are fifteen discharge points associated with the facility. Discharges include cooling water, plant process water, sanitary wastewater, stormwater, and screen washing. All discharges, except one, are to Nelson Lake, a Class 3 lake. The one remaining discharge is to the Missouri River, a Class 1 stream. The reapplication also includes the Missouri River cooling water intake for the plant.

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. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 918 East Divide Ave, Bismarck ND 58501-1947 or by calling 701.328.5210.

All comments received by June 12, 2020 will be considered prior to finalizing the permit. If there is significant interest, a public hearing will be scheduled. Otherwise, the Department will issue the final permit within sixty (60) days of this notice. If you require special facilities or assistance relating to a disability, call TDD at 1.800.366.6868.

Permit No: ND0000370
Effective Date: July 01, 2020
Expiration Date: June 30, 2025

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,

Minnkota Power Cooperative, Inc.
and
Square Butte Electric Cooperative
Center, ND

is authorized to discharge from Milton R. Young Station power plant

to Nelson Lake and the Missouri River

provided all the conditions of this permit are met.

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

June 30, 2025.

Signed this _____ day of _____, _____.

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

BP 2019.05.29

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DEFINITIONS Standard Permit BP 2019.05.29

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

DEFINITIONS Whole Effluent Toxicity (WET) BP 2017.04.06

20. "**Acute toxic unit**" ("TUa") is a measure of acute toxicity. TUa is the reciprocal of the effluent concentration that causes 50 percent of the organisms to die by the end on the acute exposure period (i.e., 100/"LC50").

21. "**Chronic toxic unit**" ("TUc") is a measure of chronic toxicity. TUc is the reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period (i.e., 100/"IC25").

22. "**Inhibition concentration**", ("IC"), is a point estimate of the toxicant concentration that causes a given percent reduction (p) in a non-quantal biological measurement (e.g., reproduction or growth) calculated from a continuous model (e.g., Interpolation Method).

23. "**LC50**" means the concentration of toxicant (e.g., effluent) which is lethal to 50 percent of the organisms exposed in the time period prescribed by the test.

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

DEFINITIONS Industry Specific

See 40 CFR 423.11

See 40 CFR 125.92

OUTFALL DESCRIPTION

Outfall 001. Active. Final.			
Latitude: 47.07102	Longitude: -101.22000	County: Oliver	
Township: 142N	Range: 83W	Section: 32	QQ: DCA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Once-Through Cooling Water. A continuous discharge of approximately 420 mgd consisting of once-through cooling water from the condensers and closed cooling water heat exchangers for Unit No. 1 and Unit No. 2. This is an exterior point which discharges to Nelson Lake.			

Outfall 003. Active. Internal.			
Latitude: 47.06738	Longitude: -101.21222	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Domestic Wastewater. An intermittent discharge of approximately 3000 gpd, with a maximum rate of approximately 6000 gpd from the domestic wastewater package treatment plant. This is an interior point which enters Outfall 001.			

Outfall 005. Active. Internal.			
Latitude: 47.06824	Longitude: -101.21333	County: Oliver	
Township: 142N	Range: 83W	Section: 33	QQ: CCC
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Runoff. An intermittent discharge consisting of runoff from the Center switchyard and the area directly to the west of the yard. This is an interior point which enters Outfall 001 just west of Outfall 003.			

Outfall 008. Active. Internal.			
Latitude: 47.06886	Longitude: -101.21694	County: Oliver	
Township: 142N	Range: 83W	Section: 32	QQ: DDD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: North Retaining Basin. An intermittent discharge of approximately 0.225 mgd consisting of coal pile runoff, fly ash handling area runoff, and low volume wastes including the vehicle maintenance shop building sump, and vehicle storage building oil water separator. On an occasional basis, the discharge may include water from excavation pumping, fire protection system. This is an interior point which enters Outfall 001 just west of Outfall 005.			

Outfall 010. Active. Final.			
Latitude: 47.06720	Longitude: -101.21139	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Roof Drains. An intermittent discharge of less than 100 gpd consisting of roof drains and a groundwater collection system beneath the north yard. On occasion, RO product/service water used to cool roof air conditioning units during extreme heat events. Any discharge is to Nelson Lake.			

Outfall 012. Active. Final.			
Latitude: 47.06661	Longitude: -101.21167	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Screen Washings. An intermittent discharge of approximately 7,200 gpd consisting of Unit No. 1 intake traveling screen wash water. Any discharge is to Nelson Lake.			

Outfall 014. Active. Final.			
Latitude: 47.06644	Longitude: -101.21167	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Roof Drains. An intermittent discharge consisting of roof drains. Any discharge is to Nelson Lake.			

Outfall 016. Active. Final.			
Latitude: 47.06605	Longitude: -101.21167	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Screen Washings. An intermittent discharge of approximately 8,200 gpd consisting of Unit No. 2 intake traveling screen wash water. Any discharge is to Nelson Lake.			

Outfall 017. Active. Final.			
Latitude: 47.06595	Longitude: -101.21139	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Roof Drain. An intermittent discharge consisting of roof drains and fire protection water used to cool Unit 2 boiler circulation pump during emergency conditions. A cross-tie exists with the Unit No. 2 turbine building sump. Any discharge is to Nelson Lake.			

Outfall 019. Active. Final.			
Latitude: 47.06526	Longitude: -101.21111	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Runoff. An intermittent discharge of approximately 0.225 mgd consisting of roof drains, north plant area runoff, south yard area runoff, north transformer yard area runoff, north parking lot area runoff, east driveway area runoff, area runoff from between Unit No. 1 and Unit No. 2 screen houses, runoff from a yard catch basin, groundwater from a "French drain" system beneath the concrete ditch which carries yard runoff, spray pond drift, fire header system flushing/testing, and discharges from Outfall 020. Any discharge is to Nelson Lake.			

Outfall 020. Active. Internal.			
Latitude: 47.06362	Longitude: -101.21528	County: Oliver	
Township: 141N	Range: 83W	Section: 5	QQ: ADA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: South Retaining Basin. An intermittent discharge of approximately 0.171 mgd consisting of low volume waste, spray pond drift, coal pile runoff, south and west plant runoff, occasional fire protection system testing and flushing, and excavation water. This is an interior point which enters Outfall 019.			

Outfall 022. Active. Final.			
Latitude: 47.25605	Longitude: -101.18667	County: Oliver	
Township: 144N	Range: 83W	Section: 34	QQ: BAB
Receiving Stream: Missouri River		Classification: Class I	
Outfall Description: Screen Washings and Pumphouse Blowdown. An intermittent discharge of approximately 0.016 mgd consisting of the intake traveling screen wash water and non-contact pump motor cooling water at the Missouri River pumping station. Any discharge is the Missouri River.			

Outfall 025. Active. Final.			
Latitude: 47.06485	Longitude: -101.21083	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Wastewater Treatment System. A continual discharge of approximately 0.43 mgd consisting of chemical waste treatment, Unit 2 polisher backwash condensate, demineralizer backwash, Unit 1 and 2 turbine building sump waters, and bottom ash spray pond blowdown. MF/RO operation water, other low volume waste water, south retaining basin water, or excavation and work related waters may be pumped to waste water treatment. Any discharge is to Nelson Lake.			

Outfall 028. Active. Final.			
Latitude: 47.06672	Longitude: -101.21167	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Unit No. 1 Intake Pump Pit. An intermittent discharge of approximately 2.88 mgd consisting of lake water from the Unit 1 circulating water intake pump pit. Any discharge is to Nelson Lake.			

Outfall 029. Active. Final.			
Latitude: 47.06616	Longitude: -101.21167	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Unit No. 2 Intake Pump Pit and Lake Water Storage Tank. An intermittent discharge of approximately 2.88 mgd consisting of lake water from the Unit 2 circulating water intake pit and lake water storage tanks. The storage tanks have approximate capacities of 500,000 and 280,000 gallons. Any discharge is to Nelson Lake.			

PERMIT SUBMITTALS SUMMARY

Coverage Point	Submittal	Monitoring Period	Submittal Frequency	First Submittal Date
001 A	Discharge Monitoring Report	Monthly	Monthly	August 31, 2020
003 A	Discharge Monitoring Report	Monthly	Monthly	August 31, 2020
008 A	Discharge Monitoring Report	Monthly	Monthly	August 31, 2020
019 A	Discharge Monitoring Report	Monthly	Monthly	August 31, 2020
020 A	Discharge Monitoring Report	Monthly	Monthly	August 31, 2020
025 A	Discharge Monitoring Report	Monthly	Monthly	August 31, 2020
008 W	Discharge Monitoring Report	Quarterly	Quarterly	October 31, 2020
025 W	Discharge Monitoring Report	Quarterly	Quarterly	October 31, 2020
Cooling Water Intake	Actual Intake Flow Report	Monthly	Quarterly	October 31, 2020
Cooling Water Intake	Annual Certification Statement	Annual	Annual	July 31, 2021
Application Renewal	EPA Form 1 & 2C	Not applicable	1/permit cycle	December 31, 2024

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: **Nelson Lake and the Missouri River**.

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: **Outfall 001**

Parameter	Effluent Limitations			Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Maximum Single Test Limit	Sample Frequency	Sample Type
Total Residual Chlorine [a]	*	73.7 lbs/day	0.20 mg/L	Weekly	Grab
pH [b]	Shall remain between 7.0 to 9.0 S.U.			Weekly	Instantaneous
Temperature, ^{O}C	*	*	*	Weekly	Instantaneous
Flow, mgd	Report Monthly Average	Report Max. Daily Value	N/A	Weekly	Instantaneous

Notes:

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

a. Total Residual Chlorine monitoring is required only during periods of chlorination.

b. The pH, an instantaneous limitation, shall be between 7.0 (S.U.) and 9.0 (S.U.).

Stipulations:

1. Total Residual Chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that the discharge for more than two hours is required for macroinvertebrate control.

2. The temperature of this discharge shall not have an adverse effect on fish, aquatic life and wildlife, or Nelson Lake itself.

3. There shall be no discharge of polychlorinated biphenyl compounds.

4. There shall be no discharge of floating solids or visible foam in other than trace amounts.

5. Samples taken in compliance with the monitoring requirements specified above shall be taken at the platform at inactive Outfall 009 or other point prior to mixing with Nelson Lake.

Table 2: Effluent Limitations and Monitoring Requirements: **Outfall 003**				
Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
5-Day Biochemical Oxygen Demand	25 mg/L	45 mg/L	Weekly	Grab
Total Suspended Solids	30 mg/L	45 mg/L	Weekly	Grab
pH [a]	Shall remain between 6.0 to 9.0 S.U.		Weekly	Instantaneous
Escherichia coli (*E. coli*) [b]	126 / 100 mL	409 / 100 mL	Weekly	Grab
Total Residual Chlorine [c]	*	2.5 mg/L	Weekly	Grab
Nitrogen, Total	Average for the month	Monitor only (mg/L)	Monthly	Grab
Nitrogen, Total	Average for the month	Monitor only (lb/day)	Monthly	Grab
Phosphorus, Total (as P)	Average for the month	Monitor only (mg/L)	Monthly	Grab
Phosphorus, Total (as P)	Average for the month	Monitor only (lb/day)	Monthly	Grab
Flow, gpd	Report Monthly Average	Report Max. Daily Value	Weekly	Instantaneous

Notes:

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

a. The pH, an instantaneous limitation, shall be between 6.0 (S.U.) and 9.0 (S.U.).

b. The *E. coli* limits are based on a geometric mean and shall be effective from April 1 through October 31.

c. Total Residual Chlorine monitoring is required only during periods of chlorination.

Stipulations:

1. There shall be no discharge of floating solids or visible foam in other than trace amounts.

2. 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 directly enter either the final effluent or waters of the state.

3. Samples taken in compliance with the monitoring requirements specified above shall be taken after leaving the sewage treatment plant but prior to entering the cooling water canal.

Table 3: Effluent Limitations and Monitoring Requirements:
Outfall 005, 010, 012, 014, 016, 017, 022, 028, and 029

Any discharge shall be limited and monitored by the permittee as specified below:

1. Best Management Practices (BMPs) shall be utilized at all times.
2. There shall be no discharge of floating solids or visible foam in other than trace amounts.
3. The quality of the discharge shall be the best attainable through the implementation of BMPs.
4. There shall be no change in operation that will deteriorate the quality of the discharge.
5. No fuel oil, lubricating oil, chemicals, or process water* shall be discharged.
6. The department may require additional BMPs, specific maintenance, and/or monitoring if deemed necessary to protect receiving waters.

* A cross-tie does exist between Outfall 017 and the Unit No. 2 turbine building sump. This sump is not to be discharged through Outfall 017 unless prior approval has been received from the department. As appropriate, effluent limitations and/or self-monitoring requirements may be identified at the time of approval. In addition, the department shall be notified in the event the emergency cooling system for the Unit 2 circulating pump must be operated.

Table 4: Effluent Limitations and Monitoring Requirements: **Outfall 008**				
Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
Total Suspended Solids [b]	30 mg/L	50 mg/L	Weekly	Grab
pH [a]	Shall remain between 6.0 to 9.0 S.U.		Weekly	Instantaneous
Oil & Grease	15 mg/L	20 mg/L	Monthly	Grab
WET, TUa	See Part I.C.1 for specific WET monitoring conditions		2 x Year	Grab
Flow Rate, mgd	Report Monthly Average	Report Max. Daily Value	Daily	Instantaneous
Total Flow, mgal	Report Monthly Total		Monthly	Calculated

Notes:

a. The pH, an instantaneous limitation, shall be between 6.0 (S.U.) and 9.0 (S.U.).

b. If the facility is designed, constructed, operated, and maintained to treat the runoff from a 10-year, 24-hour precipitation event, the daily maximum limitation for total suspended solids shall be 100 mg/L for any discharge overflow caused by a rainfall in excess of 3.2 inches in a 24-hour period. 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. If the permittee elects, the results of the NWS Station at the Milton R. Young Station may be used.

Stipulations:

1. There shall be no discharge of floating solids or visible foam in other than trace amounts.

2. The number of days discharged shall be included on the discharge monitoring report.

3. Samples taken in compliance with the monitoring requirements specified above shall be taken prior to entering the cooling water canal.

Table 5: Effluent Limitations and Monitoring Requirements: **Outfall 019**				
Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
Total Suspended Solids, mg/L	*	*	Weekly	Grab
pH [a]	Shall remain between 7.0 to 9.0 S.U.		Weekly	Instantaneous
Oil & Grease, mg/L	*	*	Monthly	Grab
Flow Rate, mgd	Report Monthly Average	Report Max. Daily Value	Daily	Instantaneous
Total Flow, mgal	Report Monthly Total		Monthly	Calculated

Notes:

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

a. The pH, an instantaneous limitation, shall be between 7.0 (S.U.) and 9.0 (S.U.).

Stipulations:

1. The quality of the discharge shall be the best attainable through the implementation of BMPs.
2. There shall be no change in operation that will deteriorate the quality of the discharge.
3. There shall be no discharge of floating solids or visible foam in other than trace amounts.
4. The number of days discharged shall be included on the discharge monitoring report.
5. Samples taken in compliance with the monitoring requirements specified above shall be taken prior to mixing with any other waste streams.

