

INTRADEPARTMENTAL MEMORANDUM

FILE: Minnkota Power Cooperative, Inc. – Milton R. Young Station (0159)

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THROUGH: Diana A. Trussell, Manager
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SUBJECT: Permit Application Review

DATE: September 18, 2026

Introduction

The North Dakota Department of Environmental Quality (Department) received a permit application from Minnkota Power Cooperative, Inc for the renewal of an existing special waste surface impoundment and landfill facility permit. Additional information was submitted for a minor modification to the closure plan for the facility.

Minnkota Power Cooperative, Inc. – Milton R. Young Station (Minnkota Power) currently owns and operates a surface impoundment to be closed with special waste in place, regulated under solid waste management facility Permit 0159 on approximately 211 acres located about five miles southeast of the City of Center in Sections 5 and 8 within Township 141 North, Range 83 West in Oliver County, ND. Minnkota Power is proposing to renew their permit. The facility was first permitted in 1995 and began accepting waste in 1997.

Design

Access to the facility is controlled by fencing and a guard post. The Milton R. Young Station power plant is located only half a mile from the disposal area. The original solid waste management facility permit for this facility was issued in 1995, and it included Cells 1, 2, and 3 for the disposal of primarily flue gas desulfurization (FGD) waste, fly ash, and bottom ash generated at the plant. A permit modification included the contiguous southerly lateral expansion of the facility to add additional cells, Cells 4, 5, and 6. The cells intersect the Hagel Bed Coal layer. When excavating cells, this coal is mined for fuel usage at the plant. A

drainage system (Hagel Bed Drain) will be installed to prevent the build-up of water within the embankment. Cells are excavated to depths of up to 80 feet deep. The embankment left outside the excavation area is generally not disturbed and serves as sideliner. The inside slopes of the excavated areas or cells are 3:1. The inside slopes of the cells are generally lined with 4 feet of clay overlain by 60-mil high density polyethylene (HDPE) liner.

The base or bottom liner will consist of 4 feet of compacted clay overlain by 60-mil HDPE that is overlain by 16 oz. non-woven geotextile and overlain by bottom ash sieved to 1 – inch minus, or washed sand with a minimum thickness of 1.5 feet.

The sidewall composite liner system will consist of a 60-mil HDPE liner (one side textured with the textured side down) and recompacted select clay which will be an 8-foot minimum thickness below an elevation of 2060 or a 6-foot minimum thickness above an elevation of 2060.

A gradient control system is planned for Cells 5 and 6 to be used to control and prevent pressure build-up against the newly constructed clay liner.

Operation

Wet waste or slurried FGD is and will be transported to the cells via a polyethylene pipeline. The water that is impounded during filling is recycled back to the plant for reuse in the scrubber system through a siphon return water system. A dewatering system will be installed in the cells to remove free liquids from within each cell. A drainage layer above the bottom liner consisting of suitable bottom ash or sand will allow the transport of liquids to a sump area of the cell. Sidewall riser pipes will be installed to the sump to allow for pumps and piping and the removal of liquids. The dewatering system will remain off in the cell until the cell has reached wet waste capacity.

FGD waste will eventually be solidified within the surface impoundment/landfill cells. After wet waste disposal in a cell, dry waste will be trucked to the disposal cells.

Closure

Cell 1 was constructed in 1997 and was operated until the spring of 2015, for wet and then dry ash placement. Cell 1 final cover construction was completed in two phases (Phase 1 and Phase 2). Cell 1 – Phase 1 cover construction began in August 2014 and was completed in October 2015; Cell 1 – Phase 2 cover construction began in April 2015 and was finished in June 2015.

Cell 2 has been partially closed (12 acres). Closure of Cell 2 has and will consist of placement of a low-permeability earthen cover system; a summary of the minimum design (from the bottom up) follows:

- Buffer layer over the subgrade soils if needed to provide a suitable subgrade for the cover system
- 18 inches of compacted soil material with a saturated hydraulic conductivity of 1×10^{-7} centimeters per second (cm/sec)
- 12 inches (minimum) of suitable plant growth material (SPGM) subsoil
- Vegetative cover consisting of 6 inches (minimum) of SPGM topsoil

Closure of Cells 3 through 6 will consist of placement of a low-permeability earthen cover system; a summary of the minimum design (from the bottom up) follows:

- Buffer layer over the subgrade soils if needed to provide a suitable subgrade for the cover system
- 18 inches of compacted soil material with a saturated hydraulic conductivity of 1×10^{-7} cm/sec
- 12 inches (minimum) of suitable plant growth material (SPGM) subsoil
- Vegetative cover consisting of 6 inches (minimum) of SPGM topsoil

The final cover over Cells 1 – 6 will slope at 5% grades toward the perimeter embankment.