Table 6: Effluent Limitations and Monitoring Requirements: **Outfall 020**				
Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
Total Suspended Solids [a]	30 mg/L	50 mg/L	Weekly	Grab
pH [b]	Shall remain between 6.0 to 9.0 S.U.		Weekly	Instantaneous
Oil & Grease	15 mg/L	20 mg/L	Monthly	Grab
Flow Rate, mgd	Report Monthly Average	Report Max. Daily Value	Daily	Instantaneous
Total Flow, mgal	Report Monthly Total		Monthly	Calculated

Notes:

a. If the facility is designed, constructed, operated, and maintained to treat the runoff from a 10-year, 24-hour precipitation event, the daily maximum limitation for total suspended solids shall be 100 mg/L for any discharge overflow caused by a rainfall in excess of 3.2 inches in a 24-hour period. 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. If the permittee elects, the results of the NWS Station at the Milton R. Young Station may be used.

b. The pH, an instantaneous limitation, shall be between 6.0 (S.U.) and 9.0 (S.U.).

Stipulations:

1. There shall be no discharge of floating solids or visible foam in other than trace amounts.

2. The number of days discharged shall be included on the discharge monitoring report.

3. Should the south retaining basin contain chlorinated waters from bottom ash spray pond overflow, Total Residual Chlorine (TRC) shall be monitored once a week during discharge. Testing for TRC may be suspended if the TRC concentration is less than 0.1 mg/L and the basin is not receiving spray pond overflow. The TRC test results must be included with the discharge monitoring report.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken prior to mixing with any surface waters or other waste streams.

Table 7: Effluent Limitations and Monitoring Requirements: **Outfall 025**				
Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
Total Suspended Solids	30 mg/L	100 mg/L	Weekly	Grab
pH [a]	Shall remain between 7.0 to 9.0 S.U.		Continuous	Recorder
Oil & Grease	15 mg/L	20 mg/L	Monthly	Grab
Boron, Total, mg/L	*	*	2 x Monthly	Grab
Sulfates, mg/L	*	*	2 x Monthly	Grab
Sodium, % of total cations in mEq/L [b]	*	*	2 x Monthly	Grab
WET, TUc	See Part I.C.2 for specific WET monitoring conditions		2 x Year	Grab
Flow Rate, mgd	Report Monthly Average	Report Max. Daily Value	Daily	Instantaneous
Total Arsenic, µg/L	*	*	1 x Semiannual	Grab
Total Copper, µg/L	*	*	1 x Semiannual	Grab
Bromoform, µg/L	*	*	1 x Semiannual	Grab
Dichlorobromomethane, µg/L	*	*	1 x Semiannual	Grab
Hagel Creek [c, g] (Upstream) – As in DMR – See In Comments				
Sulfates, mg/L	*	*	1 x Year	Grab
Boron, Total, mg/L	*	*	1 x Year	Grab
Square Butte Creek [d, g] (Upstream) – As in DMR – Up stream				
Sulfates, mg/L	*	*	1 x Year	Grab
Boron, Total, mg/L	*	*	1 x Year	Grab
Square Butte Creek [e, g] (Downstream) – As in DMR – Down stream				
Sulfates, mg/L	*	*	1 x Year	Grab

Boron, Total, mg/L	*	*	1 x Year	Grab
Nelson Lake [f, g] - As in DMR – In Stream				
Sulfates, mg/L	*	*	1 x Year	Grab
Boron, Total, mg/L	*	*	1 x Year	Grab

Notes:

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

a. The pH, an instantaneous limitation, shall be between 7.0 (S.U.) and 9.0 (S.U.).

b. Sodium shall be reported as a percentage of total cations in mEq/L.

c. Ambient testing shall be conducted on Hagel Creek for sulfates and boron upstream of Nelson Lake representative of Hagel Creek.

d. Ambient testing shall be conducted on Square Butte Creek for sulfates and boron upstream of Nelson Lake representative of Square Butte Creek.

e. Ambient testing shall be conducted on Square Butte Creek for sulfates and boron below the dam, after it has left the Nelson Lake Reservoir.

f. Ambient testing shall be conducted in the Nelson Lake Reservoir.

g. The permittee will not be required to monitor ambient flows when unsafe conditions exist. This may include when flooding or ice covered conditions are present or when the act of taking a measurement may be deemed unsafe. When unsafe conditions exist, the permittee will consult with the department regarding appropriate action.

Stipulations:

1. There shall be no discharge of floating solids or visible foam in other than trace amounts.

2. 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 directly enter either the final effluent or waters of the state.

3. Samples taken in compliance with the monitoring requirements specified above shall be taken after all treatment processes and prior to entering Nelson Lake.

C. Whole Effluent Toxicity (WET) Requirements BP 2015.08.26

1. Acute Toxicity Testing

Monitoring for acute toxicity is required for **Outfall 008**.

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

WET tests shall be performed on the first discharge made each permit year (July through June), unless specifically waived by the department. Thereafter, tests shall be performed at least once during the first half of a permit year (July through December) and once during the second half of the permit year (January through June) in which there is a discharge.

Toxicity is defined as:

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

Acute WET requirements for **Outfall 008**						
Implementation	Monitoring Imposed					
Effluent Dilution	0%(Control)	12.5%	25%	50%	75%	100%
Dilution Water	**Nelson Lake**					
Species and Test Type	*Ceriodaphnia dubia* - 48 Hour Acute - Static Renewal - 20°C					
	Fathead minnow - 96 Hour Acute - Static Renewal - 20°C					
Endpoint	TUa					
Compliance Point	**End-of-pipe**					

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

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

***Pimephales promelas* (Fathead Minnow)**
a. Report the highest TUa for Fathead minnow, Parameter No. TSN6C.

***Ceriodaphnia dubia* (Water Flea)**
a. Report the highest TUa for *Ceriodaphnia dubia*, Parameter No. TSM3B.

2. Chronic Toxicity Testing

Monitoring for chronic toxicity is required for **Outfall 025.**

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

At least one *ceriodaphnia dubia* and one fathead minnow chronic WET test shall be conducted semiannually on effluent from outfall 025. If the results of a minimum of four consecutive chronic WET tests taken over at least a 12 month period indicate toxicity below 5.0 TUc, the frequency may be reduced, upon the request from the permittee, to annual testing for each species.

If the monitoring results indicate chronic toxicity greater than 5.0 TUc, the permittee shall contact the department and the department will determine additional monitoring required.

For *Ceriodaphnia dubia* test acceptability, the test must have 80% or greater survival of all control organisms and an average of 15 or more young per surviving female in the control solutions and 60% of surviving control females must produce three broods. For fathead minnow test acceptability, the test must have 80% survival of all control organisms and the average dry weight per surviving organism in the control chambers equals or exceeds 0.25 mg. If the acceptability condition is not satisfied the test must be repeated.

Chronic WET requirements for **Outfall 025**						
Implementation	Monitoring Imposed					
Effluent Dilution	0%(Control)	6.25%	12.5%	25%	50%	100%
Dilution Water	**Nelson Lake**					
Species and Test Type	*Ceriodaphnia dubia* – 7-Day Chronic - Static Renewal - 25ºC					
	Fathead Minnow – 7-Day Chronic - Static Renewal - 25ºC					
Endpoint	Survival and Reproduction – reported as TUc					
Compliance Point	End-of-pipe based on Criterion Continuous Concentration "CCC Zone"					

If chronic toxicity greater than 5.0 TUc occurs in a routine test, an additional test shall be initiated within 14 days of the date of the initial sample. Should chronic toxicity greater than 5.0 TUc occur in the second test, testing shall be conducted at a frequency of once a month and the implementation of a Toxicity Reduction Evaluation (TRE) shall be determined by the Department. Should there be no discharge during a specified sampling time frame; sampling shall be performed as soon as there is a discharge.

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

***Pimephales promelas* (Fathead Minnow)**

a. Report the highest TUa for Fathead minnow, Parameter No. TSB6C.
b. Report the highest TUc for Fathead minnow, Parameter No. TTP6C.

***Ceriodaphnia dubia* (Water Flea)**
a. Report the highest TUa for *Ceriodaphnia dubia*, Parameter No. TSA3B.
b. Report the highest TUc for *Ceriodaphnia dubia*, Parameter No. TTP3B.

Minnkota shall request that their WET testing provider report the TUa for *Ceriodaphnia dubia* 48 hour survival and the Fathead minnow 96 hour survival which can be obtained from the chronic tests. The reason for reporting the TUa is to obtain a more representative Acute-to-Chronic Ratio (ACR) which is used in determining permit limitations.

3. Reduced Monitoring For Toxicity Testing

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

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

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

4. Reporting Requirements

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

5. Toxicity Reduction Evaluation (TRE)

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

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

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

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

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

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

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

II. CLEAN WATER ACT 316(b) FINAL RULES

A. Cooling System Operation

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

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

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

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

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

B. Monitoring and Reporting

1. The actual intake flow of the Missouri River CWIS shall be monitored daily. Actual intake flow monitoring shall be representative of normal operating conditions. Actual intake flow monitoring shall include measuring the cooling water withdrawal from the Missouri River. 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 Missouri River CWIS. If the facility has modified the operation of any unit at the facility that impacts cooling water withdrawals or operation of the Missouri River 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 Missouri River cooling water intake structure or operation of the Missouri River cooling water intake. Any changes to the cooling water intake structure 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 cooling water intake structure 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 2019.05.29

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, 2020, the permittee may elect to electronically submit the following compliance monitoring data and reports instead of mailing paper forms. Beginning December 21, 2020, 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
   918 East Divide Ave
   Bismarck ND 58501-1947

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
ND-0000370

PERMIT REISSUANCE

MINNKOTA POWER COOPERATIVE, INC.
CENTER, ND

DATE OF THIS FACT SHEET – MAY 2020

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.**

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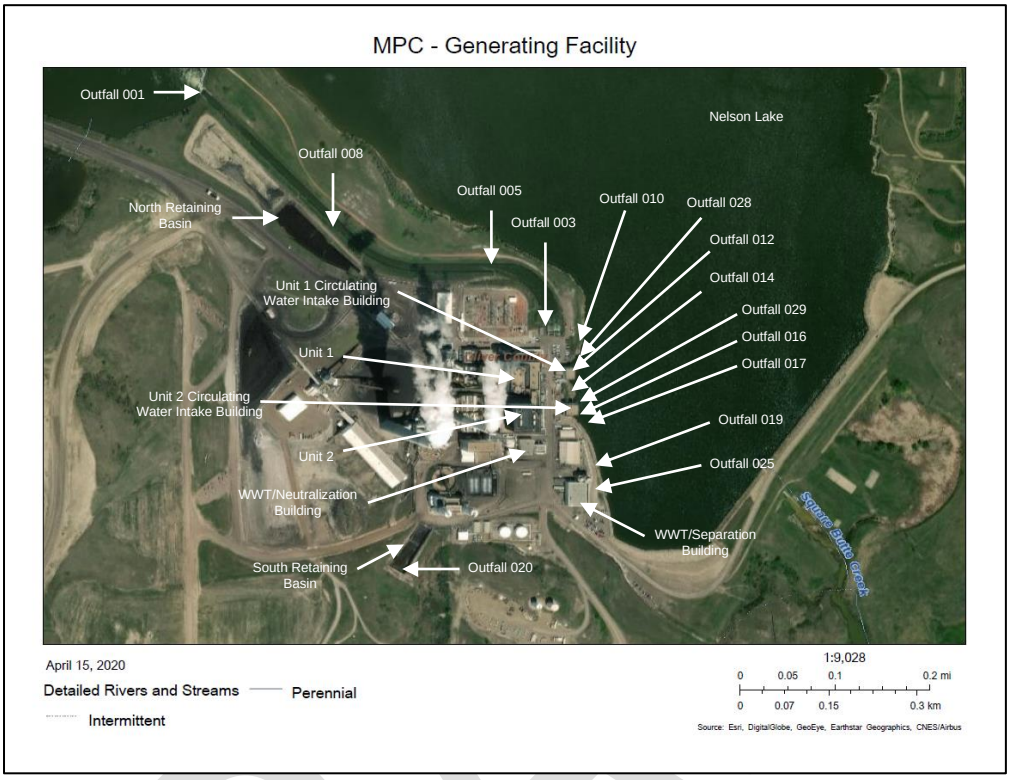
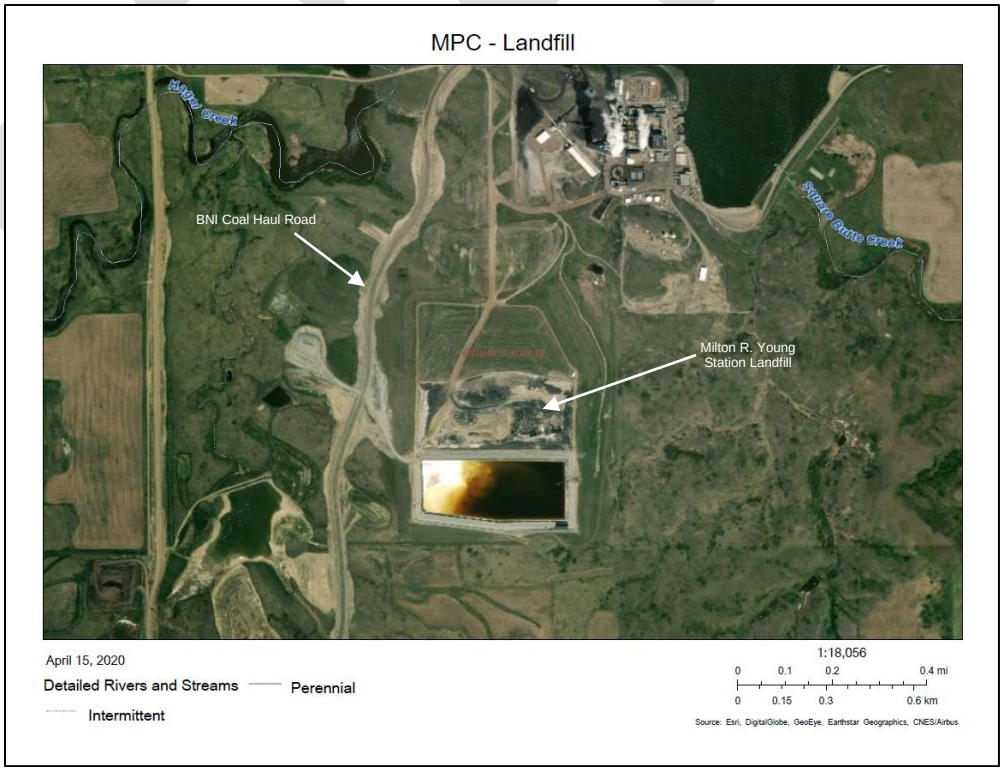
BACKGROUND INFORMATION

Table 1 – General Facility Information

Applicant:	Minnkota Power Cooperative, Inc.
Facility Name and Address:	Milton R. Young Station 3401 24th St. SW Center, ND 58530
Permit Number:	ND-0000370
Permit Type:	Major Industrial, Permit Reissuance
Type of Treatment:	Once-Through Non-Contact Cooling Water, Settling Ponds, Mechanical Treatment
SIC Code:	4911
Discharge Location:	Nelson Lake, Class 3 Lake Latitude: 47.07 Longitude: -101.21 Missouri River, Class I stream Latitude: 47.2560 Longitude: -101.1867
Cooling Water Intake Structure Location:	Missouri River, Class I stream Latitude: 47.2560 Longitude: -101.1867
Hydrologic Code:	10130101 – Painted Woods-Square Butte

Figure 1: Aerial photograph of Minnkota Power Cooperative, Milton R. Young Station (North Dakota Geographic Information System, Maps Generated April 2020)