Compliance History

Noncompliance issues have not been noted at the facility, and no formal notices of violations have been issued to the facility.

Solid Waste Management Rules (NDAC Article 33.1-20)

NDAC Section 33.1-20-02.1-05. Record of notice.

A record of notice was submitted to the Department on November 27, 2015.

NDAC Section 33.1-20-02.1-06. Property rights.

A Warranty Deed was included with the application and shows that Minnkota Power is the owner of the property where the facility is located.

NDAC Section 33.1-20-03.1-01. Preapplication procedures.

On June 4, 1993, the North Dakota Department of Health and Consolidated Laboratories (now the North Dakota Department of Environmental Quality) gave conditional preapplication approval for Cells 1 – 3. On January 17, 2012, the North Dakota Department of Health (now the North Dakota Department of Environmental Quality) conditionally approved of the preapplication submitted for Cells 4 – 6 and stated that special attention should be provided to erosion control, management of stormwater runoff and timely revegetation of the slopes.

NDAC Section 33.1-20-03.1-02. Permit application procedures.

NDAC Subsections 33.1-20-03.1-02(1) – (3)

A complete form was included with the application submission and it was signed by the Senior Manager of Power Production for Minnkota Power, and a professional engineer representing Minnkota Power. One hard copy of the application and an electronic version were provided to the Department along with an application processing fee of \$23,000.

NDAC Subsection 33.1-20-03.1-02(4)

A public notice by the applicant is not required because the application is not proposing a new unit or facility and is not proposing a major modification.

NDAC Subsection 33.1-20-03.1-02(5)

Notification to the North Dakota Public Service Commission is not required as the facility is not proposing any expansion. The facility was required to do this when the expansion was permitted back in 2012.

NDAC Subsection 33.1-20-03.1-02(6)

Applications for a solid waste management unit or facility permit must include the following information where applicable:

a. A completed application form, subsection 1;

A completed form was included with the application and along with the required supporting documentation.

b. A description of the anticipated physical and chemical characteristics, estimated amounts, and sources of solid waste to be accepted, including the demonstration required by North Dakota Century Code section 23.1-08-14;

According to the facility's annual reports, the primary wastes accepted at the facility consisted of coal combustion residuals including FGD, fly ash and bottom ash which are generated at the Milton R. Young Station power plant and other low-volume wastes including:

- Asbestos and asbestos containing wastes
- Asphalt/concrete
- BNI stormwater pond cleanings
- Boiler cleaning waste
- Coal yard clean up soils
- Contaminated soil from spills
- Demolition debris
- Digested or sterilized sewage treatment sludge
- Miscellaneous non-hazardous plant trash
- Sand blast media
- Scrap lumber
- Small quantities of liquid waste which will be solidified with fly ash
- Spill cleanup material
- Stormwater pond cleanings
- Various non-hazardous wastewaters
- Waste lime and coal
- Water treatment sludge

c. The site characterization of section 33.1-20-13-01 and a demonstration that the site fulfills the location standards of section 33.1-20-04.1-01;

The Coleharbor Formation is present at the site, but there is no evidence of groundwater at the site in this formation. Beneath the Coleharbor Formation is the Sentinel Butte Formation. There are three water-bearing units of interest for monitoring. The upper confining layer consists mainly of shale and mudstone, with some sandstone, siltstone, and Hagel Bed lignite. This layer has perched groundwater. The Hagel Bed coal is mined from the area prior to landfill cell construction. Disposal cell sidewalls adjacent to any remaining coal are thickened to reduce the chance of leachate migration. The water table in the aquifer beneath the landfill has approximately 70 feet of low permeability clay and about 100 feet of total separation from the bottom of the cells. Groundwater flow is generally west to east. One well has been identified at a homestead approximately 3,000 feet from the landfill boundary. The lower confining layer has not been adequately characterized with borings and was not included in the proposed environmental monitoring network.

d. Soil survey and segregation of suitable plant growth material;

The pre-application submitted to the Department in October 2011 contained a high intensity soil survey prepared for an approximately 10,000-acre area for BNI Coal as a partial fulfillment of the reclamation requirements for obtaining a surface mining permit. The area is first mined by BNI Coal before development into a solid waste management unit. BNI Coal maintains control of all soil stockpiles during construction and operation of the solid waste units.