MPC - Nelson Lake

April 15, 2020
Detailed Rivers and Streams — Perennial
Intermittent

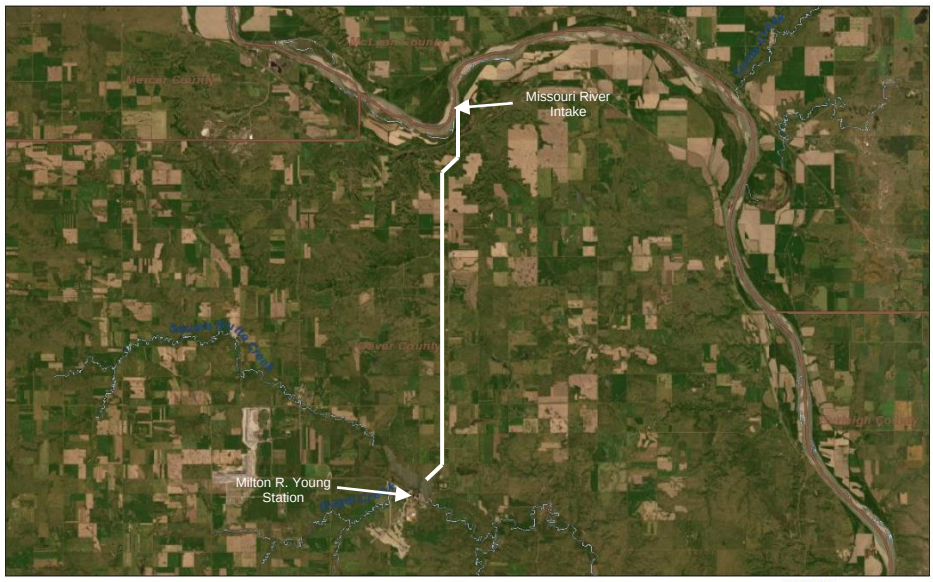
1:36,112
0 0.2 0.4 0.8 mi
0 0.33 0.65 1.3 km
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus

MPC - Nelson Lake Inlet

April 15, 2020
Detailed Rivers and Streams — Perennial
Intermittent

1:9,028
0 0.05 0.1 0.2 mi
0 0.07 0.15 0.3 km
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus

MPC - Pipeline



April 15, 2020
Counties
Perennial

1:288,895
0 1.5 3 6 mi
0 2.5 5 10 km
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus

MPC - Missouri River Intake Structure

April 15, 2020
Detailed Rivers and Streams
Perennial
Intermittent

1:4,514
0 0.03 0.05 0.1 mi
0 0.04 0.08 0.16 km
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus

FACILITY DESCRIPTION

Minnkota Power Cooperative's Milton R. Young Station is a two-unit, lignite coal-fired steam electric generating plant. Unit No. 1 is typically operated at 256 megawatts. Unit No. 2 is rated at 470 megawatts. The facility is located adjacent to Nelson Lake which was constructed as part of the facility to provide cooling water for the generating units. There are fifteen outfalls regulated by this permit for the discharge of once through cooling water, sanitary wastewater, plant process wastewaters, site runoff, and miscellaneous sources such as screen washings.

History

The plant was first permitted in 1974. The initial permit was for discharges from Unit No. 1. Unit No. 1 began commercial operation in 1970 and Unit No. 2 began commercial operation in 1977. The current outfalls and treatment systems reflect the changes and additions made with the construction of Unit No. 2.

Three discharge points affiliated with the High Voltage Direct Current (HVDC) facility were deactivated in the 2010 permit. The points included the HVDC cooling water (Outfall 002), the intake building (Outfall 023) and the building floor drains (Outfall 030). The HVDC facility was purchased by Minnesota Power to provide electrical transmission capacity for the company's wind power generation development in the state. Minnesota Power obtained a separate permit for the discharge points at the facility in the first quarter of 2010.

The discharge point for overflow from the spray pond (Outfall 024) was deactivated in the 2010 permit. The outfall was an internal point leading to the south retaining basin (Outfall 020). The spray pond provides cooling for water recycled in the bottom ash transport system. The only recorded overflows from the spray pond occurred in 1990 and 1997. The limitations applicable to the south retaining basin are more stringent than for the spray pond overflow and had to be met even when the internal point was active.

The discharge point for the metal cleaning and low volume waste thickener (Outfall 026) was inactivated in the 2010 permit. The point was described for metal cleaning wastes which are also regulated under Outfall 027. The purpose and function of the thickener at the facility has changed since it was first installed. It is no longer used to provide pretreatment for certain waste such as metal cleaning before it would be sent to the plant wastewater treatment system (Outfall 025). The current function is primarily a storage vessel for waters at the plant which are then directed to the plant's flue gas desulfurization (FGD) scrubber system. The FGD system is not allowed to discharge under this permit.

Permit Renewal

The discharge point for the Unit No. 1 Bottom Ash Pond (Outfall 009) is being proposed to be inactivated in the 2020 permit. Removal and reclamation of the alternate bottom ash pond structure was completed in 2017 as a result of various plant improvements. The improvements resulted in water being consumed within plant operations and discharges through Outfall 009 no longer occur.

The discharge point for the temporary storage vessels (Outfall 027) is being proposed to be inactivated in the 2020 permit. Boiler metal cleaning wastes are now managed within the coal combustion residual facility at the station.

Treatment Processes

The water treatment plant treats raw intake water from Nelson Lake and the Missouri River for use in the plant. These uses include unit 2 boiler condensate, and other miscellaneous plant uses. This treatment plant treats the raw intake water using clarifiers, microfiltration/reverse osmosis (MF/RO), and demineralizers. The MF/RO unit replaced the electrodialysis reversal (EDR) treatment process in 2014.

Wastewater is treated by several different methods at the facility. Cooling water from the condensers is directed to a canal located on the southwest side of the lake to provide initial heat dissipation. Additional cooling occurs in the lake which serves as a cooling water reservoir for the facility.

Sanitary waste is treated in a mechanical sewage treatment plant which discharges to the cooling water canal. The wastewater treatment plant includes oil and water separation, pH adjustment, and solids removal with plate filters. The wastewater treatment plant also has the availability of a belt filter press for sludge dewatering when needed or sludge can be removed via vacuum truck. The treated plant wastewater is discharged directly to the lake.

Waste from plant processes that require neutralization begins treatment at the neutralization building, where pH adjustment occurs. The water then travels to the separation building, where it is held in surge tanks and is combined with other waste streams. Once the water reaches a specified elevation, water will begin to discharge from the surge tanks. A pH probe monitors pH levels in the discharge, if pH levels are not within specifications the water is re-circulated to the neutralization building for further pH adjustment. If pH levels are within specifications the discharge passes through solid separators that remove particulates and includes oil/water separation. The discharge then is sent to three gravity filters for additional particulate removal. Following the gravity filters, it enters a clear well where there is continuous turbidity monitoring. If turbidity is not within specifications it is re-circulated to the surge tanks for further treatment. If turbidity levels are met, the wastewater is discharged to Nelson Lake.

In 2015 the plant conducted a pilot study for the use of non-oxidizing biocide in the MF/RO system to treat biofouling. The biocide used was 2,2-dibromo-3-nitrilopropionamide (DBNPA). The study found that DMNPA rapidly degrades prior to reaching the surge tank in the separation building and would not be present when the discharge enters Nelson Lake.

The plant has two settling basins for treating plant site runoff, including runoff from the coal storage pile. The north retaining basin discharges to the cooling water canal and the south retaining basin discharges to a stormwater pipe which outlets into the lake. In 2017, the alternate bottom ash pond (located northwest of the north retaining pond) was removed. Bottom ash transport water is recycled through plant processes and not discharged.

There are several outfalls described for the facility which are controlled through best management practices. These outfalls include discharges from non-process sources such as roof drains, site runoff, foundation drains, and intake screen washing.

Milton R. Young Station uses a single cooling water intake structure (CWIS) located 13 miles north of the plant on the Missouri River. The CWIS supplies make up water to Nelson Lake reservoir which is a dedicated, on-site impoundment for cooling water. The CWIS withdraws an

average of 2.75 million gallons of water per day (MGD) from the Missouri River. The intake structure is equipped with a trash rack, one set of conventional traveling waters screens, and two river intake pumps. Under normal conditions, the CWIS operates one pump at a time along with one traveling screen. Pumps are typically operated overnight while system-wide electrical demand is low.

Water from the CWIS is discharged into the "separator dike" impoundment located next to Nelson Lake in the northeast corner and is isolated from the lake. Water in the "separator dike" is used to cool the Minnesota Power HVDC converter unit and provides the make-up water to Nelson Lake. Effluent from the Minnesota Power HVDC unit is discharged to Nelson Lake or sent to Milton R. Young Station for use in the boiler water pretreatment system.

The plant has two recirculating structures that draw water from Nelson Lake for cooling water purposes. The structures draw water through trash racks into forebays and each screenhouse is equipped with two conventional traveling screens. The recirculating structure pumps for Unit 1 are rated at 170 MGD. The recirculating structure pumps for Unit 2 are rated at 360 MGD.

As mentioned earlier, cooling water is directed to a canal located on the southwest side of the lake to provide heat dissipation before entering Nelson Lake; additional cooling occurs in Nelson Lake. Water in Nelson Lake has a residence time of approximately 6.1 days.

Nelson Lake was constructed in 1967 as a reservoir for the purpose of serving as a closed-cycle recirculating system (CCRS) for Unit 1. The elevation of Nelson Lake was later raised to accommodate Unit 2 which began operation in 1977. The Office of the State Engineer of the State of North Dakota approved the permits to construct and later expand Nelson Lake in 1972 and 1982, respectively. Because Nelson Lake was constructed as a CCRS, it meets the definition of a CCRS in Title 40 of the Code of Federal Regulations, Part 125 (or 40 CFR 125); specifically, 40 CFR 125.92(c)(2). Nelson Lake also is stocked and managed by the North Dakota Game and Fish Department (NDGFD), the state fisheries resource agency. Fish populations within the lake have been established, in part, by a stocking program conducted by the NDGFD. NDGFD reports show management goals are being achieved.

Discharge Outfall

There are fifteen active discharge outfalls at the facility. The descriptions for the active outfalls and former outfalls are as follows:

Outfall 001. Active. Final.			
Latitude: 47.07102	Longitude: -101.22000	County: Oliver	
Township: 142N	Range: 83W	Section: 32	QQ: DCA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Once-Through Cooling Water. A continuous discharge of approximately 420 mgd consisting of once-through cooling water from the condensers and closed cooling water heat exchangers for Unit No. 1 and Unit No. 2. This is an exterior point which discharges to Nelson Lake.			

Outfall 003. Active. Internal.			
Latitude: 47.06738	Longitude: -101.21222	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Domestic Wastewater. An intermittent discharge of approximately 3000 gpd, with a maximum rate of approximately 6000 gpd from the domestic wastewater package treatment plant. This is an interior point which enters Outfall 001.			

Outfall 005. Active. Internal.			
Latitude: 47.06824	Longitude: -101.21333	County: Oliver	
Township: 142N	Range: 83W	Section: 33	QQ: CCC
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Runoff. An intermittent discharge consisting of runoff from the Center switchyard and the area directly to the west of the yard. This is an interior point which enters Outfall 001 just west of Outfall 003.			

Outfall 008. Active. Internal.			
Latitude: 47.06886	Longitude: -101.21694	County: Oliver	
Township: 142N	Range: 83W	Section: 32	QQ: DDD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: North Retaining Basin. An intermittent discharge of approximately 0.225 mgd consisting of coal pile runoff, fly ash handling area runoff, and low volume wastes including the vehicle maintenance shop building sump, and vehicle storage building oil water separator. On an occasional basis, the discharge may include water from excavation pumping, fire protection system. This is an interior point which enters Outfall 001 just west of Outfall 005.			

Outfall 010. Active. Final.			
Latitude: 47.06720	Longitude: -101.21139	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Roof Drains. An intermittent discharge of less than 100 gpd consisting of roof drains and a groundwater collection system beneath the north yard. On occasion, RO product/service water used to cool roof air conditioning units during extreme heat events. Any discharge is to Nelson Lake.			

Outfall 012. Active. Final.			
Latitude: 47.06661	Longitude: -101.21167	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Screen Washings. An intermittent discharge of approximately 7,200 gpd consisting of Unit No. 1 intake traveling screen wash water. Any discharge is to Nelson Lake.			

Outfall 014. Active. Final.			
Latitude: 47.06644	Longitude: -101.21167	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Roof Drains. An intermittent discharge consisting of roof drains. Any discharge is to Nelson Lake.			

Outfall 016. Active. Final.			
Latitude: 47.06605	Longitude: -101.21167	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Screen Washings. An intermittent discharge of approximately 8,200 gpd consisting of Unit No. 2 intake traveling screen wash water. Any discharge is to Nelson Lake.			

Outfall 017. Active. Final.			
Latitude: 47.06595	Longitude: -101.21139	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Roof Drain. An intermittent discharge consisting of roof drains and fire protection water used to cool Unit 2 boiler circulation pump during emergency conditions. A cross-tie exists with the Unit No. 2 turbine building sump. Any discharge is to Nelson Lake.			

Outfall 019. Active. Final.			
Latitude: 47.06526	Longitude: -101.21111	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Runoff. An intermittent discharge of approximately 0.225 mgd consisting of roof drains, north plant area runoff, south yard area runoff, north transformer yard area runoff, north parking lot area runoff, east driveway area runoff, area runoff from between Unit No. 1 and Unit No. 2 screen houses, runoff from a yard catch basin, groundwater from a "French drain" system beneath the concrete ditch which carries yard runoff, spray pond drift, fire header system flushing/testing, and discharges from Outfall 020. Any discharge is to Nelson Lake.			

Outfall 020. Active. Internal.			
Latitude: 47.06362	Longitude: -101.21528	County: Oliver	
Township: 141N	Range: 83W	Section: 5	QQ: ADA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: South Retaining Basin. An intermittent discharge of approximately 0.171 mgd consisting of low volume waste, spray pond drift, coal pile runoff, south and west plant runoff, occasional fire protection system testing and flushing, and excavation water. This is an interior point which enters Outfall 019.			

Outfall 022. Active. Final.			
Latitude: 47.25605	Longitude: -101.18667	County: Oliver	
Township: 144N	Range: 83W	Section: 34	QQ: BAB
Receiving Stream: Missouri River		Classification: Class I	
Outfall Description: Screen Washings and Pumphouse Blowdown. An intermittent discharge of approximately 0.016 mgd consisting of the intake traveling screen wash water and non-contact pump motor cooling water at the Missouri River pumping station. Any discharge is to the Missouri River.			

Outfall 025. Active. Final.			
Latitude: 47.06485	Longitude: -101.21083	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Wastewater Treatment System. A continual discharge of approximately 0.43 mgd consisting of chemical waste treatment, Unit 2 polisher backwash condensate, demineralizer backwash, Unit 1 and 2 turbine building sump waters, and bottom ash spray pond blowdown. MF/RO operation water, other low volume waste water, south retaining basin water, or excavation and work related waters may be pumped to waste water treatment. Any discharge is to Nelson Lake.			

Outfall 028. Active. Final.			
Latitude: 47.06672	Longitude: -101.21167	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBA
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Unit No. 1 Intake Pump Pit. An intermittent discharge of approximately 2.88 mgd consisting of lake water from the Unit 1 circulating water intake pump pit. Any discharge is to Nelson Lake.			

Outfall 029. Active. Final.			
Latitude: 47.06616	Longitude: -101.21167	County: Oliver	
Township: 141N	Range: 83W	Section: 4	QQ: BBD
Receiving Stream: Nelson Lake		Classification: Class 3	
Outfall Description: Unit No. 2 Intake Pump Pit and Lake Water Storage Tank. An intermittent discharge of approximately 2.88 mgd consisting of lake water from the Unit 2 circulating water intake pit and lake water storage tanks. The storage tanks have approximate capacities of 500,000 and 280,000 gallons. Any discharge is to Nelson Lake.			

Outfall 002 - Inactive. Originally for HVDC facility cooling water. As of April 2010, the facility has been regulated under permit for Minnesota Power (ND0026361).

Outfall 004 - Inactive. Originally for Unit No. 1 turbine building sump water and Unit No. 1 slag pit sump water. As of July 1986, Outfall 004 had been permanently blocked off.

Outfall 006 - Inactive. Originally, this discharge consisted of drainage from the west part of the transformer yard and the area just west of the transformer yard. The discharge was rerouted to Outfall point 005. As of June 2005, this point had been eliminated.

Outfall 007 - Inactive. Originally, this point consisted of backwash from a water softener unit. Prior to May 1995, the softener unit was removed and discharge blocked off.

Outfall 009 - Inactive. This discharge consisted of bottom ash transport water, Unit No. 1 slag pit sump water, decant water from the north retaining basin, and groundwater infiltration. As of August 2017, the alternate bottom ash transport pond was filled in and Outfall 009 can no longer discharge.

Outfall 011 - Inactive. Originally, this discharge consisted of runoff from the north parking lot area. As of May 1987, this point had been eliminated.

Outfall 013 - Inactive. Originally, this intermittent discharge consisted of a floor drain in the hydrogen and carbon dioxide building. It was an exterior point which entered Nelson Lake just south of Outfall 012. This point was eliminated as of July 2015.

Outfall 015 - Inactive. Originally, this discharge point consisted of runoff from the east driveway area to the main office and runoff between the Unit No. 1 and Unit No. 2 screen houses. As of May 1987, this point had been eliminated.

Outfall 018 - Inactive. Originally, this point consisted of wastewater from the old wastewater treatment facility. As of August 1986, this point had been eliminated.

Outfall 021 - Inactive. Originally, this point consisted of runoff from a fuel storage area which entered Outfall 019. As of August 1984, this point had been eliminated.

Outfall 023 - Inactive. Originally, strainer blowdown at the HVDC intake building. As of April 2010, the facility has been regulated under permit for Minnesota Power (ND0026361).

Outfall 024 - Inactive. Originally, an internal point for bottom ash spray pond overflow. As of July 2010, any discharge would be regulated at Outfall 020.

Outfall 026 - Inactive. Originally, an internal point from the thickener for metal cleaning wastes and low volume wastes. As of July 2010, the discharge was routed to the scrubber system or regulated outfall as appropriate.

Outfall 027 - Inactive. This internal point consisted of metal cleaning wastes which were contained in "frac tanks," temporary storage tanks, or the actual vessel cleaned. This was an interior point which entered Outfall 025. Boiler metal cleaning waste are now managed within the coal combustion residuals facility and the point is proposed to be eliminated as of July 1, 2020.

Outfall 030 - Inactive. This point was for HVDC building floor drains. As of April 2010, the facility has been regulated under permit for Minnesota Power (ND0026361).

Thirteen additional stormwater outfalls are covered under the NDPDES general stormwater discharge permit associated with industrial activity, NDR05-0000. The coverage number for the facility is NDR05-0012.

PREVIOUS PERMIT STATUS

The department issued the current permit for this facility on July 1, 2015. The permit has effluent monitoring requirements for:

- Total Residual Chlorine,
- Temperature,
- pH,
- Five-day biochemical oxygen demand (BOD_5),
- Total suspended solids (TSS),
- *Escherichia coli* (*E. coli*),
- Oil and Grease,
- Whole effluent toxicity (WET),
- Boron,
- Sulfates,
- Sodium,
- Arsenic,
- Copper,
- Bromoform,
- Chloroform, and
- Dichlorobromomethane

The permit is scheduled to expire at midnight on June 30, 2020.

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED

Department staff last conducted a non-sampling compliance inspection on June 4, 2019. The department's assessment of the compliance is based on review of the facility's Discharge Monitoring Reports (DMRs) and yearly inspections conducted by department staff.

Past Discharge Data

The concentrations of pollutants in the discharges were reported in discharge monitoring report forms. The effluent is characterized as shown in Table 2. No discharge occurred from outfalls 009 and 027 during the monitoring period. Outfalls 005, 010, 012, 014, 016, 017, 022, 028, and 029 are limited by the use of best management practices so data was not required to be collected and submitted to characterize the quality of discharges from the outfalls.

Table 2 – Minnkota - Center (July 2015 to February 2020)

Parameter	Units	Range	Average	Permit Limit	Number of Excursions
Outfall 001					
Temperature	^{O}C	43 (max)	25.9	N/A	N/A
Total Residual Chlorine	mg/L	0.003 – 0.131	0.045	0.20	0
Total Residual Chlorine	lbs/day	0.3 – 48.2	15.3	73.7	0
pH	S.U.	7.96 – 8.96	N/A	7.0 – 9.0	0
Flow	MGD	530 (max)	437	N/A	N/A

Table 2 – Minnkota - Center (July 2015 to February 2020)

Parameter	Units	Range	Average	Permit Limit	Number of Excursions
Outfall 003					
BOD_5	mg/L	68.6 (max)	4.8	25 Monthly avg 45 Daily max	0 1
TSS	mg/L	28 (max)	6.14	30 Monthly avg 45 Daily max	0 0
E. Coli	#/100 mL	1 – 2420	2.92 (geometric mean)	126 Monthly avg 409 Daily max	0 4
pH	S.U.	6.99 – 8.6	N/A	6.0 – 9.0	0
Total Residual Chlorine	mg/L	3.18 (max)	1.81 (average max)	2.5 Daily max	1
Flow	gpd	9850	3137	NA	NA
Outfall 008					
TSS	mg/L	37 (max)	24	30 Monthly avg 50 Daily max	1 0
pH	S.U.	7.9 – 8.46	N/A	6.0 – 9.0	0
Oil & Grease	mg/L	<1.4	<1.4	15 Monthly avg 20 Daily max	0 0
Ceriodaphnia dubia	TUa	<1	<1	<1	0
Fathead Minnow	TUa	<1	<1	<1	0
Flow	MGD	0.324 (max)	0.118	N/A	N/A
Total Flow	Mgal	0.959	0.314 (average max)	N/A	N/A
Days per Month	days	1 to 4	2		
Outfall 019					
TSS	mg/L	4250 (max)	234	N/A	N/A
pH	S.U.	7.43 – 8.82	N/A	7.0 – 9.0	0
Oil & Grease	mg/L	10.1 (max)	3.20	N/A	N/A
Flow	MGD	1.5 (max)	0.163	N/A	N/A
Total Flow	Mgal	5.576	0.802 (average max)	N/A	N/A

Table 2 – Minnkota - Center (July 2015 to February 2020)

Parameter	Units	Range	Average	Permit Limit	Number of Excursions
Days per Month	days	1 to 17	4		
Outfall 020					
TSS	mg/L	3	3	30 Monthly avg 50 Daily max	0 0
pH	S.U.	7.6	N/A	6.0 to 9.0	0
Oil & Grease	mg/L	<1.4	<1.4	15 Monthly avg 20 Daily max	0 0
Flow	MGD	0.324 (max)	0.26	N/A	N/A
Total Flow	Mgal	1.3	1.3 (average max)	N/A	N/A
Days per Month	days	5	5		
Outfall 025					
TSS	mg/L	36 (max)	3.55	30 Monthly avg 100 Daily max	0 0
pH	S.U.	6.96 – 8.82	N/A	7.0 to 9.0	1
Oil & Grease	mg/L	4.4 (max)	1.7	15 Monthly avg 20 Daily max	0 0
Boron (Effluent)	mg/L	2.39 (max)	0.71	N/A	N/A
Boron (Hagel Creek)	mg/L	0.82 (max)	0.51	N/A	N/A
Boron (Square Butte Creek, Upstream)	mg/L	0.42 (max)	0.26	N/A	N/A
Boron (Nelson Lake)	mg/L	0.67 (max)	0.51	N/A	N/A
Boron (Square Butte Creek, Downstream)	mg/L	0.67 (max)	0.52	N/A	N/A
Sulfate (Effluent)	mg/L	2110 (max)	1123	N/A	N/A
Sulfate (Hagel Creek)	mg/L	1490 (max)	955	N/A	N/A
Sulfate (Square Butte Creek, Upstream)	mg/L	737 (max)	452	N/A	N/A
Sulfate (Nelson Lake)	mg/L	1350 (max)	993	N/A	N/A

Table 2 – Minnkota - Center (July 2015 to February 2020)

Parameter	Units	Range	Average	Permit Limit	Number of Excursions
Sulfate (Square Butte Creek, Downstream)	mg/L	1260 (max)	723	N/A	N/A
Sodium	% of total cations as mEq/L	61.8 (max)	51.8	N/A	N/A
Arsenic	µg/L	57 (max)	16.3	N/A	N/A
Copper [a]	µg/L	50 (max)	19.3	N/A	N/A
Bromoform	µg/L	22 (max)	10.0	N/A	N/A
Chloroform	µg/L	6.1 (max)	1.7	N/A	N/A
Dichlorobromo-methane	µg/L	6.5 (max)	1.8	N/A	N/A
Ceriodaphnia dubia	TUc	<1 to 1.52	1.06	5.0	0
Fathead Minnow	TUc	<1	<1	5.0	0
Flow	MGD	2.3 (max)	0.415	NA	NA

N/A Not Applicable

a. Results received from the laboratory were below the detection level but greater than the applicable water quality standard for a class IA stream.

PROPOSED PERMIT LIMITS

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.

Using BPJ, the department determined that an average monthly limitation of 25 mg/L and a maximum daily limitation of 45 mg/L for BOD_5 is appropriate for discharges from the domestic wastewater package treatment plant. In addition, using BPJ the department determined that an average monthly limitation of 30 mg/L and a maximum daily limitation of 45 mg/L for TSS is appropriate for this type of discharge. Other facilities with treatment works treating domestic sewage in the state have similar limitations.

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. Currently, the water quality standards (WQS) contain guidelines for nutrient parameters that are goals for lake and reservoir improvement or maintenance programs.

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 9. The notations used in the tables for the basis of the effluent limitations are as follows:

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

"WQS" refers to effluent limitations based on the State of North Dakota's "Standards of Quality for Waters of the State", NDAC Chapter 33-16-02.1.

"CFR" refers to the Code of Federal Regulations.

Table 3: Effluent Limitations for Outfall 001

Effluent Parameter	Monthly Average	Daily Maximum	Single Grab Maximum	Basis
Total Residual Chlorine, mg/L	*	73.7 #/day [a]	0.20 mg/L	Previous Permit 40 CFR 423.13(b)(1)
pH, S.U.	Shall remain between 7.0 to 9.0			WQS
Temperature, ^{O}C [b]	*	*	*	Previous Permit WQS
Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that the discharge for more than two hours is required for macroinvertebrate control.				Previous Permit 40 CFR 423.13(b)(2)
The temperature of this discharge shall not have an adverse effect on fish, aquatic life and wildlife, or Nelson Lake itself.				Previous Permit WQS
There shall be no discharge of polychlorinated biphenyl compounds.				Previous Permit 40 CFR 423.13(a)
There shall be no discharge of floating solids or visible foam in other than trace amounts.				Previous Permit
Notes:				
*. This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.				

Table 3: Effluent Limitations for Outfall 001

a.	As there is a two-hour restriction on the amount of chlorine which can be discharged, it is necessary to calculate a quantity limitation. To calculate the chlorine quantity limitation, one-twelfth of the daily discharge flow rate will be used.
b.	As provided in the WQS, the temperature standard for class I streams, lakes, and reservoirs does not apply to Nelson Lake (NDAC 33.1-16-02.1-09(3)(g)(3)). The temperature of any discharge to Nelson Lake shall not have an adverse effect on fish, aquatic biota, recreation, and wildlife.

Table 4: Effluent Limits for Outfall 003

Effluent Parameter	Monthly Average	Daily Maximum	Basis
BOD_5, mg/L	25	45	Previous Permit, BPJ NDAC 33.1-16-01-14(3)(c)(1) 40 CFR 133.102(a)(2)
TSS, mg/L	30	45	Previous Permit, BPJ NDAC 33.1-16-01-14(3)(a) 40 CFR 133.102(b)(1)&(2)
E. coli, cfu/ 100 mL [a]	126	409	Previous Permit, BPJ NDAC 33.1-16-01-14(3)(b) WQS
Total Residual Chlorine, mg/L [b]	*	2.5	Previous Permit NDAC 33.1-16-01-14(3)(b)
pH, SU	Shall remain between 6.0 to 9.0		Previous Permit 40 CFR 133.102(c)
There shall be no discharge of floating solids or visible foam in other than trace amounts.			Previous Permit
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 directly enter either the final effluent or waters of the state.			Previous Permit

Notes:

*.	This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.
a.	The *E. coli* limits are based on a geometric mean and shall be effective from April 1 through October 31.
b.	The limitation for total residual chlorine does not present a water quality concern as the discharge enters the cooling water discharge and travels approximately one-half mile before entering Nelson Lake. The flow ratio between the domestic wastewater treatment plant and once-through cooling water is approximately 1:100,000. Total residual chlorine is further limited at outfall 001, downstream of outfall 003.

Table 5: Effluent Limits for Outfall 008

Effluent Parameter	Monthly Average	Daily Maximum	Basis
TSS, mg/L	30	50 [a]	Previous Permit 40 CFR 423.12(b)(3),(9)&(10)
pH, S.U.	Shall remain between 6.0 to 9.0		Previous Permit 40 CFR 423.12(b)(1)
Oil & Grease, mg/L	15	20	Previous Permit 40 CFR 423.12(b)(3)
WET, TUa	No Acute Toxicity		40 CFR 122.44(d)(1)(iv)&(v) NDAC 33.1-16-02.1-08(1)(a)(4)
There shall be no discharge of floating solids or visible foam in other than trace amounts.			Previous Permit
Notes:			
a. If the facility is designed, constructed, operated, and maintained to treat the runoff from a 10-year, 24-hour precipitation event, the daily maximum limitation for total suspended solids shall be 100 mg/L for any discharge overflow caused by a rainfall in excess of 3.2 inches in a 24-hour period. 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 6: Effluent Limits for Outfall 019

Effluent Parameter	Monthly Average	Daily Maximum	Basis
pH, S.U.	Shall remain between 7.0 to 9.0		WQS
There shall be no discharge of floating solids or visible foam in other than trace amounts.			Previous Permit
The quality of the discharge shall be the best attainable through the implementation of BMPs.			Previous Permit Stormwater [a]
There shall be no change in operation that will deteriorate the quality of the discharge.			Previous Permit Stormwater [a]
Notes:			
a. Stormwater associated with industrial activity as defined in 40 CFR 122.26(b)(14)(vii) regulated by best management practices as provided in 40 CFR 122.44(k)(2)&(3).			

Table 7: Effluent Limits for Outfall 020

Effluent Parameter	30-Day Average	Daily Maximum	Basis
TSS, mg/L	30	50 [a]	Previous Permit 40 CFR 423.12(b)(3),(4),(9)&(10)
pH, S.U.	Shall remain between 6.0 to 9.0		Previous Permit 40 CFR 423(b)(1)

Table 7: Effluent Limits for Outfall 020

Effluent Parameter	30-Day Average	Daily Maximum	Basis
Oil & Grease, mg/L	15	20	Previous Permit 40 CFR 423(b)(3)&(4)
There shall be no discharge of floating solids or visible foam in other than trace amounts.			Previous Permit
Notes:			
a. If the facility is designed, constructed, operated, and maintained to treat the runoff from a 10-year, 24-hour precipitation event, the daily maximum limitation for total suspended solids shall be 100 mg/L for any discharge overflow caused by a rainfall in excess of 3.2 inches in a 24-hour period. 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 8: Effluent Limits for Outfall 025

Effluent Parameter	30-Day Average	Daily Maximum	Basis
TSS, mg/L	30	100	Previous Permit 40 CFR 423.12(b)(3)
pH, S.U.	Shall remain between 7.0 to 9.0		40 CFR 423.12(b)(1) WQS
Oil & Grease, mg/L	15	20	Previous Permit 40 CFR 423.12(b)(3)
WET, TUc	[a]		40 CFR 122.44(d)(1)(iv)&(v) NDAC 33.1-16-02.1-08(1)(a)(4)
There shall be no discharge of floating solids or visible foam in other than trace amounts.			Previous Permit
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 directly enter either the final effluent or waters of the state.			Previous Permit
Notes:			
a. If the monitoring results indicate chronic toxicity greater than 5.0 TUc, the permittee must contact the department and the department will determine additional monitoring required.			