The engineering report drawings show soil stockpiles controlled by BNI Coal that are associated with existing Cells 1, 2 and 3. As the area for Cells 4, 5 and 6 were mined, BNI Coal created soil stockpiles. The Department has a joint policy with the North Dakota Public Service Commission, "Policy Memorandum No. 15 to Mine Operators," dated January 13, 1999. This joint policy states, in part:

"Therefore, before granting final bond release on mined areas used for long-term waste disposal activities, the Commission will require a showing that sufficient topsoil and subsoil have been set aside to provide a total respread thickness of at least 24 inches of soil for sites where the cover material is non-sodic spoil and 36 inches where the cover is sodic spoil, with a minimum topsoil thickness of 8 inches."

e. Demonstrations of capability to fulfill the general facility standards of section 33.1-20-04.1-02;

The permit application included a detailed Landfill Plan of Operations which addresses the requirements of this section. Additional information can be found in **g. The plan of operation of section 33.1-20-04.1-03** section of this memo.

f. Facility engineering specifications adequate to demonstrate the capability to fulfill performance, design, and construction criteria provided by this article and enumerated in this subdivision;

1) Transfer stations and drop box facilities, section 33.1-20-04.1-06.

The requirements of this section are not applicable as the facility is not proposing a transfer station or a drop box facility.

2) Waste piles, section 33.1-20-04.1-07.

The requirements of this section are not applicable as the facility is not proposing to manage any waste piles.

3) Resource recovery, section 33.1-20-04.1-08.

The requirements of this section are not applicable as the facility is not proposing any resource recovery activities.

4) Land treatment, section 33.1-20-04.1-09 and chapter 33.1-20-09.

The requirements of this section are not applicable as the facility is not proposing a land treatment facility.

5) Non-CCR surface impoundments, section 33.1-20-04.1-09 and chapter 33.1-20-08.1.

The requirements of this section are not applicable as the facility is not proposing any non-CCR surface impoundments.

6) Any disposal, section 33.1-20-04.1-09.

The permit application included a detailed Landfill Plan of Operations which addresses the requirements of this section. Additional information can be found in **g. The plan of operation of section 33.1-20-04.1-03** section of this memo.

7) Inert waste landfill, chapter 33.1-20-05.1.

The requirements of this section are not applicable as the facility is not proposing an inert waste landfill.

8) Municipal waste landfill, chapter 33.1-20-06.1.

The requirements of this section are not applicable as the facility is not proposing a municipal waste landfill.

9) Industrial waste landfill, chapters 33.1-20-07.1 or 33.1-20-10.

The requirements of this section are not applicable as the facility is not proposing an industrial waste landfill.

10) TENORM waste landfill, chapters 33.1-20-07.1 or 33.1-20-10 and 33.1-20-11

The requirements of this section are not applicable as the facility is not proposing a TENORM waste landfill.

11) Special waste landfill, chapter 33.1-20-07.1;

The requirements of this section are not applicable, because the application is not proposing a non-CCR special waste landfill.

12) CCR unit, chapter 33.1-20-08;

Location Standards

The CCR unit is subject to the following location restriction requirements:

- Placement above the uppermost aquifer. The base liner system for the CCR unit is above the upper limits of the uppermost aquifer and no intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer exists.
- Wetlands. The CCR unit is not located in wetlands.
- Fault areas. The CCR unit is not located within 200 feet of a fault which has had displacement in Holocene time.
- Seismic impact zones. The CCR unit is not located in a seismic impact zone.
- Unstable areas. The CCR unit is not located in an unstable area.

The location standards for the CCR unit were certified by a registered Professional Engineer (PE) on August 27, 2018.

Design Criteria

The CCR unit (Cells 3 – 6) has or will have a base composite liner. The upper component consists of a 60-mil HDPE geomembrane liner, and the lower component is a minimum of four feet of compacted clay. A composite liner was constructed in Cells 3, Cell 4, and Cell 5. Cell 6 will be constructed similarly in the future. The liner design was certified by a registered PE on June 23, 2022, and construction certification will be provided as required.

Emergency Action Plans were included in the application for Cells 3 and Cell 4. The plans were certified by a registered PE and signed on August 15, 2018, and April 12, 2022 respectively.

A Periodic Safety Factor Assessment for Cell 3 was included in the application and certified by a registered PE on September 15, 2021.

A Periodic Structural Stability Assessment for Cell 3 was included in the application and was certified by a registered PE on September 24, 2021. A Periodic Structural Stability Assessment for Cell 4 was included in the application and was certified by a registered PE on September 13, 2023.

An initial hazard potential classification for Cell 4 was provided with the application and certified by a registered PE on September 28, 2018. Based on that document, the Cell 4 CCR unit is classified as a significant hazard potential CCR surface impoundment.