Table 9: Effluent Limits for Outfalls 005, 010, 012, 014, 016, 017, 022, 028, and 029

Best Management Practice	Basis
There shall be no discharge of floating solids or visible foam in other than trace amounts.	Previous Permit 40 CFR 122.44(k)(3) [a]
The quality of the discharge shall be the best attainable through the implementation of BMPs.	Previous Permit 40 CFR 122.44(k)(3) [a]
There shall be no change in operation that will deteriorate the quality of the discharge.	Previous Permit 40 CFR 122.44(k)(3) [a]
No fuel oil, lubricating oil, chemicals, or process water shall be discharged. [b]	Previous Permit 40 CFR 122.44(k)(3) [a]
The department may require additional BMPs, specific maintenance, and/or monitoring if deemed necessary to protect receiving waters.	Previous Permit

Notes:	
a.	Best Management Practices (BMPs) may be used to control or abate the discharge of pollutants when numeric effluent limitations are infeasible provided in 40 CFR 122.44(k)(3).
b.	A cross-tie does exist between Outfall 017 and the Unit No. 2 turbine building sump. This sump is not to be discharged through Outfall 017 unless prior approval has been received from the department.

SELF-MONITORING REQUIREMENTS

Effluent parameters are sampled at the outfalls prior to leaving company property and mixing with receiving waters. The sample location for each respective outfall is provided in the tables below.

Monitoring for nutrients at outfall 003 will be added to the proposed permit to coincide with the development of the state's nutrient development strategy. Monitoring for arsenic, copper, bromoform, and dichlorobromomethane will continue at outfall 025 in the proposed permit. A review of monitoring required by the current permit shows these parameters are present in the discharge above water quality standards for both a reservoir and Square Butte Creek, a class IA stream.

Monitoring for chloroform at outfall 025 will be discontinued in the proposed permit. A review of monitoring data required by the current permit shows this parameter is present in the discharge, but below the water quality standard for both a reservoir and class IA stream.

Ambient monitoring for sulfates and total boron related to outfall 025 was reduced from quarterly sampling to annual sampling. Ambient monitoring was added to the 2015 permit to collect upstream, downstream, and instream data. The results of eighteen ambient samples collected per site were available for developing this fact sheet. The department will continue ambient monitoring in the proposed permit to increase the set of ambient data to more than twenty results.

Table 10: Self-Monitoring Requirements for Outfall 001

Effluent Parameter	Frequency	Sample Type [a]
Total Residual Chlorine [b]	1/Week	Grab
Temperature	1/Week	Instantaneous
pH	1/Week	Instantaneous
Flow	1/Week	Instantaneous
Samples taken in compliance with the monitoring requirements shall be taken at the platform at inactive Outfall 009 or other point prior to mixing with Nelson Lake.		
Notes:		
a. Refer to Appendix B for definitions.		
b. Total Residual Chlorine monitoring is required only during periods of chlorination.		

Table 11: Self-Monitoring Requirements for Outfall 003

Effluent Parameter	Frequency	Sample Type [a]
BOD5	1/Week	Grab
TSS	1/Week	Grab
pH	1/Week	Instantaneous
E. coli [b]	1/Week	Grab
Total Residual Chlorine [c]	1/Week	Grab
Nitrogen, Total	1/Month	Grab
Phosphorus, Total	1/Month	Grab
Flow	1/Week	Instantaneous
Samples taken in compliance with the monitoring requirements shall be taken after leaving the sewage treatment plant but prior to entering the cooling water canal.		
Notes:		
a. Refer to Appendix B for definitions.		
b. Testing required from April 1 through October 31.		
c. Total Residual Chlorine monitoring is required only during periods of chlorination.		

Table 12: Self-Monitoring Requirements for Outfall 008

Effluent Parameter	Frequency	Sample Type [a]
TSS	1/Week	Grab
pH	1/Week	Instantaneous
Oil & Grease	1/Month	Grab
WET	2/Year [b]	Grab
Flow	1/Day	Instantaneous
Total Flow	1/Month	Calculated
Samples taken in compliance with the monitoring requirements specified above shall be taken prior to entering the once through cooling water canal.		
The number of days discharged shall be included on the discharge monitoring report.		
Notes:		
a. Refer to Appendix B for definitions.		

Table 12: Self-Monitoring Requirements for Outfall 008

b.	Testing shall consist of one acute WET test for each species. Additional testing is required if toxicity is detected as outlined in the permit.

Table 13: Self-Monitoring Requirements for Outfall 019

Effluent Parameter	Frequency	Sample Type [a]
TSS	1/Week	Grab
pH	1/Week	Instantaneous
Oil & Grease	1/Month	Grab
Flow	1/Day	Instantaneous
Total Flow	1/Month	Calculated
Samples taken in compliance with the monitoring requirements specified above shall be taken prior to mixing with any other waste streams.		
The number of days discharged shall be included on the discharge monitoring report.		
Notes:		
a. Refer to Appendix B for definitions.		

Table 14: Self-Monitoring Requirements for Outfall 020

Effluent Parameter	Frequency	Sample Type [a]
TSS	1/Week	Grab
pH	1/Week	Instantaneous
Oil & Grease	1/Month	Grab
Flow	1/Day	Instantaneous
Total Flow	1/Month	Calculated
Samples taken in compliance with the monitoring requirements specified above shall be taken prior to mixing with any other waste streams.		
The number of days discharged shall be included on the discharge monitoring report.		
Samples shall be collected once a week for TRC when the basin contains chlorinated water from bottom ash spray pond overflow.		
Notes:		
a. Refer to Appendix B for definitions.		

Table 15: Self-Monitoring Requirements for Outfall 025

Effluent Parameter	Frequency	Sample Type [a]
TSS	1/Week	Grab
pH	Continuous	Recorder
Oil & Grease	1/Month	Grab
Boron, Total [b]	2/Month	Grab
Sulfates [b]	2/Month	Grab

Table 15: Self-Monitoring Requirements for Outfall 025

Effluent Parameter	Frequency	Sample Type [a]
Sodium, Percent of Total Cations [b]	2/Month	Grab
WET [d]	2/Year	Grab
Flow	1/Day	Instantaneous
Total Arsenic	1/Semiannual	Grab
Total Copper	1/Semiannual	Grab
Bromoform	1/Semiannual	Grab
Dichlorobromomethane	1/Semiannual	Grab
Hagel Creek [e]		
Sulfates	1/Year	Grab
Boron, Total	1/Year	Grab
Square Butte Creek [f]		
Sulfates	1/Year	Grab
Boron, Total	1/Year	Grab
Square Butte Creek [g]		
Sulfates	1/Year	Grab
Boron, Total	1/Year	Grab
Nelson Lake [h]		
Sulfates	1/Year	Grab
Boron, Total	1/Year	Grab
Samples taken in compliance with the monitoring requirements specified above shall be taken after all treatment processes and prior to entering Nelson Lake unless otherwise specified.		

Notes:

a. Refer to Appendix B for definitions.

b. Monitoring for this parameter has been required to track the mineral characteristics of the plant wastewater.

c. Total cations include calcium, magnesium, sodium, and potassium.

d. Testing shall consist of one chronic WET test for each species. Additional testing is required if toxicity is detected as outlined in the permit.

e. Ambient testing shall be conducted on Hagel Creek for sulfates and total boron upstream of its passage under 23rd Street.

f. Ambient testing shall be conducted on Square Butte Creek for sulfates and total boron upstream of the Nelson Lake Reservoir.

g. Ambient testing shall be conducted on Square Butte Creek for sulfates and total boron below the dam, after it has left the Nelson Lake Reservoir.

h. Ambient testing shall be conducted in the Nelson Lake Reservoir.

LOADING AND FLOW BASED LIMITS

The current permit requires loading based limits for total residual chlorine (TRC) from outfall 001. The loading limit is based on the TRC restrictions provided in 40 CFR 423.13(b) which limit the discharge of TRC from each generating unit to no more than two hours per day unless it is demonstrated that the discharge for more than two hours is necessary for macroinvertebrate control. Since there is a two-hour restriction on the amount of chlorine which can be discharged, it is necessary to calculate a quantity limitation. To calculate the TRC quantity limitation, one twelfth of the maximum daily discharge flow rate (530 mgd) was used. This number was multiplied by the maximum TRC concentration (0.20 mg/L) allowed in 40 CFR 423(b)(1), then converted from million gallons per day (mgd) to pounds per day (lbs/day) using a conversion factor of 8.34.

Outfall 001:

Total Residual Chlorine Load = (530 mgd)(1/12)(0.2 mg/L)(8.34) = 73.7 lbs/day (or 33.4 kg/day)

The limitations for the other discharges regulated under the steam electric power generating point source category are expressed as concentration limitations instead of mass-based limits as provided in the regulation (40 CFR 423.12(b)(12) and 40 CFR 423.13(m)). The concentration limitations in the permit are the same as the concentrations specified in 40 CFR 423 for the respective discharge types.

The department proposes to use the BAT effluent limitation of 0.2 mg/L found in 40 CFR 423.13(b)(1). The department conducted a reasonable potential analysis for total residual chlorine (TRC) and found there to be no reasonable potential for TRC to be above the water quality standard criteria.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITS

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

Nelson Lake is listed as a class 3 reservoir in the Standards of Quality for Waters of the State. The quality of water in class 3 reservoirs must be suitable for resident fish and other aquatic life, as well as recreational use. The quality of water in class 3 reservoirs also must be suitable for irrigation, stock watering, and wildlife. The quality must be able to meet the bacteriological, physical, and chemical requirements for domestic use.

The Nelson Lake is not listed as impaired in the 2018 North Dakota Section 303(d) List of Waters Needing Total Maximum Daily Loads (303(d) List). There currently are no TMDLs for Nelson Lake.

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. There are no new or expanded discharges with this 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

Temperature

The temperature standard for class I streams, lakes and reservoirs does not apply to Nelson Lake in Oliver County. The temperature of any discharge to Nelson Lake shall not have an adverse effect on fish, aquatic biota, recreation, and wildlife (NDAC 33.1-16-02.1-09(3)(g)(3)).

E. Coli

Based on the WQS, the department has determined that an *E. coli* limitation of 126 organisms per 100 mL as a monthly geometric mean and 409 organisms per 100 mL as a daily maximum is appropriate for this type of facility. The WQS only applies during the recreation season from May 1 through September 30. To ensure the recreation season is protected, the effluent limitation covers the period one month before and one month after the recreation season – April 1 to October 31.

pH

Discharges to lakes and reservoirs shall have an instantaneous limitation between 7.0 (s.u.) and 9.0 (s.u.).

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 “free 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.”

Outfall 008

Minnkota will be required to perform at least one *Pimephales promelas* (Fathead Minnow) and one C*eriodaphnia dubia* (Water Flea) acute WET test each year from outfall 008. One test shall be performed in the first six months of the permit year (July through December), and one test in the second six months of the permit year (January through June). If the discharge is not operated during a year, testing is not required. Acute monitoring was selected for this outfall since it is an intermittent discharge. In addition, discharges are to the cooling water canal rather than the lake itself. Discharge monitoring reports indicated no WET test failures for outfall 008 throughout the permit cycle. The department proposes to continue monitoring acute toxicity.

In 1990, Minnkota was granted a reduced monitoring schedule for outfall 008. The reduced monitoring allowed testing for alternating species once a quarter. Again in 2010, WET monitoring was reduced from quarterly testing to semiannual testing. The 2010 permit allowed for testing both species during one six-month period and no species during the second six-

month period. The 2015 permit provided clarification requiring one species to be tested in the first six months of the permit year, and the alternate species to be tested in the second six months of the permit year, then continue alternating species throughout the life of the permit.

If acute toxicity occurs in a routine test, an additional test shall be initiated within 14 days of the date of the initial sample. Should acute toxicity occur in the second test, WET tests shall be conducted on both fathead minnow and *Ceriodaphnia dubia* at a frequency of once a month and the implementation of a Toxicity Reduction Evaluation (TRE) will be determined by the department. In making a determination to require a TRE, the department may consider the frequency of toxicity occurrences, the level of toxicity and any allowable mixing in the receiving water.

Outfall 025

Minnkota will be required to perform fathead minnow and *Ceriodaphnia dubia* chronic WET tests on effluent from outfall 025. The initial test frequency will be semiannual (two per year) for each species. The frequency may be reduced to annual testing on each species if the results of a minimum of four consecutive samples taken over at least a 12 month period indicate toxicity below 5.0 TUc. Chronic WET monitoring has been selected for this outfall since it is a continuous discharge

During the last permit cycle, chronic WET tests were conducted on alternating species on a semiannual basis at outfall 025. Chronic toxicity was detected in two tests conducted on the outfall. The tests were conducted using *ceriodaphnia dubia*. The level of toxicity was reported as a 1.04 TUc in a test conducted between October and December 2015, and 1.52 TUc in a test conducted between October and December 2019.

The department conducted a reasonable potential analysis for chronic toxicity. The analysis showed no reasonable potential for both acute and chronic toxicity. Therefore, the department proposes to continue monitoring for chronic toxicity at outfall 025. The department proposes to continue implementation of the chronic criterion of 1.0 TUc at the end of the mixing zone.

As part of the permit renewal, the department will continue requiring the permittee to contact the department if a chronic toxicity level of 5.0 TUc was detected in a chronic WET test. The department determined that chronic toxicity levels above 5.0 TUc would have a reasonable potential to exceed the WET criteria at the end of the mixing zone. If chronic toxicity greater than 5.0 TUc occurs in a routine test, an additional test will be initiated within 14 days of the date of the initial sample. Should chronic toxicity greater than 5.0 TUc occur in the second test, testing will be conducted at a frequency of once a month and the implementation of a Toxicity Reduction Evaluation (TRE) will be determined by the department. In making a determination to require a TRE, the department may consider the frequency of toxicity occurrences, the level of toxicity and any site-specific mixing zone information.

Minnkota can request that their WET testing provider report the 48 hour *Ceriodaphnia dubia* TUa and the 96 hour fathead minnow TUa which can be derived from the respective chronic tests. The reason for this is to obtain a better Acute-to-Chronic Ratio (ACR) to determine if the receiving water is being protected for both acute and chronic toxicity.

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

Milton R. Young Station uses a closed-cycle recirculating system to withdraw water from the Missouri River. Water from the Missouri River is sent to Nelson Lake where the water is recirculated between Milton R. Young Station and the lake. The closed-cycle recirculating system is designed to operate using minimized make-up water from the Missouri River. Use of a closed-cycle recirculating system reduces the quantity of water withdrawn from the Missouri River, which reduces impingement and entrainment. Operating a closed-cycle recirculating system is one of the best technology available (BTA) alternatives for reducing impingement (40 CFR 125.94(b)&(c)).