An initial safety factor assessment for Cell 4 was provided with the application, and it was certified on by a registered PE on October 10, 2018.

Liner documentation for Cell 3 and Cell 4 was included in the application and were certified by a registered PE on October 13, 2016, and July 13, 2018, respectively.

Liner documentation for Cell 5 up to elevation 2080 was included with the application and was certified by a registered PE on October 30, 2023.

Operating Criteria

The application included operating criteria for the CCR unit.

The CCR *Fugitive Dust Control Plan* submitted with the application was certified by a registered PE on July 26, 2023.

The *Run-on and Run-Off Control System Plans* were certified by a registered PE on December 20, 2023.

Inflow Design Flood Control System Plans were included in the application for the CCR surface impoundments for Cells 3, 4, and 5 and were all certified by a registered PE.

Inspection and reporting requirements are included in the application. Qualified on-site personnel will inspect the facility weekly, and a qualified PE will inspect the facility annually. Inspection results are to be maintained within the facility's

operating record. The Annual Surface Impoundment Inspection reports for Cells 2, 3, 4, and 5 can be viewed on-line at Minnkota Power's publicly available website.

Ground Water Monitoring and Corrective Action

A Groundwater Monitoring System Plan was submitted with the application, and it was certified by a registered PE on August 13, 2025.

Minnkota Power monitors nine groundwater wells:

- Upgradient: 2015-1, 2015-2, and 2018-2
- Downgradient: 2015-3, 2015-4, 2015-5, 2016-1, 2018-1, and 2023-1.

Monitoring wells 92-3, and 95-4 are used to monitor groundwater downgradient of Cell 1 which is a non-CCR unit.

A groundwater statistical analysis plan was submitted with the application and was certified by a registered PE on June 24, 2022.

The groundwater monitoring conducted since the facility was developed has shown no evidence of a release.

Closure and Postclosure Care

A CCR landfill closure plan for Cell 2 was provided with the application, and it was certified by a registered PE on October 13, 2016. The final cover will consist of top down:

- Vegetative cover consisting of six inches (minimum) of SPGM
- 12 inches of SPGM subsoil
- 18 inches of compacted soil material with a saturated hydraulic conductivity of 1×10^{-7} cm/sec
- A buffer layer over the subgrade soils if needed.

Cell 2 will contain approximately 3.5 million cubic yards of CCR.

A CCR closure plan for existing surface impoundment Cell 3 was provided with the application, and it was certified by a registered PE on December 8, 2025. The final cover will consist of top down:

- Vegetative cover consisting of six inches (minimum) of SPGM
- 12 inches of SPGM subsoil
- 18 inches of compacted soil material with a saturated hydraulic conductivity of 1×10^{-7} cm/sec
- A buffer layer over the subgrade soils if needed.

Cell 3 will contain approximately 3.4 million cubic yards of CCR.

A CCR closure plan for existing surface impoundment Cell 4 was provided with the application, and it was certified by a registered PE on December 8, 2025. The final cover will consist of top down:

- Vegetative cover consisting of six inches (minimum) of SPGM
- 12 inches of SPGM subsoil
- 18 inches of compacted soil material with a saturated hydraulic conductivity of 1×10^{-7} cm/sec
- A buffer layer over the subgrade soils if needed

Cell 4 will contain approximately 3.0 million cubic yards of CCR.

The final cover for Cells 2 – 4 will be sloped at 5% grades towards the perimeter embankment.

A CCR closure plan for existing surface impoundment Cell 5 was provided with the application, and it was certified by a registered PE on December 8, 2025. The final cover will consist of top down:

- Vegetative cover consisting of six inches (minimum) of SPGM
- 12 inches of SPGM subsoil
- 18 inches of compacted soil material with a saturated hydraulic conductivity of 1×10^{-7} cm/sec
- A buffer layer over the subgrade soils if needed

Cell 5 will contain approximately 4.5 million cubic yards of CCR and cover a surface area of approximately 34 acres, the largest area ever requiring final cover at any time during the CCR unit's active life.

The final cover for Cell 5 will be sloped at 5% grades towards the perimeter embankment.

A post-closure care plan for Cell 1, a non-CCR unit, was included in the application. Monitoring and maintenance activities are proposed for a period of thirty years from the date of final closure.

The application included post-closure care plans for each of the cells. Monitoring and maintenance activities will be conducted for a period of thirty years from the date of final closure. The post-closure care plans were certified by a registered PE on the following dates:

- Cell 2 – October 13, 2016
- Cell 3 – August 27, 2018

- Cell 4 – August 27, 2018
- Cell 5 – October 23, 2023

Recordkeeping, Notification, and Posting of Information to the Internet

Minnkota Power maintains a copy of the most recent version of the CCR fugitive dust control plan in the facility's operating record. The initial plan and any successive amendments will be made publicly available on their website once they are placed in the facility's operating record.