The CWIS is located on the south bank of the Garrison Reach of the Missouri River, roughly fifteen miles north and east of Center, ND. The CWIS is contained within the Missouri River Pumping Station and consists of one trash rack, one traveling screen, one wash water pump, and two river intake pumps. The opening of the CWIS consists of a short concrete forebay that is flush with the river bank and perpendicular to the river flow. The intake is located in about twelve feet of water and withdraws water from the surface to approximately six feet. The intake is equipped with one traveling screen with 3/8-inch square openings. The screen is typically operated manually whenever a pump is started. Wash water from the screen discharges back to the Missouri River. There is no separate fish handling or return system associated with the intake. The intake pumps move screened water into a 13 mile pipeline that discharges to a separator dike impoundment where water is drawn to cool the Minnesota Power HVDC converter unit or is allowed to flow over the impoundment spillway into Nelson Lake to maintain lake levels. Effluent from the Minnesota Power HVDC unit is discharged to Nelson Lake or sent to Milton R. Young Station.

The CWIS provides water to Nelson Lake as needed to maintain lake levels. Nelson Lake operates as a CCRS and also is replenished by overland runoff from Square Butte Creek and Hagel Creek. Typically one pump of the CWIS operates overnight to reduce electrical demand. CWIS pumps are not operated during the day. From 2011 to 2015, the net capacity factor of

Unit 1 averaged 79 percent and the net capacity factor of Unit 2 averaged 77 percent. The maximum Design Intake Flow of the CWIS is 11.2 million gallons per day with one pump running and 19.4 million gallons per day with two pumps running. The typical daily Actual Intake Flow between 1991 and 2015 averaged 2.75 million gallons per day. More than 25 percent of the Actual Intake Flow is used as non-contact cooling water. Less than 0.014 percent of the Missouri River is withdrawn at the CWIS on an average monthly basis.

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

Minnkota Power Cooperative worked with three other power companies to collect data on the baseline biology of the Garrison Reach of the Missouri River. Along with data collected at the Milton R. Young CWIS, two of the other three companies operate cooling water intake structures in the vicinity of the Milton R. Young Station CWIS.

Fragile species that inhabit the Garrison Reach of the Missouri River include rainbow smelt and gizzard shad. These species are likely to be present and impinged at the Milton R. Young CWIS. It should be noted that neither of these species were impinged during the 2006 impingement mortality and entrainment study.

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

No entrainment studies have been conducted by Minnkota Power Cooperative. Entrainment sampling has been conducted by other power companies with intake structures in the vicinity of the Milton R. Young CWIS. A brief description of the entrainment study methodology was included with the permittee’s application. Results of the entrainment study are currently being complied. Milton R. Young Station has a uniquely designed cooling water supply system as compared to other facilities along the Garrison Reach. Milton R. Young Station has minimal water withdrawals and operates a closed-cycle recirculating system which includes Nelson Lake. Entrainment sampling is not required at the Nelson Lake circulators since the circulators are considered part of the close-cycle recirculating system. Consequently, entrainment performance studies from other facilities would not be applicable or relevant to conditions at Milton R. Young Station.

Impingement and Entrainment

The primary method for reducing impingement at Milton R. Young Station is achieved through the closed-cycle recirculating system. The operation of a closed-cycle recirculating system is

consistent with the Clean Water Act section 316(b) rule's approach to impingement BTA standards (40 CFR 125.94(c)(1)).

The department must establish site-specific BTA standards for entrainment based on best professional judgment (40 CFR 125.94(d) and 125.98(f)). The standards must reflect the department's determination of the maximum reduction in entrainment warranted. The department reviewed the information submitted with the permittee's application. The Milton R. Young Station CWIS is a closed-cycle recirculating system which reduces the quantity of cooling water required from the Missouri River—less than 0.014 percent of the monthly river flow average. The use of less cooling water reduces the potential for entrainment. Although, the supplemental data included with the permittee's application states the potential for entrainment of early life stages of fish species in the Garrison Reach varies between unlikely, likely, and potentially, the presence of susceptible early life stages of fish species is low. Based on this information, it is the department's best professional judgment that operation of a closed-cycle recirculating system along with the low likelihood of early life stages of fish present in the Missouri River constitutes the maximum reduction in entrainment warranted.

Permit Requirements

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

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

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

The proposed permit requires the facility to monitor the actual intake flow (AIF) daily. Monitoring of the AIF must be representative of normal operating conditions. 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 department of any proposed changes to the cooling water intake structure or operation of the cooling water intake. Any changes must be included with the annual certification statement and report.

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

MONITORING REQUIREMENTS

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

TEST PROCEDURES

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

OTHER PERMIT CONDITIONS

There are no other permit conditions included in the proposed permit.

PERMIT ISSUANCE PROCEDURES

PERMIT ACTIONS

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

PROPOSED PERMIT ISSUANCE

This proposed permit meets all statutory requirements for the department to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of North Dakota. The department proposes to issue this permit for a term of five years.

APPENDIX A – PUBLIC INVOLVEMENT INFORMATION

The department proposes to reissue a permit to **Minnkota Power Cooperative, Inc.** located near Center, 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 on **May 14, 2020** in the **Bismarck Tribune** and the **Center Republican** 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
918 East Divide Avenue, 4th Floor
Bismarck, ND 58501

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: 5/14/2020 Public Notice Number: ND-2020-016

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: 12/30/2019 Application Number: ND0000370

Applicant Name: Minnkota Power Cooperative
Mailing Address: 5301 32nd Avenue South, Grand Forks, ND 58201
Telephone Number: 701.794.8711

Proposed Permit Expiration Date: 6/30/2025

Facility Description
The reapplication is for a 2-unit lignite coal-fired steam electric power generating plant located in the NW1/4, Section 4, Township 141N, Range 83W. There are fifteen discharge points associated with the facility. Discharges include cooling water, plant process water, sanitary wastewater, stormwater, and screen washing. All discharges, except one, are to Nelson Lake, a Class 3 lake. The one remaining discharge is to the Missouri River, a Class 1 stream. The reapplication also includes the Missouri River cooling water intake for the plant.

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. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 918 East Divide Ave, Bismarck ND 58501-1947 or by calling 701.328.5210.

All comments received by June 12, 2020 will be considered prior to finalizing the permit. If there is significant interest, a public hearing will be scheduled. Otherwise, the Department will issue the final permit within sixty (60) days of this notice. If you require special facilities or assistance relating to a disability, call TDD at 1.800.366.6868.

APPENDIX B – GLOSSARY

DEFINITIONS Standard Permit BP 2019.05.29

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

DEFINITIONS Whole Effluent Toxicity (WET) BP 2017.04.06

20. "**Acute toxic unit**" ("TUa") is a measure of acute toxicity. TUa is the reciprocal of the effluent concentration that causes 50 percent of the organisms to die by the end on the acute exposure period (i.e., 100/"LC50").

21. "**Chronic toxic unit**" ("TUc") is a measure of chronic toxicity. TUc is the reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period (i.e., 100/"IC25").

22. "**Inhibition concentration**", ("IC"), is a point estimate of the toxicant concentration that causes a given percent reduction (p) in a non-quantal biological measurement (e.g., reproduction or growth) calculated from a continuous model (e.g., Interpolation Method).

23. "**LC50**" means the concentration of toxicant (e.g., effluent) which is lethal to 50 percent of the organisms exposed in the time period prescribed by the test.

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

DEFINITIONS Industry Specific

See 40 CFR 423.11

See 40 CFR 125.92

APPENDIX C – DATA AND TECHNICAL CALCULATIONS

TOTAL RESIDUAL CHLORINE REASONABLE POTENTIAL ANALYSIS (OUTFALL 001)

The department used the maximum discharge rate of once-through cooling water in the cooling water channel (530 MGD [or 822 cfs]) as the stream flow for the total residual chlorine (TRC) reasonable potential (RP) analysis for outfall 001. This rate was used to represent the highest potential to discharge TRC through outfall 001. The department determined that the maximum flow rate would have a higher potential to exceed a water quality standard compared to a lower flow rate because of the nature of the plant's cooling system. The cooling system continuously circulates water through the plant from Nelson Lake and discharges back to the lake. Water levels in the lake are kept at a constant elevation either by releasing water through the Nelson Lake Dam floodgates or drawing water from the Missouri River. As a result, when flows from the plant are increased the velocity of water through the cooling channel increases resulting in less time for TRC to dissipate to the atmosphere prior to reaching outfall 001.

The daily maximum and daily average flow rates (44.2 MGD and 36.4 MGD, respectively) used in the RP analysis represent 1/12 of the maximum flow rate (530 MGD) and average flow rate (437 MGD) of the once-through cooling water. This ratio of 1:12 represents the restriction provided in 40 CFR 423.13(b) which limits the discharge of TRC to no more than two hours per day (i.e., 2 hours per 24-hour period, or 1/12).

The facility was allowed 100 percent of the stream design mixing as no other waste streams are expected to contribute TRC to Nelson Lake. In addition, Nelson Lake is part of the closed-cycle recirculating system for Milton R. Young Station.

The data set for the RP analysis included 56 samples that had a lognormal distribution. The coefficient of variation (CV) was calculated as 0.035. The statistical multiplier based on the 95th percentile occurrence probability was calculated as 0.943. The upstream concentration of TRC used in the RP analysis was 0.0 mg/L since there are no additional sources of TRC in the watershed. The maximum effluent concentration used in the RP analysis was 0.131 mg/L.

Based on the RP analysis, the department found there to be no reasonable potential for TRC to be above the water quality standard criteria.

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

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

Facility Name:	Minnkota Power Coop.		Receiving Stream:	Cooling Water Reservoir	
NDPDES Permit:	ND0000370		1Q10 Acute	822	cfs
Daily Maximum Flow (mgd):	44.20		1B3 Acute	NA	cfs
Daily Average Flow (mgd):	36.40		7Q10 Chronic	822	cfs
Stream Design Mixing:	100.0%		4B3 Chronic	NA	cfs
Statistical Multiplier:	0.9				
Upstream Concentration:	0.0000	mg/l		**Parameter:**	
Effluent Concetration (max):	0.1310	mg/l		**Total Residual Chlorine**	

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

Outfall: 001

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

Qe - Acute	44.20	mgd	Qs - 1Q10	531.01	mgd
Qe - Chronic	36.40	mgd	Qs - 1B3	#VALUE!	mgd
Ce	0.1310	mg/l	Qs - 7Q10	531.01	mgd
Cs	0.0000	mg/l	Qs - 4B3	#VALUE!	mgd
Stat	0.94				
pmf	100.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0095	mg/l	RWC - 7Q10	0.0079	mg/l
RWC - 1B3	#VALUE!	mg/l	RWC - 4B3	#VALUE!	mg/l

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

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

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

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

WHOLE EFFLUENT TOXICITY REASONABLE POTENTIAL ANALYSIS (OUTFALL 025)

The flow in the receiving stream used in the chronic WET test RP analysis for outfall 025 was 30.84 cfs. This represents the 90th-percentile of daily flow data from USGS gage station 06342260 from April 2000 to March 2020. This gage station was selected due to its close proximity to outfall 025. The department used the gage station below the dam because it represents the water flowing through the reservoir. The 90th-percentile flow data was selected because the analysis dealt with chronic toxicity of potential pollutants which may be present within a majority of flows.

The WET test RP analysis was conducted using the highest detected chronic toxicity unit value that was reported to the department (1.52 TUc). An acute toxicity unit value of <1 TUa was used to calculate the acute-to-chronic ratio (ACR) value of 1.52. The data set for the RP analysis included 9 samples that had a lognormal distribution. The coefficient of variation (CV) was calculated as 0.163. The statistical multiplier based on the 95th percentile occurrence probability was calculated as 0.763. The maximum WET TUc used in the RP analysis was 1.52. The maximum effluent flow rate used in the RP analysis was 2.3 MGD.

Based on the RP analysis, there was no reasonable potential to exceed the acute and chronic criterion for WET.

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

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

Facility Name:	Minnkota Power Coop.	Receiving Stream:	Nelson Lake	
NDPDES Permit:	ND0000370	1Q10 Acute	30.84	cfs
Effluent Flow (mgd):	2.300	1B3 Acute	30.84	cfs
Stream Design Mixing:	100.0%	7Q10 Chronic	30.84	cfs
WET TUc (max):	1.52	4B3 Chronic	30.84	cfs
ACR:	1.52			
Statistical Multiplier:	0.763			

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

Outfall: 25

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

Qe	2.300	mgd	Qs - Acute	19.923	mgd
Ce	1.52	TU	Qs - Acute 1B3	19.923	mgd
pmf	100.0%		Qs - Chronic	19.923	mgd
Stat	0.8		Qs - Chronic 4B3	19.923	mgd
ACR	1.52				

Acute RP			Chronic RP		
RWC - 1Q10	0.1	TU	RWC - 7Q10	0.1	TU
RWC - 1B3	0.1	TU	RWC - 4B3	0.1	TU

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

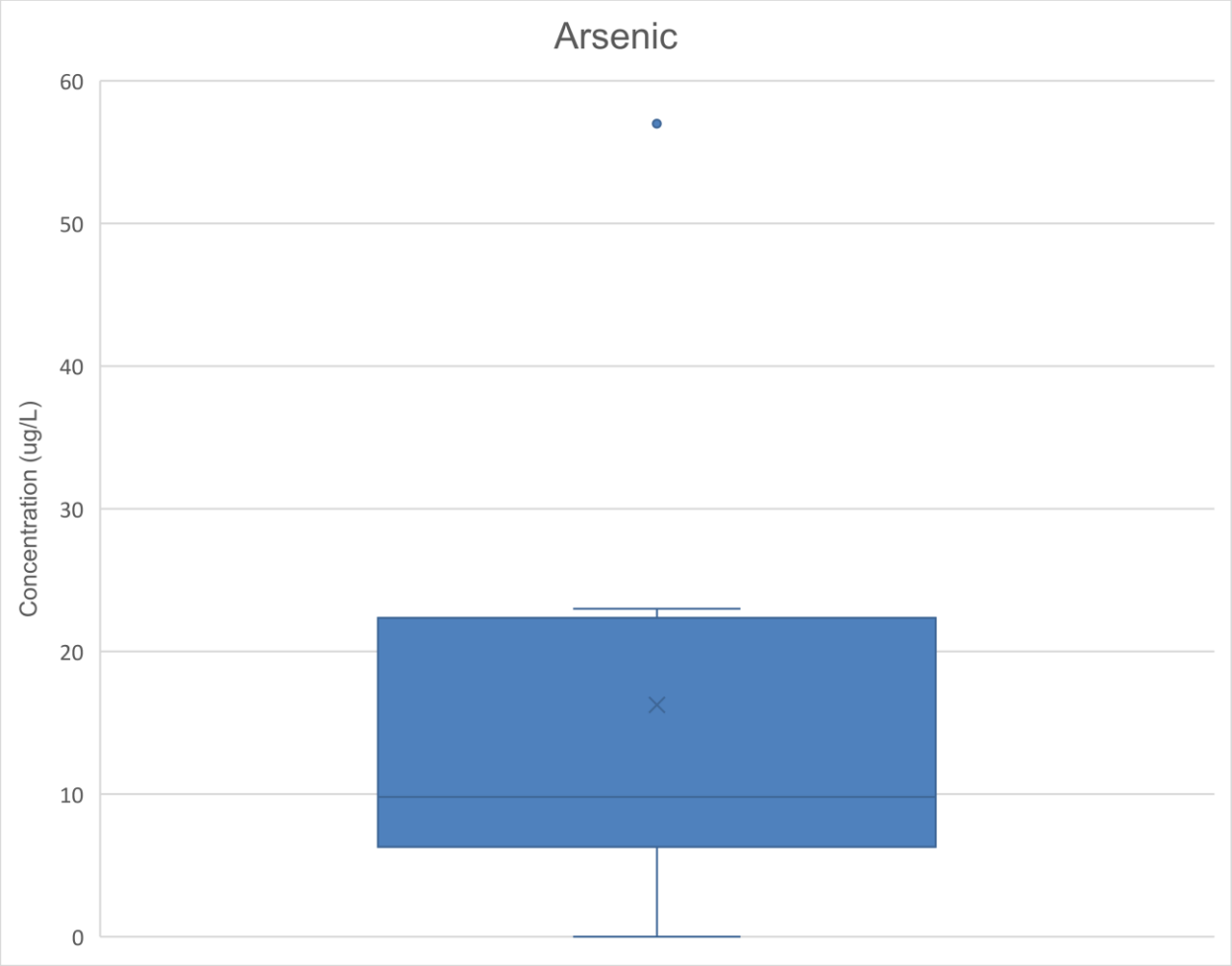
If the calculated RWC is greater than its respective criterion then there is RP and if RWC is less than the criterion then there is no RP.