The annual report is prepared and submitted to the Department by March 1st of each year for the previous calendar year. The annual report will cover the following:

- The permit number, name, and address of the Facility
- The year covered by the report
- The approximate quantity of each type of waste disposed
- The remaining capacity for disposal of waste at the Facility
- An assessment of the adequacy of the closure, post-closure care, and contingency action plans
- Identification of occurrences and conditions that prevented compliance with the permit or required corrective actions
- A summary of Facility personnel training activities

A recordkeeping inspection was conducted as part of this review, and Minnkota Power provided each of the requested documents as required and showed that the operating record is complete. As required, Minnkota Power has a CCR Rule Compliance Data & Information internet web site that includes information on location restrictions, design criteria, operating criteria, groundwater monitoring, and closure and post closure care information.

13) Municipal solid waste ash landfills, chapter 33.1-20-10;

The requirements of this section are not applicable as the facility is not proposing a municipal solid waste ash landfill.

14) Regulated infectious waste unit, chapter 33.1-20-12;

The requirements of this section are not applicable as the facility is not proposing a regulated infectious waste unit.

g. The plan of operation of section 33.1-20-04.1-03;

A plan of operation for the facility was included with the application. The primary wastes accepted at the facility consist of CCR including FGD, fly ash and bottom ash generated at the Milton R. Young Station power plant and other low-volume wastes including:

- Asbestos and asbestos containing wastes
- Asphalt/concrete
- BNI stormwater pond cleanings
- Boiler cleaning waste
- Coal yard clean up soils
- Contaminated soil from spills
- Demolition debris
- Digested or sterilized sewage treatment sludge
- Miscellaneous non-hazardous plant trash
- Sand blast media
- Scrap lumber
- Small quantities of liquid waste which will be solidified with fly ash
- Spill cleanup material
- Stormwater pond cleanings
- Various non-hazardous wastewaters
- Waste lime and coal
- Water treatment sludge

The plan of operation states that asbestos and asbestos-containing material are generated at times at the Milton R. Young Station power plant. They are properly abated and disposed of in the dry waste portion of the CCR unit. Upon placement of the asbestos and asbestos-containing material in the cell, it is immediately covered. Care is taken to avoid further disturbance, and records are stored in the facility's operating record.

The plan of operation also addresses the following:

- Waste handling procedures
- Dust control procedures
- Facility inspection and reporting requirements
- Contingency action plan
- Leachate removal system
- Sequential partial closure procedures

h. Demonstration of the treatment technology of section 33.1-20-01.1-12;

The requirements of this section are not applicable as the facility is not proposing to treat waste.

i. The place where the operating record is or will be kept, section 33.1-20-04.1-04;

The operating record is kept at Minnkota Power Milton R. Young Station.

j. Demonstration of capability to fulfill the groundwater monitoring, sections 33.1-20-08-06 or 33.1-20-13-02;

A *Groundwater Monitoring Plan* was submitted with the permit application. Please see section **12) CCR unit, chapter 33.1-20-08** of this memo for additional details.

k. Construction quality assurance and quality control;

A construction quality assurance manual was submitted with the application, and it addresses the requirements of this section.

l. Demonstrations of capability to fulfill the closure standards, section 33.1-20.1-04.1-05 and otherwise provided by this article;

A Closure Plan was submitted with the permit application. Please see section **12) CCR unit, chapter 33.1-20-08** of this memo for additional details.

According to the application the maximum allowable active area is 115 acres.

m. Demonstrations of capability to fulfill the postclosure standards, section 33.1-20-04.1-09 and otherwise provided by this article; and

A Post-Closure Plan was submitted with the permit application. Please see section **12) CCR unit, chapter 33.1-20-08** of this memo for additional details. The total estimated post-closure cost for 30 years of post-closure care is \$1,932,000.00.

n. A disclosure statement as required by North Dakota Century Code section 23.1-08-17.

A disclosure statement that meets the requirements of this section was submitted to the Department.

Conclusion

Based on the submitted application and items discussed above, Minnkota Power Cooperative, Inc. has shown that the modification and renewal application for their coal combustion residuals waste disposal facility meets the requirements of the North Dakota Solid Waste Management Rules. It is proposed that the Department grant Minnkota Power Cooperative, Inc. a permit with the conditions listed in Permit 0159. The proposed permit length is ten years because the facility has shown that they can operate in compliance with the rules.

CRH:DAT:PVC:AQ
Attachment