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

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

ARSENIC (OUTFALL 025)

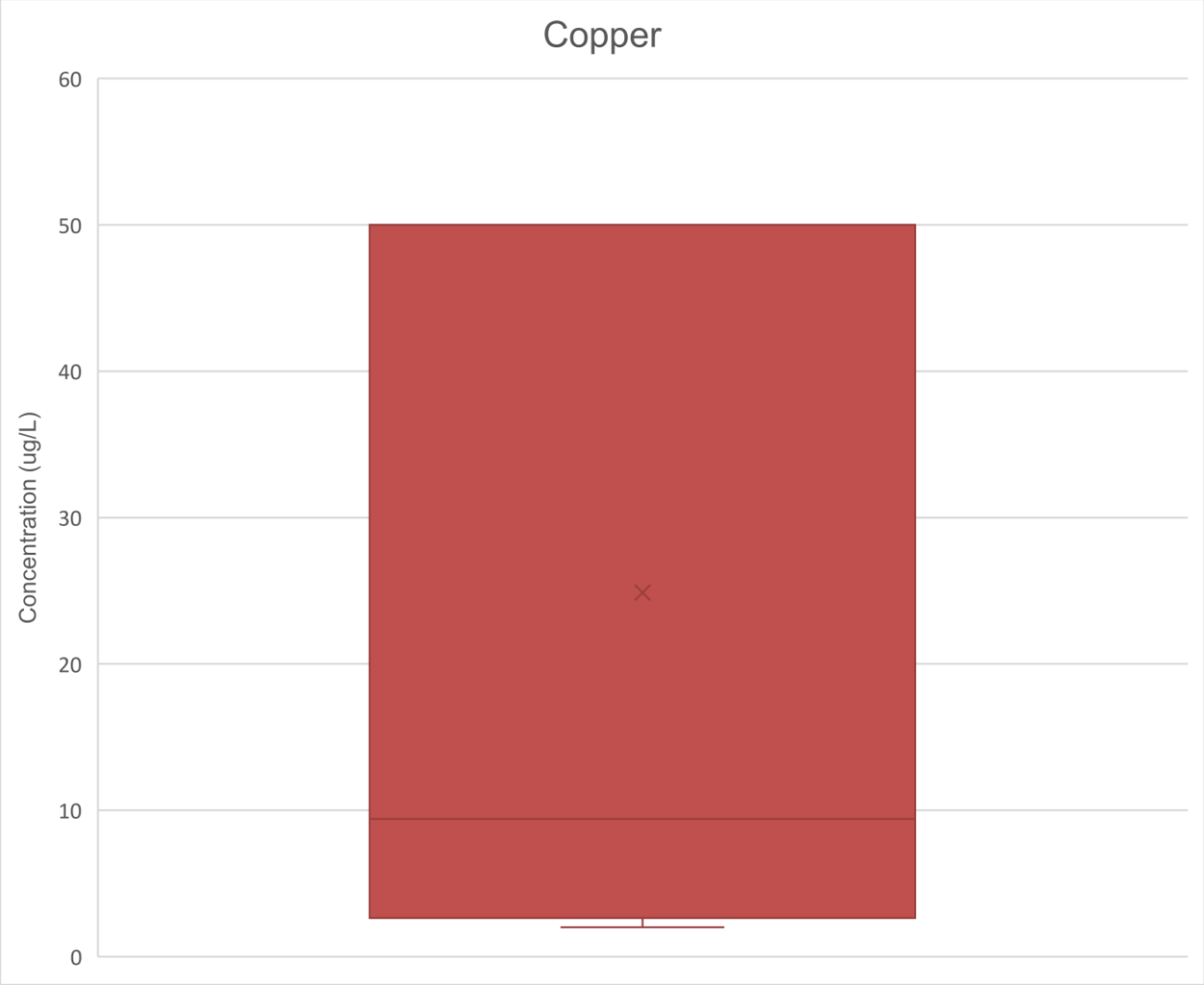
The chart below shows the results of monitoring for arsenic at outfall 025. Monitoring for arsenic is based on the WQS. Based on the last five years of monitoring data, the concentration of arsenic in the discharge can be present above the 10 microgram per liter (ug/L) human health WQS for reservoirs and class IA streams.



COPPER (OUTFALL 025)

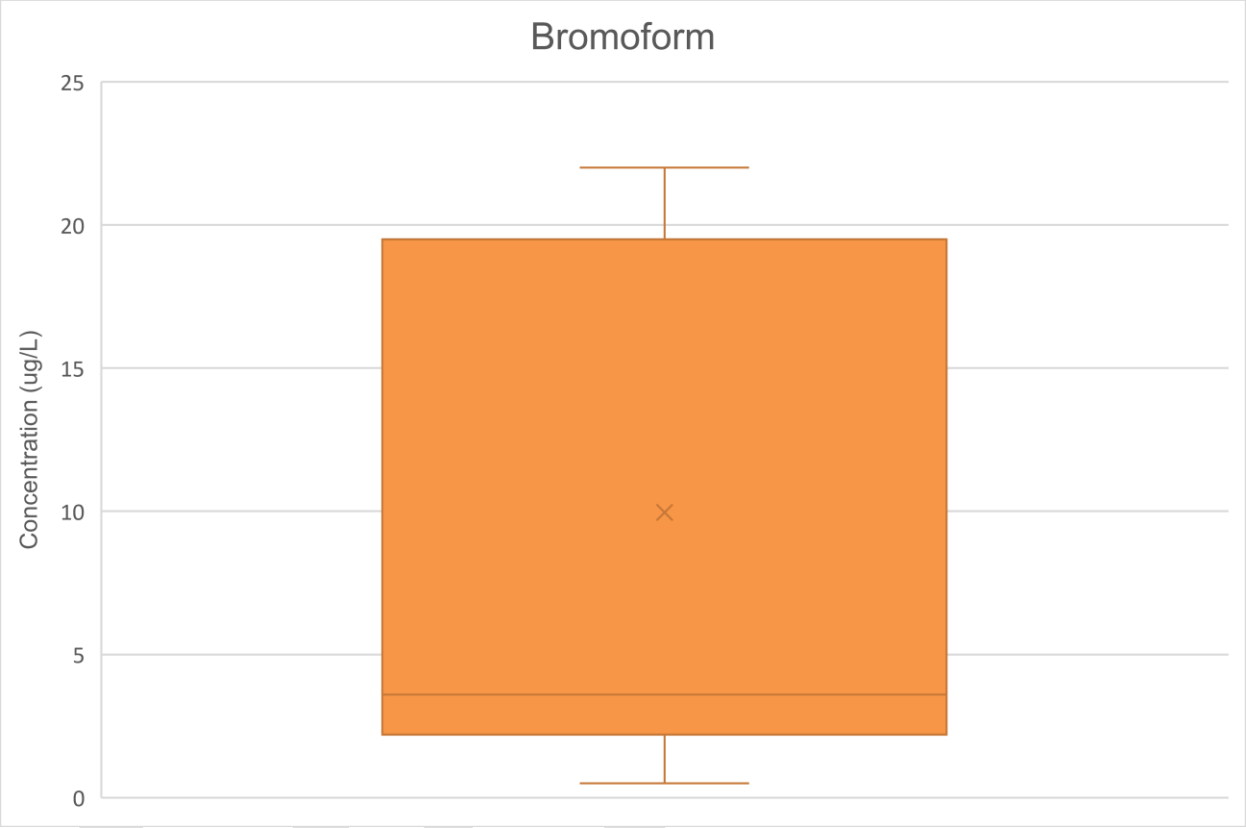
The chart below shows the results of monitoring for copper at outfall 025. Monitoring for copper is based on the WQS (hardness dependent). Based on the last five years of monitoring data, the concentration of copper in the discharge is present below 1000 ug/L human health value WQS for reservoirs.

The aquatic life value WQS is hardness dependent. A review of available information shows the 75th-percentile hardness concentration in Nelson Lake is 433 mg/L. Based on the 75th-percentile hardness the criterion maximum concentration (CMC) for aquatic life is 56 ug/L and the criterion continuous concentration (CCC) is 33 ug/L. Based on the last five years of monitoring data, the concentration of copper in the discharge is present below the CMC WQS and above the CCC WQS (both hardness dependent) for reservoirs. It should be noted that close to half of the effluent results had a minimum detection limit of 50 ug/L.



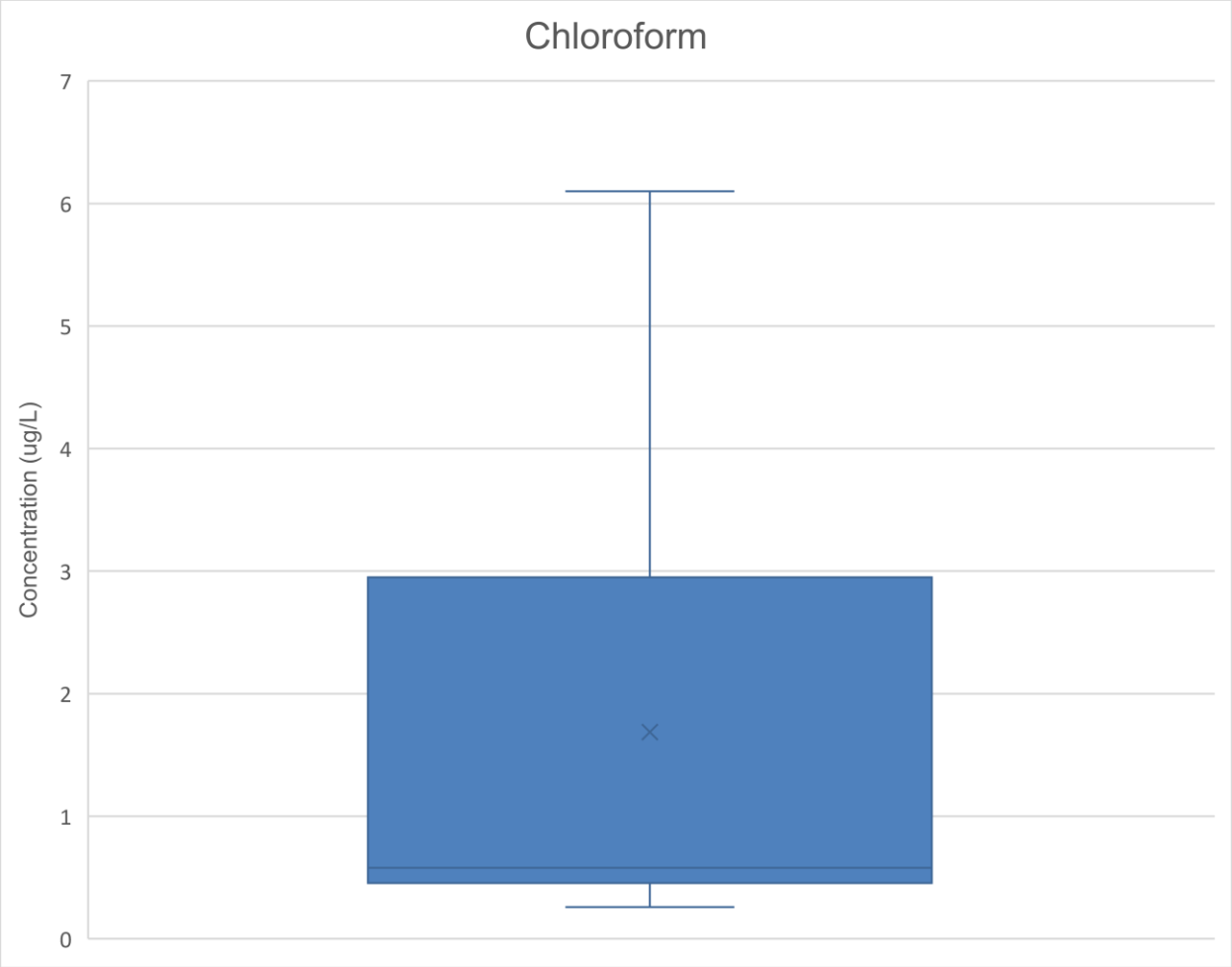
BROMOFORM (OUTFALL 025)

The chart below shows the results of monitoring for bromoform at outfall 025. The monitoring requirement for bromoform was first introduced in the 2015 permit. Monitoring for bromoform is based on the WQS. Based on the first five years of monitoring data, the concentration of bromoform in the discharge can be present above the 7 ug/L human health WQS for reservoirs.



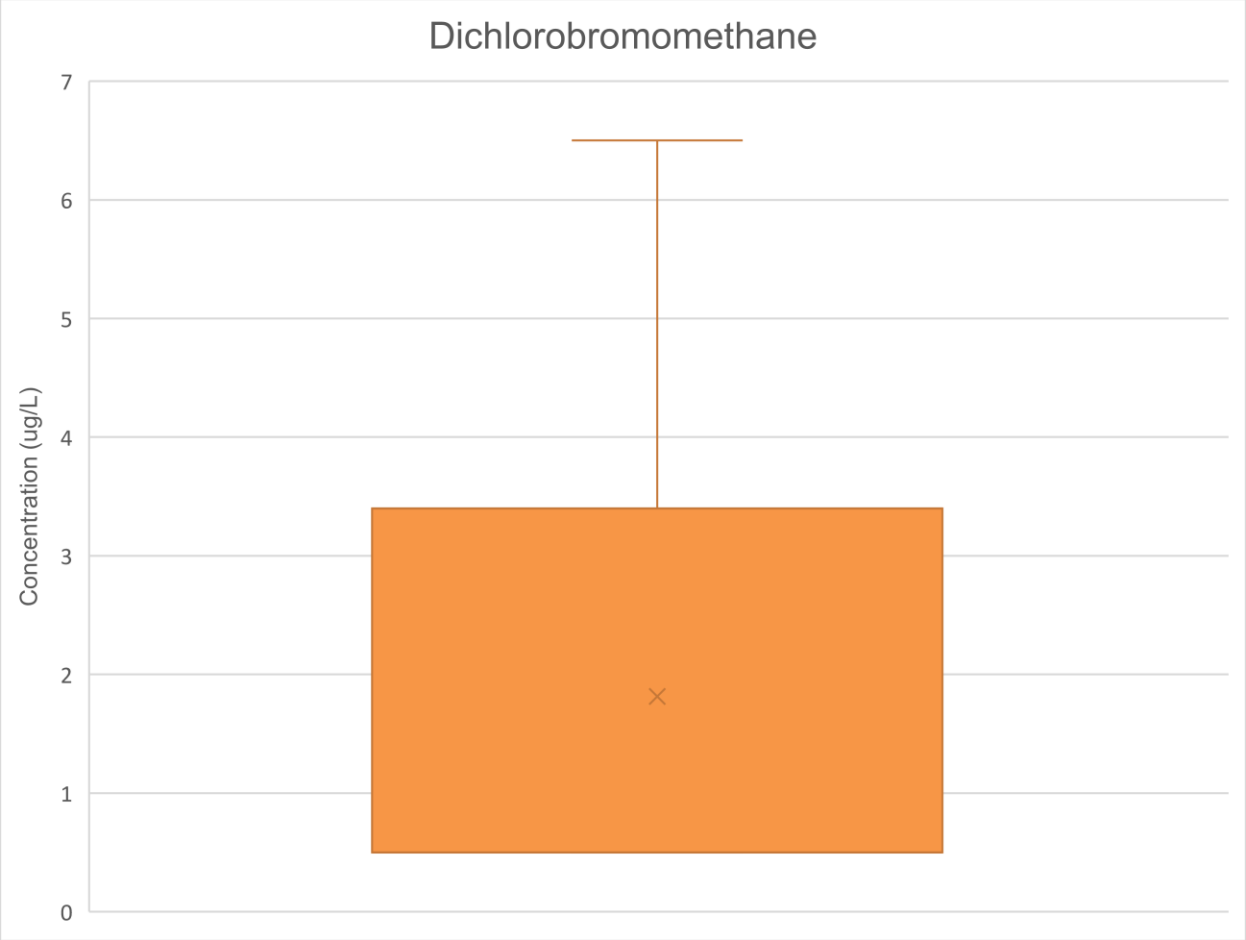
CHLOROFORM (OUTFALL 025)

The chart below shows the results of monitoring for chloroform at outfall 025. The monitoring requirement for chloroform was introduced in the 2015 permit. Monitoring for chloroform is based on the WQS. Based on the five years of monitoring data, the concentration of chloroform in the discharge is not present above the 60 ug/L human health WQS for reservoirs.



DICHLOROBROMOMETHANE (OUTFALL 025)

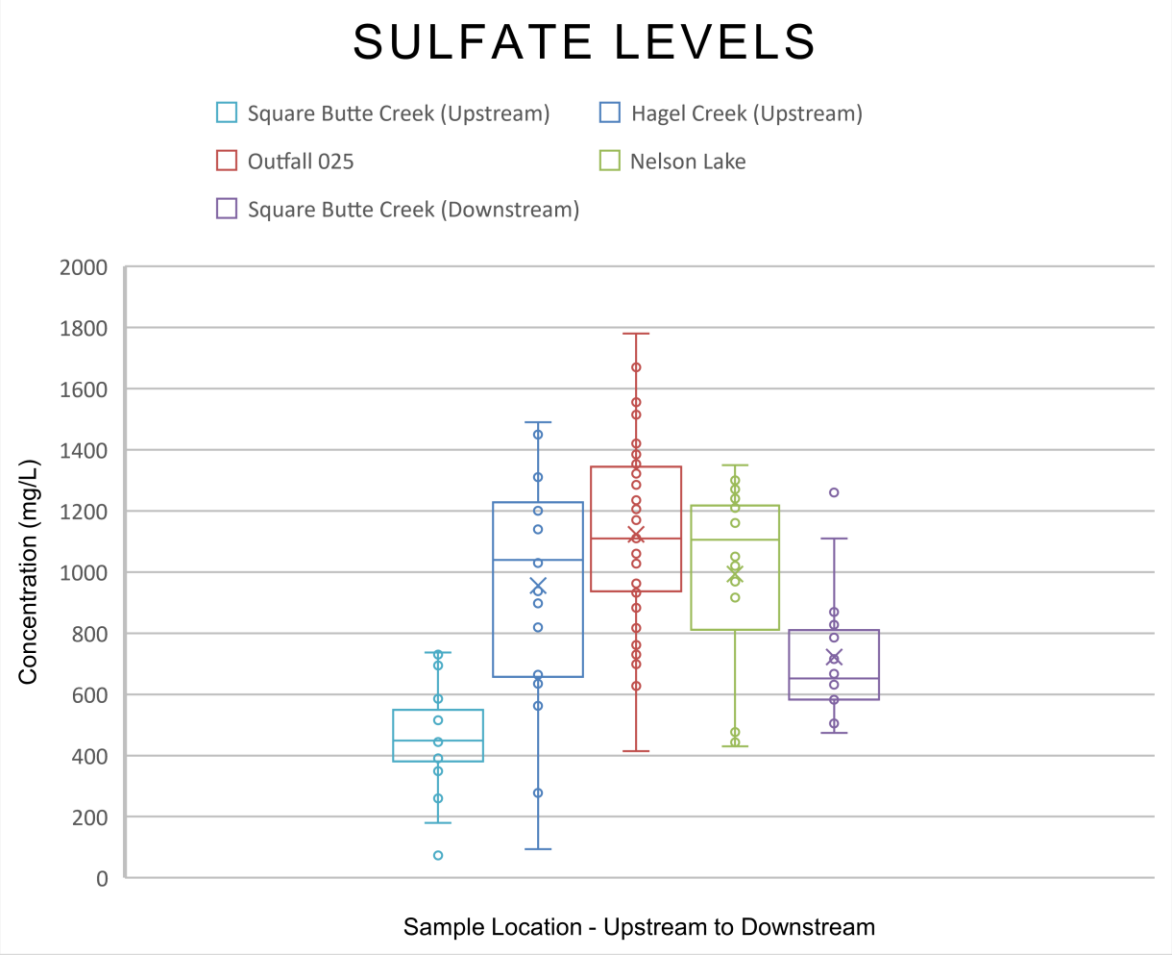
The chart below shows the results of monitoring for dichlorobromomethane at outfall 025. The monitoring requirement for dichlorobromomethane was first introduced in the 2015 permit. Monitoring for dichlorobromomethane is based on the WQS. Based on the first five years of monitoring data, the concentration of dichlorobromomethane in the discharge can be present above the 0.95 ug/L human health WQS for reservoirs.



SULFATES (OUTFALL 025)

Ambient monitoring was added to the 2015 permit to collect upstream, downstream, and instream data. The ambient sampling sites were Square Butte Creek, upstream of Nelson Lake; Hagel Creek, upstream of Nelson Lake; Nelson Lake, itself; and Square Butte Creek, downstream of Nelson Lake. The results of eighteen ambient samples collected per site where compared with the 112 effluent samples collected from outfall 025. The results are given in the chart below.

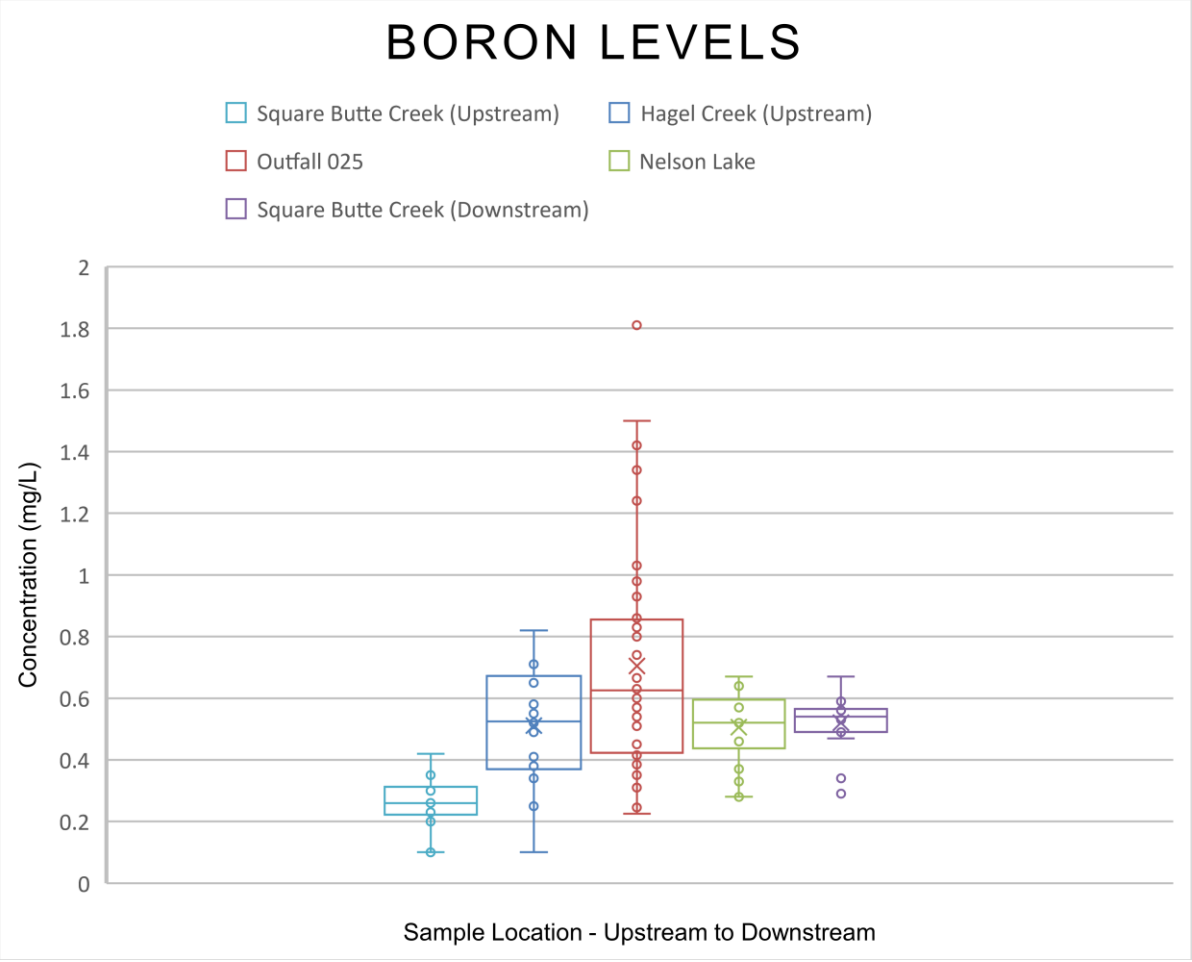
The results indicate that the level of sulfates in Square Butte Creek rises as the creek passes through Nelson Lake. The results also show that the level of sulfates in Hagel Creek, Nelson Lake, and outfall 025 falls within the concentration range of each other. Effluent from outfall 025 is created by the treatment of Nelson Lake water by microfiltration and reverse osmosis, which leads to concentrated sulfates in the waste stream due to the treatment process. The results indicate that although outfall 025 has a high concentration of sulfates in the discharge, the level of sulfates in Nelson Lake and increase in levels of sulfates to the lake due to the influence of Hagel Creek contribute more to the overall increase of sulfates in Square Butte Creek as it passes through Nelson Lake. It should be noted that ambient sampling did not factor in the influence of make-up water from the Missouri River which generally has a lower level of sulfates.



BORON (OUTFALL 025)

Ambient monitoring was added to the 2015 permit to collect upstream, downstream, and instream data. The ambient sampling sites were Square Butte Creek, upstream of Nelson Lake; Hagel Creek, upstream of Nelson Lake; Nelson Lake, itself; and Square Butte Creek, downstream of Nelson Lake. The results of eighteen ambient samples collected per site where compared with the 112 effluent samples collected from outfall 025. The results are given in the chart below.

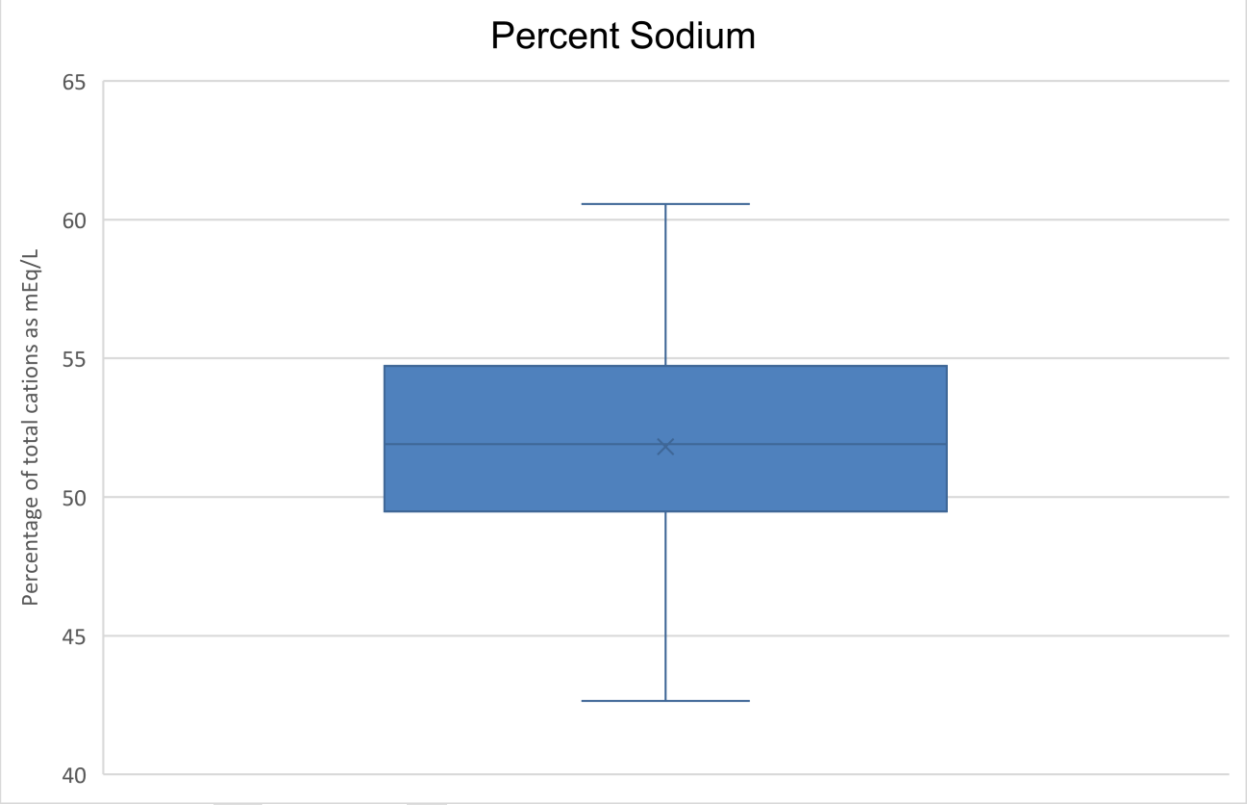
The results indicate that the level of boron in Square Butte Creek rises as the creek passes through Nelson Lake. The results also show that the level of boron in Hagel Creek, Nelson Lake, and outfall 025 falls within the concentration range of each other. Effluent from outfall 025 is created by the treatment of Nelson Lake water by microfiltration and reverse osmosis, which leads to concentrated boron in the waste stream due to the treatment process. The results indicate that although outfall 025 has a high concentration of boron in the discharge, the level of boron in Nelson Lake and increase in levels of boron to the lake due to the influence of Hagel Creek contribute more to the overall increase of boron in Square Butte Creek as it passes through Nelson Lake. It should be noted that ambient sampling did not factor in the influence of make-up water from the Missouri River which generally has a lower level of boron.



SODIUM, PERCENT (OUTFALL 025)

The chart below shows the results of monitoring for percent sodium at outfall 025. The monitoring requirement for percent sodium was first introduced in the 2015 permit. Monitoring for percent sodium is based on the WQS. The permittee has been monitoring for the concentration of sodium in outfall 025 for a number of years; however, there is no WQS based on the concentration of sodium.

Based on the first five years of monitoring data, the percentage of sodium in the discharge generally falls within the 50 percent standard for reservoirs and 60 percent standard for class IA and III streams.



APPENDIX D – RESPONSE TO COMMENTS

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